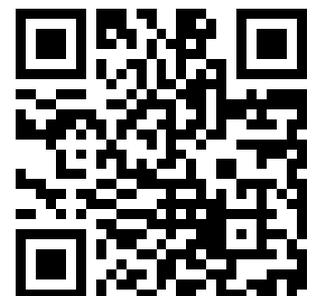

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Wild and Scenic River Study Report and Final Environmental Impact Statement

North Fork of the South Platte and the South Platte Rivers

Volume 1. FEIS

Pike and San Isabel National Forests
Comanche and Cimarron National Grasslands

JAN 23 2004
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Front Cover Photograph: South Platte River below Corral Creek



United States
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Agriculture

Forest
Service

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File Code: 1920/2300

Date: **JAN 13 2004**

Dear Reader,

Enclosed is the Final Environmental Impact Statement (FEIS) for the South Platte Wild and Scenic River Study. The study area is located in Douglas, Jefferson, Park and Teller Counties, Colorado. The study was initiated by the Forest Service under Section 5(d)(1) of the National Wild and Scenic Rivers Act, which authorizes federal agencies to conduct river studies as part of the land management planning process.

This study has had a relatively long history and, due to its close association with the controversial issue of water supply for the Colorado front range, it has seen a number of uncharacteristic features. For example:

- (1) The Draft LEIS identified two Preferred Alternatives, one of which (Alternative A2) had been neither described in detail nor analyzed in the document.
- (2) Formation of a group composed of a wide range of local interests whose purpose was to develop and propose to the Forest Service an alternative method of protecting river values that did not involve designation under the Wild and Scenic Rivers Act. The group's proposal is Alternative A2.
- (3) A Supplemental Draft LEIS describing Alternative A2 and its environmental consequences. The Supplemental Draft's Preferred Alternative differed in several important ways from the alternatives analyzed in the document.
- (4) A period of separation between the Record of Decision and the FEIS.

When this study got started in the early 1990's the environmental documents were labeled as *legislative* because of the possibility that the process would culminate in a finding that some portion of the study river would be found suitable for inclusion in the National Wild and Scenic River System. The usual sequel to such a finding is a recommendation to Congress that the suitable portions be designated as Wild and Scenic Rivers. Hence the *legislative* descriptor.

However, one of the key features of wild and scenic river studies is to explore possibilities for protecting river values short of designation. In this case it turns out that a non-designation alternative has emerged having a strong chance of success. Based on a remarkable cooperative effort by a wide range of local interests (see item #2 above), this alternative has a variety of attractive features that should be given a chance to work.

Because the Preferred Alternative identified herein involves neither a finding on suitability nor the prospect of an eventual recommendation to Congress, this document is not considered to be a *legislative* EIS.

A Record of Decision does not accompany this FEIS. The reason is that over three years have elapsed since the previous opportunity to comment occurred (issuance of the

Supplemental Draft LEIS) and important new information has become available that merits review and comment. The new information includes (1) the proposed Forest Plan amendment and (2) the Preferred Alternative. The remaining information in the FEIS has not significantly changed since the Supplemental Draft was released, and therefore comment is not being sought on it. A 60-day comment period is being provided.

Comments should be specific to the enclosed statement. In particular, comments should identify perceived violations of law, regulation or policy. Comments must be received by this office no later than close of business on April 2, 2004. Comments are to be sent to:

Forest Supervisor
Pike and San Isabel National Forests
Comanche and Cimarron National Grasslands
2840 Kachina Drive, Pueblo, Colorado 81008
Attn: South Platte Wild and Scenic River Study

Alternatively, comments may be submitted electronically to the following e-mail address:

comments-rocky-mountain-pike-san-isabel@fs.fed.us

The subject line should read "South Platte Wild and Scenic River Study". Acceptable formats for attachments are MS Word, text, or RTF. For electronically mailed comments, an automated electronic acknowledgement should normally be received from the agency as confirmation of receipt. If the sender does not receive such acknowledgement, it is the sender's responsibility to ensure timely receipt by other means.

If you have questions about this project, please contact John Hill at (719) 553-1414, or by e-mail at jjhill01@fs.fed.us.

Sincerely,



ROBERT J. LEAVERTON
Forest Supervisor

**WILD AND SCENIC RIVER STUDY
North Fork of the South Platte
and the South Platte Rivers
FINAL ENVIRONMENTAL IMPACT STATEMENT**

Douglas, Jefferson, Park and Teller Counties, Colorado

LEAD AGENCY:

USDA Forest Service

RESPONSIBLE OFFICIAL:

Robert J. Leaverton
Forest Supervisor
Pike and San Isabel National Forests
Comanche and Cimarron National Grasslands



FOR FURTHER INFORMATION:

Pike and San Isabel National Forests
Comanche and Cimarron National Grasslands
2840 Kachina Drive
Pueblo, Colorado 81008

ABSTRACT

Section 5(d)(1) of the Wild and Scenic Rivers Act, P.L. 90-542 et seq., requires all Federal agencies consider potential national wild, scenic, and recreation river areas in all planning for the use and development of water and related land resources. This study is an outgrowth of that requirement. The study area is located in Douglas, Jefferson, Park and Teller Counties, Colorado. Previous documents include the Draft Legislative Environmental Impact Statement (April 1997) and the Supplemental Draft Legislative Environmental Impact Statement (March 2000).

This *Final Environmental Impact Statement (FEIS)* documents alternatives considered in the study. The alternatives span a range of options, including variations of No Action and several combinations of river segments being suitable for inclusion in the National Wild and Scenic River System. One of the No Action alternatives is A2 (*South Platte Protection Plan*), which was developed by local stakeholder groups as a way to protect river values through cooperative management without further pursuing designation under the Wild and Scenic Rivers Act. Alternative A3 (*Modified South Platte Protection Plan*), was developed by the Forest Service to build on the A2 alternative by responding to public concerns and outlining Forest Service participation in the A2 proposal.

The Preferred Alternative is a modified version of A3, the modification being that no determination is made regarding suitability. Because the preferred alternative includes neither a finding of suitability nor a consequent recommendation that any portions of the study rivers be designated as Wild and Scenic Rivers, this document is not considered to be a legislative EIS.

A comment period is being provided, the purpose of which is to allow for review of new information contained in the FEIS, namely (1) the Preferred Alternative, and (2) the draft Forest Plan amendment, which had not been developed when the *Supplemental DLEIS* was released. Following the comment period, the Forest Service will review the comments and then issue a Record of Decision.

Comments on the *Final EIS* should be specific and address the adequacy of the statement and the merits of the alternatives discussed (Title 40 CFR Sec. 1503.3).

COMMENTS TO BE RECEIVED BY: April 2, 2004

COMMENTS TO BE SENT TO:

Robert J. Leaverton, Forest Supervisor
Pike and San Isabel National Forests
Comanche and Cimarron National Grasslands
2840 Kachina Drive, Pueblo, Colorado 81008
Attn: South Platte Wild and Scenic River Study

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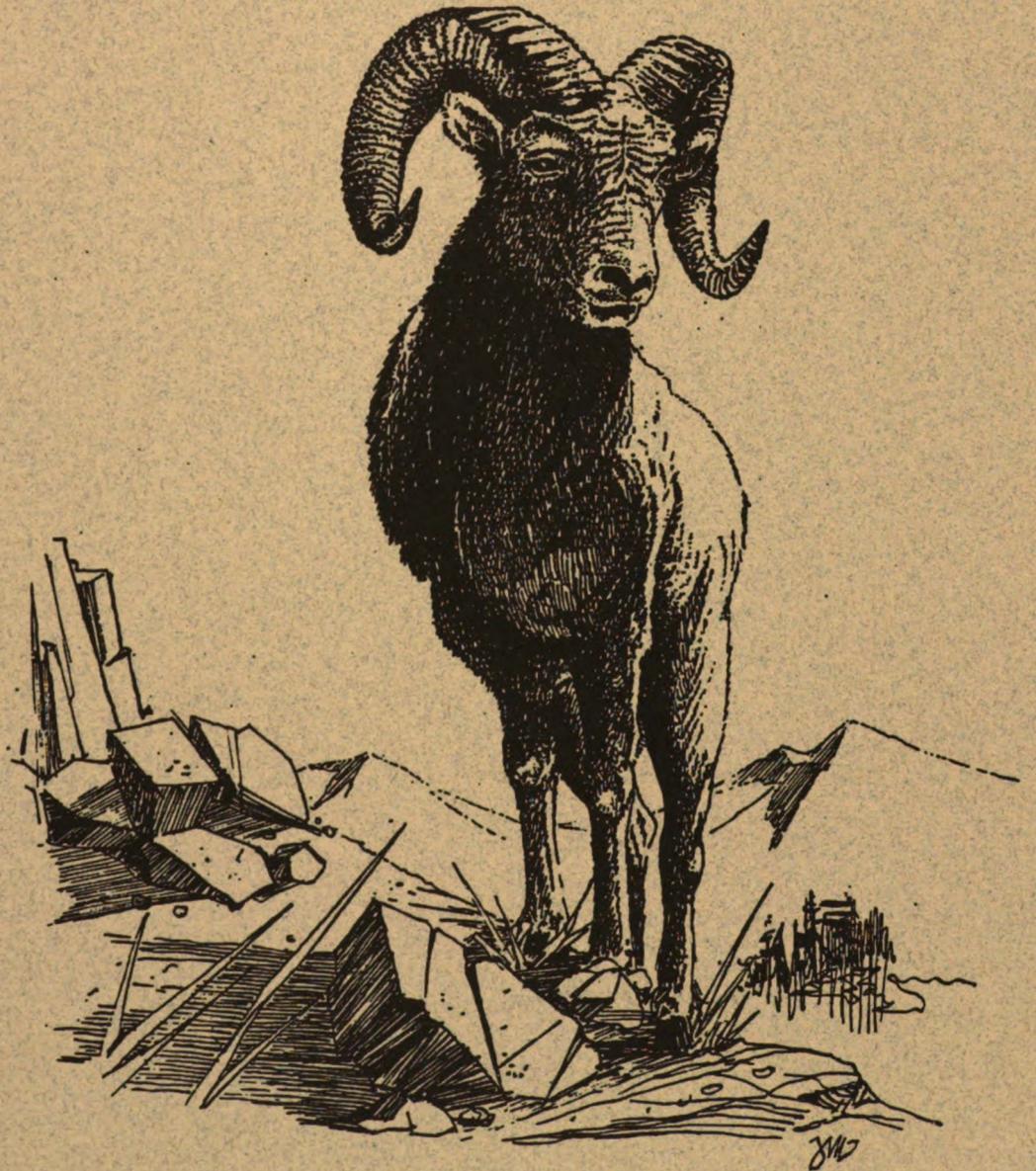
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Summary



Summary

PURPOSE OF THIS DOCUMENT

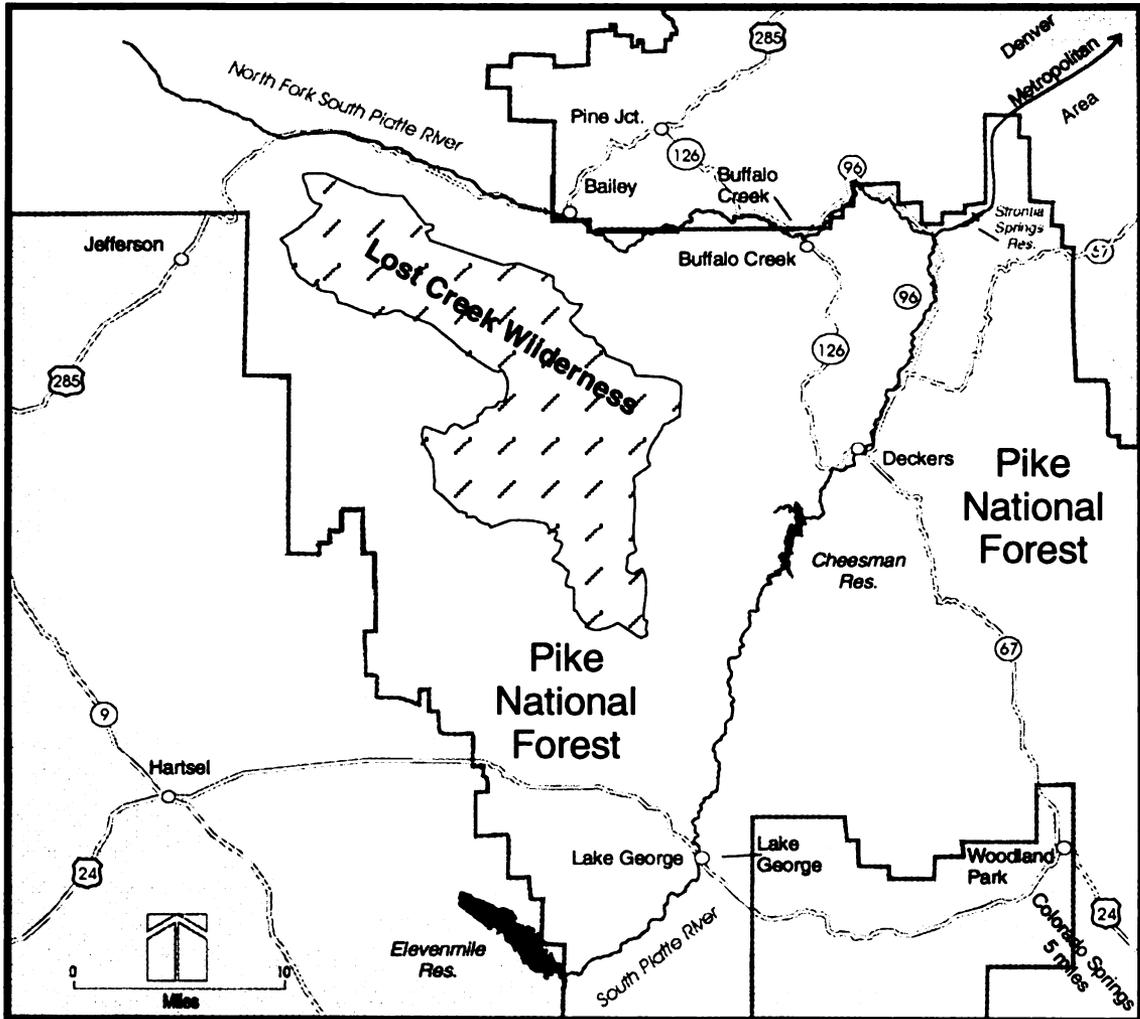
The purpose of a Wild and Scenic River study is to provide a basis for Congress to determine whether to add two rivers in Colorado into the National Wild and Scenic Rivers System (National System). The two rivers are, specifically, the North Fork of the South Platte River and the South Platte River between Elevenmile Dam and Strontia Springs Reservoir (map S-1). The decision to study them for possible inclusion into the National Wild and Scenic Rivers System was reached through the forest planning process under section 5(d)(1) of the Wild and Scenic Rivers Act (WSRA). This document includes the eligibility and suitability studies for 99.5 miles of river, including the North Fork of the South Platte River and segments of the South Platte River; it combines material presented in the *Draft Legislative Environmental Impact Statement* (DLEIS), released in April 1997, and the *Supplemental Draft Legislative Environmental Impact Statement* (SDLEIS), released in March 2000.

All of the South Platte River study corridor and much of the North Fork of the South Platte River study corridor lie within the boundaries of the Pike National Forest (National Forest). Both areas, however, include many private and local government inholdings. The study corridors also contain a 6.6-mile stretch of the North Fork of the South Platte River that lies outside the National Forest boundary. This section is mostly in private ownership but includes some public lands managed by Denver Board of Water Commissioners (Denver Water) and Jefferson County Open Space.

This document serves two purposes: it is a Wild and Scenic River study report and a final environmental impact statement (FEIS), both developed by the USDA Forest Service (Forest Service) in accordance with the requirements under the National Environmental Policy Act (NEPA) (Title 40 CFR, parts 1500-1508). It should be noted that the draft statements were titled *legislative* environmental impact statements (LEIS). The regulations developed by the Council on Environmental Quality for implementing NEPA specify that a study be documented in a LEIS, rather than an environmental impact statement (EIS), if a recommendation to Congress goes forward, because Congress, rather than a Federal agency, would make the final decision on designation. An LEIS is a detailed statement similar to an EIS, and it accompanies and supports a recommendation sent to Congress by the President. Since this FEIS does not contain a recommendation either for or against designation, it will not be forwarded to Congress and is no longer a LEIS.

This study originated as joint effort between the Forest Service (U.S. Department of Agriculture) and the Bureau of Land Management (BLM) (U.S. Department of the Interior). In 2001, the BLM transferred Federal management of 29 acres on the North Fork to Jefferson County, thus relinquishing responsibility for involvement in the study.

Vicinity Map



Land Ownership

- Within National Forest Boundary
- Outside National Forest Boundary

Roads and Highways

- State Highways
- U. S. Highways

Map S-1.—South Platte River and North Fork of the South Platte River Wild and Scenic River Study, Vicinity Map.

OVERVIEW OF THE WILD AND SCENIC RIVERS ACT

The National Wild and Scenic Rivers Act (Public Law 90-542 *et seq.*) was passed in 1968 to balance river development with river protection. In the WSRA, Congress declared that:

“ . . . certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and . . . shall be protected for the benefit and enjoyment of present and future generations.”

CURRENT MANAGEMENT OF THE STUDY CORRIDOR

National Forest System lands in the study corridors are managed in accordance with the *Land and Resource Management Plan for the Pike and San Isabel National Forests, Comanche and Cimarron National Grasslands* (Forest Plan), approved in November 1984. Pending the outcome of the suitability analysis, Segments A, B, and C in the South Platte study corridor (map S-2) are included in a special management area under the Forest Plan. The special management area, called the “Scenic River Corridor,” provides additional protection to preserve the characteristics that made the segments eligible for potential Wild and Scenic designation. Similarly, Segments D and E on the mainstem and Segment H on the North Fork are protected under an interim management plan, which can be found in the eligibility determination (Appendix D, p. 24-25). Attributes being protected include the stream’s free-flow, its water quality, and its outstandingly remarkable values (ORVs). The special protection will continue until the study river either is added into the Wild and Scenic River System or is found *not suitable* for such designation by the Forest Service, the U.S. Department of Agriculture, or Congress.

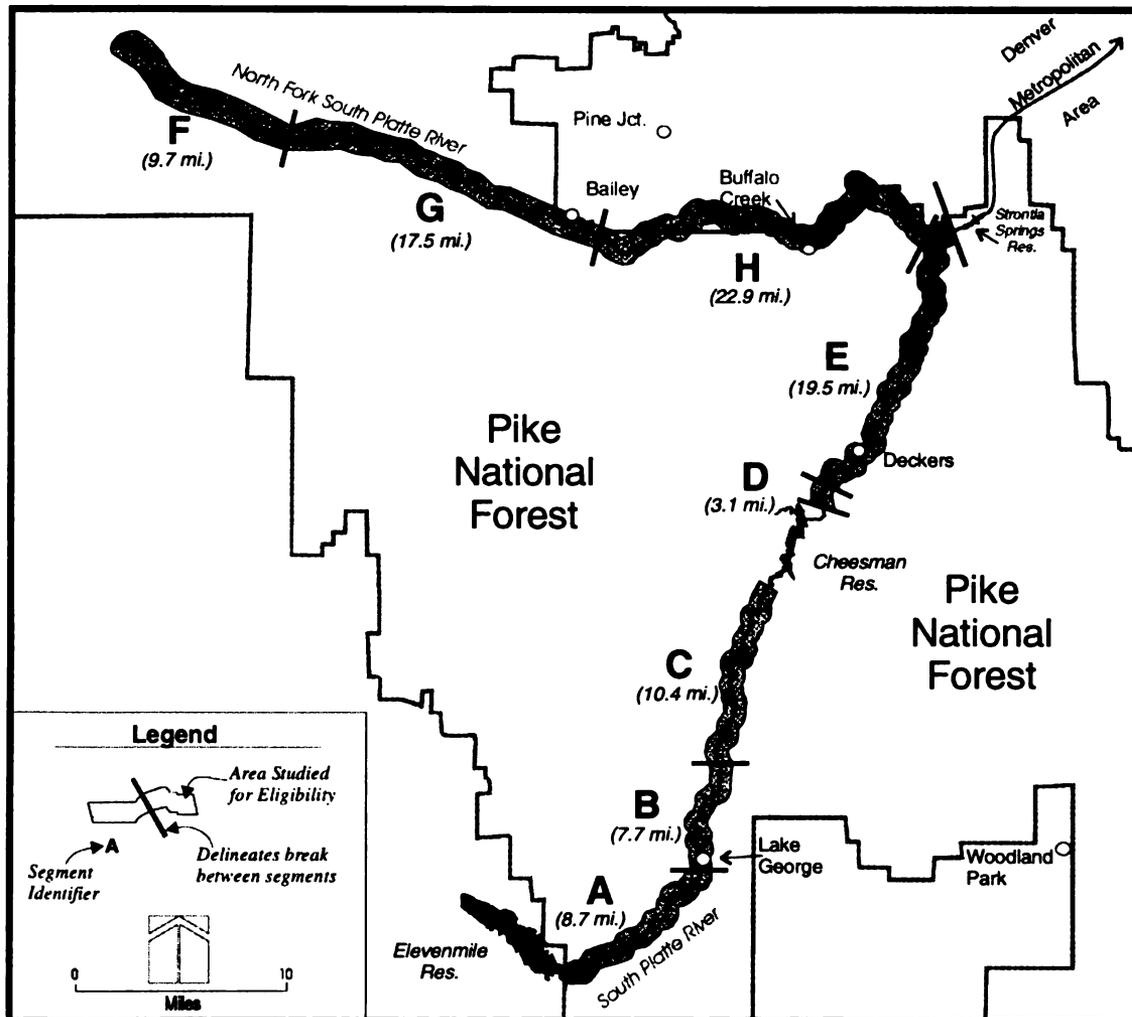
If a Wild and Scenic designation is approved, the interim direction would be replaced by a “River Management Plan”; if it isn’t approved, the management of the area would be released from special protection and would revert back to the general provisions of the Forest Plan

Management practices under the current Forest Plan vary greatly by river section, but they generally emphasize developed and semi-primitive recreation opportunities, wildlife habitat needs, forage and cover on big game winter ranges, and productive tree stand management.

Private lands consist mostly of rural residential property. There are several small towns and communities scattered within the study segments. The North Fork corridor includes 545 acres of an 884-acre open space park, Pine Valley Ranch, owned by Jefferson County. It also includes 29 acres of land formerly managed by the Bureau of Land Management under its *Northeast Resource Area Management Plan*. These acres were transferred to Jefferson County in 2001. The area is managed primarily to protect a peregrine falcon nesting site and, secondarily, for dispersed recreation. A few ranches with grazing and irrigated hay fields are present in the upper portions of the North Fork study corridor and just north of Lake George on the South Platte.

After the Forest Service, Denver Water is the next largest land manager or owner in the area. Denver Water's lands are managed for water delivery, dispersed recreation, summer-home rentals, and resource protection to ensure high water quality. Over many years, Denver Water had acquired most of the non-Federal land along the South Platte from Deckers to the North Fork confluence and along the North Fork from the confluence to Ferndale in anticipation that these lands would be inundated by its planned Two Forks Reservoir (U.S. Army Corps of Engineers, 1988a). Plans for the Two Forks Project were abandoned indefinitely, however, after a 1989 ruling by the

River Segments Studied for Eligibility



Map S-2.—South Platte River and North Fork of the South Platte River Wild and Scenic River Study, River Segments Studied for Eligibility.

Environmental Protection Agency that the project would violate the Clean Water Act.

PUBLIC INVOLVEMENT

After the stream segments were determined to be eligible for possible inclusion into the Wild and Scenic Rivers System, the Forest Service undertook an extensive public involvement program to ensure that the alternatives would consider the concerns of landowners; local

residents; permittees; water resource developers; water users in the Denver metropolitan area; Douglas, Jefferson, Park, and Teller Counties; the States of Colorado, Kansas, and Nebraska; and others having a stake in how the river is managed. The public involvement program consisted of open houses, meetings, newsletters, mailings to interested parties, and ongoing informal meetings with any party requesting briefings.

On November 16, 1995, a notice of intent was published in the *Federal Register* (vol. 60,

No. 221, p. 57571) to announce that an LEIS and Wild and Scenic River Study Report would be prepared and that written comments and suggestions were invited. In addition, interested parties were mailed a newsletter and invitations to public meetings.

The Forest Service conducted eight public scoping meetings between December 10, 1995, and March 14, 1996. The meetings took place in Bailey, Colorado Springs, Deckers, Denver, and Lake George, Colorado, and were attended by about 400 people. All of these meetings were advertised in local and regional media and by direct mailings. In some remote areas, perceived to be underserved by media, posters located where community members were likely to see them, such as Post Offices and general stores, also advertised the meetings. Many of these meetings were covered by local and regional mass media (newspapers and radio). In addition, upon request, the Forest Service conducted about 25 briefings for county governments, water providers, citizen groups, landowner associations, and environmental groups.

Informational materials were mailed out four times:

1. During the issue identification process, to inform people about the study and request comments on the eligibility and classification determinations.
2. At the start of the suitability determination, to let people know about open houses and to request their issues and concerns.
3. Before the second round of open houses, to solicit comments on preliminary alternatives and gather additional issues and concerns.
4. After the DLEIS was published, to announce its availability.

These mailings were designed to make sure as many people as possible were informed about the study and how to make their views

known. The mailings reached more than 2,600 people, including those owning land in or adjacent to the study river corridors; river users; grazing permittees; businesses related to the river corridor; recreationists; water providers; water users; local, State, and Federal agencies; interested parties; and others who requested to be kept informed of the study's progress.

Periodic briefings were also presented for Arapahoe, Douglas, Jefferson, Park, and Teller County officials; Denver Water; and U.S. congressional delegations beginning in November 1995. In response to requests, presentations were also made to each county commission, the Metropolitan Water Providers, the Suburban Water Suppliers' Wild and Scenic Task Force, several county planning departments, and a variety of organizations in eastern Colorado. Additional issues, concerns, and opinions were brought up at these meetings and incorporated into the scoping process.

The DLEIS was published in April 1997, and a notice of availability was published in the *Federal Register* (vol. 62, No. 70, p. 17810) at the same time. During the 90-day comment period following release of the DLEIS, the Forest Service received letters and comments from about 324 people and a petition bearing 147 signatures. At the time the document was released, local stakeholders were beginning to develop a non-designation protection plan for the river. This was included in the DLEIS as Alternative A2, although it had not been fully developed at the time.

Following release of the draft, the local stakeholder groups organized under the leadership of the Denver Water Board and the Suburban Water Providers' Wild and Scenic Task Force to develop the details of the A2 alternative. Seventy-three agencies and interest groups were invited to participate in the planning process. (See Appendix A for the full list of participants.) Four work groups were established to focus on different aspects of Alternative A2, including:

1. Flow management;
2. Water quality;
3. Recreation, scenery and wildlife; and
4. The endowment fund.

Once each work group developed a draft plan, an overall group, the Synthesis Committee, put all the pieces together into one package. About 46 meetings were conducted over an 8-month period. In addition, three large public meetings were held at the beginning, middle, and end of the process to get comments from the general public and to allow participants in individual work groups to hear what other groups were doing.

Interest group representatives participated in the planning process with the understanding that their participation did not mean they necessarily supported the plan developed. Each group maintained its right to agree or disagree with the final product, but all participated with the intent of finding the best solution to their differences. When the final alternative, entitled the "South Platte Protection Plan" (SPPP), was submitted to the Forest Service, each group was asked to submit a letter of support directly to the Forest Service. The Forest Service received 47 letters with overall mixed support for the SPPP.

The Forest Service sent out a public mailing in October 1998 to announce (1) a review of the SPPP and (2) its decision to prepare a Supplemental Draft LEIS (SDLEIS). The letter included a list of issues and concerns about the SPPP raised by the public or by Forest Service specialists. These focused on the SPPP's adequacy in protecting the streams' ORVs, water quality, and free-flow.

The Forest Service held a public meeting in February 1999 to discuss the issues and concerns about the SPPP and to present ideas for a modified SPPP alternative. Several individual meetings followed this with interested groups to clarify the issues and concerns and to discuss options for addressing the concerns in

another alternative. Concurrent with these meetings, the mailing list was updated, and all interested parties were informed of new developments.

The A2 alternative was amended by the stakeholder groups in response to concerns that the Streamflow Management Plan did not adequately address impacts from high flows.

The SDLEIS was released for a 90-day comment period in March 2000. The Forest Service received 232 individual comments during this period. In addition to the mailing list, the document was also posted on the South Platte Ranger District website. The Forest Service also held public workshops in Bailey, Deckers, Lake George, and Denver during the comment period. All of these meetings were advertised in local and regional media and by direct mailings. As had been done for the scoping meetings, posters located in places such as Post Offices and general stores, where community members were likely to see them, also advertised the workshops. A total of 61 people attended these workshops. Local and metropolitan media also covered the workshops and reported on the status of the study. Individual group meetings and periodic project briefings were also presented for various interest groups and government agencies as requested.

In response to concerns by the Forest Service and various stakeholders, the groups that participated in the development of the SPPP, the A2 alternative, developed supplemental material that addresses unanswered questions in the original document, including provisions for enforcing the tenets of the SPPP and water development under a non-designation scenario. As they had done during the development of the original SPPP, members of a Forest Service interdisciplinary team observed the A2 development process to provide expertise on technical resource information, agency procedures, and the provisions of the WSRA.

Denver Water held public hearings to address the contents of the supplemental material in

April 2001 in Denver and Deckers. The material was submitted formally to the Forest Service on June 5, 2001. The Forest Service received nine letters of support for the SPPP from local and State agencies and from organizations with an interest in management of the rivers' values. The letters specified that their support be based on the premise that the supplemental material would be included in a FEIS.

The Forest Service conducted mailings in November 2000 and December 2001 to update the constituency and update the mailing list pending distribution of this FEIS.

SUMMARY OF THE STUDY PROCESS

COMPONENTS OF A WILD AND SCENIC RIVER STUDY

The WSRA and guidelines identify three components of a Wild and Scenic River Study: the eligibility determination, the classification analysis, and the suitability determination. All three components are documented in this evaluation.

Determination of Eligibility

The purpose of determination of eligibility is to analyze if the rivers meet the minimum requirements for addition to the National Wild and Scenic Rivers System. To be eligible for inclusion in this system, a river must be free-flowing and must also possess at least one "outstandingly remarkable value" (ORV). All of the South Platte Study segments (A, B, C, D, and E) and Segment H of the North Fork (map S-2) meet the minimum eligibility requirements as specified by the WSRA. They are found to be free-flowing and to have at least one ORV.

Eligible segments possess ORVs as listed below:

Segment A: Scenic, recreational, geological, fisheries. The 8.7-mile section of the South Platte River from Elevenmile Dam (downstream from the fence on Denver Water's special use area) downstream to the southern end of the private lands south of Lake George (from SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 20, T. 13 S., R. 72 W. to SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 31, T. 12 S., R. 71 W.).

Segment B: Fisheries. The 7.7-mile segment of the South Platte River from the southern end of the private lands south of Lake George to the north end of the private lands near Beaver Creek (from SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 31, T. 12 S., R. 71 W. to SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 33, T. 11 S., R. 71 W.).

Segment C: Scenic, geological, fisheries, wildlife. The 10.4-mile segment of the South Platte River from the north end of the private lands near Beaver Creek to the high water line of Cheesman Reservoir (upstream of the stream gage) (from SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 33, T. 11 S., R. 71 W. to SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 23, T. 10 S., R. 71 W.).

Segment D: Recreational, fisheries, wildlife. The 3.1-mile segment of the South Platte River from below Cheesman Dam downstream to the upstream boundary of the Wigwam Club property (from NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 6, T. 10 S., R. 70 W. to SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 29, T. 9 S., R. 70 W.).

Segment E: Recreational, fisheries, wildlife. The South Platte River from the upstream boundary of the Wigwam Club property downstream to the high water line of Strontia Springs Reservoir (19.5 miles) (from SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 29, T. 9 S., R. 70 W. to SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 29, T. 7 S., R. 69 W.).

Segment H: Recreational, wildlife, cultural. The 22.9-mile segment of the North Fork of the South Platte River from the upstream boundary of the Berger property near Insmont, downstream to within a quarter mile of its confluence with the South Platte River

(from SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 33, T. 7 S., R. 72 W. to SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 25, T. 7 S., R. 70 W.).

Segments F and G: The 27.2 miles of the North Fork of the South Platte River, from its headwaters to the upstream boundary of the Berger property near Insmont. These segments are found neither to be free-flowing nor to possess any ORVs. They are, therefore, ineligible for inclusion in the National Wild and Scenic Rivers System.

The Classification Analysis

The classification analysis studies patterns of developed and natural areas in the corridors of eligible rivers to determine whether the rivers would be classified as *wild*, *scenic*, or *recreational* if they are added to the National System. The rivers' inventoried classifications are listed in Chapter 3, table 3-4.

The Suitability Determination

The determination of suitability is designed to analyze whether eligible rivers are appropriate additions to the National System. The analysis compares alternative ways of managing the river corridors, including at least one alternative involving Federal designation of all eligible river segments and one alternative involving non-designation. Suitability considerations include the environmental consequences of designation and the manageability of the river if it is designated, including costs and the willingness of local and State governments to participate in river corridor management.

KEY STUDY ISSUES

Several key issues guided the development and evaluation of the North Fork of the South Platte and the South Platte River study alternatives. Issues were identified through the public involvement process by an interdisciplinary team of Bureau of Land Management and Forest Service resource specialists for issues identified during the scoping process prior to release of the *DLEIS*.

Additional issues were identified by a Forest Service interdisciplinary team, which observed development of the SPPP, the A2 alternative. The key study issues identified during the scoping process were wildlife, fisheries, recreation, social and economic considerations, scenery, geology, cultural resources (including archeological resources), water developments (construction of dams or diversions for water storage), and landowner rights. An additional issue identified during development of the A2 Alternative was implementation and enforcement of the SPPP. See Chapter 4 for a discussion of the issues.

SUMMARY OF ALTERNATIVES CONSIDERED

Note that a map for each alternative is presented in Chapter 4, "Issues and Alternatives."

ALTERNATIVE A1

This is the "no action" or "no change" alternative. It describes the existing situation and serves as a baseline to evaluate the other alternatives. Under this alternative, current management of the river corridors would continue under the Forest Plan; *none* of the eligible study segments would be found *suitable* for addition to the National Wild and Scenic Rivers System or for any other special Federal designation. Adoption of this alternative would mean that no new programs, protection measures, or designations would be implemented. There would be no further efforts to coordinate management activities in the corridors beyond what currently exists.

ALTERNATIVE A2

This is the "no action with ORVs protected" alternative. It is an outgrowth of a concept originally posed as Alternative H during scoping

(see section 4.5), and it responds to an expression of interest raised by the local community to find a local solution to the challenge of protecting the rivers' ORVs. The purpose of the South Platte Protection Plan is to protect the ORVs identified by the Forest Service and preserve water supply functions without designating the river under the Wild and Scenic Rivers Act. These values are historical, fishery, geological, recreational, scenic, and wildlife resources. The SPPP also recognizes that Colorado's Front Range communities rely heavily upon the South Platte for drinking water supply and other municipal and industrial uses and that agriculture throughout northeastern Colorado depends heavily on South Platte flows. The ORVs must be protected in the context of preserving these functions as well. The interests of all these communities can be maintained through common dialogue toward an approach in which the many values on the river—habitat, ecosystem, and human-based—can all be addressed in coordination and balance with one another. Mutual respect for the many important uses is central to the SPPP. It creates a cooperative management structure of local, State and Federal agencies. The underlying principle is no loss of existing or future water supply.

The entire text of the SPPP is in Appendix A of this document. Its major components are summarized below.

1. **Protect canyons.** A commitment *not* to build any water works facilities in Cheesman Canyon or Elevenmile Canyon.
2. **Streamflow Management Plan.** A series of commitments and goals to alter current water facility operations to protect and enhance fisheries. The following are obligations to be met by the responsible parties:
 - a. No loss of existing or future water supply.

- b. **Minimum outflows from Spinney Mountain, Elevenmile, and Cheesman Reservoirs.** The minimum streamflow will be measured at the streamflow gage directly below the reservoirs. Aurora's and Denver's operating streamflow records will be the official record of the reservoir and tunnel releases for the Streamflow Plan. These records will be available upon request. Denver's releases for minimum streamflows will be calculated by averaging the 24 "top-of-the-hour" readings 8:00 a.m. one day through 7:00 a.m. the next day. All top-of-the-hour gage readings must be no less than 80 percent of the minimum streamflow. Any daily or hourly violation will result in a penalty of \$10,000 per violation to be paid to the Endowment Fund (see No. 5 below). This is the maximum penalty per daily period. The penalty will be indexed to the Consumer Price Index and adjusted each year at the annual operating meeting. Any known failure to meet the minimum streamflow commitment will be reported to the Forest Service and the Colorado Division of Wildlife within 1 week of occurrence. Exemptions to this are:

- ◆ Minimum streamflows that are due to emergencies where public safety or dam safety are concerned and will be reported to the Forest Service.
- ◆ Severe drought conditions when Aurora's or Denver Water's customers are on mandatory water use restrictions and the combined contents of Aurora's or Denver Water's major storage reservoirs are less than 40 percent full; the minimum outflow requirement at Spinney Mountain, Elevenmile,

and Cheesman reservoirs (as appropriate) will be 20 cubic feet per second.

- ◆ The hourly minimum will not apply when reservoirs are spilling (the daily minimum still applies). Reservoir outflows may be reduced below the hourly minimum for up to 2 hours to rate, clean, and maintain the streamflow gaging stations below the reservoirs.
- c. Ramping (changing gradually) outflow changes from Elevenmile and Cheesman Reservoirs and the Roberts Tunnel.
- d. New valves, monitors, gages.
- e. Channel work on North Fork to be coordinated with Colorado Division of Wildlife.
- f. Public input to annual operating plans.
- g. Stream channel maintenance and improvement: the Forest Service, Colorado Division of Wildlife, water users, and other interested parties work together to identify degraded stream channel areas and sedimentation sources and to develop instream channel improvement projects. Develop a stream habitat improvement plan.
- h. The following represent desirable outcomes and goals for water suppliers to use as guidance in their operating decisions.
 - ◆ Operate Spinney Mountain, Elevenmile, and Cheesman Reservoirs to release stored water to maintain minimum outflow when inflow is low.
 - ◆ Operate Spinney Mountain, Elevenmile, and Cheesman

Reservoirs for outflows in an optimum range the remainder of the year.

- ◆ Operate Elevenmile and Cheesman Reservoirs outflow for optimal temperatures and ramping of daily temperature fluctuations to benefit fisheries below the dams.
- ◆ Consideration of whitewater and fisheries in Roberts Tunnel discharges, within the limitations described in the Streamflow Management Plan.
- ◆ Revise annual operating plans to limit fluctuations when the potential exists to harm vulnerable life stages of brown or rainbow trout.

Future water projects, especially those that would significantly extend bank-full stream conditions, would require an analysis by the project proponent of channel capacity related to adequate protection of fisheries habitat and populations, channel stability, and maintenance of the ecosystem. The new project proponent is responsible for any necessary analysis and channel reconstruction. Changes to channel capacity should be accomplished by physically reconstructing the channel where necessary. These alterations should be achieved by means other than flow manipulation to maintain the ORVs in the river corridor. Proposals for flow and channel modification for new projects would be reviewed by the annual operations meeting participants.

3. **Partnership for Recreation, Wildlife, Scenery, and Other Values.** A management partnership between a qualified recreation management agency and the Forest Service is proposed for the mainstem of the river, from Elevenmile Reservoir to Chatfield

Reservoir. Until the partnership is in place, the Forest Service, Denver Water, Jefferson County, and Douglas County would cooperatively manage portions of the area. The SPPP proposes recreation management by Jefferson County Open Space along portions of the North Fork, where the river flows through the park, and a special recreation area at Bailey Canyon to be managed by the Forest Service. (NOTE: The qualified recreation management agency in the SDLEIS was identified as Colorado State Parks. However, given the current economy and the budget shortfall of the State of Colorado, the involvement of State Parks in the foreseeable future appears unlikely.)

4. **Cooperative water quality initiatives** would be implemented through the Coalition for the Upper South Platte (CUSP), which is composed of interested local governments, agencies, and parties in the basin. This coalition (originally the Upper South Platte Watershed Protection Association) was triggered by this proposal but is expected to continue independent of the SPPP.
5. **Endowment.** Front Range local governments and water suppliers would contribute at least \$1 million to be spent on the values identified by the Forest Service. A board would be convened within 90 days following a decision by the Forest Service to adopt the SPPP in lieu of designation.
6. **Enhancement Board.** A coordinating forum, the Friends of the South Platte River, Inc., would provide comments and responses on activities such as land use or land management planning decisions, as well as deciding expenditures from the endowment.
7. **Withdrawal of 1986 applications for conditional storage rights.** Both Denver Water and the

Metropolitan Denver Water Authority would withdraw Water Court applications for 780,000 acre-feet of additional storage at the Two Forks reservoir site.

8. **Alternative to development of Denver's right-of-way.** Denver Water and environmental groups have proposed a working relationship that could lead to alternative projects and allow Denver Water later to relinquish its 1931 right-of-way on the South Platte at the Two Forks site. As a demonstration of good faith in pursuing alternative projects, Denver Water would voluntarily impose a moratorium on applications for development of the right-of-way for a period of 20 years from formal acceptance of the SPPP.
9. **Provision for limited development.** In addition, Denver Water and other present and future water suppliers would continue to have access to the river for operational and maintenance purposes, such as channel repair and stabilization, construction of sedimentation ponds and removal of sediment, and construction of diversion dams for off-channel reservoirs. It is expected that such projects, if any, would be accomplished in a manner compatible with the natural setting and would have no significant adverse effect on the scenic, recreational, and fish and wildlife values of the river corridor as a whole (Attachment F).

Enforcement of the SPPP would be provided by a written agreement between the Forest Service and those entities making commitments within the SPPP. The agreement shall be written in a manner to provide for enforcement through the Administrative Procedures Act by citizens or groups with standing, using remedies similar to those that would be available if a river were designated under the WSRA. The agreement should provide for public participation in the event of:

1. Significant changes to the written agreement,
2. Leases to Colorado State Parks or other major concessionaires,
3. Adoption of a recreation management plan, or
4. Changes to any existing recreation management plan.

In all such cases, the public should have the opportunity to ascertain and comment on consistency of the proposed changes with the SPPP. Further enforcement would be provided through an amendment to the Forest Plan, which would provide protection for the ORVs and related resources on National Forest System lands within the river corridor. For National Forest lands, this could include providing special management area status in the study corridor similar to what exists for the Elevenmile Canyon area.

This alternative is silent on a finding of suitability. By remaining silent, the Forest Service would continue to protect the ORVs, water quality, and free-flow on eligible segments.

Additional measures that might be employed under this alternative to further protect the ORVs would include:

- ◆ Purchase of scenic easements, exchange agreements, water rights, or rights-of-way from willing sellers, where needed, to better protect the area.
- ◆ Acquisition of properties in the study corridor from willing sellers, through purchase or exchange, to ensure better resource protection.
- ◆ County or other local government acquisition of additional properties for park or open space from willing sellers in the study corridor.

ALTERNATIVE A3: MODIFIED SOUTH PLATTE PROTECTION PLAN

As described above, both the public and the Forest Service raised issues and concerns about the South Platte Protection Plan. The Modified South Platte Protection Plan, Alternative A3, was developed to respond to those issues and concerns. Similar to alternatives A1 and A2, this alternative is silent on the issue of suitability. Alternative A3 builds on A2 Alternative by adding provisions directly related to the issues listed above. It recognizes water supply as a use of the river corridor to be continued while protecting the ORVs, water quality, and free-flow. The basic principle of no effect on water yield or supply and the multi-agency management framework are maintained. Alternative A3 is designed to more closely emulate the protection measures that would apply under a Wild and Scenic River designation utilizing existing Forest Service legal authorities. The protection measures would be effective only on National Forest lands. Non-National Forest lands would continue to be managed under the existing legal authorities implemented by other Federal, State, and local government agencies.

Major components of Alternative A3 are listed below.

1. All new dams or impoundments in the river corridor on Federal land are prohibited.
2. Any proposals for limited water development projects in the river corridor would be evaluated for potential effects to ORVs, free-flow, and water quality. The standard of review and resultant degree to which eligibility is protected would depend on which variation of A3 is assumed for analysis. See the following section on "Variations."
3. The Forest Service would work with Denver Water and the Colorado Division of Wildlife on stream reconstruction and

habitat improvement projects on the North Fork and mainstem of the South Platte River.

4. The Forest Service would work with Denver Water, the CUSP (formerly the Upper South Platte Protection Association) and other interest groups to conduct water quality restoration projects for sediment reduction and control, addressing problems caused by road maintenance, travel management, stream crossings, and degraded areas (e.g., Buffalo Creek and Hayman Fires).
5. The alternative would be implemented through a memorandum of understanding (MOU) between the Forest Service and other concerned agencies, listing the commitments of all involved parties. Citizen groups shall be involved with development of the MOU.
6. The potential interim cooperative recreation management agreement to include Forest Service, Denver Water, Jefferson County, and Douglas County would be addressed in the implementation of this decision, as part of the MOU development process.
7. All parties to the MOU, with extensive public involvement, shall coordinate management planning activities to address all river resources in an ecosystem management framework. The *Land and Resource Management Plan for the Pike and San Isabel National Forests, Comanche and Cimarron National Grasslands* (Forest Plan) shall be used for management guidance on Forest System Lands. Private landowner concerns about impacts from recreation users would be addressed in this planning effort.
8. The North Fork would be managed consistently with the Forest Plan, emphasizing big game species' winter range. Summer season dispersed recreation activities, with no road or facility development, are compatible with this management scheme.
9. The special emphasis on managing Forest lands for the benefit of the Pawnee montane skipper would continue even if the skipper's "endangered" status is downgraded to "sensitive."
10. The Forest Service would work with interest groups to develop a management plan for Wildcat Canyon (Segment C) that addresses recreation use, wildlife corridors, ORVs, and water quality protection needs.
11. For any individual projects implementing the cooperative management plan, the Forest Service shall develop an agreement with the project proponent, whether the project is conducted by the project proponent alone or cooperatively with the Forest Service.
12. Any project funded by the Friends of the South Platte River, Inc., to take place on Forest Service lands, must first be analyzed and approved by the Forest Service.
13. Third party access to enforce the finding of eligibility will be through the Forest Plan.
14. The MOU shall include provisions for citizen group involvement in periodic management reviews of the decision implementation.
15. The Record of Decision shall include indicators to be used to measure changes to free-flow, ORVs, and water quality. Indications that these values are being threatened shall be sufficient cause for the Forest Service to initiate a suitability determination.
16. The Forest Service would apply to the Bureau of Land Management to withdraw the eligible river segments from

mineral entry and development. This action, once approved, would prevent the filing of any new mining claims or location notices in this area. Existing claims would remain valid.

17. The Forest Plan would be amended as appropriate to reflect plan level aspects of Alternative A3.

Variations

The A2 process did not clearly identify whether the eligible segments were *suitable* for inclusion in the Wild and Scenic Rivers System. Suitability is a controversial topic because of its implications regarding long-term protection of ORVs and the rigidity of protection standards to be applied. In its review of the SPPP, the Forest Service found that it could not analyze the SPPP's long-term protective merits adequately without introducing the matter of suitability into the analysis. Accordingly, two variations of A3 were developed to represent a full range of suitability-related concepts for managing the South Platte and North Fork river corridors.

A3-Suitable – Under this variation, eligible river segments are found *suitable* for inclusion in the Wild and Scenic River System, but they are not recommended for designation at this time. The river corridor ORVs, free-flow, and water quality would be managed under a Federal/State/local government partnership using existing legal authorities to protect eligibility. River corridor management would be monitored and periodically reviewed to ensure continued protection. If partnership management is found to have failed—i.e., if the rivers' ORVs, free-flow, or water quality become threatened—the Forest Service would forward a designation recommendation for protection of the river corridor under the WSRA by an act of Congress. A new dam proposal in the river corridor would trigger a designation recommendation, since

the dam would be an imminent threat to the riverine character, ORVs, and free-flow.

Forest Service management standards for maintaining eligibility are in *Forest Service Handbook* 1909.12, Chapter 8, section 8.12 (See Appendix G):

1. To the extent the Forest Service is authorized under law (existing authorities only, not WSRA) to control stream impoundments and diversions, the free-flowing characteristics of the identified river cannot be modified.
2. Outstandingly remarkable values of the identified river area must be protected and, to the extent practicable, enhanced.
3. Management and development of the identified river and its corridor cannot be modified to the degree that eligibility or classification would be affected (i.e., classification cannot be changed from *wild* to *scenic* or from *scenic* to *recreational*).

A3-Not Suitable – Under this variation, eligible river segments are found *not suitable* at this time due to the need for flexibility to accommodate reasonably foreseeable future uses of the land and water which would be foreclosed or curtailed if the area were included, or found *suitable* for inclusion, in the Wild and Scenic River System. The river corridor ORVs, free-flow, and water quality would be managed under a Federal, State, and local government partnership using existing legal authorities to a standard that might be lower than one intended to maintain eligibility. River corridor resources would be monitored to ensure continued protection. If partnership management is found to have failed—i.e., if the rivers' ORVs, free-flow, or water quality become threatened unreasonably—the Forest Service could initiate a new suitability determination at that time and reconsider a designation recommendation for protection of the river

corridor under the WSRA. A new dam proposal in the river corridor would trigger a new suitability determination since the dam would be an imminent threat to the riverine character, ORVs, and free-flow.

The management standards for maintaining river corridor ORVs, free-flow, and water quality would be used as goals rather than requirements. This variation would allow flexibility for limited project development that was deemed critical enough to allow limited effects to the ORVs or free-flow. Forest Service concerns for project proposals would be the same as under the *A3-Suitable* alternative, but there would be greater flexibility and range of considerations possible under *A3-Not Suitable*. Water quality would continue to be protected and enhanced to the standards provided in the Clean Water Act and the Safe Drinking Water Act.

Any proposals for limited developments would be evaluated using the procedures in *Forest Service Manual 2354* to analyze and document potential effects to ORVs, free-flow, or water quality. The full text of *Forest Service Manual 2354* is in Appendix G of this FEIS. Project design and mitigation measures would be identified so that the project would meet the management standards above to the extent possible.

ALTERNATIVE B

Alternative B finds all eligible river segments *suitable* and recommends them for designation at their most protective classifications. The goal of this alternative is to add all eligible river segments to the Wild and Scenic Rivers System; maximize protection and enhancement of ORVs, free-flow, and water quality; and maintain system integrity. This alternative was developed as a result of concerns about how to ensure the best protection of the rivers' natural environment and ORVs. In this alternative, all of the eligible segments of the two study rivers, totaling 72.3 miles, would be recommended for

addition to the National Wild and Scenic Rivers System. Classification would be in accordance with the potential classifications as listed in table 4-2 and would total 10.5 miles *wild*, 7.9 miles *scenic*, and 53.9 miles *recreational*.

The corridor boundaries would average one-quarter mile from each riverbank; the exact boundary location would be determined as part of the management planning process after the river was designated.

ALTERNATIVE C

Like Alternative B, Alternative C finds all eligible river segments *suitable* and recommends them for designation. All segments are recommended at their most protective classification, except that the classification of the 10.4-mile segment of the South Platte River from Cheesman Reservoir to Beaver Creek would be *scenic* for its entire length. The goal of this alternative is to add all eligible river segments to the Wild and Scenic Rivers System, provide protection and enhancement of the ORVs, maintain system integrity, and follow the current Forest Plan direction. This alternative was developed as a result of concerns expressed by some stakeholders who wished to ensure protection of the river's natural environment and ORVs while allowing a wider range of natural resource management, including continued off-highway-vehicle use between Beaver Creek and Cheesman Reservoir. In this alternative, all of the eligible segments of the two study rivers, totaling 72.3 miles, would be recommended for addition to the National Wild and Scenic Rivers System. Classification would be in accordance with potential classifications as listed in table 4-3 and would total 3.1 miles *wild*, 15.3 miles *scenic*, and 53.9 miles *recreational*.

The corridor boundaries would average one-quarter mile from each riverbank; the exact boundary location would be determined as part of the management planning process after the river was designated.

ALTERNATIVE D

Alternative D finds all eligible South Platte River segments *suitable* and recommends them for designation at their most protective classification, but finds the North Fork *not suitable* for designation. The goal of this alternative is to add all eligible South Platte River segments to the Wild and Scenic Rivers System, maximizing protection and enhancement of the ORVs and maintaining system integrity. This alternative was developed as a result of concerns to ensure the best protection of the South Platte River's natural environment and ORVs. The chief assumptions underlying this alternative are that:

1. The current operations of the Roberts Tunnel might be affected by designation on the North Fork; and
2. The influence of transbasin diversions is greater on the North Fork than on the South Platte.

In this alternative, all eligible segments on the South Platte River, totaling 49.4 miles, would be recommended for addition to the National Wild and Scenic Rivers System. Classification would be in accordance with potential classifications as listed in table 4-4 and would total 10.5 miles *wild*, 3.0 miles *scenic*, and 35.9 miles *recreational*.

The corridor boundaries would average one-quarter mile from each riverbank; the exact boundary location would be determined as part of the management planning process after the river was designated.

ALTERNATIVE F

Alternative F recommends the designation of one small segment on the North Fork and four small segments on the South Platte that are entirely on National Forest System land and have no encumbrances. The goal of this alternative is to protect the ORVs while minimizing the potential and/or perceived effects of designation on private property rights

and on Denver Water's ability to exercise its 1931 right-of-way for a reservoir from the confluence of the North Fork and the South Platte to Deckers.

In this alternative, five segments of the two rivers, totaling 26.2 miles, would be recommended for addition to the National Wild and Scenic Rivers System. Only National Forest System lands within the following segments would be recommended for the classifications shown below:

- ◆ North Fork, Estabrook to Crossons — *Scenic*
- ◆ South Platte, Elevenmile Dam to Lake George — *Recreational*
- ◆ South Platte, Tappan Gulch to Vermillion Creek — *Recreational*
- ◆ South Platte, Beaver Creek and Cheesman Reservoir — *Wild*
- ◆ South Platte, Cheesman Dam to the Wigwam property — *Wild*

Classification would be in accordance with potential classifications as listed in table 4-5 and would total 10.5 miles *wild*, 5.6 miles *scenic*, and 10.1 miles *recreational*.

The corridor boundaries would average one-quarter mile from each riverbank; the exact boundary location would be determined as part of the management planning process after the river was designated.

ALTERNATIVE G

Alternative G finds all eligible segments of the South Platte upstream from the gaging station above Cheesman Reservoir (26.8 miles) *suitable* and recommends them for designation at their most protective classification. This alternative finds the North Fork and Segments D and E of the South Platte River *not suitable* for designation. The goal of this alternative is to provide protection for some of the ORVs while

lessening the potential and/or perceived effects of designation on private property rights and on Denver Water's ability to exercise its 1931 right-of-way for a reservoir from the confluence of the North Fork and the South Platte to Deckers. It also allows for continued off-highway vehicle use between Beaver Creek and Cheesman Reservoir.

The chief assumptions underlying this alternative are that:

1. The current operations of the Roberts Tunnel might be affected by designation either on the North Fork or on the mainstem between the confluence and Strontia Springs Reservoir;
2. The influence of transbasin diversions is greater on the North Fork than on the South Platte; and
3. Potential storage sites downstream from Cheesman Reservoir would be foreclosed by designation.

Classification would be in accordance with potential classifications as listed in table 4-6 and would total 7.4 miles *wild*, 3.0 miles *scenic*, and 16.4 miles *recreational*.

The corridor boundaries would average one-quarter mile from each riverbank; the exact boundary location would be determined as part of the management planning process after the river was designated.

ALTERNATIVE I

Alternative I recommends a *scenic* designation for the 6.0-mile stretch of the South Platte River from Corral Creek to Beaver Creek and a *recreational* designation for the 16.4-mile stretch of the South Platte from Beaver Creek to Elevenmile Dam. This alternative finds the North Fork, and Segments C3, D, and E of the South Platte River *not suitable* for designation. The goal of this alternative is similar to that of Alternative G—to protect and enhance ORVs upstream from Corral Creek while lessening the

potential and/or perceived effects of designation on private property rights and on Denver Water's ability to exercise its 1931 right-of-way for a reservoir from the confluence of the North Fork and South Platte to Deckers. This alternative also provides for the protection and enhancement of ORVs upstream from Corral Creek while allowing for the possibility of additional water storage (especially from a potential Cheesman expansion) and facilitates continued water delivery, current water operations, and channel maintenance. It also would allow the continued use of off-highway vehicles between Beaver Creek and Corral Creek.

The goal of this alternative is to designate only those South Platte River segments for which Wild and Scenic River designation would have the least potential adverse effect on water delivery and potential storage. The chief assumptions of this alternative are that:

1. The current operations of the Roberts Tunnel might be affected by designation either on the North Fork or on the mainstem between the confluence and Strontia Springs Reservoir;
2. The influence of transbasin diversions is greater on the North Fork than on the South Platte; and
3. Potential storage sites downstream from Corral Creek would be foreclosed by designation.

Classification would be in accordance with potential classifications as listed in table 4-7 and would total 6.0 miles *scenic* and 16.4 miles *recreational*.

The corridor boundaries would average one-quarter mile from each riverbank; the exact boundary location would be determined as part of the management planning process after the river was designated.

ALTERNATIVE J

Alternative J finds the North Fork and 1.3 miles of the mainstem of the South Platte River from the confluence to Strontia Springs Reservoir *not suitable* for designation but finds portions of the South Platte River from the confluence of the North Fork to Elevenmile Dam *suitable* and recommends them for designation into the National Wild and Scenic Rivers System. Recommended classifications are:

- ◆ From North Fork confluence to the Wigwam Club property — *Recreational*
- ◆ From Wigwam Club property to Cheesman Dam — *Wild*
- ◆ From Cheesman Reservoir to one-quarter mile downstream of Corral Creek — *Wild*
- ◆ From one-quarter mile downstream of Corral Creek to one-quarter mile upstream of Hackett Gulch — *Scenic*
- ◆ From one-quarter mile upstream of Hackett Gulch to Beaver Creek confluence — *Wild*
- ◆ From Beaver Creek confluence to Elevenmile Dam — *Recreational*

The goal of this alternative is to provide protection and enhancement of the ORVs and maintain the integrity of the water delivery system. This alternative was developed to balance the concerns for maintaining water delivery and storage capability with the protection of the area's natural environment and ORVs while still meeting present uses. The chief assumptions underlying this alternative are that:

1. The current operations of the Roberts Tunnel might be affected by designation either on the North Fork or on the mainstem between the confluence and Strontia Springs Reservoir;
2. The influence of transbasin diversions is greater on the North Fork than on the South Platte; and

3. The ORVs identified in Segment E are not as prevalent in the section between the confluence with the North Fork and Strontia Springs Reservoir.

In this alternative, all eligible segments on the South Platte River, except from the confluence to Strontia Springs Reservoir, would be recommended for addition to the National Wild and Scenic Rivers System. Classification would be in accordance with potential classifications as listed in table 4-8 and would total 10.5 miles *wild*, 3.0 miles *scenic*, and 34.6 miles *recreational*.

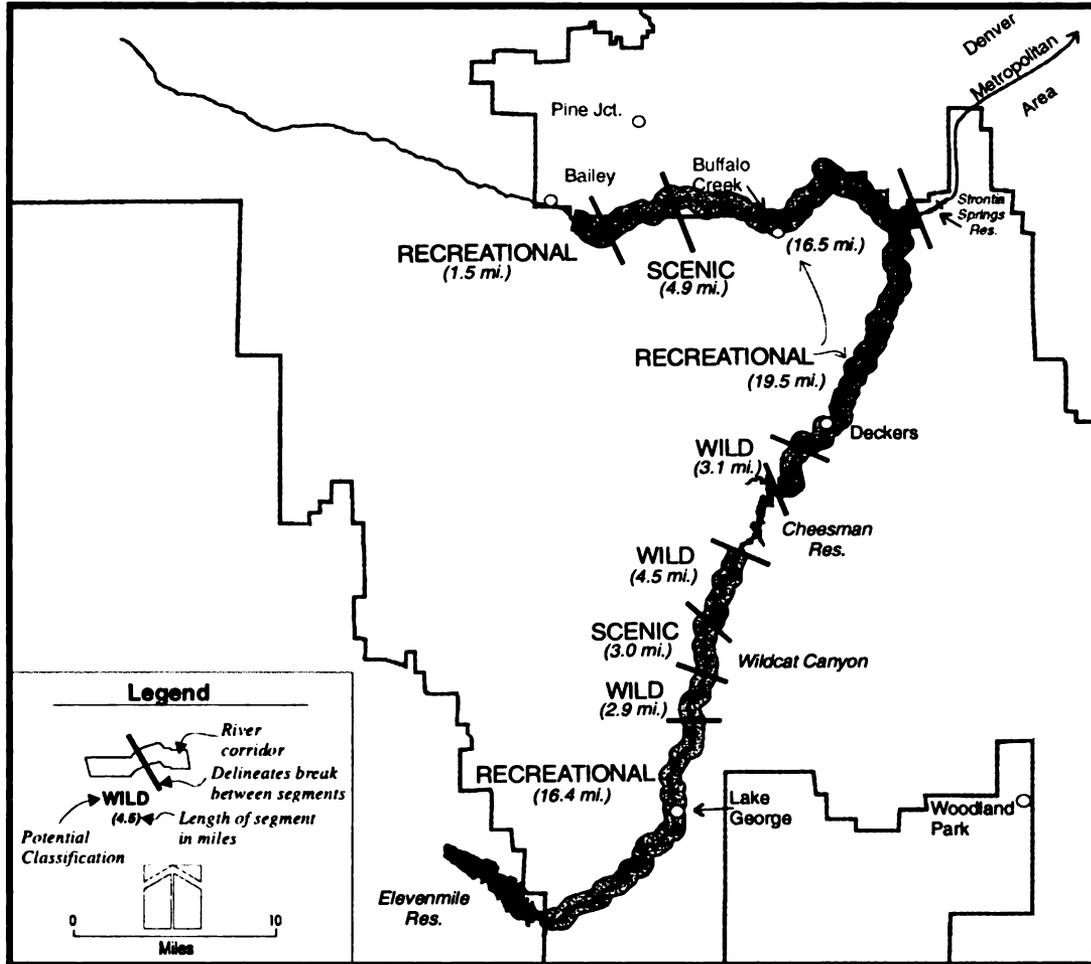
The corridor boundaries would average one-quarter mile from each riverbank; the exact boundary location would be determined as part of the management planning process after the river was designated.

PREFERRED ALTERNATIVE

The Forest Service intends to protect the outstandingly remarkable values, free-flow and water quality of eligible segments of the South Platte River through the cooperative process described in Alternative A2 with Forest Service legal authorities added as described in Alternative A3. The river corridor's ORVs, free-flow, and water quality are to be managed under a Federal/State/local government partnership as outlined in the South Platte Protection Plan (Appendix A). See map 4-9.

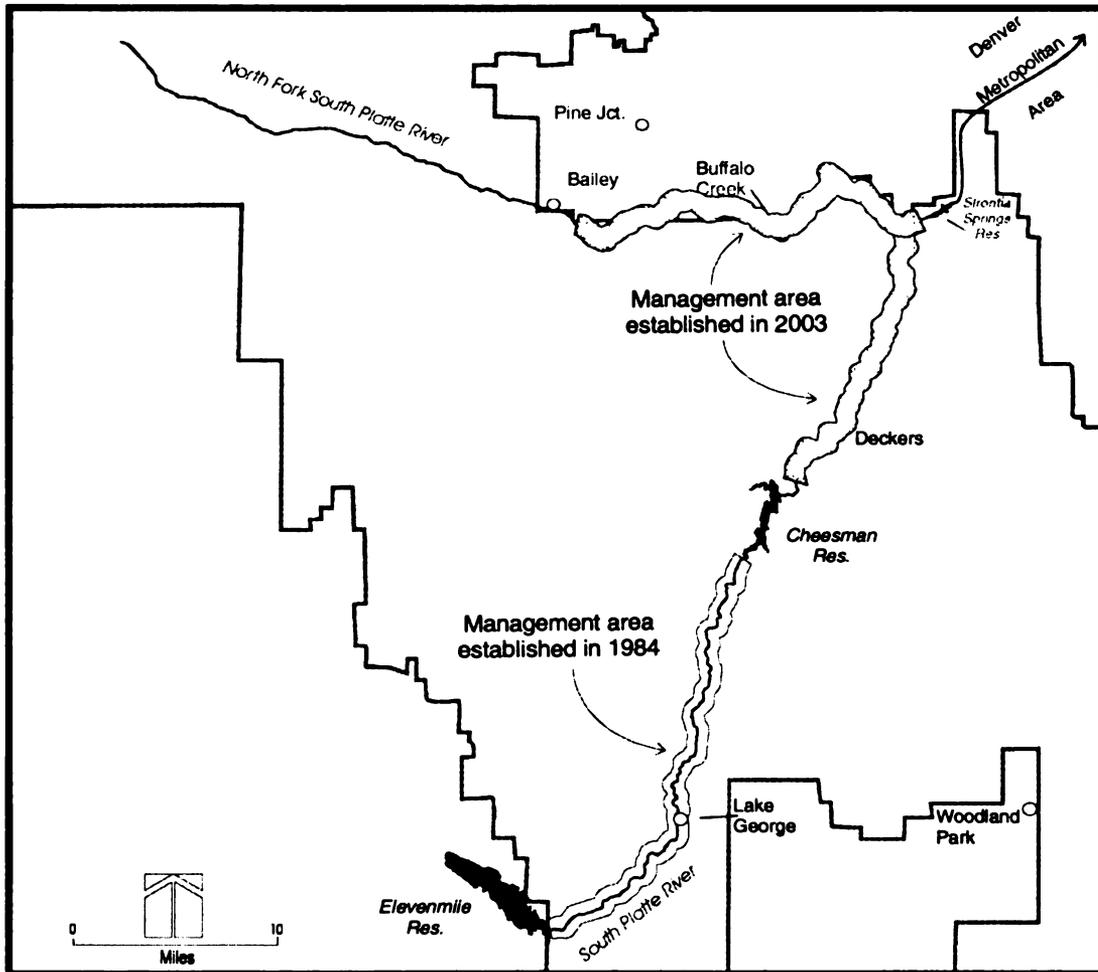
The agency is not completing the Wild and Scenic River suitability study at this time to allow for a period of review of the adequacy of the SPPP. The Forest Service will, however, amend the Forest Plan (see below) to maintain the findings of eligibility and classification to the maximum extent possible under its existing authorities. Guidance for protection of an eligible river is found in *Forest Manual 1924.03* and *Forest Service Handbook 1909.12-92-1*, section 8.12 (see Appendix G of this document). River corridor management will be

Eligible Segments with Potential Classification



Map S-3.—South Platte River and North Fork of the South Platte River Wild and Scenic River Study, Eligible Segments with Potential Classification.

Preferred Alternative - Forest Plan Amendment



Map S-4.—South Platte River and North Fork of the South Platte River Wild and Scenic River Study, Preferred Alternative – Forest Plan Amendment.

Amends the Forest Plan to establish a new Management Area designed to protect river values in eligible segments identified by this study. The amendment's direction applies to both the new management area and the one established in 1984.

monitored and periodically reviewed to ensure continued protection of free-flow, ORVs, and water quality. The monitoring program will rely on current indicators and the standards and guidelines from the *Forest Plan*.

Both Alternatives A2 and A3 envision the development of agreements among participating interests as part of implementing the SPPP. However, under the Preferred Alternative such agreements are not considered mandatory, for these reasons: (1) As a matter of enforcement, the Forest Service is accountable to adhere to agency policy regarding protection of eligibility whether it enters into other agreements or not. (2) Such agreements are voluntary undertakings and signatories are able to withdraw if needed. (3) While the Forest Service needs early confirmation from entities contributing to the Endowment Fund that they intend to contribute to the Fund and support the SPPP, confirmation can be made in more ways than by entering into an agreement, such as passing corporate resolutions to that effect.

The Preferred Alternative also considers criteria for determining whether the SPPP is actually being implemented and working properly. At a minimum these criteria are:

- ◆ Within 6 months of the Forest Service decision, potential contributors certify to the Forest Service that they intend to contribute to the Fund and support the SPPP.
- ◆ The various periodic coordination meetings identified in the SPPP are being held. An example is the meetings under the Streamflow Management Plan.
- ◆ Within 3½ years of the Forest Service decision, the Endowment Fund is fully funded, as outlined in the SPPP. (This is the period prescribed by the SPPP for reaching full financing.)

If these criteria are met, the Forest Service could conclude that the SPPP has been implemented. If not, it may have to conclude

that the SPPP has too little local support to be a viable alternative, in which case, the agency will consider reopening the river study process and making a determination regarding suitability. Further, if monitoring over time indicates that the ORV's, free-flow or water quality are being threatened, the Forest Service may similarly find it necessary to reopen the river study and suitability determination process.

BASIS FOR THE PREFERRED ALTERNATIVE

In the SDLEIS, the Forest Service analyzed the SPPP as a part of a Wild and Scenic River suitability determination. However, comments on the SDLEIS indicated it is not timely to conclude the Wild and Scenic River study, pending implementation and evaluation of the SPPP. Given that the South Platte Wild and Scenic River study was initiated by the Forest Service, there is no required timeframe for completing the study. A decision on suitability is not being made at this time so that the SPPP can be given a chance to demonstrate whether it is a reasonable substitute to designation under the Wild and Scenic Rivers Act.

At this time, no activities are being proposed that might threaten ORVs, free-flow, or water quality (recognizing that unknowns exist as a result of the Hayman Fire). However, such a proposal remains a possibility; if or when one is submitted, it will provide a meaningful test of the SPPP's effectiveness. Following review of the proposal under the SPPP's auspices, a conclusion will emerge whether the proposal is consistent with the SPPP's goals. The Forest Service will then also need to review the proposal to determine whether it is consistent with the agency's policy (see above) of maintaining eligibility. If not, a decision regarding suitability may become necessary. In essence, that decision would establish the agency's position whether the merits of the proposal outweigh the values threatened by it or

visa versa. If by that time this EIS has become stale, a new NEPA document may need to be developed and released. Until that time comes, a decision on suitability does not need to be made.

This approach was selected over the other alternatives because:

- ◆ It has the best prospect of success for protecting river values by striking a reasonable balance between strong proponents for finding all segments suitable and worthy of designation, and strong opponents of any designation at all. In this manner it maintains a broad base of support for cooperative management of the river corridor.
- ◆ To the extent of Forest Service authorities and cooperator participation, it ensures protection of the ORVs, free-flow, and water quality for which these segments were found eligible.
- ◆ The Forest Service can protect ORVs, free-flow and water quality under the auspices of the National Forest Management Act.
- ◆ It has very few conflicts with existing uses.
- ◆ Except as affected by the Hayman Fire, it ensures the protection of the South Platte's current fisheries population and habitat, and the current mix of dispersed and developed recreation use in the river corridor.
- ◆ By maintaining the finding of eligibility without making a finding on suitability at this time, all river interests are ensured involvement in the cooperative management and protection of the river corridor. Implementation of the Streamflow Protection Plan will further enhance fisheries habitat and the whitewater recreational experience. The additional costs of developing a

comprehensive river management plan under designation would be avoided.

DRAFT FOREST PLAN AMENDMENT

MANAGEMENT REQUIREMENT: WILD AND SCENIC RIVER MANAGEMENT

The following replaces the direction in the current Forest Plan found on pp. III-16 and III-17.

The following river segments have been determined eligible for a suitability evaluation for designation as a Wild and Scenic River:

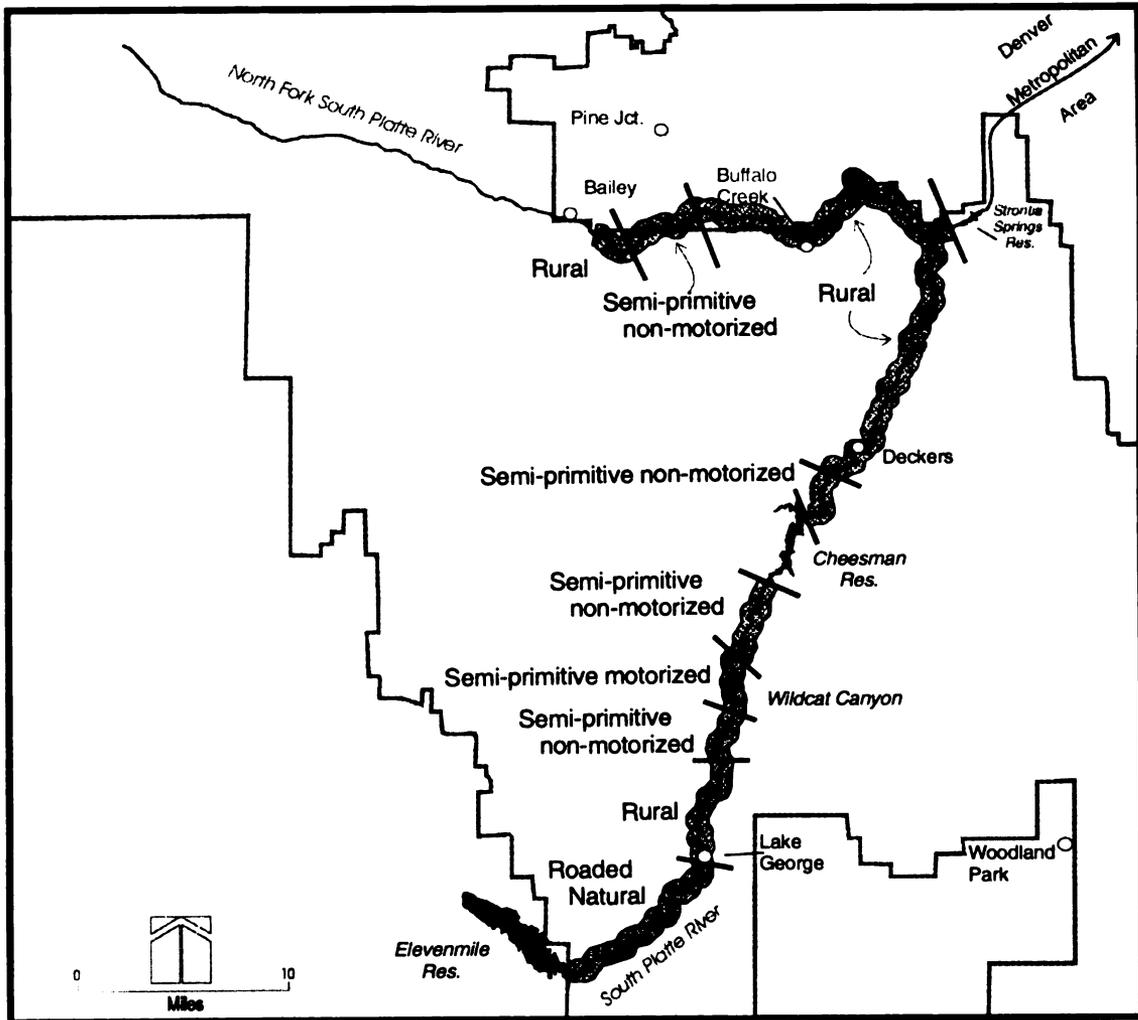
- ◆ South Platte River from below Elevenmile Dam to the high water line of Cheesman Reservoir and below Cheesman Dam to the high water line of Strontia Springs Reservoir (49.4 total miles) and
- ◆ North Fork of the South Platte River from Insmont (upstream end of Berger property) to the confluence with the mainstem of the South Platte River (22.9 miles).

The boundaries extend one-quarter mile on each side of the river segments. Pending the suitability study and recommendation, the study area will be protected to preserve its characteristics, which make it eligible.

1. Protect river segments that have been determined eligible for potential addition to the National Wild and Scenic Rivers System from activities which could diminish or change the free-flowing character, water quality, or the scenic, recreational, fish and wildlife, and other values which make the river eligible for designation.

- a. Request that Federal lands which constitute the bed or bank, or which are within one-quarter mile of either bank, be temporarily withdrawn from appropriation and entry under the mining laws. Withdrawal should continue until the river segment is a) found to be ineligible; b) not recommended for inclusion in the National System; or c) added to the system by act of Congress.
 - b. Safeguard the values of the river area by appropriate conditions and stipulations in leases, permits, and licenses, including prospecting, issued under terms of the mineral leasing laws.
 - c. Extraction of salable, common-variety minerals from the river or the study area shall not be authorized until the study is complete and recommended actions are enacted.
 - d. Prohibit construction of roads within the river study area if it would have direct and adverse effects on the values which make the river eligible for potential inclusion into the National System.
 - e. Maintain current motorized access character and avoid any changes to the potential Wild and Scenic River classification.
 - f. Maintain free-flowing characteristics and water quality during the study and congressional review period.
 - g. Manage tree stands within the study area to maintain or enhance potential Wild and Scenic River values. Protect scenic values by sizing and shaping timber harvest units to achieve a natural appearance and to harmonize with the surrounding landscape.
 - h. Prohibit special uses or permitted land uses which degrade or have directly adverse effects on values which make the river segment eligible.
- i. None of this direction shall abrogate any existing privileges or contracts affecting National Forest System lands held by any private party without consent of said party. Activities affecting the applicability of the U.S. mining and mineral leasing laws are subject to valid existing rights.
2. Activities and facilities will be consistent with the adopted Recreation Opportunity Spectrum (ROS) and with potential river classification in eligible segments. See map S-5.
 3. In high-use semi-primitive motorized and semi-primitive nonmotorized areas, consider designating backcountry camping sites and restricting use to those sites.
 4. Activities and facilities will meet designated visual quality objectives. See map S-6.
 5. Integrate trail systems with other government entities, partners and private landowners adjacent to the National Forest.
 6. Preserve and protect significant historic, archaeological, and paleontological resources for their association with events or persons, their distinctive architectural and engineering characteristics, or their intrinsic scientific data.
 7. Fire lines should not be constructed with heavy equipment unless necessary to save lives or property or to prevent resource damage.
 8. If the free-flowing character, water quality, or the *scenic, recreational*, fisheries, wildlife, and geological outstandingly remarkable values which make the river eligible for designation are found to

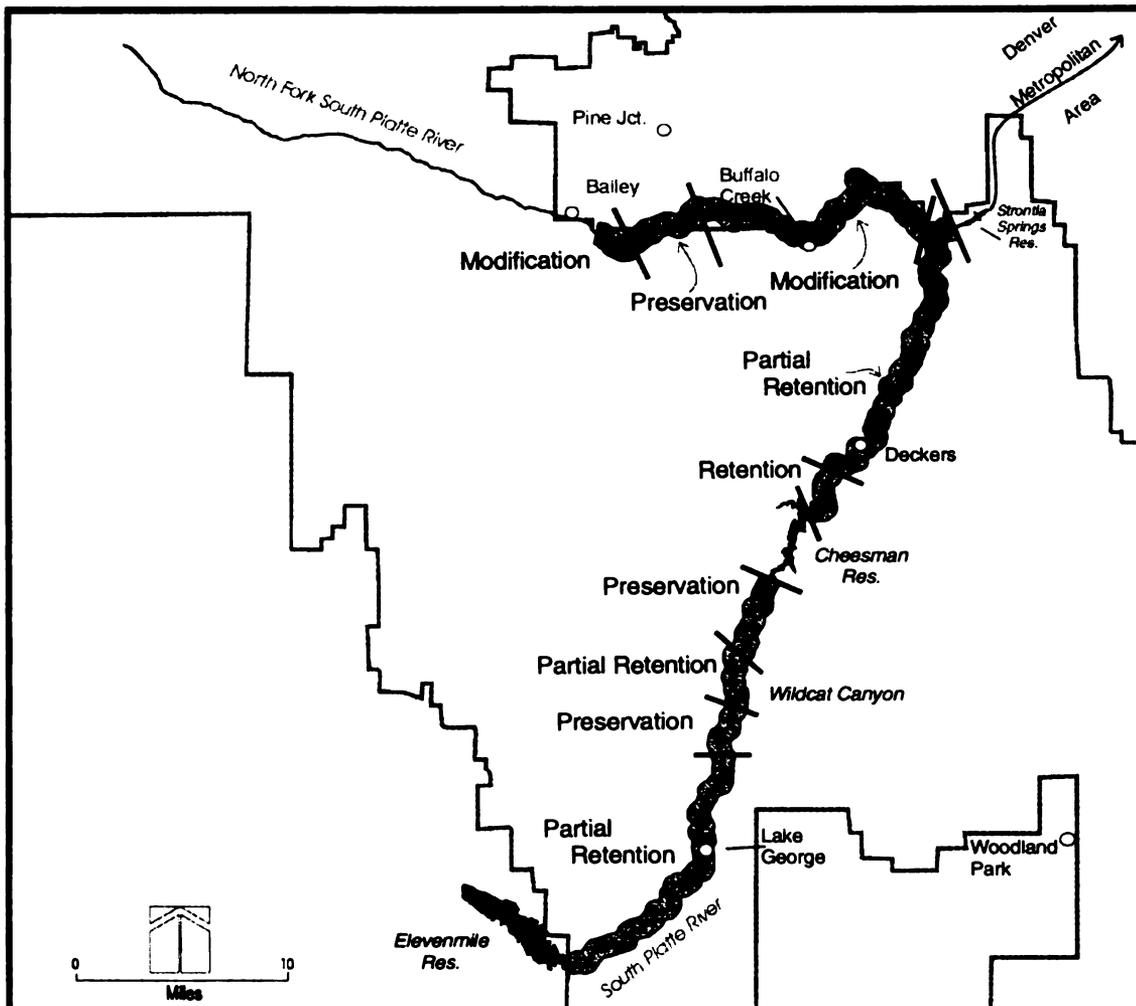
ROS Objectives



Map S-5.—South Platte River and North Fork of the South Platte River Wild and Scenic River Study, ROS Objectives.

Shows Recreation Opportunity Spectrum (ROS) Objectives for various segment of the study area.

Visual Quality Objectives



Map S-6.—South Platte River and North Fork of the South Platte River Wild and Scenic River Study, Visual Quality Objectives.

Shows visual quality objectives (VQO's) for various segments of the study area.

decline or when significant action may impact eligibility or potential classification in any of the eligible segments, the Forest Service with participating parties should cooperate to address the threat to the values.

MONITORING

If any of the study corridor is designated as a Wild and Scenic River, the Forest Service, as the administering agency, would be required to identify what monitoring is already taking place, coordinate with other entities, and develop and implement a monitoring plan to ensure that the ORVs, free-flowing character, and water quality are protected and enhanced. The method of review and corrective action would be incorporated in the comprehensive River Management Plan.

Until a decision is made as to the future use of the river and adjacent lands (discussed under "Purpose and Need for Action" above), and if the South Platte Protection Plan is in effect, the Forest Service will coordinate with the SPPP to ensure that the river values, free-flowing character, and water quality are protected and perhaps enhanced and that potential classifications are maintained. Key monitoring features include:

- ❖ Reviewing proposed activities, and
- ❖ Monitoring ongoing activities and resource conditions.

The method of review and corrective action will be discussed in the Record of Decision

PROCESS AND PUBLIC REVIEW OF THE FEIS

After the public comment period for the SDLEIS, further analysis was incorporated into the document.

The finding by the Forest Supervisor for the Pike, San Isabel National Forests to protect the outstandingly remarkable values through a cooperative process will require a change in management planning for the river, so proposed language for an amendment to the Forest Plan is being included with this FEIS. The current language in the Forest Plan includes the finding of eligibility for the river segments above Cheesman Reservoir. The amendment will incorporate the finding of eligibility for the sections of the river:

- ◆ 22.7 miles of the South Platte from below Cheesman Dam to the high line of Strontia Springs Reservoir; and
- ◆ 29 miles of the North Fork from Insmont to the confluence with the South Platte.

The amendment will also incorporate a change in classification for a section of river above Cheesman Reservoir.

Following a comment period on this FEIS and Draft Plan Amendment, the Forest Service intends to review the comments and then issue a Record of Decision that amends the Forest Plan to ensure protection of free-flow, ORVs, and water quality. If at a later date the Forest Service receives a proposal for some activity that is inconsistent with the protection of free-flow, ORVs, and water quality, it may become necessary to make a decision on the suitability of the river for designation as a Wild and Scenic River. At that time, it will be determined whether the current EIS is sufficient to support that decision or whether circumstances have changed so much that a new National Environmental Policy Act document will need to be prepared.

After publication of the Record of Decision associated with the current study, the SPPP will provide a management umbrella for dealing with activities affecting free-flow, ORVs, and water quality in the river corridor. If the SPPP is not implemented in a timely manner, then it may become necessary for the Forest Service to proceed with making a decision on suitability. Similarly, if over time it becomes apparent that the SPPP is not protecting free-flow, ORVs, and water quality in the river corridor sufficient to comply with agency policy regarding eligible rivers, it may also become necessary for the Forest Service to proceed with making a decision on suitability. Criteria associated with evaluating the SPPP's effectiveness are discussed in Chapter 4 under Preferred Alternative.

CHANGES BETWEEN THE DRAFT AND FINAL EIS

Although the draft and final versions of the EIS are similar in many respects, the content of the FEIS differs in several ways from that of the DLEIS and SDLEIS.

1. The Purpose and Need of this FEIS has been modified from the DLEIS and the SDLEIS. The FEIS documents the Wild and Scenic River study and amends the Forest Plan to ensure protection of river values pending final resolution of suitability. Since this document does not make a finding on suitability, it will not be sent as a recommendation to Congress to make a final decision on designation and is now a FEIS rather than a LEIS.
2. The FEIS contains a Preferred Alternative that was developed after reviewing public comments received on the SDLEIS. The Preferred Alternative contains all of the elements of

Alternative A3 without a finding of suitability. Pending the results of periodic evaluations of the ability of the SPPP to sufficiently protect ORVs, free-flow, and water quality, this FEIS does not preclude the Forest Service to later make an appropriate finding regarding suitability. Alternative A3 was described in detail in the SDLEIS.

3. In the SDLEIS, a major component of Alternative A3 was the development of a river management plan. This reflected thinking at the time that A3-*suitable*, in particular, was similar to designation; and a river management plan appeared appropriate to parallel a designation track. The Preferred Alternative is silent on the issue of suitability, and a river management plan is not required.

Therefore, the Forest Service has removed this as a component of the A3 alternative and will use the Forest Plan and the South Platte Protection Plan to coordinate management of the river.

4. Appendix J is a summary and analysis of comments received on the DLEIS and SDLEIS. It contains a summary of the written comments received, responses to substantive issues raised in the comments, the minutes from the public meetings held during the public comment period for the SDLEIS, and copies of all letters received from local, county, State, and Federal governments. Representative public comments also have been incorporated into section 4.2, "Key Study Issues."
5. Technical changes in the text were made in response to specific comments made to the DLEIS and SDLEIS. Updates were also made by the Forest Service Interdisciplinary Team to reflect changes on the National Forest since release of the original DLEIS. These changes

provide new information or clarify information provided in the two draft documents.

6. In response to the analysis of unresolved issues in the South Platte Protection Plan (Alternatives A2 and A3), the constituent group that developed the SPPP submitted supplemental material to the Forest Supervisor June 5, 2001. That new material is included as part of Appendix A and is included in this final analysis of that plan.
7. An amendment to the Forest Plan has been included for comment. In light of comments made on the SDLEIS, a plan amendment is needed to comply with Forest Service Policy and establish that the ORVs will be protected in the river segments that have been identified as eligible (Segments D, E, and H).
8. The classification for Segment C, Wildcat Canyon, has been changed to reflect ongoing motorized travel from Hackett Gulch downstream to Corral Creek. The segment has been split into three sections:
 - a. C1, Beaver Creek downstream to one-quarter mile upstream of Hackett Gulch, retains its *wild* classification,
 - b. C2, one-quarter mile upstream of Hackett Gulch downstream to one-quarter mile downstream of Corral Creek, is reclassified as *scenic*, and
 - c. C3, one-quarter mile downstream of Corral Creek to high water line of Cheesman Reservoir, retains its *wild* classification.
9. The Hayman Fire burned 137,500 acres in June of 2002—3,393 acres of it in the river study corridor. Sedimentation input has increased as a result of severe burn areas above the river corridor. References to the fire have been added throughout the text. It will be several

years before the impact on the river corridor can be assessed fully. The Forest Service does not anticipate significant changes to this analysis in determining suitability of the river corridor for inclusion in the National Wild and Scenic Rivers System since fire has been, and always will be, a natural and dynamic force in the surrounding area.

10. In the DLEIS and SDLEIS, the Bureau of Land Management was listed as a cooperating agency. Cooperation was required because BLM was responsible for 29 acres in the North Fork river corridor that was being leased to Jefferson County. This land was formally transferred to Jefferson County in 2001, thus releasing BLM from all responsibilities as a cooperating partner. The Forest Service is now the sole agency responsible for the study.

ORGANIZATION OF THE EIS

Chapter 1 provides background on the purpose of the EIS, the Wild and Scenic Rivers Act, the public involvement process used to produce and review the DLEIS and SDLEIS, and changes since release of the DLEIS and SDLEIS.

Chapter 2 describes the affected environment, the physical, biological, social, and economic characteristics of the South Platte and North Fork of the South Platte River corridors.

Chapter 3 contains the methods and findings of the resource assessment process used to determine eligibility and the methods and findings of the classification analyses.

Chapter 4 discusses the key study issues, review alternatives not considered in detail, and describes the management alternatives in narrative form (Appendix B contains a matrix

with more detailed information about each alternative). The Draft Plan Amendment is included in this chapter.

Chapter 5 assesses the impacts of each alternative on the resources described in Chapter 2.

Chapter 6 contains a list of people who prepared this EIS.

Chapter 7 contains the individuals, agencies, groups, and Tribes to whom a copy of the LEIS was mailed.

Chapter 8 contains a glossary of words related to this project.

Chapter 9 includes the references cited and other sources used to prepare this document are provided.

Appendix A contains the South Platte Protection Plan including the supplemental material submitted after release of the SDLEIS.

Appendix B contains a table comparing the alternatives and summarizing the impacts of the alternatives on each of the key. Appendices C and D contain the 1984 and 1996 eligibility studies and classification determinations.

Appendix E contains the Biological Evaluation for the study. Appendix F is a copy of the Wild

and Scenic Rivers Act in its entirety.

Appendix G contains *Forest Service Manual* sections 1924 and 2354 and *Forest Service Handbook* section 1909.12, Chapter 8.

Appendix H contains an analysis of section 7 of the Wild and Scenic Rivers Act—a water resource development analysis. Appendix I contains a description of water quality status and classification explanation. Appendix J is a summary and analysis of comments received on the DLEIS and SDLEIS.

Note: Because this summary is intended to be a stand-alone document, it repeats some of the information included in the text.

Purpose Of and Need for Action



CHAPTER 1

Purpose of and Need for Action

1.1 INTRODUCTION

SELECTION

The eligibility and suitability of 99.5 miles of the North Fork of the South Platte River and segments of the South Platte River mainstem in Colorado are being studied to determine if they should be recommended for addition to the National Wild and Scenic Rivers System (National System). All of the South Platte River study corridor and most of the North Fork study corridor lie within the boundaries of the Pike National Forest (National Forest). Both areas, however, include many private and local government inholdings, and a 6.6-mile stretch along the North Fork lies just outside the National Forest boundary. This section is mostly in private ownership but includes some public lands managed by the Denver Board of Water Commissioners (Denver Water) and Jefferson County Open Space.

Because the rivers were identified by the USDA Forest Service (Forest Service) for study, the eligible segments are recognized as study rivers under the provisions found in section 5(d)(1) of the Wild and Scenic Rivers Act of 1968 (Public Law [P.L.] 90-542 et seq.) (WSRA) (Appendix F). This section of the WSRA requires that all Federal agencies consider potential national wild, scenic, and recreational river areas in all planning for the use and development of water and related land resources. *Forest Service Manual* 1924 states, "consideration of the potential wild and scenic rivers is an inherent part of the ongoing land and resource management planning process."

If any portions of the study rivers were found eligible and suitable, a recommendation for designation would be forwarded to Congress, along with this document. Congress then would determine if the recommended river(s) or river segment(s) should be added to the National System.

THE STUDY AREA

The river segments identified for study total 99.5 miles and are located in Douglas, Jefferson, Park, and Teller Counties, in Colorado. The study river corridors are mostly National Forest System lands administered by the Pike and San Isabel National Forests, Comanche and Cimarron National Grasslands, but also include private inholdings and lands managed by Denver Water and Jefferson County.

TIMING

In 1984, the *Land and Resource Management Plan for the Pike and San Isabel National Forests, Comanche and Cimarron National Grasslands* (Forest Plan) found that a 26.8-mile segment of the South Platte River, from Elevenmile Dam to the high water line of Cheesman Reservoir, was eligible for potential addition to the National System. At that time, the lower North Fork of the South Platte, below Bailey, Colorado, and the South Platte mainstem from Cheesman Reservoir downstream to its confluence with the North Fork were being evaluated for potential reservoir development by the U.S. Army Corps of Engineers in the *Two Forks Metropolitan Denver Water Supply Environmental Impact Statement* (U.S. Army Corps of Engineers, 1988).

The environmental impact statement (EIS) dealt with the Two Forks Dam and reservoir proposal, a water supply project proposed by the Denver Board of Water Commissioners and the Metropolitan Water Providers to help meet the water supply needs of the Denver metropolitan area. The EIS was finished in March 1988 and recommended construction of a dam on the South Platte River, approximately 1 mile downstream from its confluence with the North Fork. The proposed reservoir would have a surface area of about 7,300 acres and would provide a storage capacity of 1,100,000 acre-feet. After several years of meetings and review, the U.S. Environmental Protection Agency (EPA) issued a Recommendation Determination in 1990 to prohibit construction of the Two Forks Dam and reservoir pursuant to section 404(c) of the Clean Water Act (EPA, 1990). Eight suburban water districts appealed EPA's decision. On June 5, 1996, U.S. District Judge Richard Matsch dismissed the appeal. The judge ruled that EPA had not "acted capriciously and arbitrarily" in blocking construction of the dam because of its impact on the environment. The judge also ruled that the eight suburban water districts did not have legal standing to proceed with the case without support of the Denver Water Board.

The Forest Service has no position on the Two Forks Dam and Reservoir proposal or subsequent legal decisions. However, its interpretation of section 5(d)(1) of the WSRA is that a Wild and Scenic Rivers assessment would have to occur prior to any decision that would allow construction of a containment structure. In other words, the *Metropolitan Denver Water Supply EIS* was not sufficient to meet the intent of the WSRA defined above.

In 1989, Congress appropriated \$75,000 for the Forest Service to study the recreation potential of the South Platte River from Elevenmile Dam to the high water line of Strontia Springs Reservoir. The Forest Service felt that this could be best accomplished as a Wild and Scenic River study and included the entire North Fork. This document is the result.

The Forest Service completed an eligibility study (Appendix C) of the 26.8-mile segment of the South Platte River from Elevenmile Dam to the backwaters of Cheesman Reservoir in 1984 as part of the Forest Plan. The plan found the entire 26.8-mile segment eligible for potential addition to the National System. In 1992, the Forest Service began an eligibility determination for the entire North Fork (50.1 miles) and for the South Platte River from Cheesman Dam to the backwaters of Strontia Springs Reservoir (22.6 miles). The preliminary eligibility determination, released in August 1995 and completed in June 1996, found that all 22.6 miles of the South Platte study corridor and the part of the North Fork downstream from the Berger property near Insmont (22.9 miles) were eligible for potential addition to the National System (Appendix D). It also found that the North Fork, upstream of Insmont, was not eligible for further consideration. These findings are summarized in Chapter 3 and explained in detail in Appendices C and D. The segments examined in the 1984 and 1996 eligibility studies are listed in table 1-1. Together, the two eligibility studies found a total of 72.3 miles—22.9 miles of the North Fork and 49.4 miles of the South Platte—eligible for potential addition to the National System. Other than the eligibility discussion in Chapter 3, the remainder of this document deals with the suitability of these 72.3 miles of eligible streams for addition to the National System. For the purposes of this analysis, the Forest Service has established a study area extending one-quarter mile from the ordinary high water mark on each side of the studied river segments.

OVERVIEW OF THE NATIONAL WILD AND SCENIC RIVERS ACT

The National Wild and Scenic Rivers Act (P.L. 90-542 et seq.) was passed in 1968 to balance river development with river protection.

**Table 1-1.—List of Study Segments Considered in the
1984 and 1996 Eligibility Studies**

Segment	Length (miles)	Description
A&B - South Platte River	16.4	From Elevenmile Dam (downstream from fence on Denver Water's special-use area) downstream to Beaver Creek (northernmost boundary of private land).
C1 - South Platte River	2.9	From Beaver Creek downstream to ¼ mile upstream of Hackett Gulch.
C2 - South Platte River	3.0	From ¼ mile upstream of Hackett Gulch downstream to ¼ mile downstream of Corral Creek.
C3 - South Platte River	4.5	From ¼ mile downstream of Corral Creek to high-water line of Cheesman Reservoir (upstream of the stream gage).
D - South Platte River	3.1	From Cheesman Dam (downstream of the stream gage weir) downstream to the Wigwam Club property (southern end).
E - South Platte River	19.5	From the Wigwam Club property (southern end) downstream to the high water line of Strontia Springs Reservoir (6029-foot contour).
F - North Fork of South Platte River	9.7	From its headwaters downstream to Kenosha Gulch, near Webster (also known as the Hall Valley).
G - North Fork of South Platte River	17.5	From Kenosha Gulch, near Webster, downstream to Insmont (upstream boundary of Berger property).
H1 - North Fork of South Platte River	1.5	From Insmont (upstream boundary of Berger property) downstream to Estabrook (downstream side of old stone house).
H2 - North Fork of South Platte River	4.9	From Estabrook (downstream side of old stone house) downstream to Cliffdale (the section line between sections 29 and 30 east of Cliffdale).
H3 - North Fork of South Platte River	16.5	From Cliffdale (the section line between sections 29 and 30 east of Cliffdale) downstream to within ¼ mile of the confluence with the South Platte River.
Total	99.5	

Table 1-2.—List of Study Segments Found Eligible and Included in Suitability Study

Segment	Length (miles)	Description
A&B - South Platte River	16.4	From Elevenmile Dam (downstream from fence on Denver Water's special-use area) downstream to Beaver Creek (northernmost boundary of private land).
C1 - South Platte River	2.9	From Beaver Creek downstream to ¼ mile upstream of Hackett Gulch.
C2 - South Platte River	3.0	From ¼ mile upstream of Hackett Gulch downstream to ¼ mile downstream of Corral Creek.
C3 - South Platte River	4.5	From ¼ mile downstream of Corral Creek to high-water line of Cheesman Reservoir (upstream of the stream gage).
D - South Platte River	3.1	From Cheesman Dam (downstream of the stream gage weir) downstream to the Wigwam Club property (southern end).
E - South Platte River	19.5	From the Wigwam Club property (southern end) downstream to the high water line of Strontia Springs Reservoir (6029-foot contour).
H1 - North Fork of South Platte River	1.5	From Insmont (upstream boundary of Berger property) downstream to Estabrook (downstream side of old stone house).
H2 - North Fork of South Platte River	4.9	From Estabrook (downstream side of old stone house) downstream to Cliffdale (the section line between sections 29 and 30 east of Cliffdale).
H3 - North Fork of South Platte River	16.5	From Cliffdale (the section line between sections 29 and 30 east of Cliffdale) downstream to within ¼ mile of the confluence with the South Platte River.
Total	72.3	

Rivers or river segments are designated as Wild and Scenic Rivers to keep them in a free-flowing condition and to fulfill vital national conservation purposes. In the WSRA, Congress declared that:

... certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and ... shall be protected for the benefit and enjoyment of present and future generations.

The National System currently includes about 11,294 miles of river on 172 river segments. In contrast to designated wilderness, which is managed to maintain a pristine environment, rivers in the National System are managed to maintain the character of the river in its current state and protect and enhance specific resource values. The WSRA encourages a cooperative relationship between the agencies and landowners along designated rivers. Existing uses may continue, including grazing, timber harvest, and recreation. New uses must be consistent with the WSRA. Water projects, including dams or impoundments, are specifically prohibited.

1.2 PURPOSE AND NEED FOR ACTION

The purpose and need for action addressed in this EIS is twofold:

1. Document the Wild and Scenic River study for the North Fork of the South Platte and the South Platte Rivers. The study includes a three-step process:
 - ◆ Eligibility - determining what river segments are eligible for potential addition to the National System;
 - ◆ Classification - classifying these segments as to their most protective potential classifications as wild, scenic, or recreational rivers
 - ◆ Suitability - evaluating the eligible segments for their suitability for potential addition to the National System.
2. Amend the Forest Plan to ensure protection of river values pending final resolution of suitability. This action is in accordance with agency policy to protect the values identified in eligible segments until they are either designated by Congress as elements of the National System or found by the agency to be not suitable for inclusion in the National System. This policy states:
 - ◆ “Rivers identified for study are managed to maintain their outstanding values....” (*Forest Service Manual* at 1924.03(3))
 - ◆ “Management prescriptions for river corridors identified in the National River Inventory, or otherwise identified for study,

should provide protection in the following ways:

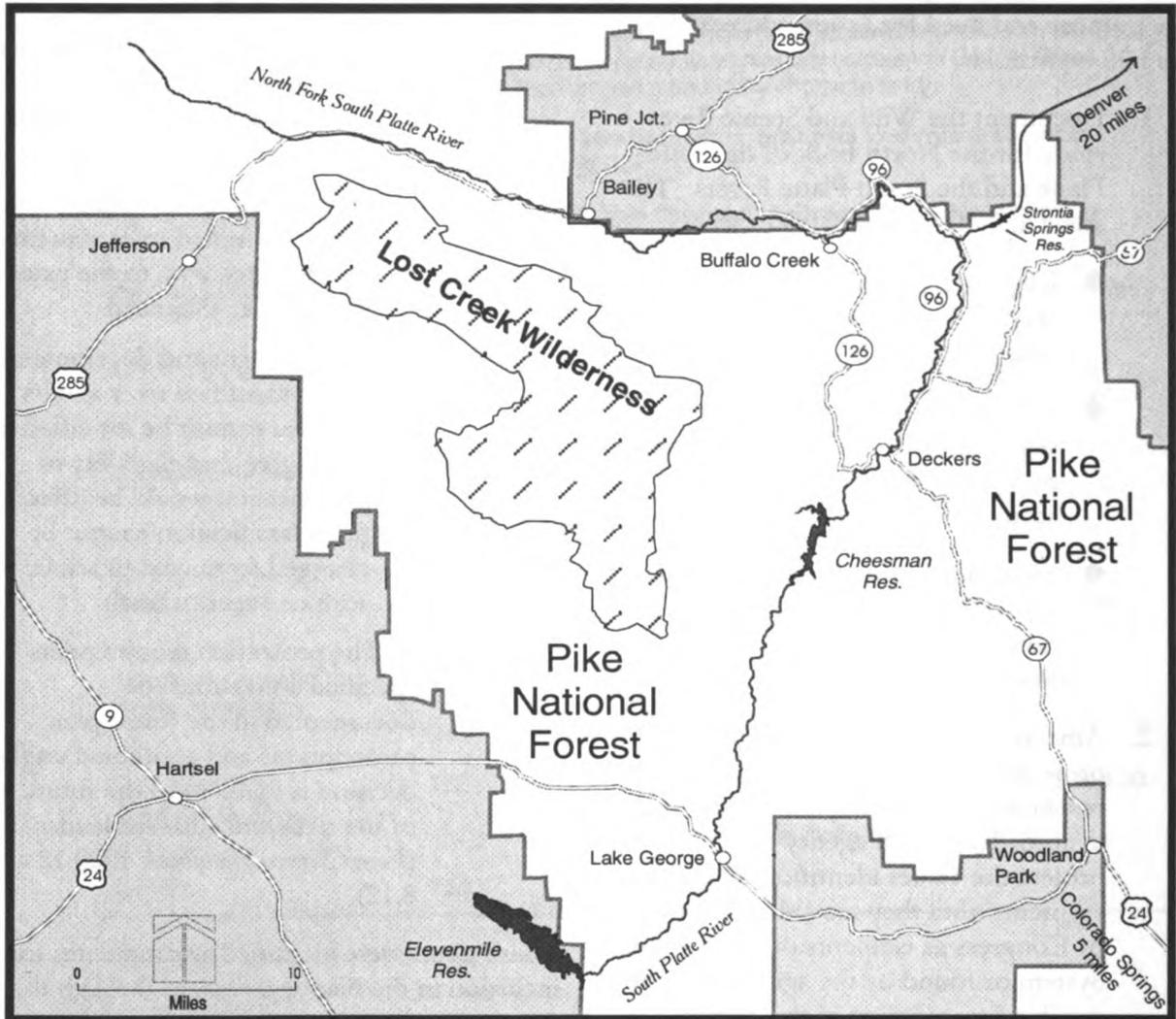
- To the extent the Forest Service is authorized under law to control stream impoundments and diversions, the free flowing characteristics of the identified river cannot be modified.
- Outstandingly remarkable values of the identified river area must be protected and, to the extent practicable, enhanced.
- Management and development of the identified river and its corridor cannot be modified to the degree that eligibility or classification would be affected (i.e., classification cannot be changed from wild to scenic or scenic to recreational).

...The protection requirements specified above must be documented in the forest plan prescriptions and continued until a decision is made as to the future use of the river and adjacent lands. . .” (*Forest Service Handbook* 1909.12 at 8.12)

These rivers were identified as candidates for inclusion in the National System through the forest planning process under section 5(d)(1) of the WSRA. The study was initiated in response to public concern for protecting unique river resources within close proximity to the Denver and Colorado Springs metropolitan areas from future water development.

Maps 1-1 through 1-3 show, respectively, the general vicinity of the study area, the river segments studied for eligibility, and the potential classifications of the eligible segments.

Vicinity Map



Land Ownership

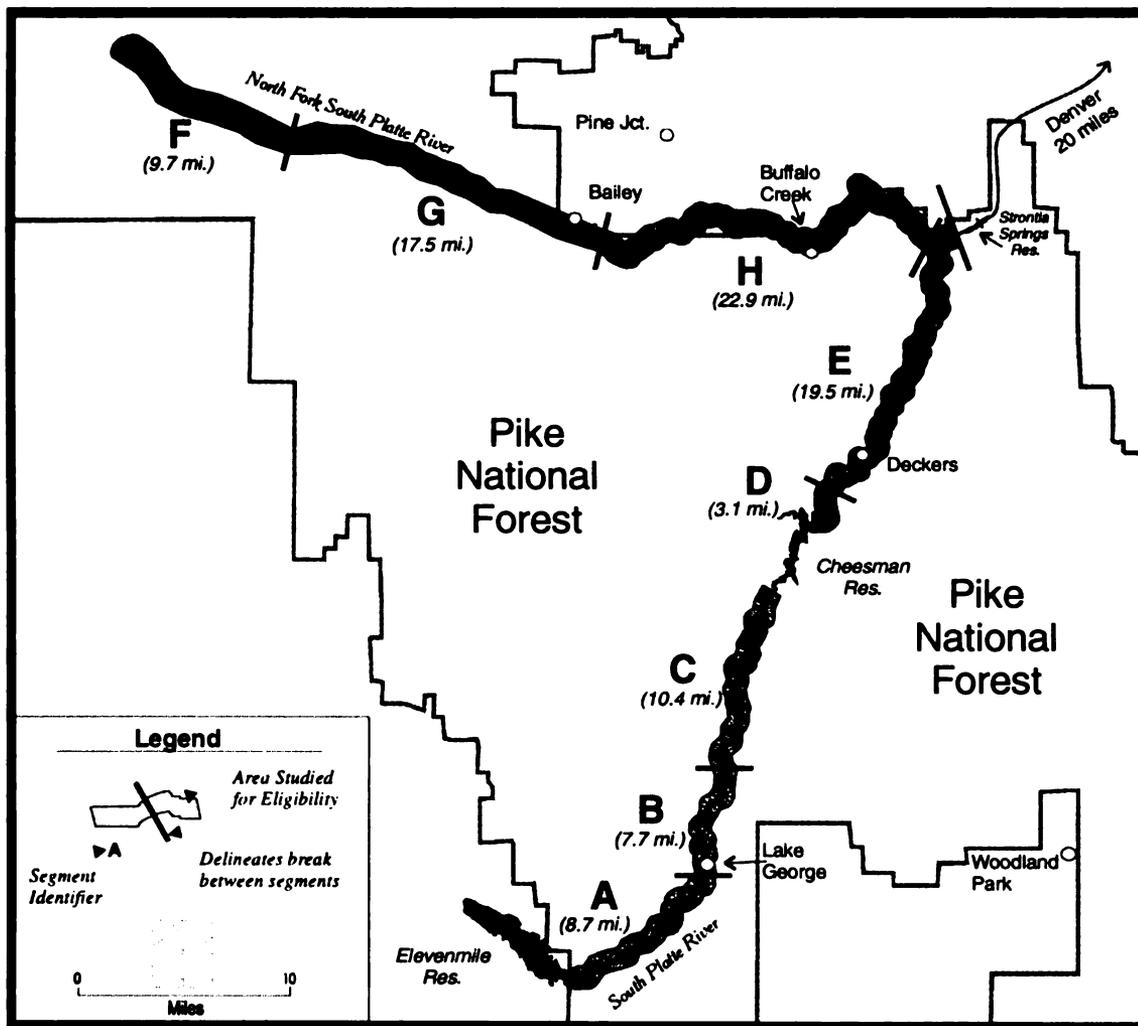
- Within National Forest Boundary
- Outside National Forest Boundary

Roads and Highways

- ⑨ State Highways
- ②④ U. S. Highways

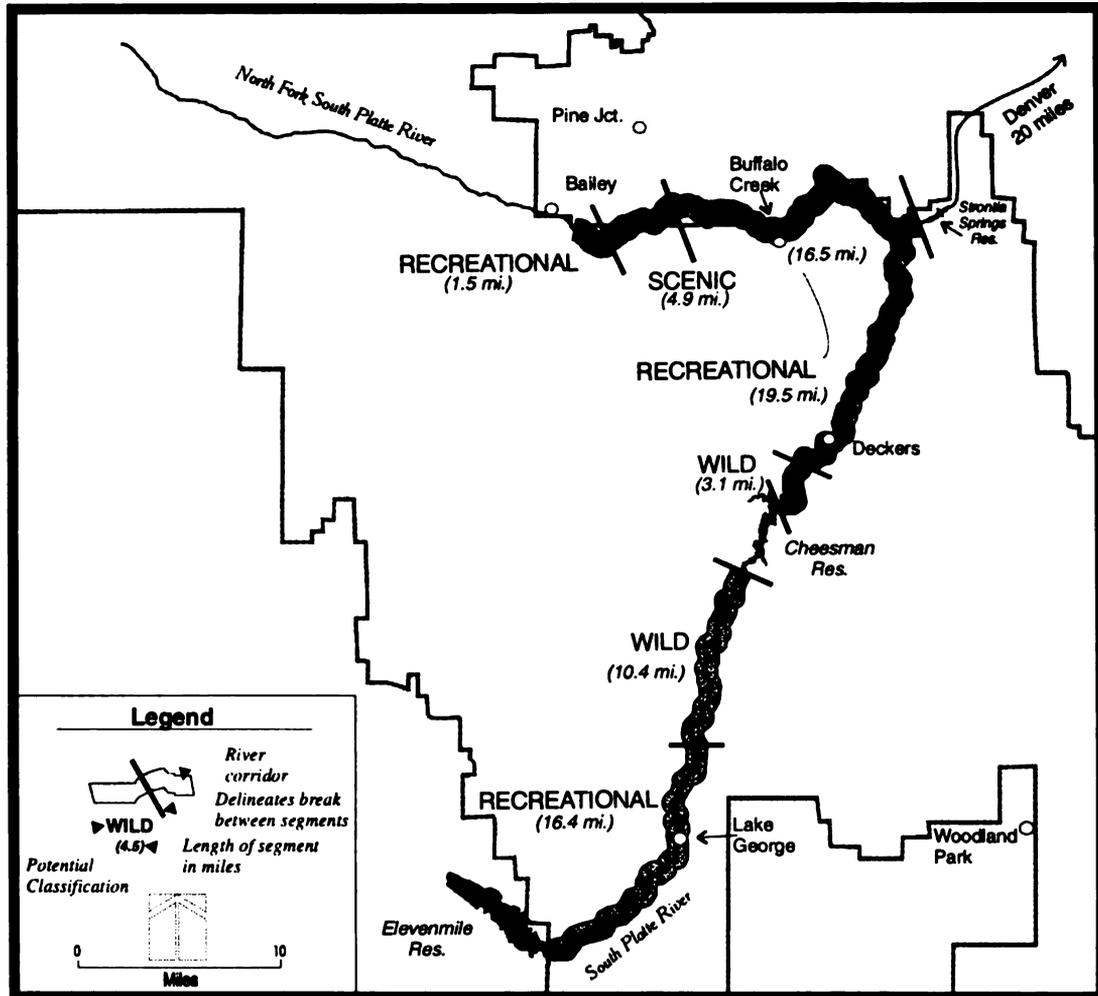
Map 1-1.—South Platte River and North Fork of the South Platte River Wild and Scenic River Study Vicinity Map.

River Segments Studied for Eligibility



Map I-2.—South Platte River and North Fork of the South Platte River Wild and Scenic River Study, River Segments Studied for Eligibility.

Eligible Segments with Potential Classification



Map 1-3.—South Platte River and North Fork of the South Platte River Wild and Scenic River Study, Eligible Segments with Potential Classification.

1.3 STUDY PROCESS

The Wild and Scenic Rivers study process is specified in the WSRA and in the associated Federal guidelines (*Federal Register* 47 FR 39454, September 7, 1982). This process has three major components: the eligibility determination, the classification analysis, and the suitability determination.

The purpose of the eligibility determination is to determine if a river meets the minimum requirements for addition to the National System. In order to be eligible, a river segment must be free-flowing and possess one or more "outstandingly remarkable values" (ORVs), in categories such as scenic, recreational, geologic, fish, wildlife, historic, ecologic, or cultural resources. The eligibility determination is documented in Appendices C and D and summarized in Chapter 3.

In the classification analysis, patterns of development and naturalness in the corridors of an eligible river are studied to determine whether the river would be classified as wild, scenic, or recreational, if the river eventually were added to the National System. The classification analysis is documented in Chapter 3.

The suitability determination is designed to determine whether an eligible river is an appropriate addition to the National System. Alternative ways of managing the river corridor are compared, including at least one alternative involving Federal designation of all eligible river segments and one alternative involving non-designation. Alternative B recommends designation of all eligible river segments to the most protective classification. Alternatives A1 (no Federal recommendation action), A2, and A3 have no designation recommendation. Suitability considerations include the environmental consequences of designation and the manageability of the river if it is designated, including costs and the willingness

of local and state governments to participate in river corridor management.

Suitability is determined by analysis of several factors specified in the *Forest Service Manual* 1909.12. Some factors to consider in the determination of suitability are:

1. The characteristics (such as ORVs) that do or do not make the river corridor a worthy addition to the National System.
2. The current status of land ownership and use in the area, including the amount of private land involved and the associated or incompatible uses on such land.
3. The reasonably foreseeable potential uses of the land and water that would be enhanced, foreclosed, or curtailed if the area were included in the National System and the values that could be foreclosed or diminished if the area is not protected as part of the National System.
4. Federal, state, local, tribal, public, or other interests in designation or non-designation of the river, including the extent to which the administration of the river, including the costs thereof, can be shared by state, local, or other agencies and individuals.
5. The estimated cost of acquiring necessary lands or interests in land and the cost of administering the area if it is added to the National System.
6. Ability of the agency to manage and/or protect the river area or segment as a Wild and Scenic River or other mechanisms to protect identified values other than Wild and Scenic River designation.
7. Historical or existing rights which could be adversely affected. In determining suitability, consideration of any valid

existing rights must be afforded under applicable laws (including the WSRA), regulations and/or policies.

8. Other issues and concerns identified during the planning process, including alternative ways to protect the rivers.

If a river is found to be eligible, its suitability is considered in the analysis of alternatives in the EIS accompanying the study report and the Forest Plan amendment.

The original draft legislative environmental impact statement (DLEIS) was issued in April of 1997. The South Platte Protection Plan (SPPP) (Appendix A) was submitted to the Forest Service in May of 1998 by a group comprised of a broad spectrum of stakeholders as an alternative to designation. The Forest Service determined that it was a viable alternative, and included it in a supplemental DLEIS (SDLEIS) released in March of 2000. Based on comments received during both comment periods, many changes were made in the two drafts to produce this final environmental impact statement (FEIS). These changes are described in the summary.

If the Forest Supervisor and the Regional Forester found the study rivers to be eligible and suitable, a recommendation to designate the river Wild and Scenic along with the final LEIS (FLEIS) would be forwarded to the Chief of the Forest Service, to the Secretary of Agriculture, and to the President. Approval at these levels would send the recommendation for designation to Congress, along with the FLEIS. Congress then would determine if the recommended river(s) or river segment(s) should be added to the National System.

1.4 PUBLIC INVOLVEMENT

After the stream segments were identified as candidates for inclusion into the National System, the Forest Service conducted an

extensive public involvement program to ensure that the alternatives would consider the concerns of landowners; local residents; permittees; water resource developers; water users in the Denver metropolitan area; Douglas, Jefferson, Park, and Teller Counties; the States of Colorado, Kansas, and Nebraska; and others having a stake in how the river is managed. The public involvement program consisted of public open houses, meetings, newsletters, mailings to interested parties, and ongoing informal meetings with any party requesting briefings.

On November 16, 1995, a notice of intent was published in the *Federal Register* (vol. 60, No. 221, p. 57571) to announce that an LEIS and Wild and Scenic River Study Report would be prepared and that written comments and suggestions were invited. In addition, interested parties were mailed a newsletter and invitations to public meetings.

The Forest Service conducted eight public scoping meetings between December 10, 1995, and March 14, 1996. The meetings took place in Bailey, Colorado Springs, Deckers, Denver, and Lake George, Colorado, and were attended by about 400 people. All of these meetings were advertised in local and regional media and by direct mailings. In some remote areas that are perceived to be underserved by media, posters located where community members were likely to see them, such as post offices and general stores, also advertised the meetings. Many of these meetings were covered by local and regional mass media (newspapers and radio). In addition, upon request, the Forest Service conducted about 25 briefings for county governments, water providers, citizen groups, landowners associations, and environmental groups.

Informational materials were mailed out four times:

1. During the issue identification process, to inform people about the study and request comments on the eligibility and classification determinations.

2. At the start of the suitability determination, to let people know about open houses and to request their issues and concerns.
3. Before the second round of open houses, to solicit comments on preliminary alternatives and gather additional issues and concerns.
4. After the DLEIS was published, to announce its availability.

These mailings were designed to make sure as many people as possible were informed about the study and how to make their views known. The mailings reached more than 2,600 people, including those owning land in or adjacent to the study river corridors; river users; grazing permittees; businesses related to the river corridor; recreationists; water providers; water users; local, state, and Federal agencies; interested parties; and others who requested to be kept informed of the study's progress.

Periodic briefings were also conducted with Arapahoe, Douglas, Jefferson, Park, and Teller County officials; Denver Water; and U.S. congressional delegations beginning in November 1995. In response to requests, presentations were also made to each county commission, the Metropolitan Water Providers, Suburban Water Suppliers Wild and Scenic Task Force, several county planning departments, and a variety of organizations in eastern Colorado. Additional issues, concerns, and opinions were made at these meetings and incorporated into the scoping process.

The DLEIS was published in April 1997, and a notice of availability was published in the *Federal Register* (vol. 62, No. 70, p. 17810) at the same time. During the 90-day comment period following release of the DLEIS, the Forest Service received letters and comments from about 324 people and a petition bearing 147 signatures. At the time the document was released, local stakeholders were beginning to develop a non-designation protection plan for the river. This was included in the DLEIS as

Alternative A2, although it had not been fully developed at the time.

Following release of the draft, the local stakeholder groups organized under the leadership of the Denver Water Board and the Suburban Water Providers' Wild and Scenic Task Force to develop the details of the A2 alternative. Seventy-three agencies and interest groups were invited to participate in the planning process. (See Appendix A for the full list of participants.) Four work groups were established to focus on different aspects of Alternative A2, including: (1) flow management; (2) water quality; (3) recreation, scenery, and wildlife; and (4) the endowment fund. Once each work group developed a draft plan, an overall group, the Synthesis Committee, put all the pieces together into one package. About 46 meetings were conducted over an 8-month period. In addition, three large public meetings were held at the beginning, middle, and end of the process to get comments from the general public and to allow participants in individual work groups to hear what other groups were doing.

Interest group representatives participated in the planning process with the understanding that their participation did not mean they necessarily supported the plan developed. Each group maintained its right to agree or disagree with the final product, but all participated with the intent of finding the best solution to their differences. When the final alternative, entitled the "South Platte Protection Plan," was submitted to the Forest Service, each group was asked to submit a letter of support directly to the Forest Service. The Forest Service received 47 letters with overall mixed support for the SPPP.

The Forest Service sent out a public mailing in October 1998 to announce (1) a review of the SPPP and (2) its decision to prepare a SDLEIS. The letter included a list of issues and concerns about the SPPP raised by the public or by Forest Service specialists. These focused on the SPPP's adequacy in protecting

the rivers' outstandingly remarkable values, water quality, and free-flow.

The Forest Service held a public meeting in February 1999 to discuss the issues and concerns about the SPPP and to present ideas for a modified SPPP alternative. Several individual meetings followed this with interested groups to clarify the issues and concerns and to discuss options for addressing the concerns in another alternative. Concurrent with these meetings, the mailing list was updated, and all interested parties were informed of new developments.

The A2 alternative was amended by the stakeholder groups in response to concerns that the Streamflow Management Plan (SFMP) did not adequately address impacts from high flows.

The SDLEIS was released for a 90-day comment period in March 2000, and a notice of availability was published in the *Federal Register* (vol. 65, No. 63, p. 17265) at the same time. The Forest Service received 232 individual comments during this period. The Forest Service also held public workshops in Bailey, Deckers, Lake George, and Denver, Colorado, during the comment period. All of these meetings were advertised in local and regional media and by direct mailings. As had been done for the scoping meetings, posters located in places such as post offices and general stores, where community members were likely to see them, also advertised the workshops. A total of 61 people attended these workshops. Local and metropolitan media also covered the workshops and reported on the status of the study. Individual group meetings and periodic project briefings were also presented for various interest groups and government agencies as requested.

In response to concerns by the Forest Service and various stakeholders, the groups that participated in the development of the SPPP, the A2 alternative, developed supplemental material that addresses unanswered questions in the original document, including provisions for enforcing of the tenets of the SFMP and water

development under a non-designation scenario. As they had done during the development of the original SPPP, members of a Forest Service interdisciplinary team observed the A2 development process to provide expertise on technical resource information, agency procedures, and the provisions of the WSRA.

Denver Water held public hearings to address the contents of the supplemental material in April 2001 in Denver and Deckers. The material was submitted formally to the Forest Service on June 5, 2001. The Forest Service received nine letters of support for the SPPP from local and state agencies, as well as organizations with an interest in management of the rivers' values. The letters specified that their support be based on the premise that the supplemental material be included in the FEIS.

The Forest Service conducted mailings in November 2000, December 2001, and December 2002 to update the constituency and update the mailing list pending distribution of this FEIS.

1.5 MONITORING

If any of the study corridor is designated as a Wild and Scenic River, the Forest Service, as the administering agency, would be required to identify what monitoring is already taking place, coordinate with other entities, and develop and implement a monitoring plan to ensure that the ORVs, free-flowing character, and water quality are protected and enhanced. The method of review and corrective action would be incorporated in the comprehensive River Management Plan.

Until a decision is made as to the future use of the river and adjacent lands (discussed under "Purpose and Need for Action" above), and if the South Platte Protection Plan is in effect, the Forest Service will coordinate with the SPPP to ensure that the river values, free-flowing character, and water quality are protected and perhaps enhanced and that

potential classifications are maintained. Key monitoring features include:

- ❖ Reviewing proposed activities, and
- ❖ Monitoring ongoing activities and resource conditions.

The method of review and corrective action will be discussed in the Record of Decision

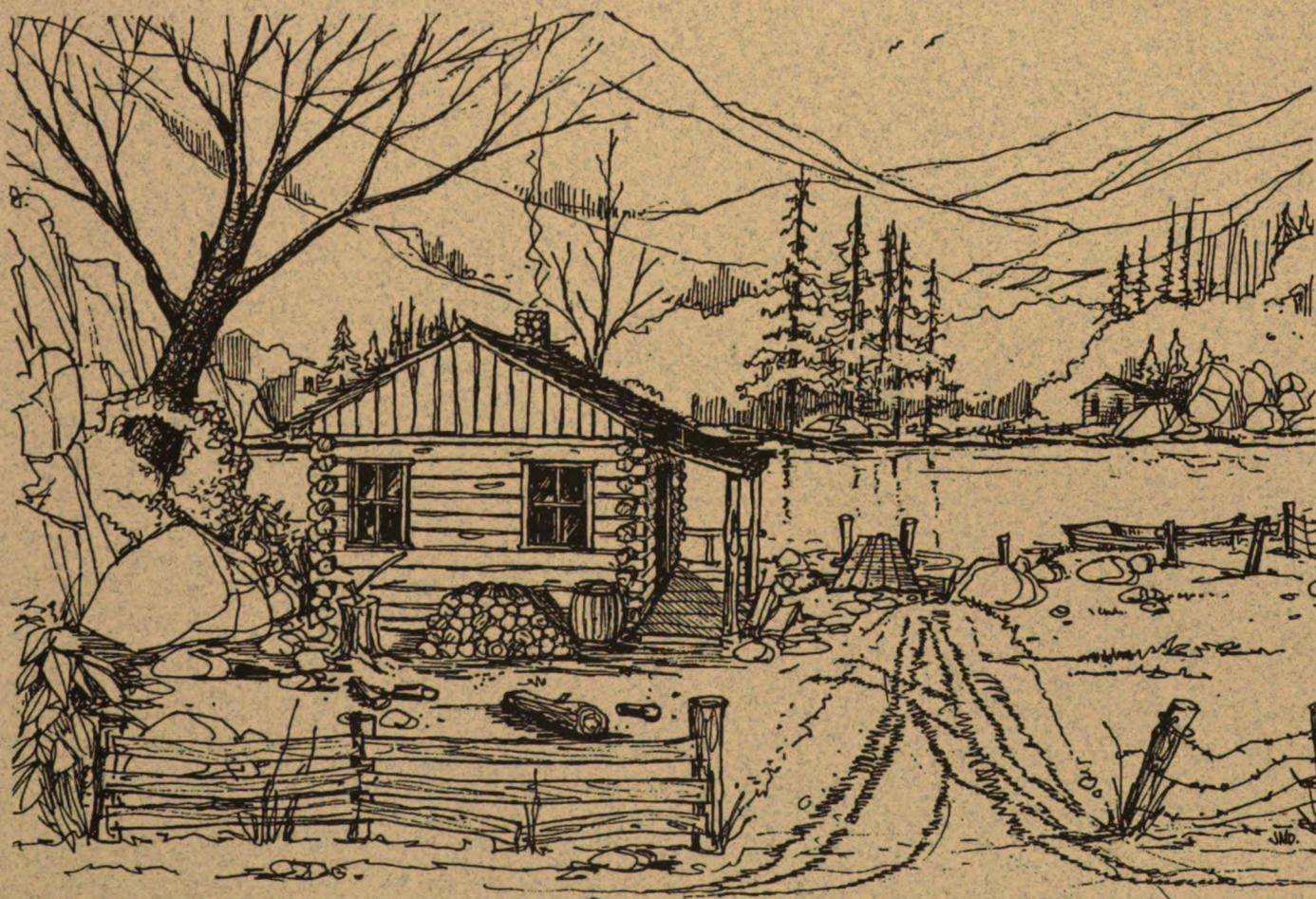
1.6 PUBLIC REVIEW AND FUTURE PROCESS

Public comments received on the DLEIS and the SDLEIS were utilized in preparing this FEIS. Following a comment period on this FEIS and Draft Plan Amendment, the Forest Service intends to review the comments and then issue a Record of Decision that amends the Forest Plan to ensure protection of free-flow, ORVs, and water quality. If at a later date the Forest Service receives a proposal for some activity that is inconsistent with the protection

of free-flow, ORVs, and water quality, it may become necessary to make a decision on the suitability of the river for designation as a Wild and Scenic River. At that time, it will be determined whether the current EIS is sufficient to support that decision or whether circumstances have changed so much that a new National Environmental Policy Act document will need to be prepared.

After publication of the Record of Decision associated with the current study, the SPPP will provide a management umbrella for dealing with activities affecting free-flow, ORVs, and water quality in the river corridor. If the SPPP is not implemented in a timely manner, then it may become necessary for the Forest Service to proceed with making a decision on suitability. Similarly, if over time it becomes apparent that the SPPP is not protecting free-flow, ORVs, and water quality in the river corridor sufficient to comply with agency policy regarding eligible rivers, it may also become necessary for the Forest Service to proceed with making a decision on suitability. Criteria associated with evaluating the SPPP's effectiveness are discussed in Chapter 4 under Preferred Alternative.

Description of Area



CHAPTER 2

Description of Area (Affected Environment)

2.1 INTRODUCTION

The purpose of this chapter is to summarize the character and resources of the Wild and Scenic River study corridors along the South Platte River and the North Fork of the South Platte. It describes the current conditions and existing trends to acquaint people with the study corridors and provide a basis from which to assess the consequences of the various designation and management alternatives presented in Chapter 4. An additional summary description of some of the affected environment and current conditions for each study river is also found in the Eligibility and Classification Determinations in Appendices C and D.

The term "river" is used in this document as defined in section 16(a) of the Wild and Scenic Rivers Act, which states that, "River" means a flowing body of water or estuary, or a section, portion, or tributary thereof, including rivers, streams, creeks, runs, kills, rills, and small lakes." The words "river" and "stream" are used interchangeably throughout this report.

2.2 REGIONAL SETTING

The North Fork of the South Platte and the South Platte River are located in east-central Colorado and are part of the Platte River drainage. Their headwaters lie high in the Rocky Mountains on the Continental Divide, and they drain eastward through the Front Range, merging at the unincorporated

community of South Platte. Both study rivers are located primarily within the Pike National Forest (National Forest). The eligible river segments studied comprise 72.3 miles of streams.

2.3 RIVER DESCRIPTIONS

The North Fork of the South Platte (North Fork) originates on the east crest of the Continental Divide at the base of Teller Mountain, 10 miles northeast of Breckenridge, in Park County, Colorado. The stream flows east for 50.3 miles into Jefferson County, Colorado, to its confluence with the South Platte River, 22 miles southwest of Denver. Although the entire river was considered in the eligibility determination, only that 22.9-mile portion of the stream from the upstream boundary of the Berger property near Insmont, Colorado, downstream to its confluence with the South Platte River was found eligible and included in the study corridor.

The South Platte River is formed by the Middle Fork and South Fork, 2 miles west of Hartsel, Colorado. The Middle Fork originates on the east crest of the Continental Divide near Wheeler Mountain, in Park County, Colorado, 13 miles northwest of Fairplay and flows southeast to its confluence with the South Fork. The South Fork originates on the Continental Divide at Weston Pass in Park County, Colorado, and flows southeast through Antero Reservoir to its confluence with the Middle

Fork. From Hartsel, in the middle of a grass-covered basin called South Park, the South Platte flows southeast for 20 miles through the Spinney Mountain and Elevenmile Reservoirs, then turns northeast through the Front Range, flowing through Cheesman, Strontia Springs, and Chatfield Reservoirs in Park, Teller, Douglas, and Jefferson Counties to Denver. From Denver, it continues northeast, across the plains, to its confluence with the North Platte, forming the Platte River, just east of North Platte, Nebraska. The 49.4-mile portion of the South Platte River from Elevenmile Dam to Strontia Springs Reservoir (excluding Cheesman Reservoir) was considered in the eligibility determination, found eligible, and is included in the study corridor.

Each study river corridor is approximately one-half mile wide (one-quarter mile on each side of the river's usual high-water mark). This comprises the study area covered in this report. None of the study segments lie within any State Scenic Waterway or State Protected River corridors.

2.4 CLIMATE

The mountains and valleys of the South Platte and the North Fork basins exhibit marked differences in climate. The higher elevations along the western boundary of both basins receive most of their precipitation as snowfall in the winter. Average annual precipitation in the high mountains is about 40 inches. The portion of the watershed from South Park eastward usually receives relatively small accumulations of snowfall. Average annual precipitation in this area ranges from 11 to 15 inches, measured at Hartsel and Cheesman, respectively, and it usually comes in the form of convective rainstorms. In the high mountains along the western boundary, average annual temperature is less than 32 degrees Fahrenheit (°F). Temperature in the valleys averages about 45 °F.

2.5 PHYSIOGRAPHIC REGIONS AND GEOLOGY

PHYSIOGRAPHIC REGIONS

The two rivers are located within the Front Range, a complex portion of the Southern Rocky Mountains. This northerly trending range is bounded on the east by the Denver Basin and on the west by South Park. Igneous and metamorphic rock compose this mountain range, which stretches from Cripple Creek north to Wyoming and is more than 40 miles wide at its widest point west of Boulder. The Front Range consists of several granitic batholiths, including the Pikes Peak, Sherman, and Boulder Creek Batholiths. The Pikes Peak Batholith is the main feature of the study area. At higher elevations, the topography has been molded by glacial activity. The glacial and postglacial erosion has resulted in the deposition of alluvial materials along major drainages at lower elevations. The Kenosha Hills and Tarryall Mountains are northwest-trending features that form the western edge of the South Platte drainage basin. The Rampart Range forms the eastern edge of the basin.

Locatable minerals are minerals such as gold, silver, copper, lead, cinnabar, tin, gemstones, or other valuable deposits. Two areas within or adjacent to the study corridors are known to have the potential for locatable minerals. The South Platte Pegmatite District is centered around Raleigh Peak near South Platte, and the Tarryall Mining District lies just northwest of Lake George. Mining claims are located within T. 11 and 12 S., R. 71W, and T. 08 and 09 S., R. 70 W. The Bureau of Land Management's (BLM's) Geographic Mining Claims Index for March 26, 2002, shows 3 current claims and 82 that are closed. All the lands within the river corridors are open to mineral entry except for specific areas such as campgrounds. However, the potential for leasable mineral resources (oil and gas deposits) or active quarry sites within either corridor is low. The oil and gas Record of Decision for the Pike and San Isabel

National Forests and the Cimarron and Comanche Grasslands (PSICC), signed February 12, 1992, designated no leases on the mainstem and no surface occupancy on the North Fork.

The majority of the rock types found in this study were created from 1.7 to 1.0 billion years ago during the Proterozoic Eon of Precambrian time (Chronic and Chronic, 1972). The oldest rock unit is a biotite gneiss created during the middle Proterozoic. Various younger granites, mainly in the Elevenmile area, were formed from 1.7 to 1.4 billion years ago. Erosion followed, creating low rolling hills close to sea level. In a cycle repeated several times, episodes of mountain building, accompanied by metamorphism of pre-existing rocks, were followed by erosion. A long period of erosion completed Precambrian time.

Some Paleozoic Era rocks are found in the Manitou Half-Graben, a structural feature that lies to the east of the river corridor adjacent to the Rampart Range. The rock types include sandstones, limestones, dolomites, conglomerates, and shales. Among other things, they reflect an episode of mountain building during the Pennsylvanian Period of the Paleozoic, which created the ancestral Rocky Mountains.

Mesozoic Era rocks are missing in the study area. Strata preserved east of the Front Range, however, show that conditions in Colorado during that era ranged from arid plains to shallow marine environments that created generally fine-grained sandstones and shales.

An episode of mountain building, known as the Laramide Orogeny, began near the end of the Mesozoic and continued into the Tertiary Period of the Cenozoic Era. This activity created several north-south-trending ranges, including the Front Range. This uplift consists of a linear block, faulted on both sides with hogbacks to the east. Mineralized solutions migrated upward through joints and faults in the crust. Oligocene lava flows, east of the study area, created a lake in which fine volcanic

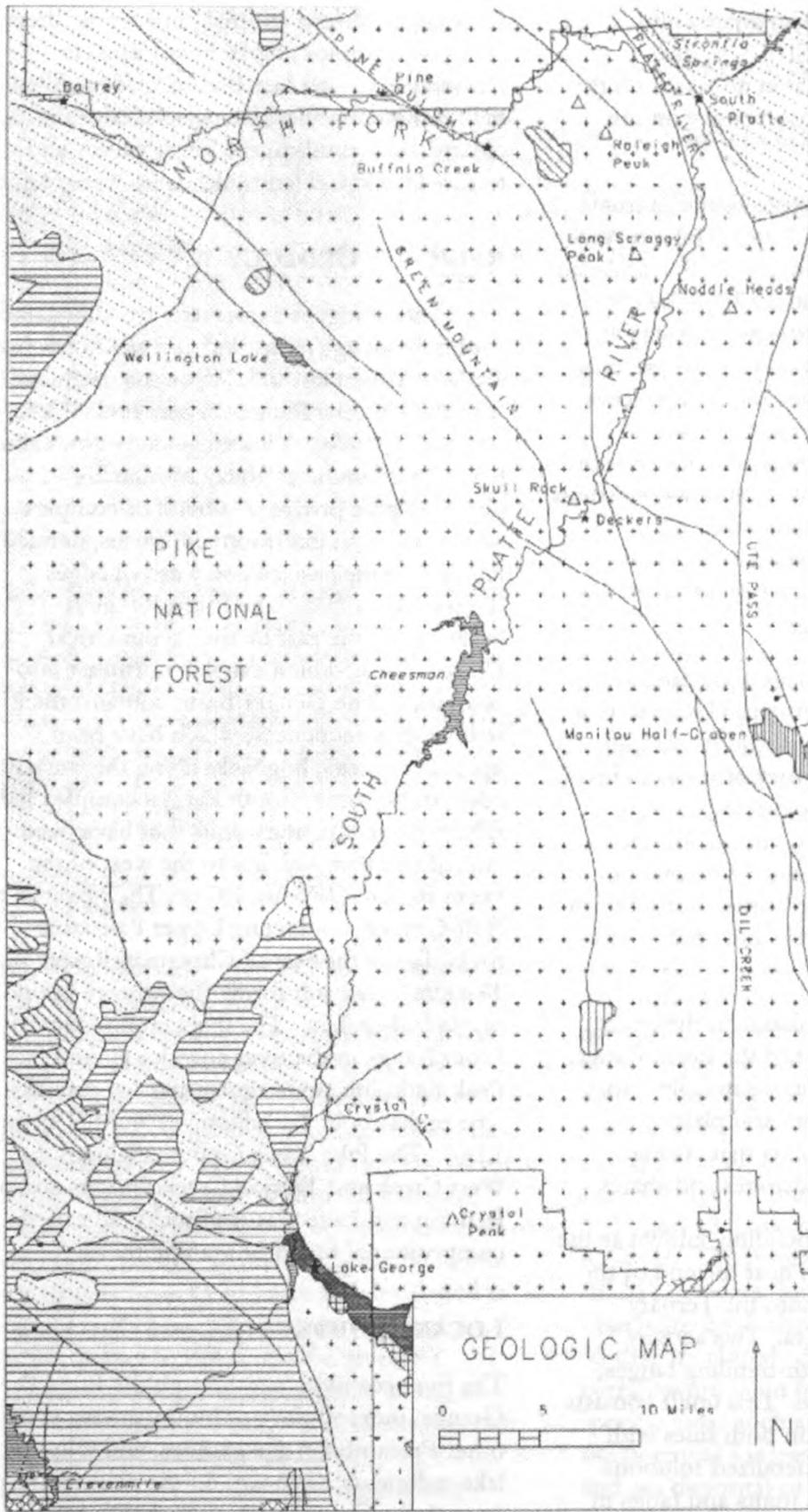
ash trapped insects and fish, preserving them, along with stumps and trees at Florissant. During the Quaternary Period, glaciers filled the high mountain valleys, the glacial outwash created alluvial fills in the lower valleys and terrace levels, and landslides areas were formed.

REGIONAL GEOLOGY

The Front Range is a northerly trending band of Precambrian age rocks that extends north from the Wet Mountains into Wyoming, terminating with the Laramie Range (Bryant et al., 1981; Scott et al., 1978). This range constitutes about half of the Southern Rocky Mountains physiographic province, a band of complex mountains with intermontane basins, defined by faulting on the eastern and western edges (Fenneman, 1931). The Front Range is bounded on the east by the asymmetrical Denver Basin, which extends northeast into Nebraska. The Denver Basin contains thick sedimentary sequences, which have been uplifted to create hogbacks along the western edge of the basin. South Park, a complex basin filled with sedimentary units that have been faulted and thrust, lies to the west of the Front Range (DeVoto, 1971). The Manitou Half-Graben, containing Upper Paleozoic rocks, lies to the east of Cheesman Reservoir. The Ute Pass Fault forms the western boundary of the half-graben. The main component of the Front Range in the river corridor is the Pikes Peak Batholith, an irregular mass of granitic-type rocks about 1.1 billion years old (Tweto, 1987). The Pikes Peak Granite includes the West Creek and Tarryall Creek Plutons and the Redskin and Lake George Stocks, all varied compositional forms of granitic rocks.

LOCAL GEOLOGY

The river corridors cut through the Pikes Peak Granite, outcroppings of biotite gneiss, various other Precambrian age granites, and Oligocene lake sediments, as shown on the geologic map (map 2-1). The Pikes Peak Batholith is roughly oval shaped and covers about 1,200 square



Map 2-1.—Geologic map.

miles of the southern Front Range (Bryant, 1974, 1976; Peterson, 1964; Scott, 1963). The batholith consists of white to moderate orange-pink, medium to coarse-grained biotite and hornblende-biotite granite, which is very susceptible to weathering. Gradational rock types within the batholith include quartz monzonite, granodiorite, and syenite. The granite is composed of microcline perthite, quartz, hornblende, and biotite. The grains range in diameter from 1 inch for perthite to one-quarter inch for quartz with 1-inch thick books of biotite. Outcrops are generally large, rounded cubical forms that are perched atop each other, or large, slabby, tabular forms. Segregations of biotite and hornblende weather out as knobby forms of the granite surface. The quartz monzonite is a porphyritic, coarse-grained, light gray to light-pinkish-gray rock with dark speckles. Granodiorite and syenite are limited in the study area. They are composed of oligoclase, microcline, quartz, biotite, and microcline. Many xenoliths of gneiss and migmatite are found in the batholith. Northwest-trending sandstone dikes can be traced in faults at South Platte and Buffalo Creek (Scott, 1963). The sandstone is red or green fine-grained quartz of Cambrian age. Aplite dikes that strike north 60 degrees west and dip 10 degrees northeast, occupy fractures in the granite. They average 2 feet in width over distances of several hundred feet. The jointing is northwest oriented with a shallow southeast dip, creating beds of 12 inches and greater in thickness. The granite can easily weather to depths of 15 feet along joints or fractures. The weathering of the biotite and feldspar leaves a surface of friable aggregate. Pegmatite seams are found throughout the granite, particularly around the edge of the batholith. They may be either circular or elliptical in shape. The quartz-microcline-muscovite variety of pegmatite is the most abundant. Tourmaline, beryl, and fluorite are found within these pegmatite seams. Cavities in the seams contain crystals of pale brown microcline, clear quartz, and muscovite perched on the microcline and quartz.

The Precambrian biotite gneiss has been mapped as banded or layered sequences of sillimanitic biotite-muscovite and fine-grained biotite varieties located around the Pikes Peak Batholith border. The gneiss is fine to medium grained, well foliated as shown by a planar arrangement of the biotite crystals, and composed mainly of quartz, biotite, and oligoclase, with minor hornblende and microcline. The gneissic contact with the Pikes Peak Granite is sharp and well defined. Granite gneiss and amphibolite are mapped locally. The gneiss weathers easily, particularly where there is a concentration of biotite, to form smooth outcrop surfaces.

The Precambrian granites range from 1.4 to 1.7 billion years in age (Tweto, 1979; Wobus, 1976). They are medium- to coarse-grained porphyritic quartz monzonites, quartz diorites, and granodiorites. The mineral composition includes microcline, quartz, oligoclase, biotite, and muscovite with minor hornblende. These rocks are generally a pale pink compared to the brighter color of the Pikes Peak Granite. The feldspar crystals, microcline, and oligoclase weather to form tabular features on the surface. A porphyritic quartz monzonite borders the batholith west of Lake George and crops out in Elevenmile Canyon. The rock is a medium- to coarse-grained, pink porphyritic quartz monzonite with 1- to 1.5-centimeter microcline phenocrysts in a biotite-rich groundmass. The mineral composition includes quartz, plagioclase, microcline, biotite, and minor muscovite.

The Oligocene Florissant Fossil Beds extend from the national monument at Florissant northwest to Lake George (Wobus and Epis, 1978). These beds are composed of arkosic and volcanic conglomerates, tuff and volcanic mudflow breccias, tuffaceous shale and mudstones, and pumiceous tuffs. The beds are less than 150 feet thick and generally lie horizontal. Plant and insect fossils and fossilized stumps and logs are found in these beds. Examples are well exposed in the monument.

Alluvial materials of varied composition are found along both river corridors, particularly at wide points and at the confluence of the forks. Landslide, talus, and morainal deposits are not found in either river corridor.

STRUCTURE

Many faults occur in the area, and several major ones are labeled on the geologic map (map 2-1). Along the Elkhorn Fault, which forms the western border of the batholith, the granitic rocks were thrust at a low angle over the sedimentary units in South Park. The Jarre Canyon and Rampart Range Faults form the eastern edge of the batholith. These high-angle faults have dropped the sedimentary units of the Denver-Julesburg Basin down in relation to the Pikes Peak Granite. The Manitou Half-Graben is a repeat of a portion of the Paleozoic section with the Ute Pass Fault Zone forming the western edge. The Platte River, Pine Gulch, and Green Mountain Faults named by Harza Engineering (1985) are located within the river corridors. Area seismicity has been well documented by the U.S. Army Corps of Engineers (USACE) (USACE, 1986).

MINERALS

Although the corridors and surrounding areas have had some past mining history, activity has been minimal since the end of the 19th century. Of the study corridors' 82 mining claims, none are currently producing, and only 3 are active. The potential for future commercial operations for locatable and leasable minerals within the study corridors is very low. Although the study corridors have some potential for aggregate sources, they contain no active quarry sites. The potential for development of new sites is low due to the recreation use, fisheries, and other resource values in the study corridors. The mineral resources described below are shown on the mineral resources map (map 2-2).

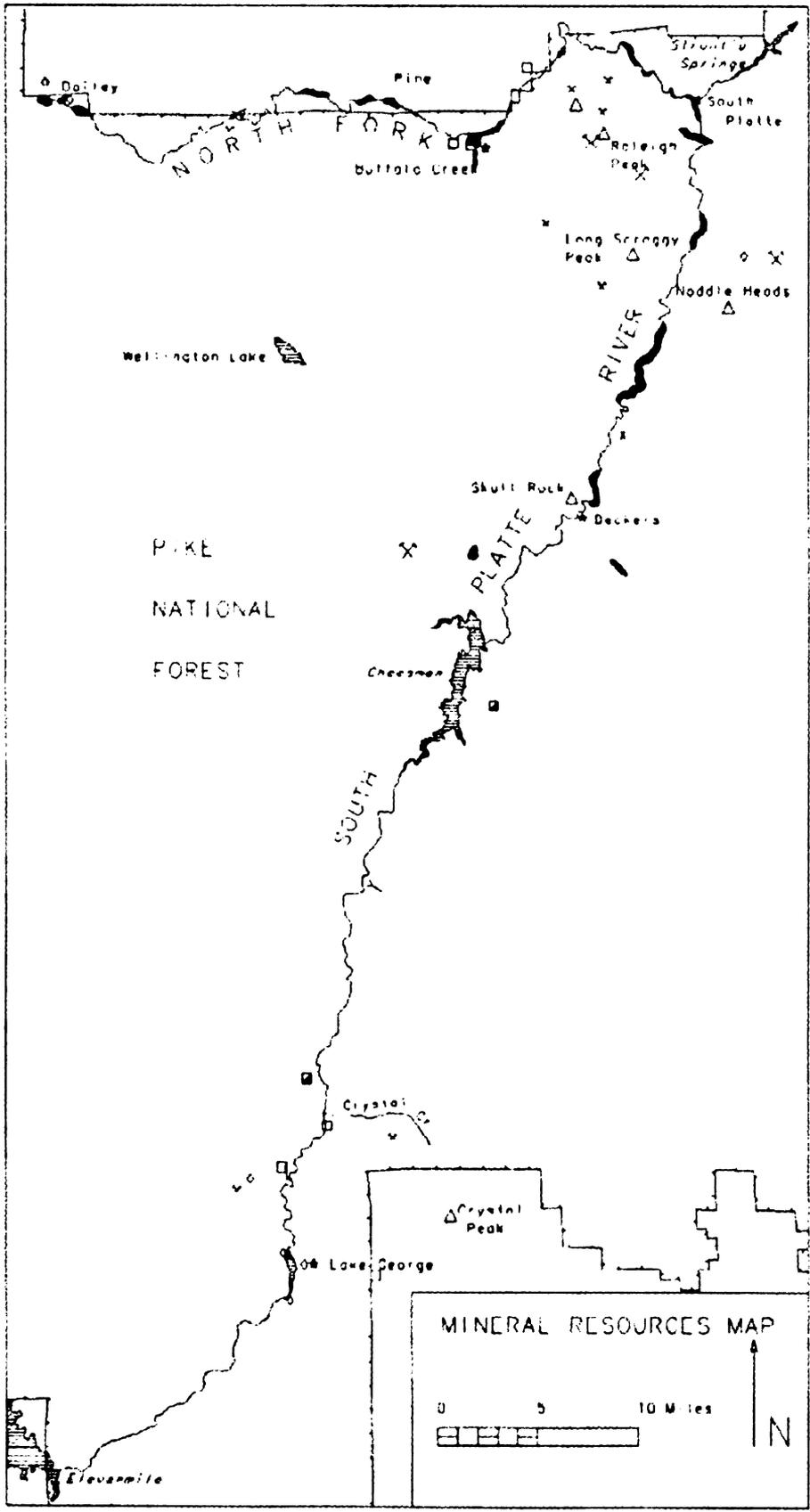
Industrial Minerals

A group of more than 50 rare earth and fluorine-rich pegmatites constitutes the South Platte Pegmatite District (Simmons and Heinrich, 1980). The Pine Creek pegmatite, located north of the Noddle Heads, and others in the district contain byproduct fluorspar (Van Alstine, 1964). The pegmatite composition in the South Platte Pegmatite District, which is centered around Raleigh Peak, is similar to the adjacent country rock, Pikes Peak Granite. Specific minerals found include quartz, feldspar (oligoclase, orthoclase, and microcline), biotite, magnetite, and, locally, hornblende, garnet, beryl, tourmaline, and sillimanite (Hawley and Wobus, 1977; Peterson, 1964). Mining activity in the Raleigh Peak area pursued feldspar, along with mica, beryl, topaz, fluorite, and some rare-earth minerals. The pegmatite dikes are large, complex, nearly vertical, and circular to elliptical; and they have definite zonation with bull-quartz centers that usually crop out above the ground surface.

Groups of pegmatites are also found north of Noddle Heads on Pine Creek, 3 miles northwest of Cheesman Dam on Wigwam Creek, and around Crystal Peak (Voynick, 1994). These pegmatites have produced clear and smoky quartz, greenish-white and pale blue amazonite, muscovite, orthoclase, and purple fluorite. Museum-grade topaz crystals have been excavated from pockets in the granite around Crystal Peak. Other minerals found in these pockets include phenakite and goethite. Crushed quartz has been removed from various pegmatites in the South Platte area (Adams, 1964).

Metals

A caved trench oriented N. 22° W. lies in sec. 18, T. 12S., R. 71 W., near Happy Meadows. The trench was driven in a light-salmon-colored granite probably for uranium or rare-earth elements. It is close to the Lake George beryllium area. Nelson-Moore and others (1978) reported a uranium occurrence



Legend - Mineral Resource Map

Mining Activity

- Y Adit
- Shaft
- X Prospects(s)

Commodities

- ◊ Aggregates (sand, stone, gius, granite)
- Gemstone
- Flourspar
- ★ Pegmatite, 5+ sites
- * Pegmatite, 1-4 sites
- Forest Boundary

Map 2-2.—Minerals Resources Map.

1 mile to the north, but it may actually be the same occurrence. The Gilley Ranch skarn deposit lies west of the river in sec. 32, T. 11 S., R. 71 W. (Heinrich, 1981). A 5-foot-wide scheelite-bearing zone was mapped in the workings.

Aggregates

The alluvial fill found along the rivers is derived from the area bedrock, mainly the Pikes Peak Batholith. The fill is generally granitic in composition, consisting mainly of feldspar, quartz, and mica flakes. The quality and quantity of each deposit varies according to the location. There is sufficient material available between South Platte and Pine to be possible resources (Schwochow and Shroba, 1975). Mineral resource areas were defined by the USACE (USACE, 1986) and are shown on the mineral resources map (map 2-2).

Localized slide areas, colluvial deposits, and small terraces can be found within the river corridors. The sand, gravel, cobbles, and boulder shapes vary from subrounded to angular in these deposits. The Pikes Peak Granite is a good source material for road surfacing and subsurface material. Quarry locations and crushing specifications can be formulated for the required use.

Quartz has been mined from the South Platte pegmatites for terrazzo purposes.

Leasable Minerals

There are no known petroleum, natural gas, or coal resources in the river corridors (Smith et al., 1991; Jones et al., 1979; Tremain, 1984). Geothermal resources are found in the area, but not within the river corridors (Pearl, 1980).

2.6 LAND OWNERSHIP

The study corridors encompass a total of approximately 22,629 acres—15,427 on the

South Platte and 7,202 on the North Fork—with ownership apportioned as shown in table 2-1. Federal lands include 13,953 acres of the Pike National Forest, administered by the Pike and San Isabel National Forests, Comanche and Cimarron National Grasslands. County lands within the study corridor include 545 acres in Pine Valley Ranch, an open space park owned by Jefferson County, plus 29 additional acres that were transferred to the county by the BLM in 2001. The Denver Water Department (Denver Water) owns 3,352 acres, and private lands account for 4,750 acres. Table 2-2 shows the distribution of land ownership in each of the study segments. See also maps 2-3, 2-4, and 2-5.

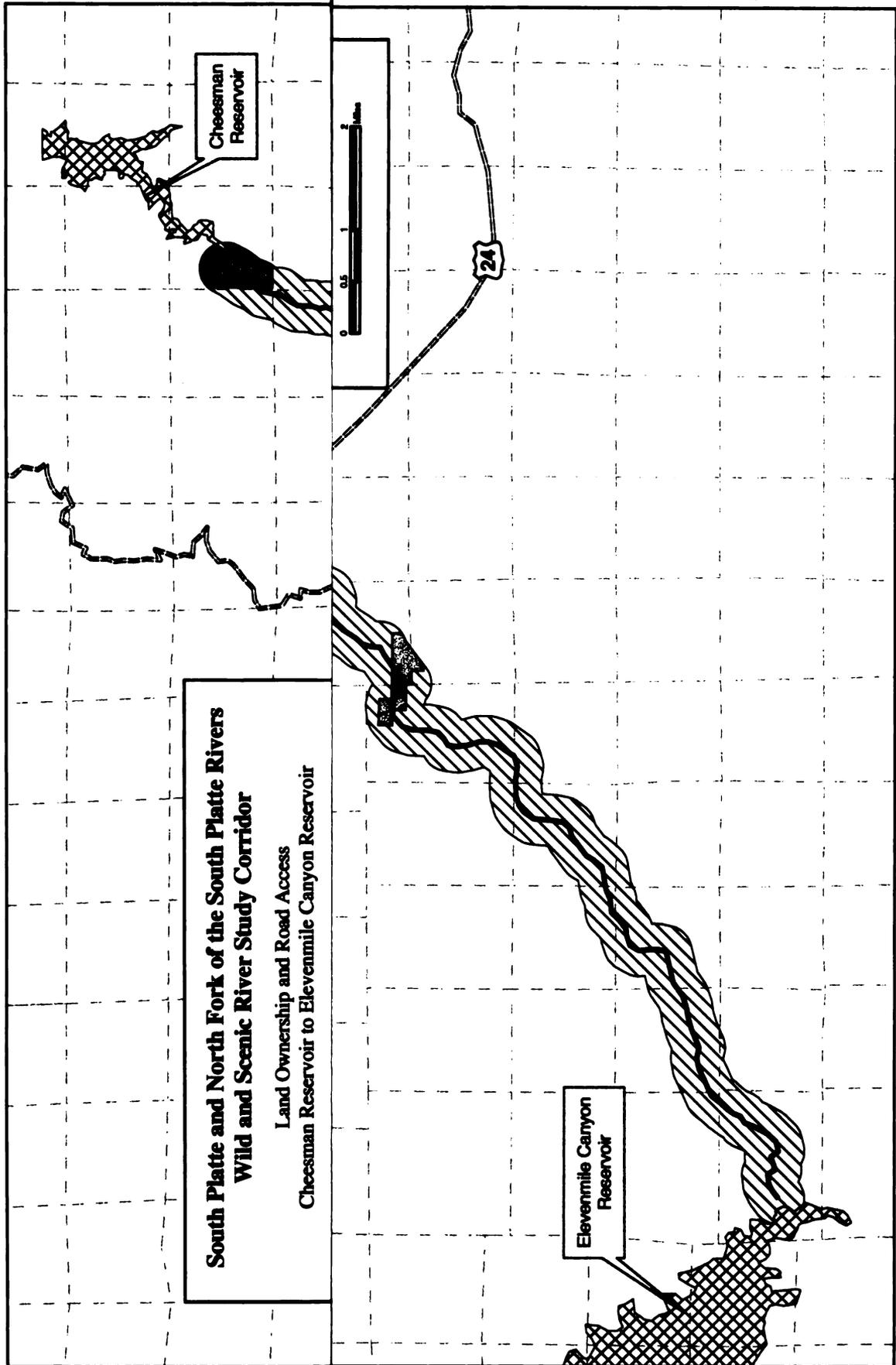
The proportion of public to private lands has remained stable for several decades. Prior to that, Denver Water was actively acquiring private lands for the potential Two Forks Reservoir between Strontia Springs Reservoir and Cheesman Dam on the South Platte and between the confluence and Bailey on the North Fork.

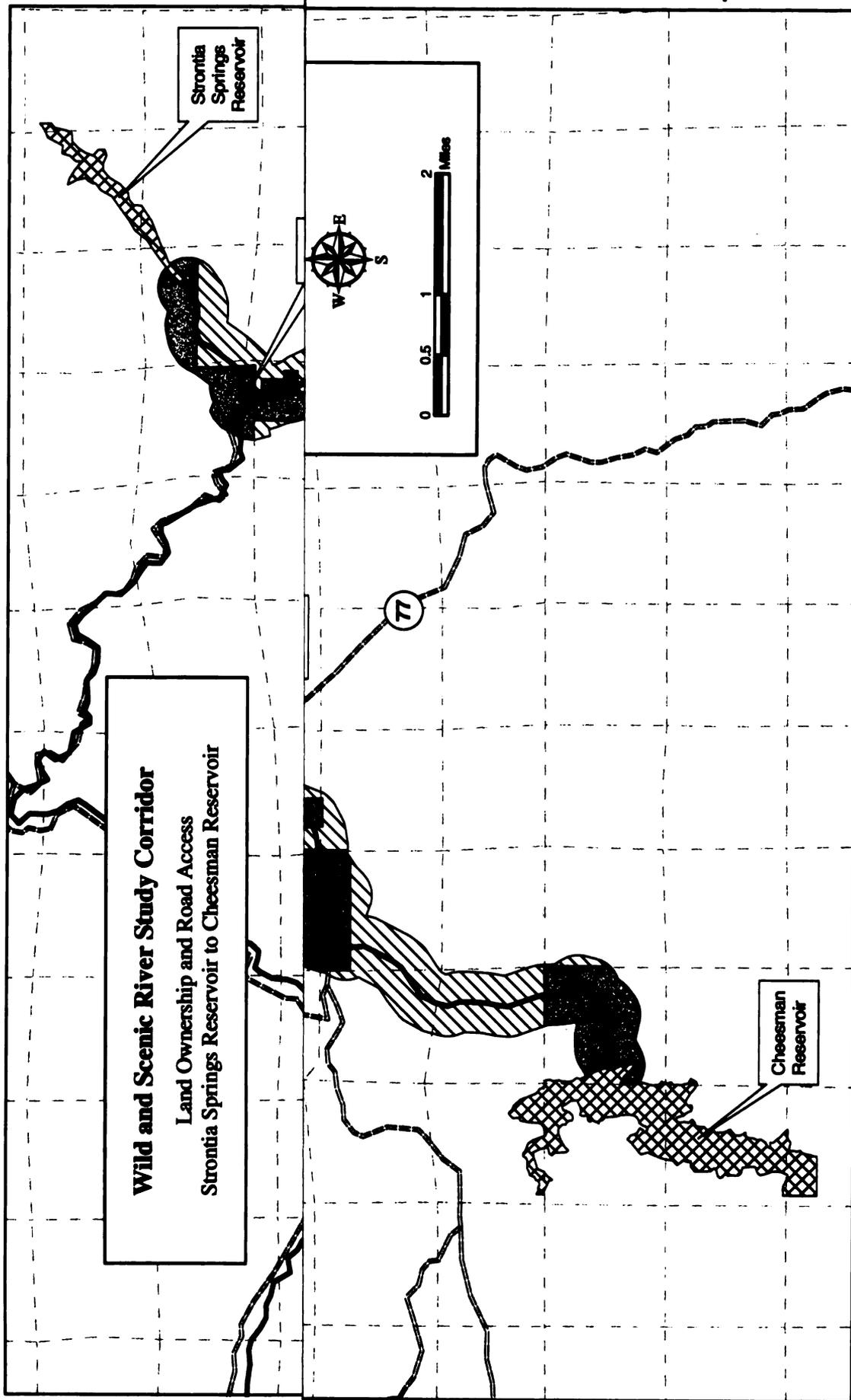
The two rivers in this study are not recognized as navigable by the State of Colorado. In accordance with law as interpreted today, the bed and the banks belong to the adjacent property owner.

2.7 LAND USE

FOREST PLAN MANAGEMENT AREAS

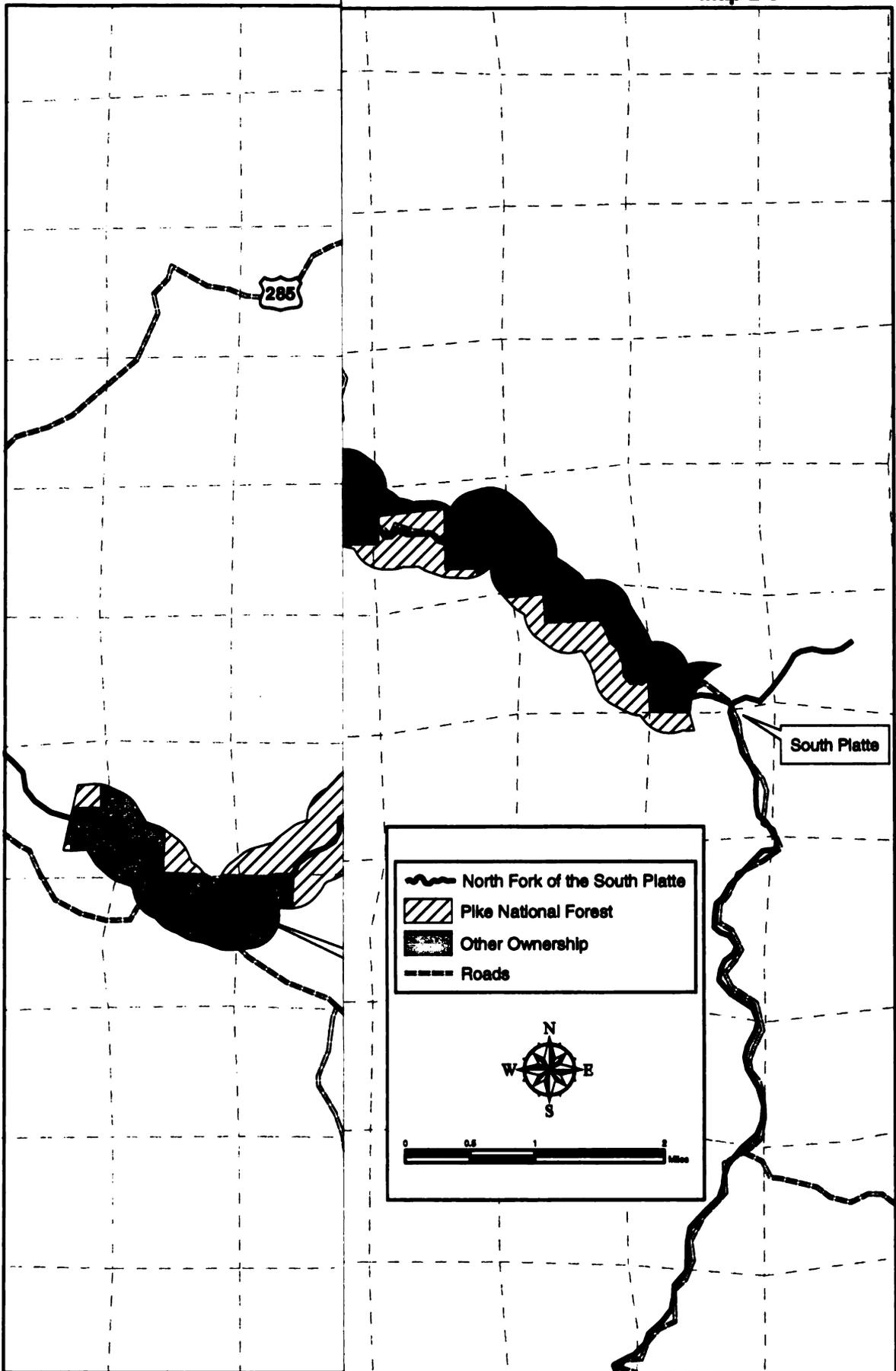
National Forest System lands are managed in accordance with the Land and Resource Management Plan for the Pike and San Isabel National Forests, Comanche and Cimarron National Grasslands (Forest Plan), approved in November 1984. The Forest Plan determined that the 26.8-mile segment of the South Platte River from Elevenmile Dam to Cheesman Reservoir was eligible for inclusion into the Wild and Scenic River System and recommended a suitability analysis (the plan





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Map 2-5



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Table 2-1.—Land Ownership of Eligible Study Rivers

River	U.S. Forest Service		Jefferson County		Denver Water		Private Ownership	
	Acres	%	Acres	%	Acres	%	Acres	%
South Platte	11,783	76.4	0	0.0	1,710	11.1	1,934	12.5
North Fork	2,170	30.1	574	8.0	1,642	22.8	2,816	39.1
Totals	13,953	61.7	574	2.5	3,352	14.8	4,750	21.0

Table 2-2.—Land Ownership of Eligible Study Segments

River Segment	U.S. Forest Service		Jefferson County		Denver Water		Private	
	Acres	%	Acres	%	Acres	%	Acres	%
A&B - South Platte, Elevenmile to Beaver Creek.	3,911	75	0	0	0	0	1,302	25
C - South Platte, Beaver Creek to Cheesman.	3,267	98	0	0	52	2	0	0
D - South Platte, Cheesman to Wigwam Club.	680	71	0	0	281	29	0	0
E - South Platte, Wigwam Club to Strontia Springs	3,925	66	0	0	1,377	23	632	11
H1 & H3 – North Fork, Insmont to Estabrook and Cliffdale to confluence	1,165	19	574	15	1,642	29	2,312	41
H2 - North Fork, Estabrook to Cliffdale	1,005	67	0	0	0	0	504	33
Total	13,953	62	574	2	3,352	15	4,750	21

Total length of eligible segments = 72.3 miles. Total acreage in eligible study corridors = 22,629 acres.

listed the length as 23 miles, but it has been revised to 26.8 miles through use of Geographic Information System data). Pending the outcome of the suitability analysis, this segment and the adjoining study corridor are included in a special management area under the Forest Plan. The special management area, called the Scenic River Corridor, provides additional protection to preserve the characteristics that made the segment eligible for potential Wild and Scenic designation—specifically, its free-flow, water quality, and outstandingly remarkable values. The special protection continues until replaced by a River Management

Plan after designation, or until the segment is found not suitable for designation. In the latter case, the management of the area is released from special protection and reverts to the Forest Plan management area in which the corridor lies.

Various segments of the study corridors lie within several different management areas, as defined under the Forest Plan. The following is a summary of the areas' management activities. More complete descriptions of the management areas and their general direction, management activities, and standards and guidelines are given in Chapter III of the Forest Plan.

Scenic River Corridor

River segments that have been determined eligible for potential addition to the National Wild and Scenic Rivers System are protected from activities that could diminish or change the free-flowing character, water quality, or the scenic, recreational, fish and wildlife, and other values that make the river eligible for designation. This is an interim management direction that applies to all study river segments upstream from Cheesman Reservoir.

Management Area 2A

Management emphasis is for semi-primitive motorized recreation opportunities such as snowmobiling, four-wheel driving, and motorcycling, both on and off roads and trails. Motorized travel may be restricted or seasonally prohibited on designated routes to protect physical and biological resources. Range resource management provides sustained forage yields.

Management Area 2B

Management emphasis provides opportunity for outdoor recreation in rural and roaded natural settings, including developed recreation facilities and year-round motorized and nonmotorized recreation. Motorized travel may be restricted or seasonally prohibited on designated routes to protect physical and biological resources.

Management Area 3A

Management emphasis is for semi-primitive nonmotorized recreation in a nonwilderness, semi-primitive setting. Roads are closed to public use.

Management Area 4B

Management emphasis is on the wildlife habitat needs of one or more management indicator species. Species with compatible habitat needs are selected for an area. The goal is to optimize habitat capability and, thus, numbers of species.

Recreation and other human activities are regulated to favor the needs of the indicator species. Roaded-natural recreation opportunities are provided along forest arterial and collector roads. Some local roads and trails are open to public motorized travel, and these provide semi-primitive motorized recreation opportunities. Others are closed, providing semi-primitive nonmotorized opportunities.

Management Area 5B

Management emphasizes is forage and cover on big game winter ranges. Winter habitat for deer, elk, bighorn sheep, and mountain goats is emphasized. Treatments to increase forage production or to create and maintain thermal and hiding cover for big game are applied. New roads, other than short-term, temporary roads, are located outside the management area. Short-term roads are obliterated within one season after intended use. Existing roads are closed, and new motorized recreation use is managed to prevent unacceptable stress on big game animals during the primary big game use season.

Management Area 7A

Management emphasis is productive tree stand management on lands available, capable, and suitable for production of a variety of commercial and noncommercial wood products. Roaded-natural recreation opportunities are provided along forest arterial and collector roads. Semi-primitive motorized recreation opportunities are provided on those local roads and trails that remain open; semi-primitive nonmotorized recreation opportunities are provided on those that are closed.

OTHER MANAGEMENT AREAS AND USES

The following is a list of management areas and other uses in the study corridors.

North Fork of the South Platte River

About half of the North Fork study corridor lies outside the National Forest, and Denver Water, Jefferson County, and private individuals own almost 70 percent of the corridor.

The upper 4 miles of the study corridor, from Insmont downstream to the Park County–Jefferson County line, lie within the Pike National Forest in Management Area 5B. The area from the county line downstream to the forest boundary lies in Management Area 7A. However, because of very difficult access and surrounding private property, the area has been managed similar to Management Area 5B.

From the National Forest boundary, the study corridor passes for several miles through either private property or the Pine Valley Ranch (a Jefferson County open space park). The study corridor re-enters the forest below Pine and, although it stays mostly on private land, includes a 2-mile section of Management Area 7A between Pine and Riverview.

The lower portion of this study segment, from Riverview to the confluence with the South Platte River, lies in Management Area 2B. The corridor is mostly on lands owned by Denver Water and private individuals, except for 29 acres recently transferred to Jefferson County by the BLM. Parts of it are outside of the forest boundary. The lands are currently under consideration for trade with Denver Water for other lands in the area.

South Platte River

The South Platte River study corridor is entirely within the Pike National Forest and contains about 75 percent National Forest System lands. The 26.8-mile section of the study corridor from Elevenmile Dam to Cheesman Reservoir has special management area status, as previously discussed, but also lies within several regular management areas.

From Elevenmile Dam to a mile downstream from Beaver Creek, the study corridor lies in

Management Area 2B. The area upstream from Lake George (Elevenmile Canyon) contains several developed campgrounds and picnic areas and is quite heavily used by the public. Site-specific management in Elevenmile Canyon is governed by the Elevenmile Canyon Ecosystem Project, which was approved in May 1995. The purpose of the plan is to enhance the quality of the recreation experience and activities, while reducing resource damage.

From 1 mile downstream from Beaver Creek to Cheesman Reservoir, the study corridor is in Management Area 2A, except for a small portion west of the South Platte River downstream from Wildcat Creek, which is in Management Area 3A.

From Cheesman Dam downstream to the confluence with the North Fork, the study corridor falls mostly in Management Area 2B. The area downstream from the Wigwam Club is readily accessible by roads and contains several developed and dispersed recreation sites (trailheads, parking areas, campgrounds, camping areas, and picnic areas). Downstream from Deckers, Denver Water is the largest landholder, but their holdings are interspersed with private and National Forest System lands.

The 3.1-mile portion east of the South Platte from Cheesman Dam to the Wigwam Club property lies in Management Area 5B, and the portion east of the South Platte from Deckers to Oxyoke lies in Management Area 7A (only 1 mile of this section is located on National Forest). Very little timber remains within the study corridor in this area.

The lowest section of the South Platte study corridor, from the confluence with the North Fork to Strontia Springs Reservoir, is in Management Area 4B.

Special Areas

There are no wilderness areas, research natural areas, or inventoried roadless areas in the study corridors. The Lost Creek Wilderness lies

immediately west of the study area and is within 1 mile of the South Platte study corridor near Corral Creek.

Access, Structures, and Private Land Uses

The study corridors are within a 90-minute drive of two-thirds of the State's population, and most of the area is easily accessible by roads, which parallel the river. Exceptions are Segments C, D, and the "scenic" portion of H, which have little or no road access. Small communities and many structures are present in parts of the study corridors. On National Forest System lands, there are fewer structures; and these are limited to bridges, developed and dispersed campgrounds, stream monitoring stations, several abandoned mining cabins, and summer homes under special-use permits. Denver Water is the largest non-Federal landowner. Its lands are managed for water delivery, dispersed recreation, summer-home rentals, and resource protection to ensure high water quality. Prior to the Two Forks Dam proposal, Denver Water acquired many of the private lands on the South Platte from Deckers to the North Fork confluence and on the North Fork from the confluence to Ferndale because the Two Forks Reservoir would have inundated those areas. Even though the Environmental Protection Agency (EPA) denied the permit for the dam and reservoir, Denver Water is continuing to acquire some land from willing sellers in the study area.

Private lands within the study corridors are primarily year-round rural residences, though some small communities are scattered along the rivers. These include, on the North Fork, the unincorporated towns of Pine and Buffalo Creek and the communities of Estabrook, Crossons, Cliffdale, Riverview, Ferndale, Argyle, Foxton, Dome Rock, Long-view, and South Platte; and, on the South Platte River, the incorporated town of Lake George and the communities of Nighthawk, Oxyoke, Trumbull, and Deckers. The towns include about 200 houses, community buildings, churches, and several retail businesses. Deckers contains

several retail stores and a restaurant leased from Denver Water. A volunteer fire department is located in Trumbull. A few ranches with grazing and irrigated hay fields occur in the upper portions of the North Fork study corridor and just north of Lake George. There is little timber production in the study corridors.

Utilities

Two high power transmission lines cross the South Platte study corridor—one at Corral Creek (Segment C2) and one north of Happy Meadows Campground, also in Segment C. Also, a water pipeline that parallels U.S. Highway 24 crosses the South Platte study corridor at Lake George. The pipeline and the two powerlines all run within designated utility corridors identified in the Forest Plan. Under the Federal Land Management Policy Act, the Forest Service recognizes that these corridors would be given first consideration for the location of future electric, gas, oil, and communication facilities, regardless of potential for Wild and Scenic River designation.

STUDY SEGMENT DESCRIPTIONS

The following are descriptions of the study corridors showing private land uses and the locations of roads, bridges, and structures.

South Platte – Segment A

This 8.7-mile segment from just below the fence line beneath Elevenmile Dam to the private land boundary south of Lake George lies within the Pike National Forest and, except for a small area owned by the Boy Scouts of America, is entirely National Forest System lands. The area is characterized as a rocky, 400-foot deep V-shaped granite canyon containing a fast-flowing mountain stream with a very narrow valley floor (or, in some places, no valley floor). The entire segment is paralleled by National Forest System Road (NFSR) 96, which follows an old railroad grade through several tunnels. Elevenmile Canyon is included in a special

recreation management area administered by the Forest Service and used primarily for developed and dispersed recreation, including camping, picnicking, hiking, fishing, tubing, swimming, and driving for pleasure. This area includes the Reservoir, Cove, and Riverside Campgrounds; the Idlewild, Messenger Gulch, Elevenmile, and O'Brien Picnic Areas; numerous designated parking areas; and some of the Sleeping Tom Summer Homes under special-use permit. The Wagon Tongue and Springer Gulch Campgrounds are located just outside the study corridor. The corridor also contains NFSR 96-1 E and NFSR 96-1-F, which are half-mile-long dead-end roads that access the summer homes and Springer Gulch Campground. NFSR 244 provides access to Wagon Tongue Campground but continues outside the corridor. Other developments in the area include a 10-foot diversion dam and abandoned aqueduct near Lake George and a private road with several old buildings up Rankin Gulch on Boy Scout Camp Alexander. (The camp and most of the other improvements are located just outside the corridor boundary.)

South Platte – Segment B

In this 7.7-mile segment from Lake George to Beaver Creek, the river channel and the valley floor both widen, and the canyon disappears from Lake George to Tappan Gulch. From Tappan Gulch to Beaver Creek, the valley bottom narrows, and the river enters another 200- to 400-foot-deep canyon. Most of Segment B is privately owned. It includes the town of Lake George with several hundred houses, community buildings, fire department, cemetery, schools, churches, and several retail businesses; the lake itself with several dams and a mile-long diversion channel; subdivisions with 25 to 50 houses each around the lake, on Vermillion Creek, and on Crystal Creek. The area is used primarily for year-round residences, but there is some private recreational use on Lake George. Some hay fields and grazing pastures exist along the mile-long reach from U.S. Highway 24 to Tappan Gulch. A 2-mile

segment between Tappan Gulch and Vermillion Creek is mostly National Forest System lands, and other National Forest lands lie above the subdivisions on Crystal and Vermillion Creeks.

The area includes U.S. Highway 24 and County Road 96, both of which have bridges across the South Platte. Other roads include NFSR 79, which parallels the lake for a mile; NFSR 298, which intersects 79 and leaves the corridor to the southwest; County Road 77, which parallels the South Platte for a mile north of Lake George; NFSR 207, which intersects County Road 77 and parallels the west side of the South Platte for 3 miles, from Tappan Gulch to Beaver Creek; NFSR 897, which parallels the east side of the South Platte from Vermillion Creek to Beaver Creek; and many city and private subdivision roads. Other improvements include several old ranch buildings near Tappan Gulch; several dams and small ponds along Tappan Gulch, Vermillion Creek, and Crystal Creek; a small pond along the South Platte near Crystal Creek; a private river bridge near Crystal Creek; an aqueduct that parallels U.S. Highway 24; the small Happy Meadows Campground administered by the Forest Service; a Forest Service trailhead; and a Forest Service trail, which parallels the river for several miles downstream from Vermillion Creek.

South Platte – Segment C

This 10.4-mile segment, from the north end of the private lands near Beaver Creek to the backwaters of Cheesman Reservoir, is known as Wildcat Canyon. This segment lies within the Pike National Forest and is entirely National Forest System lands, except for the lowest 750 feet of the corridor, which is owned by Denver Water. The area is used for dispersed recreation including hiking, fishing, and semi-primitive motorized recreation (four-wheel drives, all terrain vehicles, and motorcycles). Here, the river flows through a rugged, V-shaped, 400- to 600-foot-deep granite canyon with steep canyon walls and numerous large rock formations. The area is undeveloped and inaccessible except in Segment C2. In this

segment, a mile of National Forest System Trail (NFST 654) runs along the west side of the corridor at the upper end, and another National Forest System Trail (NFST 619, used as a four-wheel drive road) runs from NFSR 210 to the South Platte River near Platte Springs and north to Tarryall Creek. A four-wheel-drive road comes down to the river near Corral Creek (NFSR 540). One can ford the river here and climb out of the canyon to the east near Longwater Gulch (NFSR 221). NFSR 540 turns south just before the ford and parallels the west bank for a mile, then fords Tarryall Creek and meets NFST 220A. NFST 220A fords the South Platte and turns southeast towards the Hackett Gulch road (NFST 220). The Hackett Gulch Road still fords the river at its westernmost point, but NFSR 220B on the west side has been closed to the top of the ridge. NFSR 200B continues from there to NFST 619. In addition, four-wheel drive roads in Segment C3 proceed down Metberry Creek and Northrup Gulch to the study corridor (NFSR 205 and 206). Although some of these at one time forded the South Platte, the Northrup Gulch Road was closed several years ago about one-quarter mile from the river to mitigate erosion and protect resource values. The Metberry Creek Road, which currently goes to the river, has been closed at the river crossing below what was formerly the Custer Cabins to reduce erosion on a quarter-mile-long steep section.

All of these roads were closed pursuant to the Hayman Fire in June 2002 and will remain closed until a roads analysis can be completed. At that time, a determination will be made on whether to open roads, maintain closures, or decommission

Developments in this segment include remnants of old mining cabins on Tarryall Creek near Longwater Gulch. The Custer Cabin, a mining cabin on Metberry Gulch, was destroyed in the Hayman Fire, June 2002.

South Platte – Segment D

This 3.1-mile segment, from the downstream end of the stream gage below Cheesman Dam to the upstream end of the Wigwam Club property, is known as Cheesman Canyon. Although it lies within the Pike National Forest, the upper 0.9-mile is owned by Denver Water and the lower 2.2 miles by the Forest Service. The area is accessible only by the Gill Trail (NFST 610), which parallels the entire west bank of the river. A 600-foot-deep V-shaped canyon with steep canyon sides and numerous large rock formations characterizes the area. Although the area lies immediately below Cheesman Dam and the dam is visible from the upper 1 mile of the segment, the canyon is primitive, and there are no other developments in the corridor.

South Platte – Segment E

This 19.5-mile segment from the north end of the Wigwam Club property to the backwaters of Strontia Springs Reservoir lies within the Pike National Forest. The area is predominately National Forest System land, with about 20 percent owned by Denver Water and 10 percent privately owned. This segment, like the upper end of the North Fork segment, is characterized as an open, 500- to 1,500-foot-wide river valley with meadows, grasslands, and willow shrubs along a meandering stream. Side slopes are moderate, and the valley rims average 600 feet. An abandoned railroad spur used to provide access to Nighthawk from the main line up the North Fork. The old grade is mostly covered by the county road but is evident in places. This entire segment is paralleled by paved County Road 126 from the Wigwam Club to Deckers, paved County Road 67 and 97 from Deckers to Nighthawk, and graveled County Road 97 from Nighthawk to the confluence. Graveled County Road 75 parallels the east side of the South Platte for 1 mile south of Deckers. Graveled county roads, coming in from the east, intersect with the roads along the South Platte at Nighthawk (County Road 40) and Oxyoke (County Road 67). There are

numerous roads throughout the small communities. The Colorado Trail (NFST 1776) crosses the corridor near the confluence of the South Platte and the North Fork. Power and telephone lines access nearly all the houses in this study segment.

The Wigwam Club, a private fishing club, owns the upper end of this 19.5-mile segment. This mile-long area contains a lodge, 10-15 cabins and other structures, several fish ponds, two footbridges, four road bridges, more than 40 check dams, a road, and other improvements.

From the Wigwam Club to Deckers, the river crosses National Forest System lands and passes the Lone Rock Campground. In Deckers, there are two highway bridges across the South Platte and about 20 structures leased from Denver Water including cabins, a store, fishing shop, and restaurant (which is currently closed). Downstream from Deckers are the small communities of Trumbull, Oxyoke, Nighthawk, Twin Cedars, and South Platte. About two-thirds of the properties in these areas are owned by Denver Water, which leases out the buildings for year-round residences, summer homes, and other recreational use. The remaining third of the properties is privately owned residences. All these areas, including Deckers, are within the right-of-way granted by the Department of the Interior in 1931 to Denver Water for a dam and reservoir.

Trumbull, which straddles the South Platte for half a mile, contains more than 300 lots with more than 50 structures, mostly houses. Other developments include a volunteer fire department and a highway bridge over the South Platte. Ownership is split between Denver Water and private individuals, but Jefferson County also owns a few lots in the community. For 1½ miles downstream from Trumbull, Denver Water or private individuals own most of the river corridor. In this section, there are more than 20 structures, mostly houses, a highway bridge over the South Platte, and the Swayback Ranch, a private fishing club.

For a mile downstream from the Swayback Ranch, the river crosses National Forest System lands, which contain the Bridge Crossing Picnic Ground and the Platte River Campground.

The river runs a mile through the community of Oxyoke, which has more than 20 houses, a highway bridge over the South Platte, and a small pond on Gunbarrel Creek. Then it passes through a quarter mile of National Forest System land and runs for a half-mile across several small tracts of private land with a few houses. For the next several miles the river passes through a part of the National Forest that includes the following developed recreation sites: Ouzel Camping Area, Scraggy View Picnic Ground, Willow Bend Picnic Ground, and Osprey Camping Area. From Nighthawk to the confluence with the North Fork, the river traverses several miles of lands owned by Denver Water and private individuals that contain the communities of Nighthawk and Twin Cedars with over 40 structures, mostly houses or summer homes.

The river then flows for several more miles through the National Forest (crossing a small undeveloped private tract) and then reaches the community of South Platte at the North Fork confluence. South Platte includes about 10 houses and the historic South Platte Hotel (listed on the *National Register of Historic Places* [National Register]). There is also a highway bridge across the South Platte and a stream gaging station. A bridge owned by Denver Water, which crossed the North Fork behind the hotel, was washed out in the Buffalo Creek Flood in 1996. Below the confluence, the river enters the National Forest for a mile to the backwaters of Strontia Springs Reservoir. Denver Water maintains a gated road along this segment, which receives more use as a trail for anglers, and a footbridge across the South Platte near the backwaters of Strontia Springs Reservoir.

North Fork – Segment H

There is much evidence of past human activity throughout the 22.9-mile North Fork study corridor. Power and telephone lines access nearly all the houses in this study segment. An abandoned railroad grade runs the length of the North Fork study segment and is marked by numerous rock walls, bridge abutments, riprap, blast areas, through cuts, and some channelization. Because of fluctuations in flows due to the Roberts Tunnel, Denver Water has a very active cooperative program with landowners to stabilize banks, construct check dams, add riprap, and protect the resources along the North Fork study corridor. There has been extensive channelization upstream from the study corridor and some channelization in the study corridor upstream from Pine. The trend in the study corridor, however, is away from channel work and more toward easement acquisition to protect riparian areas.

The upper portion of the North Fork study corridor from the upstream end of the Berger property, near Insmont, to Buffalo Creek is characterized as an open 500- to 1,500-foot-wide river valley with meadows and grasslands along a meandering stream. Side slopes are moderate, and valley rims average 600 feet. The river loses some of this character between Estabrook and the Pine Valley Ranch, where the flat valley and the meanders disappear, the side slopes become steeper and rockier, and the valley becomes V-shaped between its 800-foot-high rims. Downstream from the outskirts of Buffalo Creek, the river speeds up and narrows. The valley deepens as the river cuts through a mountainous area and the channel is filled with large boulders.

The North Fork study corridor starts within the Pike National Forest on private land owned by the Berger Land Company. The area is used for grazing and is undeveloped except for a power line, several old structures, and a small private bridge. Near Estabrook, the stream is paralleled for a mile by graveled County Road 68, which provides access to at least 10 houses with a

variety of storage buildings. Along the 2-mile river stretch at Estabrook are three private bridges across the North Fork, a private bridge across Craig Creek, short roads to the houses, and a small pond along Craig Creek.

About a quarter mile downstream from Estabrook, the river enters National Forest System lands for 4.5 miles. This area is rugged, undeveloped, and inaccessible by roads except in several places across private land. There are few developments except for (1) several houses on private lands about a quarter mile from the river and (2) a diversion dam, footbridge, abandoned mine, five houses, and a private river bridge in a small private inholding at Crossons. Just below Crossons, the river leaves the National Forest. The area remains inaccessible and undeveloped until Cliffdale, except for some channel relocation structures downstream from Crossons. At Cliffdale, there are several houses on the river, several more under construction, and three houses about a quarter mile back from the river. A private dirt road parallels the north side of the river for 2 miles downstream to Pine, and several other private roads connecting with it through several drainages in the area. Just upstream from Pine, Jefferson County recently constructed the Pine Valley Ranch Open Space Park. There are 545 acres of the park in the study corridor. The park includes paved access, parking areas, a lodge, amphitheater, caretaker's house, tennis courts, covered picnic areas, fire station, buildings, foot trails, a road bridge, and several footbridges across the river. The area also contains several diversion dams, a large pond, and two abandoned gravel quarries. From the Pine Valley Ranch to Pine, the river flows through private lands used for grazing and horse pastures. The area includes a diversion dam and Crystal Lake, several dirt roads, a river bridge, a bed and breakfast inn, corrals, and several ranch houses, barns, and other buildings.

Near Pine, the paved access route to the Pine Valley Ranch Park and, eventually, paved State Highway 126 parallel the river. The unincorporated town of Pine then stretches

along the river for more than a mile and includes houses, a school, a fire department, community buildings, churches, and several retail businesses—more than 200 buildings in all. River developments include a diversion dam, several river bridges, and ponds from channel relocation.

From Pine, the river flows through several ranches for more than 2 miles and is paralleled by State Highway 126 to the outskirts of unincorporated Buffalo Creek. The area contains irrigated and non-irrigated pastures and is used for hay, horse pastures, and cattle grazing. Developments in this section include several ranch houses with numerous barns and outbuildings, corrals, fences, two river bridges, several diversion dams, a small pond, and some channel relocation.

A portion of the Buffalo Creek community is in the study corridor and includes a church; several houses; a combination store, gas station, and post office; and several short roads connecting Jefferson County Road 96 with State Highway 126. Near the store is a bridge crossing on State Highway 126 and a private road bridge across the North Fork.

On the outskirts of the community of Buffalo Creek, the North Fork enters a steep canyon where it remains until its confluence with the South Platte River. After leaving Buffalo Creek, the river crosses and recrosses the National Forest boundary until it reaches Douglas County Road 97 at the confluence with the mainstem of the South Platte River. Throughout this section, graveled County Road 96 parallels the river and is only a foot or two above the river in places. Recently paved Jefferson County Road 97 and graveled Last Chance Creek Road intersect County Road 96 near Foxton and climb out of the corridor up Last Chance Creek and Kennedy Gulch, respectively. Most of the upper portion of this segment is privately owned and used for rural residences, while the lower section is owned mostly by Denver Water and managed for water delivery, resource protection, and dispersed

recreation. Included in the lower portion are 29 acres of undeveloped land owned by Jefferson County and managed primarily to protect a peregrine nesting site and secondarily for dispersed recreation.

Between Buffalo Creek and the confluence, several small settlements are scattered on the hillsides on both sides of the river. These include Riverview, Ferndale, Argyle, Foxton, Dome Rock, and Longview. The first and largest is Riverview with about 30 structures, mostly residences. Foxton, Argyle, Dome Rock, and Longview are mostly on lands owned by Denver Water and leased back to the residents. A few residents, however, still maintain title.

Other developments include six private road bridges crossing the river, a statue to a heroic railroad brakeman, and a stream-monitoring gage near the confluence. The Buffalo Creek flood of June 1996 destroyed all the bridges below Buffalo Creek and caused other property damage. Most of the property damage has been repaired, and some bridges are being rebuilt.

2.8 LAND USE CONTROLS

A wide variety of local, State, and Federal programs have either a direct or indirect effect upon land uses within the corridor. The most significant programs, as well as those that have generated discussion during the scoping process, are discussed in this section.

COUNTY ZONING

All the private land in the study corridors lies within Douglas, Jefferson, and Park Counties in Colorado. All three counties have comprehensive land management plans that apply to all lands within the counties.

Park County Zoning

The private lands in the study river corridors of Park County are zoned Residential, Residential/Agriculture, Agricultural, Mountain Residential, and Commercial.

Residential zoning permits single-family dwellings, mobile homes, and essential services. Conditional uses include churches, schools, daycare centers, duplexes, fire stations, guest houses, home-based businesses, kennels, noncommercial parks, and water tanks. Minimum lot sizes are generally between 3 and 5 acres, depending on where they are located. Existing platted lots are exempt from lot size requirements and may be smaller.

Residential/Agriculture zoning permits single-family buildings and accessory buildings, mobile homes, and essential services. It also includes conditional uses as listed in Residential and Agriculture zones. The minimum lot area is 20 contiguous acres per tract.

Agricultural zoning permits single-family dwellings, accessory buildings, and on-site employee housing. Conditional uses include dude or guest ranches, church camps or retreat centers, public and private recreation centers, and private airstrips if Federal Aviation Administration sanctioned. Minimum lot area is 160 contiguous acres.

Commercial zoning permits all types of commercial enterprises with minimum lot size conditional, based on type of enterprise and business use. All zoning requires a minimum setback of 50–100 feet from all waterways.

In addition to the specific zoning regulations, Park County has extensive regulations to protect water and adjacent lands. Channelization of streams, which destroys aquatic habitat, is prohibited. Land uses must fit the channel. Revegetation will occur along riparian areas as quickly as possible. Land uses will not increase stream sedimentation and suspension loads.

Douglas County Zoning

The private lands within Douglas County are zoned Agricultural One, which is similar to Park County's Agricultural zoning. However, the density should not exceed one principal residence per 35 acres.

Jefferson County Zoning

The private lands within Jefferson County are primarily Agricultural One or Two and Mountain Residential Two, except for lands close to the communities, which are Mountain Residential Three, Commercial One, or Restricted Commercial.

The Agricultural One and Agricultural Two zoning categories are both intended to provide limited farming, ranching, and other agricultural uses while protecting the surrounding land from harmful effects. General farming, single-family dwellings, greenhouses, forestry farming, and public parks are allowed. Conditional uses include water supply reservoirs and irrigation canals, sewage treatment plants, transmission towers, oil and gas drilling, churches, schools, foster homes, day care centers, camps, picnic grounds, lodges, and other similar facilities. Minimum lot size is 5 acres in an Agricultural One zone and 10 acres in an Agricultural Two zone.

The Mountain Residential Two zoning is intended to provide for low-density residential development and allows both single-family and two-family dwellings. Certain agricultural uses, which are compatible with this residential development, are included. Single and two-family dwellings, group homes for as many as eight people, and public parks are allowed. Conditional uses include water supply reservoirs and irrigation canals, churches, libraries, foster homes, and day care centers. Minimum lot sizes are 17,400 square feet for a single-family dwelling and 10,000 square feet per family unit.

The Mountain Residential Three zoning is intended to provide for medium density residential development and provides both

single-family and two-family dwellings. Single and two-family dwellings, group homes for as many as eight people, and public parks are allowed. Conditional uses include water supply reservoirs and irrigation canals, churches, libraries, foster homes, and day care centers. Minimum lot sizes are 6,250 square feet for a single-family dwelling and 4,000 square feet per family unit (or up to 9,000 square feet for two units).

Commercial zoning permits all types of commercial enterprises with minimum lot size conditional, based on type of enterprise and business use (1 to 30 acres) unless the existing property ownership and adjacent property in the same ownership totaled less than 1 acre as of July, 27, 1978.

Jefferson County Open Space

The Jefferson County Open Space Program's mission is to provide a living resource of open space lands and waters throughout Jefferson County for the physical, psychological, recreational, and social enjoyment of present and future generations. This is accomplished through preserving and interpreting land that has scenic, natural, historical, educational, and recreational value. In addition to protecting, conserving, enhancing, and restoring the natural resources, unique landforms, and historic areas that define Jefferson County, the Open Space Program also provides recreational access and opportunities consistent with the natural and historic values of the property. Within the North Fork study corridor, the program owns and manages 545 acres that are part of the 884-acre Pine Valley Ranch open-space park, plus an additional 29 acres recently transferred to the county from the BLM.

ADVISORY COMMITTEE ON HISTORIC PRESERVATION

The Colorado Advisory Committee on Historic Preservation consists of members recognized professionally in the fields of history,

architectural history, architecture, archeology, and/or other disciplines. The Governor appoints the members.

The committee is charged with reviewing nominations to the National Register within the State and recommending approved nominations to the State Historic Preservation Office pursuant to the National Historic Preservation Act of 1966. The committee also reviews statewide plans for historic preservation.

The committee has identified several sites along the North Fork study corridor that are listed or nominated for the National Register.

COLORADO WATER CONSERVATION BOARD

A division of the Department of Natural Resources, the Colorado Water Conservation Board administers State laws and policies relating to the diversion and appropriation of surface and ground water, protects State water compacts and entitlements, and, where necessary, determines and sets minimum instream flows.

COLORADO DIVISION OF WILDLIFE

This division of the Department of Natural Resources is responsible for preserving, protecting, and managing all wildlife and fish in the State of Colorado. It maintains optimum numbers of indigenous fish and wildlife and ensures that no species are threatened with extinction. It is responsible for developing and administering State fish and wildlife regulations and monitoring both angling effort and harvest, as well as hunter effort and harvest. The Colorado Wildlife Commission also has the authority to designate Gold Medal and Wild trout fisheries in the State. It is noted in the eligibility determination (Appendix D) for Segments D through H which segments under study have been conferred a designation for Gold Medal trout fisheries.

COLORADO STATE FOREST SERVICE

The mission of the State Forest Service is to achieve stewardship of Colorado's environment through forestry outreach and service. The agency provides assistance to private landowners and administers the State laws pertaining to forestry and wildfire prevention and suppression.

DENVER BOARD OF WATER COMMISSIONERS

The Denver Board of Water Commissioners is chartered by the city and county of Denver to have complete charge and control of the waterworks system and plants for supplying the city and county with water. The board has the power to purchase, condemn, lease, or otherwise acquire land and water rights and to construct, maintain, and operate water treatment plants **and distribution systems for Denver Water**. Denver Water, which supplies water to about half of the Denver metropolitan area, owns 3,352 acres in the study corridors and has many water rights in the study corridors. It has been involved in strong individual efforts on its lands and in cooperative efforts on other lands to improve recreation opportunities and protect natural resources in the study corridors.

ELEVENMILE CANYON ECOSYSTEM MANAGEMENT PROJECT

This management plan, approved by the Forest Service in May 1995, provides additional direction to protect the unique recreational, fisheries, and other values in the Elevenmile Canyon area (Segment A). The plan for this area calls for converting most of the campgrounds to day use facilities and constructing a single large campground on the canyon rim to the south. It also recommends closing the upper 3 miles of the road below Elevenmile Dam to motor vehicles and paving the remaining roads to reduce sediment and protect fisheries. Under the plan, a

concessionaire under a special-use permit manages recreation facilities and parking sites in the canyon. This ensures the protection of the quality recreation experience and resources by providing intensive management of visitor use and behavior in the area.

The Forest Service is not anticipating implementing this plan in its entirety. The Service lacks the resources to design and construct a large facility or pave and close the upper 3 miles of the road. A total maximum daily load (TMDL) study was completed in the spring of 2002 (Colorado Department of Public Health and Environment [CDPHE], 2002b). Recommendations from this study include improving road maintenance practices and identifying opportunities within developed recreational sites to reduce sediment in the canyon. The Forest Service intends to rehabilitate existing facilities to reduce erosion and prevent new sources of sediment.

ELEVENMILE CANYON RECREATION AREA

In addition to the ecosystem management project discussed above, special regulations established in 1984 help protect in this area. These rules prohibit the discharge of firearms and also prohibit camping and campfires outside of developed campgrounds.

FRONT RANGE MOUNTAIN BACKDROP PROJECT

This is a joint cooperative project involving landowners along the Front Range as well as Boulder, Douglas, Jefferson, El Paso, and Larimer Counties, to help encourage the preservation of the mountain backdrop extending from Ft. Collins to Colorado Springs. The study will be used to update the open-space components of the counties' master plans. It will define "viewsheds" and visual aspects of the mountains and will help the counties determine where development or other land uses are appropriate. The counties are also

exploring future cooperative efforts to assist in preserving key open space and historic lands. These include conservation easements, limited development rights, concentrating development in some areas while permanently restricting it in others, long-term leases to keep property in agricultural use, land trades and exchanges, reclamation of disturbed lands, and fee simple purchases from willing sellers. This project may help to preserve the North Fork and South Platte study corridors in Douglas and Jefferson Counties.

INTERIM MANAGEMENT PLAN FOR THE SOUTH PLATTE

In 1993, an Interim Management Plan was instituted to improve public safety, protect the recreation experience, and protect and repair impacted riparian and wetland areas along the South Platte from Deckers to the confluence and along the North Fork from Buffalo Creek to the confluence. The plan and subsequent orders for the area eliminated overnight camping except in designated camping areas, prohibited parking except in designated sites, prohibited overnight use except in developed facilities, allowed fires only in designated camping area fire rings, and closed the "Chutes" area to the public. Dispersed camping was banned within one-quarter mile of either side of the rivers. There are now 72 parking areas that will accommodate approximately 1,600 people at one time, and camping is allowed only in designated sites.

Under the plan, some recreation sites were rehabilitated, damaged riparian areas were restored, trees, grass, and shrubs were re-established, and vehicle barriers were installed. The plan is implemented through a major cooperative effort between the Forest Service, BLM, Denver Water, the Colorado Division of Wildlife (CDOW), and the Douglas and Jefferson County Sheriff's Departments and has greatly improved the recreation experience and natural resources in the area.

U.S. ARMY CORPS OF ENGINEERS

Any encroachment or channeling activities in a natural stream or wetland as defined by the U.S. Army Corps of Engineers are subject to the requirements of section 404 of the Federal Clean Water Act. A permit must be obtained from the USACE before any such activities can occur within the streams.

U.S. FISH AND WILDLIFE SERVICE

The U.S. Fish and Wildlife Service (USFWS) administers the Endangered Species Act of 1973 (as amended) (ESA) for plants, animals, and non-anadromous fish within the United States. Government agencies and private landowners may find their range of management strategies limited by the ESA when it is determined that a threatened or endangered species, or its critical habitat, may be affected by a proposed management action.

All Federal projects that may affect threatened or endangered species, or their habitat, must be approved by the USFWS in accordance with the ESA. These approvals and/or modification recommendations provide additional direct protection to these species in the study corridors.

The entire North Fork and the South Platte study corridors include populations of bald eagles, which are listed as threatened under the ESA. In addition, Segment H of the North Fork and the South Platte downstream from Corral Creek contain up to 20 percent of the population and critical habitat for the Pawnee montane skipper butterfly, listed as threatened under the ESA. The butterfly's habitat, which extends up the dry hillsides above the study corridor, contains the world's sole population of this species. Also, based on the known elevation limits of the Preble's meadow jumping mouse, Segments C, D, E, and H contain potential habitat for this threatened species.

U.S. ENVIRONMENTAL PROTECTION AGENCY

EPA is responsible for administering the Nation's laws on air quality, water quality, solid and hazardous wastes, pesticides, toxic substances, and cleanup of hazardous wastes under the Superfund. Its functions include setting and enforcing environmental standards; conducting research on the causes, effects, and control of environmental problems; and assisting the States and local governments.

EPA reviewed the USACE's *Two Forks Reservoir Environmental Impact Statement* and denied the permit for the Two Forks Dam and Reservoir under section 404(c) of the Clean Water Act (EPA, 1990). EPA would continue to review any new dam proposals in the area under the Clean Water Act.

2.9 GRAZING

Most of the study area supports herbaceous or shrubby vegetation that provides forage and habitat for wildlife. Vegetative types in the study river corridors vary from riparian meadow bottoms to upland grass and shrub types with conifer overstories.

Domestic livestock grazing is a common use on the private lands in the upper portions of the North Fork study corridor and on the private lands downstream from Lake George. There are also some small private horse pastures along the lower North Fork and lower South Platte. Some grazing also occurs on portions of the National Forest System lands within the corridors and is controlled by a permit system administered by the Forest Service. The study corridors serve as the boundary between several allotments, and grazing within them is light. This grazing is allowed under controlled management conditions that will maintain or improve the range resource and riparian health. Current management includes the use of allotments with individual pastures where animals are rotated through areas according to

the season, available forage, utilization levels, and resource objectives. Allotments along the South Platte River corridor include the Thirtynine Mile Mountain North, Wagon Tongue, Blue Mountain, Rocky, Badger, Crystal, Lower West Creek, Wigwam, and Platte River. Allotments along the North Fork include Spring Creek, Buffalo, and Craig Meadows. All of these are or have been stocked with cattle. The grazing use that does occur within these allotments is described below.

ALLOTMENTS ALONG THE SOUTH PLATTE RIVER CORRIDOR

Thirtynine Mile Mountain North

The northern edge of the Reservoir unit of this allotment borders the South Platte River just below the spillway at Elevenmile Reservoir. The terrain is too steep to allow access to the river by the cattle on this allotment. The river corridor is unaffected by grazing from domestic livestock along this 1-mile stretch of river.

Wagon Tongue

The northern boundaries of the Rimrock and Sledgehammer units border the South Platte River from about a mile below the spillway to Rankin Gulch. Steep topography prevents access to the river for most of the 4 miles on this stretch. Drift fences have been installed to prevent access to the river along this corridor. The Elevenmile Canyon Recreation Area occupies the entire stretch of river described as the boundaries for the units in the Thirtynine Mile and Wagon Tongue allotments. The river is not a source for water or forage on these allotments. Cattle use in this area is incidental.

The Blue Mountain unit in this allotment was added to the Wagon Tongue allotment in the 1960s. Blue Mountain borders the South Platte River from Rankin Gulch to Lake George. This unit has been vacant since the late 1960s, and there are no plans to restock it.

Rocky

This allotment has five units that border the South Platte River on its southern boundary from the spillway at Elevenmile to Lake George. The allotment has been vacant since 1947. There are no plans to restock it.

Badger

To the north of the Rocky allotment is the Badger allotment. The Tappan Gulch, Platte Springs, and Matukat units of this allotment all border the South Platte River on the west from Happy Meadows Campground to about a mile past the confluence of Tarryall Creek and the South Platte. All of these units are active. The Tappan Gulch and Platte Springs units are under permit for 25 head of cattle from June 11 to October 31. Most of the South Platte River is inaccessible to the cattle due to steep topography. Grazing is incidental. Part of the South Platte within the Tappan unit flows through a piece of private property known as the Sportsman's Paradise. Property owners are allowed to have horses on their lots, but there is no community horse pasture, and no grazing occurs along the river itself.

The Matukat unit was historically used as a separate unit and was permitted for 35 head season long. In 1989, the permittee elected to discontinue use of this unit due to conflict with public use. The unit remained vacant until 1996, when it was temporarily used with the Wigwam allotment to the north. The steepness of the terrain in this unit discourages cattle from accessing the river. Use is light along the river and occurs from cattle moving upstream from the Wigwam allotment. This unit will probably remain active in the future.

Crystal

On the east side of the South Platte directly across from the Badger allotment is the Crystal allotment. This allotment has been vacant since 1947, with the exception of 1989 when the allotment was stocked with a temporary permit

for 50 head of cattle. This proved to be unsuccessful due to the poor condition of existing fences and the inability of the permittee to keep the cattle within the bounds of the allotment. This allotment borders approximately 9 miles of the South Platte River, much of which is too rugged and unsuitable for grazing. This allotment is expected to remain vacant and may be closed.

Lower West Creek

North of the Crystal allotment is the Lower West Creek allotment. The west side of this allotment borders the South Platte from Metberry Gulch to about a quarter-mile south of Cheesman Reservoir. Historical problems from overgrazing, logging, and fire resulted in exclusion from grazing in 1950. In order to protect the watershed and allow re-establishment of vegetation, this allotment has remained vacant. There are no plans to restock it.

Wigwam

On the west side of the South Platte, north of the Badger allotment, is the Wigwam allotment. This allotment is divided into three units. The southernmost, the Wildcat unit, borders the South Platte for a little over a mile. There are 85 head of cattle permitted on this allotment from June 1 to September 30. The cattle are rotated between the three units during the grazing season. They are in the Wildcat unit a little over a month. The cattle have good forage along the river as well as in old burns and clear cuts on a bench above the river. Grazing use is light in all of these areas. Recreational use, particularly by off-road vehicles, is high along this stretch of the river. This prevents the cattle from concentrating in one place for any length of time. The cattle can also graze in Wildcat Creek and Corral Creek, which are tributaries to the South Platte. At Wildcat Creek, the allotment boundary swings to the east and away from the river. The river is not accessible to cattle from the northern and middle units.

ALLOTMENTS ALONG THE NORTH FORK OF THE SOUTH PLATTE RIVER CORRIDOR

Spring Creek

The Spring Creek allotment was located at the confluence of the North Fork with the South Platte River. Its boundary roughly followed the North Fork to Riverview. Most of the ownership along the North Fork is private. There is very little information on the history of this allotment. The allotment was excluded from grazing sometime prior to 1942, apparently because of severe erosion associated with grazing. The allotment has remained vacant since that time.

Buffalo Creek

Upriver from the Spring Creek allotment is the Buffalo Creek allotment, which includes about 1½ miles of the North Fork study corridor. It is all private property. The allotment was active until 1994, when the permit was waived back to the Forest Service. The permit was for 90 head of cattle. There are no plans to restock this allotment.

Craig Meadows

The vacant Craig Meadows allotment was combined with the Buffalo Creek allotment under one management plan. The North Fork is contained within the allotment to a point about a mile downriver from Bailey. None of the river is accessible by livestock as the terrain is too steep. The remainder of the corridor is located on private property. There are no plans to restock this allotment.

SUMMARY

Currently there are four active allotments along the South Platte River corridor and no active allotments along the North Fork corridor. No significant impacts from grazing have occurred on the river from these allotments. The Wigwam allotment is the only allotment where

cattle actively use the South Platte River. There are no plans to increase the number of cattle on this or any allotment along the river corridor.

The effects of management practices in the past and the increasing pressure over the last 50 years from urban growth and recreational use have made most of the vacant allotments impractical and uneconomical to use. Many of the historic ranches have been subdivided into smaller tracts and the water rights sold to meet the needs for growth along the Front Range. The allotments were usually adjacent to these ranches. It is doubtful that any of the vacant allotments will ever be restocked.

2.10 FOREST ECOLOGY

VEGETATION

Late in the 1800s, railroads provided access to the timber within the North Fork, lower South Platte (upstream to Nighthawk), and Elevenmile Canyon areas of the South Platte. Primitive roads provided access into most of the other areas. Historic surface fires and mixed severity fires maintained the forests in relatively open conditions. Dr. Merrill Kaufman (2000), U.S. Forest Service Rocky Mountain Research Station, estimates that more than 90 percent of the landscape around Cheesman Reservoir had crown closure of 30 percent or less. Large park-like ponderosa pine stands mixed with Douglas fir and some minor amounts of Colorado blue spruce covered much of the study area in the late 1800s and were harvested to provide timber for the railroad and lumber for the construction of Denver and other local communities. Large uncontrolled fires followed early timber operations. These areas regenerated to the dense forest conditions seen today as a result of these past logging practices, grazing, fire suppression, and Civilian Conservation Corps plantings during the 1930s.

Elevations range from 6029 to 9240 feet within the South Platte study corridor and from 6100

to 8400 feet within the North Fork study corridor. Ponderosa pine stands still cover much of the study area. Today's forests are denser than those of 200 years ago, and they have fewer old growth stands, fewer openings, and more Douglas fir. South-facing slopes at lower elevations are brushy with Gambel oak, mountain mahogany, and scattered Rocky Mountain juniper and ponderosa pine. North-facing slopes contain mixed stands of Douglas fir and ponderosa pine. All vegetation age classes are present, with the majority of stands 80 to 130 years old. Ground cover is relatively sparse. Riparian areas are characterized by riparian grasses, sedges, woods rose, willows, dogwood, and alder, interspersed with a few scattered narrowleaf and plains cottonwoods. Mountain grasslands typically occupy untimbered areas adjacent to mountain shrub, ponderosa pine, and Douglas fir types. They are scattered throughout the study area on relatively flat terrain between about 6500 and 9000 feet in elevation. Stands of quaking aspen are present in Elevenmile Canyon.

A small portion of the study corridor is used for agriculture (about 2,000 acres). Agricultural lands consist primarily of riparian and mountain grasslands situated on private lands along the river. These areas are used mainly for livestock grazing and a minor amount of hay production. Most of the agricultural lands lie in the upper portions of the North Fork study corridor above Buffalo Creek and in the area between Lake George and the northern boundary of private lands near Tappan Gulch. There are also nonagricultural grasslands along the South Platte study corridor between Deckers and the confluence with the North Fork.

Of special importance in the study corridors is the prairie gayfeather plant (*Liatris punctata*), which is the primary food source of the threatened Pawnee montane skipper butterfly. This butterfly is endemic to the study corridors and to adjacent areas on the North Fork and South Platte downstream from Tarryall Creek. There are no records of federally listed threatened or endangered plants in the study

area. There are also no records of plants within the study area that are on the Forest Service's list of sensitive species. The corridor does contain potential habitat for one federally listed threatened species—the Ute ladies' tresses orchid (*Spiranthes diluvialis*).

Noxious Weeds

Noxious weeds are prevalent along the river corridor. To date, noxious weed occurrences have been mapped, and treatments on National Forest system lands have been conducted since 1999. Denver Water is also actively working to control weeds on their lands. Open houses have been held in the general vicinity of Deckers for 2 years to educate local private landowners about noxious weeds and weed management. The threat of continued spread increased significantly as a result of the Hayman Fire. Efforts to treat and prevent further expansion are being addressed as part of the Hayman restoration program.

TIMBER

Logging was important in the entire study area from 1860 to 1900. Cutting rates probably peaked shortly after 1880 to support mills supplying lumber for Denver and various mining towns. The Denver, South Park and Pacific Railroad (DSP&P) was constructed along the North Fork from Denver to Leadville by 1880 and provided rail access to wagon road systems, which covered the area. In about 1896, the Colorado Midland Railroad was completed from Denver to Buena Vista and Leadville through Elevenmile Canyon. Much of the saw timber, readily accessible to the railroads, was removed by the turn of the century. Much of the area is shown as "cut over and burned" on early Forest Service timber inventories.

Nearly all the National Forest System lands in the study area are forested and part of the suitable timber base for the Pike and San Isabel National Forests. In the past 50 years, there have been no commercial timber sales on

National Forest System lands in the corridors. Timber harvest has been limited to the cutting of dead and down timber for firewood. The Upper South Platte Watershed and Protection Project has identified 1,434 acres for treatment within the study area.

The study area is estimated to contain 4,895 acres of suitable timber on National Forest System lands. "Suitable" is defined as harvestable timber on forest lands in Forest Plan management areas, which include scheduled timber harvest on a regular sustainable basis. These suitable acres currently produce an average of 11.6 cubic feet of wood per acre annually or 56,770 cubic feet of wood annually for the study corridors.

Minimal harvest on private lands in the 1900s consisted of thinnings and partial cuts. Harvesting decreased in the late 1900s due to increased recreational use and residential development. Denver Water, Colorado State Forest Service, and the U.S. Forest Service have begun restoration timber management following the 1996 Buffalo Creek and 2000 Hi Meadow Fires, each of which burned more than 10,000 acres. Approximately 500 acres of Denver Water lands have been commercially thinned since 2000.

On the 29 acres of the North Fork study corridor near Cathedral Spires that had been managed by the BLM until 2001, timber harvest and other management activities were governed by BLM's Northeast Resource Area Management Plan. The plan identified the corridor as part of the Evergreen Management Unit. Within this unit, the area is composed of forest and rock outcrops. Under BLM management, the entire area was unavailable for commercial timber harvest, and management was restricted to maintain recreation, scenic, wildlife, and watershed values. This land was transferred to Jefferson County ownership in 2001. The county will continue to manage the area for the same values.

ECOLOGY

Wildfires and Native American burns were the predominant shapers of vegetation types prior to European settlement in the middle of the 19th century. Fire exclusion since the 1940s has led to the loss of openings and increased tree density in ponderosa pine and Douglas fir stands. This resulted in little understory development in the grass and shrub components, poor tree vigor due to overstocking, and a shift in fire intervals from frequent cool fires to infrequent, high intensity, stand-replacement fires. This resulted in a decline in forest health, including increased insect infestations, disease, and parasitism by dwarf mistletoe. Douglas fir mortality has become very noticeable in the past decade with losses from spruce budworm, tussock moth, and bark beetles. Ponderosa pine bark beetle mortality was heavy in parts of the study area in the 1960s and 1970s but has been low since then. Adjacent areas are experiencing an increase in mountain pine beetle mortality. These conditions have increased the potential for large, intense fires.

An example of the problem created by fire exclusion is the Buffalo Creek Fire in May 1996. Driven by strong winds, the fire burned 11,875 acres in the Buffalo Creek area. Fire intensity levels were extreme, killing all forest vegetation on more than 7,000 acres and destroying several homes. In the river corridor, about 800 acres were affected; but tree mortality was light. Subsequent flooding devastated the riparian vegetation along Spring Creek and Buffalo Creek.

In June 2000, the Hi Meadows Fire burned another 11,000 acres in the North Fork of the South Platte River drainage. Fire intensity was less severe than the Buffalo Creek Fire; but more than 5,000 acres of forest vegetation was killed, and 51 homes were destroyed. Tree mortality in the study area was also light. Sediment from the Hi Meadow Fire has created scouring in some tributary channels but has had little effect on the riparian environment.

2.11 SOILS

GENERAL SOIL TYPES

The soils of the study area have developed primarily from materials derived from the Pikes Peak Batholith. The granites from the batholith include medium- and coarse-grained hornblende-biotite deposits throughout most of the study area and fine-grained quartz monzonite and granodiorite in the northern portion of the study area. Within the river corridors, the soils have developed in colluvial deposits on mountain sides and fluvial deposits in intermittent and perennial drainage bottoms. Slopes range from 15 to 80 percent along the mountain slopes and 0 to 10 percent in the valley bottoms. In general, the soils are moderately acidic, have low cation exchange capacity and low organic matter content, and are shallow to bedrock. These soils are commonly referred to as "decomposed granite."

Two dominant soils occur along the river corridors. These are the Sphinx and Legault. The Sphinx soils are shallow and somewhat excessively drained. They formed in material weathered from Pikes Peak granite on mountain sides. The surface layer is gravelly to coarse sandy loam. It has high permeability and little available water capacity; so runoff is moderate to rapid, and the hazard of water erosion is moderate to severe depending on slope. The Sphinx soil supports ponderosa pine and Douglas fir communities. The Legault soil is dark grayish brown, very gravelly coarse sandy loam that has also formed from weathered Pikes Peak granites. It is found on north-facing slopes and at higher elevations on the mountain sides. Its permeability is moderately high, and its available water capacity is very low. Runoff is rapid, and the hazard of water erosion is moderate to severe depending on slope. The dominant vegetation consists of Douglas fir.

The valley bottoms contain fluvial deposits. These deposits represent past flooding events and are commonly stratified by sizes that

represent different flow rates or flood intensities. Due to their proximity to the drainages, these soils support a much higher production and diversity of vegetation. The soils and the associated vegetation of the valley bottoms are critical for maintaining the equilibrium within the watershed. Soils and associated vegetation as they provide protection and storage for water and nutrients and act as a buffer to erosional events.

USE AND MANAGEMENT

The soils derived from the Pikes Peak Batholith are very erosive. The erosional processes include unraveling and rolling of particles downslope. Sheet, rill, and gully erosion are common following any surface disturbance in this area. Due to the structure of the bedrock, the soils are not susceptible to mass wasting or land slides. South- and west-facing aspects are more susceptible to erosion, owing to the low amounts of organic matter in the soil surface and higher amounts of rock outcrop and bare soil. Slopes greater than 35 percent occur along the river corridors. The erosion potential on these slopes is rated as severe.

Recreational uses in the study area are increasing and are expected to increase further in the future. Road and trail systems in the area are currently the most likely sources of erosional soil losses and downstream sediment impacts. Proper location of road and trail systems is required to minimize soil losses and maintain watershed health. Access points and travel corridors should be located along contours and outside of drainage channels. The road and trail systems above the river corridor impact the health and water quality of the South Platte River and must be taken into consideration. Downstream impacts of sedimentation can be seen in several areas. The origin of the sediment is generally higher in the watershed and related to soil disturbance through access or recreational uses. The potential for soil losses and degradation of the river corridor is very high, given the inherent erosiveness and low productivity of the soils.

In May 1996, a human-caused wildfire burned about 11,875 acres in the Buffalo Creek area, including about 800 acres within the study corridors near the confluence of the North Fork with the South Platte River. The burn was quite light within the study corridors and resulted in little tree mortality. The case was quite different however, outside the study corridors, where tree mortality was 100-percent mortality on more than 7,000 acres. On July 12, 1996, a major storm caused serious flooding in Buffalo Creek, which continued downstream along the North Fork to Strontia Springs Reservoir and from Spring Creek down the South Platte to Strontia Springs Reservoir. A 10- to 20-foot wall of water and mud washed down these streams, causing two fatalities and destroying several trailer houses, the fire station, the town water system, a community building, numerous automobiles, seven private bridges crossing the North Fork, and portions of County Road 96 along the North Fork. In addition, the flooding caused serious sheet erosion on the burned areas and deposited tons of sediment and debris into Strontia Springs Reservoir and along the study corridor below Buffalo Creek. Forest Service and local citizen and government rehabilitation efforts include seeding, construction of sediment check dams to limit erosion, and efforts to repair roads or replace bridges. It is unclear however, if all the private bridges will be rebuilt.

In June 2000, the Hi Meadow Wildfire burned 10,944 acres on public and private lands along the North Fork of the South Platte River. Roughly one-third of this human-caused fire was a stand-replacement event. High-intensity burn areas of Beaver, Buck, and Miller Gulches received extensive post-fire rehabilitation. However, summer monsoonal rainstorms in 2000 and 2001 have resulted in substantial sediment deposition from these tributaries of the North Fork.

In June of 2002, the Hayman Fire burned 137,500 acres, much of it along the mainstem in

Wildcat Canyon (Segment C) and around Cheesman Reservoir. Light summer rains lessened the potential impact of sedimentation, but even small rain events increased sediment loads in tributaries as well as the mainstem. The risk of increased sedimentation may be even higher a year after the fire.

The area of the South Platte below the Buffalo Creek, Hi Meadow and Hayman Fires will continue to receive large amounts of sediment through the mainstem and the North Fork for many years. Even though the lands have healed from the Buffalo Creek and Hi Meadow fires, the soil losses from the Hayman Fire could impact the river corridors for several decades, and the potential for a similar fire and subsequent erosion to occur in the South Platte watershed is high.

2.12 HYDROLOGY AND WATER RESOURCES

WATERSHED CHARACTERISTICS

The area of the South Platte River basin considered in this analysis consists of a roughly ½-mile-wide corridor (spreading out one-quarter mile from the ordinary high-water mark on each side of the river) that extends along the South Platte River from the high-water line of Strontia Springs Reservoir upstream to Elevenmile Reservoir and along the North Fork of the South Platte River from its confluence with the South Platte to the upstream property boundary of Berger Land Company, near Insmont. This is the area that was qualified in the Forest Plan for the eligibility determination for consideration for inclusion into the Wild and Scenic River System. However, in order to describe the hydrology of the reaches in question, it is important to consider the entire basin within which the rivers reside. The interrelationship between the climate and the geomorphology of the basin governs how the hydrologic system is managed.

The watershed above the high-water line of Strontia Springs, including the North Fork and the mainstem of the South Platte, covers an area of about 2,580 square miles. The landscape of the watershed above Strontia Springs Reservoir is varied, consisting of a mosaic of rugged rocky slopes, heavy forest, and open mountain meadows. The western boundary of the watershed is the Continental Divide, and the south and southwest boundary is the divide between the South Platte and Arkansas River basins. The east boundary is the Rampart Range, a divide between Plum Creek and the South Platte River above the high-water line of Strontia Springs Reservoir. The north boundary is a discontinuous chain of mountains that forms a divide with other tributaries that join the South Platte farther downstream. The mountains forming the divides range from 6,000 to more than 14,000 feet above mean sea level. South Park is a large, nearly treeless mountain meadow of about 1,000 square miles, located above Elevenmile Reservoir and entirely surrounded by mountains. Downstream from Elevenmile Reservoir, the river enters a narrow valley, and the surrounding terrain becomes considerably steeper. The North Fork also flows in a narrow valley and merges with the South Platte upstream from Strontia Springs Reservoir.

FLOW CHARACTERISTICS

The North Fork and the South Platte historically exhibited a runoff pattern typical of a snowmelt-dominated system—they had high flows in the late spring and low flows in the winter. This runoff pattern has been altered by the construction of several reservoirs throughout the basin. The reservoirs moderate the highs and lows depending upon the storage and release patterns prescribed to meet water demands for agriculture and domestic uses along the Front Range. Release patterns are highly dependent upon downstream water rights, which commonly “call” water through these reservoirs. Spring peak flows tend to not be as sharp, and winter flows are much higher than natural runoff. During the runoff season,

the peak flows are taken off and stored in reservoirs, from which they can be released at a later time to meet demands in the Front Range area. These releases increase the flows in the river at times when it naturally would have low flows. The Front Range itself is rainfall dominated receiving substantial amounts of moisture from summer rainstorms. The effects of this pattern have been altered by the addition of transmountain diversions.

The reservoirs are owned and operated by Front Range municipalities primarily for water supply purposes. See table 2-11 for a list of reservoirs. Water storage is critical and serves two purposes—it provides a day-to-day opportunity to regulate both water use and surplus storage, and it provides carryover on an annual basis. Both are essential to water providers because of the variation of the weather, which affects demand both day-to-day and over the long term.

Low flows recorded at the South Platte gage below Cheesman show that the average mean monthly flow, since the start of the period of record (1924), has been as low as 2.0 cubic feet per second (cfs). This was the mean monthly flow in April 1957. A 13-year period of record, from 1956 to 1968, featured some of the lowest flows recorded for the South Platte over an extended period of time. The lowest year of record, however, was the 1978 runoff year, during which the average mean monthly flow was 60 cfs. The mean monthly flow has not dropped below 22 cfs since 1969. Even though the lowest total flow for a water year occurred since 1969, the mean monthly flow has remained above 22 cfs due to releases from reservoirs during low natural flow periods to meet demands of the Front Range.

Few minimum flow release requirements are in force on the South Platte River. The city of Aurora is required to release approximately 6 cfs for streamflow maintenance from its South Park sources. The city of Denver is required to release 30-60 cfs, depending on the season of the year, below Strontia Springs Reservoir

downstream to Chatfield Reservoir for fish habitat. There are no minimum release requirements and no major diversions on the North Fork. The lowest mean monthly flow recorded on the North Fork at its confluence with the South Platte since 1957 was 17 cfs.

In 1977, the Colorado Water Conservation Board (CWCB) established a 7-cfs instream flow right from the headwaters of the South Platte to Rich Creek. Otherwise, there are few instream flow rights for either the South Platte or the North Fork. There are, however, CWCB instream flow rights for 56 streams that are tributary to these two rivers.

Recent augmentations of base flows from releases by Elevenmile Reservoir and Cheesman Reservoir have improved conditions for trout in late summer, fall, and winter. In addition, these reservoirs modify spring peak flows and trap sediment being transported from upstream, resulting in altered stream morphology and aquatic habitat. High-flow stresses on fish are dependent on the magnitude and duration of the snowmelt runoff. The duration of high flows, at or near bankfull discharge, has been

increased by reservoir releases on the South Platte, and even more so by water imports through the Roberts Tunnel on the North Fork. Increased high-flow stresses on fish and increased bank erosion in some reaches have been documented in both rivers. However, flood flows still do not occur, often reducing channel scouring or bank formation. Thus, sediment remains trapped in the channel and is not flushed on a regular basis.

Tables 2-3 and 2-4, respectively, show mean monthly flow records for the South Platte (below Cheesman Reservoir) and for the North Fork (at the community of South Platte) over several decades. These flow records are unadjusted for reservoir releases or the influx of transbasin water.

Since the addition of flow from the Roberts Tunnel to the North Fork began in 1963, the mean annual flow in the North Fork measured near Grant has increased from 66 cfs to 135 cfs.

The North Fork basin produces nearly the same amount of water as the South Platte basin, even though the South Platte basin is at least 1,000 square miles larger. This is accounted for by the large amount of dry park area that contributes little flow from the upper South

**Table 2-3.—Mean Monthly Flows for South Platte River Below Cheesman Reservoir
(Period of Record 1924–95; United States Geological Survey [USGS] Gauge No. 06701500)
(cfs)**

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Average	123	65	46	50	49	51	147	282	326	345	342	197
Minimum	13	6.3	5.3	5.3	2.8	3.1	2	11	38	54	67	33
Maximum	380	266	118	130	143	208	932	1,716	1,067	984	984	431

**Table 2-4.—Mean Monthly Flows for North Fork of the South Platte River
At the Community of South Platte
(Period of Record 1909-10 and 1913-82; USGS Gauge No. 06707000)
(cfs)**

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Average	124	79	59	53	52	60	122	359	472	301	242	145
Minimum	36	32	18	19	17	26	45	69	83	64	57	42
Maximum	110	204	151	180	150	155	452	1,062	1,193	608	579	685

Platte basin and the transmountain diversions from the Blue River through Roberts Tunnel to the North Fork.

CHANNEL CHARACTERISTICS

Extensive and detailed channel stability studies were performed on the North Fork and mainstem of the South Platte River as part of the Two Forks study. The Forest Service determined the data collection methods, data sites, and channel classification techniques. The following channel stability information is taken from Simons & Associates (1986b).

The North Fork of the South Platte River has bed material consisting mainly of cobbles and boulders with some sand and gravel. The bed is quite stable and shows no evidence of significant aggradation or degradation problems. For the most part, the channel banks are low and stable. Some minor bank erosion is evident. Several reaches from Roberts Tunnel to the town of Insmont have had their water-conveying capabilities enhanced with drop structures and riprap. This work was performed by Denver Water as preventive stabilization in some cases and in response to bank instability problems in others. Some private landowners have requested and received from Denver Water special types of stabilization work, and others have performed their own stabilization work. In some reaches, low-flow channelization was constructed, and riprapped islands and random rocks have been placed to improve fish habitat. Significant development adjacent to the river includes agriculture, roads, and small towns.

Based on field surveys conducted on the South Platte and the North Fork by the Forest Service, bank erosion has substantially increased over the past several decades in the lower gradient, meandering reaches on both rivers. Eroding stream banks occupy a larger percentage of reach length than is typical for these stream types. This increased bank erosion is caused mainly by the increased duration and fluctuation of high flows, at or near bankfull discharge, due

to reservoir releases on the South Platte and water imports through the Roberts Tunnel on the North Fork. In some of these reaches, road location and maintenance activities, concentrated livestock, or recreation use along the river has further aggravated the bank erosion.

Channel types on the North Fork include rocky, steep canyon areas, like those from Estabrook to Crystal Lake near the town of Pine, and flatter, meandering areas through wider valley sections, as is the case from Pine to Buffalo Creek. Throughout this range of channel types, the river is basically stable, partly because of channel stabilization work and partly because of the inherent existing stability due to coarse bed material and vegetated banks. Denver Water has an ongoing project to enhance the water-conveying capabilities of the North Fork of the South Platte River. This has required site-specific channel stabilization procedures to eliminate any increased degradation or lateral migration associated with flow conditions since the Roberts Tunnel began operations in 1963.

The South Platte channel types range from a relatively flat, meandering channel through wider valley areas to very steep, rocky canyons. The meandering channel sections include the reaches from 1 mile below Oxyoke to Trumbull, the first mile upstream of the confluence with the North Fork of the South Platte River, and the reach from below Lake George to the mouth of Beaver Creek. Steeper, rocky canyons include the reaches from 1 mile below Oxyoke to 1 mile above the confluence of the North Fork, from Deckers to Cheesman Dam, from Cheesman Reservoir to the mouth of Beaver Creek, and through Elevenmile Canyon between Lake George and Elevenmile Reservoir.

Bed material sizes range from sand, gravel, and cobbles in flatter areas up to extremely large boulders in the steeper areas. Several reservoirs along this river have buffered the flow and reduced the sediment load. Minor amounts of land development have occurred along this

river, and no major river stabilization has occurred. Channel work that has been done in a few areas includes a number of jetties and weirs, built by fishing clubs on their own land. In summary, the South Platte in the study area is generally stable and has only minor amounts of bank instabilities. Simons & Associates (1986a) further states that:

There were no overall significant impacts to channel stability identified as a result of the diversion of water for any of the site-specific or No Federal Action alternatives for the mainstem channels in the study area.

The primary factors affecting channels are the frequency, magnitude, and duration of flow; bed and bank material size distribution; channel bank vegetation; sediment transport capacity; and sediment supply.

The effects of dams and reservoirs on channels are complex. Gravel and cobble bed channels may experience aggradation below dams because the flow releases are insufficient to transport gravel and cobbles deposited by tributary streams during spring high flows and other episodic events. On the other hand, water that has had the natural sediment load removed by impoundments can erode channels in order to reach a state of dynamic equilibrium.

The channel of the North Fork has been altered by the placement of bank stabilization structures to protect the banks from erosion brought about by the Roberts Tunnel transbasin diversion. Erosion has accelerated because of the increase of time that flows have been held near bankfull in order to meet metropolitan area water demands. Denver operates the flow from the Roberts Tunnel with the intent of never exceeding a combined flow of 680 cfs, measured at the State gage near Grant, or 980 cfs at the confluence with the South Platte. The 680 cfs is the sum of natural flow above the gage at Geneva Creek and does not include transbasin diversions from the tunnel. The 980-cfs value is the combined total of all natural flows and the transbasin diversion. When the natural flow of the North Fork exceeds 680 cfs

at the gage, Denver does not add water to the system from the Roberts Tunnel. With a lag time of 12 hours between release of flows from the Roberts Tunnel and gage readings at Grant and the confluence, sudden storms may add runoff to the augmented flows and, thereby, cause the flow to exceed 680 or 980 cfs.

The Roberts Tunnel at full capacity can deliver 1,020 cfs. In the future, the city of Denver does not plan to deliver flows from the tunnel that would increase the combined flow of the North Fork above Grant and the tunnel to greater than 680 cfs. However, the duration of flows up to 680 cfs may increase as greater demands are placed on Denver Water to provide water in the future.

The channel of the South Platte above the confluence of the North Fork has experienced some erosion due to high flows and/or longer than normal near bankfull conditions brought about by the combination of reservoir releases to meet demands and storms.

The channel gradient of the South Platte as it flows through South Park is about 0.7 percent. Below Elevenmile Reservoir to Lake George, the gradient increases to 1.0 percent. From Lake George to Cheesman, the gradient increases to 1.3 percent. From Cheesman to Strontia, the gradient reduces to 0.5 percent. The gradient of the North Fork from Insmont to its confluence with the South Platte averages approximately 1–2 percent.

WATER QUALITY

Water quality and stream condition information have been updated by revised editions of the State's Clean Water Act 303(d) and 305(b) reports of impaired streams (CDHPE, 2002a and 2002b) and by a watershed reconnaissance done by the Forest Service from 1997 to 1999.

This information is reported below for the eligible segments in the South Platte and the North Fork.

South Platte River

The upper basin provides excellent habitat for aquatic life and recreational opportunities in spite of sediment loading in many tributaries. Table 2-5 shows water quality information from the State 303(d) report (CDHPE, 2002b) for the South Platte basin above Strontia Springs. That report lists (1) the South Platte River from Elevenmile Dam to Cheesman Reservoir and (2) Trout Creek and its tributaries as only partially supporting coldwater aquatic life due to high sediment loads. South Mosquito Creek is identified as not supporting, and Mosquito Creek as only partially supporting, the designated beneficial uses owing to metals from mining impacts. In addition, table 2-6 lists several tributaries of the South Platte for which the report recommends further monitoring and evaluation, because these tributaries have suspected water quality problems and may deliver sediment to the South Platte River. Streams listed for temperature impairment may have exceeded temperature standards for cold

water aquatic life (20 degrees Celcius [°C]) or may have exceeded the temperature standard for diurnal fluctuation in temperature (no more than 3 °C increase over a minimum of a 4-hour period, lasting 13 hours maximum).

Temperature impairment may be due to releases of warmer surface water from reservoirs, changes in stream morphology (from narrow, deep channels to wide, shallow channels), or lack of shading by streamside vegetation. Table 2-7 shows how eligible river segments on the South Platte could be affected by inflow from those streams, as determined by the Pike National Forest watershed reconnaissance completed in 1997.

The Pike National Forest watershed reconnaissance shows 20 tributaries of the South Platte in the study area to be impacted by sediment loads. These tributaries deliver increased sediment loads to the river. Sediment sources include roads, off-road-vehicle paths, concentrated-use sites, bank erosion, and sediment from the Buffalo Creek and Hi Meadow Fires, most of which are inventoried. The Hayman Fire of 2002 burned 137,500 acres within the Upper South Platte watershed. Approximately 3,400 acres or 15 percent (%) of

**Table 2-5.—Water Quality in South Platte Mainstem Basin
(Not Including the North Fork) Above Strontia Springs**

Segment Description	Status ¹	Constituent(s)	Use Classification ¹
South Platte River, from Elevenmile Dam to Cheesman Reservoir (COSPUS01A)	Partially supporting	Sediment	Aquatic Life Cold 1 Recreation 2 Water Supply Agriculture
Mosquito Creek, Source to Middle Fork South Platte River (COSPUS02B)	Partially supporting	Zn, Cd, Pb	Aquatic Life Cold 1 Recreation 1 Water Supply Agriculture
South Mosquito Creek, Above Mosquito Creek, Below Historic Mining (COSPUS02C)	Not supporting	Cd, Fe, Zn, Mn	Aquatic Life Cold 1 Recreation 1 Water Supply Agriculture
Trout Creek and Tributaries (COSPUS03)	Partially supporting	Sediment	Aquatic Life Cold 1 Recreation 2 Water Supply Agriculture

¹ See Appendix I for an explanation of status and classification.

**Table 2-6.—Streams in the South Platte Basin
(Not Including the North Fork)
Above Strontia Springs Identified for Monitoring and Evaluation**

Segment Description	Impairment
South Platte River, Sources to North Fork South Platte River	Sediment
South Platte River, Spring Creek to North Fork South Platte River	Sediment (Buffalo Creek Fire)
Balm of Gilead Creek	Sediment, Temperature
Cross Creek	Sediment, Temperature
Fish Creek	Sediment, Temperature
Ranger Station Creek	Sediment, Temperature
Salt Creek Downstream of North Fork	Sediment, Temperature
Sims Creek	Sediment, Temperature
Tarryall Creek	Sediment
Threemile Creek	Sediment, Temperature
Twin Creek	Sediment, Temperature
Union Creek	Sediment, Temperature
Wigwam Creek (Flying G Ranch to South Platte)	Sediment
Goose Creek (Lost Valley Ranch to Cheesman)	Sediment, Temperature
Horse Creek	Sediment, Temperature
Indian Creek	Sediment
Pine Creek	Sediment
Russell Gulch	Sediment
South Fork Lost Creek	Sediment
Spring Creek and Tributaries	Sediment (Buffalo Creek Fire)
Sugar Creek	Sediment
Trail Creek	Sediment, Temperature

**Table 2-7.—Impacts on Eligible River Segments from
Suspect Tributaries in the South Platte Basin
(Not including the North Fork)**

Segment	Impact
A	Sediment loads, noxious weeds, flow disruption (some), bank damage (some)
B	Sediment loads, noxious weeds, flow disruption (some), bank damage (some)
C	Sediment loads, flow disruption
D	Sediment loads, flow disruption (some), bank damage (some)
E	Sediment loads, noxious weeds, flow disruption (some), bank damage (some)

the Wild and Scenic River study corridor burned. Much of the area did not burn due to higher moisture levels and steep canyon walls. The burn that did occur within the corridor was low, 84%, to moderate, 9%, with only 7% of the corridor inventoried as severely burned. However, sedimentation is high as sediment flows in from severely burned areas above the corridor, especially from the east side.

North Fork of South Platte River

Aquatic life is severely restricted in the North Fork and in tributaries such as Geneva Creek because water quality in these streams has been degraded by past mining activities and by natural contact with minerals. The State 303(d) report (CDHPE, 1998)(see table 2-8) lists the North Fork of the South Platte River (Hall Valley), Geneva Creek, and Scott Gomer Creek as partially supporting coldwater aquatic life due to metals contamination from abandoned mines and from mineral-rich geology. In addition, the State 305(b) report (CDHPE, 2002) lists Buffalo Creek and the North Fork below Buffalo Creek as severely impacted by sediment loads from the Buffalo Creek Fire and floods. Table 2-9 lists

streams in the North Fork watershed that have been placed on the State's 303(d) monitoring and evaluation list, and table 2-10 shows how eligible river segments on the North Fork could be affected by inflow from those streams, as determined by the Pike National Forest watershed reconnaissance completed in 1997.

The Pike National Forest watershed reconnaissance identifies several tributaries to the North Fork of the South Platte in the study area to be impacted by sediment loads. These tributaries deliver increased sediment loads to the river. Sediment sources include roads, off-road-vehicle paths, concentrated-use sites, bank erosion, and sediment from the Buffalo Creek Fire, most of which are inventoried.

WATER DEVELOPMENT AND USES

Current Water Supply

Indigenous and imported water is released from storage reservoirs and transported down the rivers to satisfy domestic and irrigation demands along the Front Range. Table 2-11 lists the reservoirs in the South Platte basin and in

Table 2-8.—Water Quality in the North Fork of the South Platte Basin Above Strontia Springs

Segment Description	Status ¹	Constituent(s)	Use Classification ¹
North Fork South Platte, Hall Valley to Geneva Creek (COSPUS04)	Partially supporting	Al, Cd, Cu, Fe, Pb	Aquatic Life Cold 1 Recreation 2 Water Supply Agriculture
Geneva Creek, Scott Gomer Creek to North Fork South Platte River (COSPUS05B)	Partially supporting	Zn	Aquatic Life Cold 1 Recreation 2 Agriculture

¹ See Appendix I for an explanation of status and classification.

Table 2-9.—Streams in the North Fork of the South Platte Basin Identified for Monitoring and Evaluation

Segment Description	Impairment
Buno Creek and Tributaries	Metals
Buffalo Creek, Indian Creek to South Platte River	Sediment (Buffalo Creek Fire)
North Fork South Platte, Buffalo Creek to South Platte River	Sediment (Buffalo Creek Fire)
Geneva Creek above Scott Gomer Creek	Zn, Mining Impacts

Table 2-10.—Impacts on Eligible River Segments from Suspect Tributaries in the North Fork of the South Platte Basin

Segment	Impact
H1	Sediment loads, chemical/metals, flow disruption, channel work
H2	Sediment loads, chemical/metals, flow disruption, channel work
H3 (above Buffalo Creek)	Chemical/metals, flow disruption, channel work
H3 (below Buffalo Creek)	Chemical/metals, flow disruption, channel work, sediment loads, and bank damage (some)

Table 2-11.—Reservoir Capacity, Control or Ownership, and Amount of Storage by Municipality

Reservoir Name	Capacity (acre-feet)	Municipality	Storage by Municipality (acre-feet)
South Platte Basin			
Tarryall	2,445	CDOW	2,445
Antero	20,015	Denver	20,015
Spinney Mountain	53,651	Aurora Thornton	53,151 500
Elevenmile	97,779	Denver	97,779
Cheesman	79,064	Denver	79,064
Strontia Springs	7,864	Denver Aurora	7,164 700
Jefferson Lake	2,170	Aurora	2,170
Wellington	4,400	Wellington Res. Co. Thornton	4,300 100
Duck Lake	600	Burlington Ditch Res. Co. Thornton	550 50
Blue River Basin			
Dillon	254,036	Denver	254,036
Arkansas/ Eagle River Basin			
Homestake	45,000	Aurora	21,441
Turquoise	129,433	Aurora	20,000
Twin Lakes	140,339	Aurora	2,717

adjacent basins that supply water to the Denver metropolitan area through the South Platte River system.

An understanding of how the supply system is managed can be gained by studying how the city of Denver manages its water needs. The following description of the Denver Water system is limited to information necessary to understand the potential effects of a Wild and Scenic designation on the system. All of Denver's water is derived from water rights owned or controlled by Denver Water through the State of Colorado water rights priority system. Raw water supply system diversions are located on both the eastern and western slopes of the mountains, in the South Platte and Blue River basins, respectively.

In many years, the Denver Water raw water system can legally divert more water than can be consumed or stored; however, during dry years and during parts of the fall, winter, and spring months, the divertible yield to the Denver Water system is less than the demand, and water must be drawn from storage reservoirs to provide the difference. The divertible yield is the amount of water that Denver Water could legally remove from the various river basins, assuming adequate storage is available for all water not immediately used. The actual yield to Denver consumers in a given year is also influenced by operational factors and carryover storage.

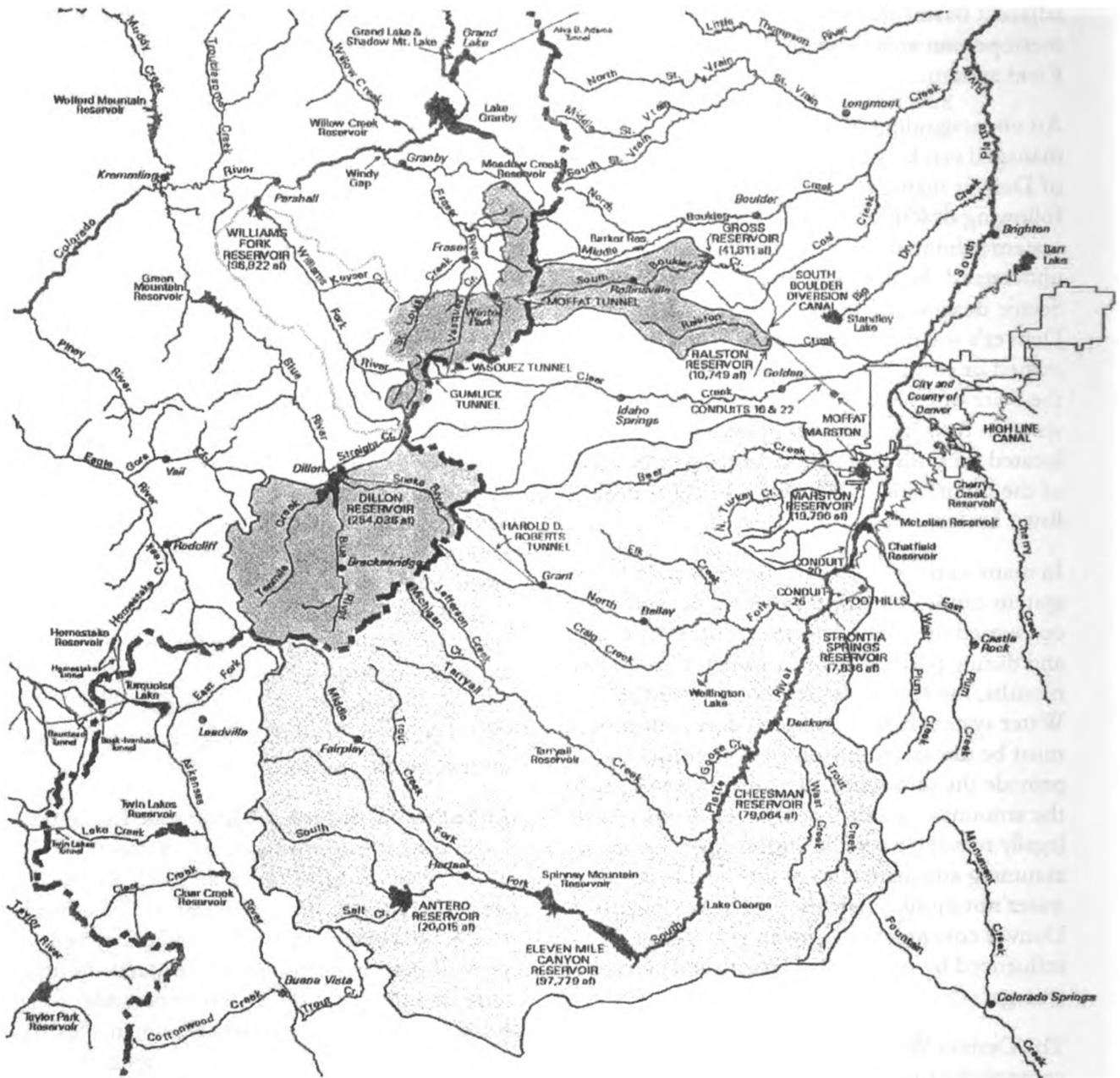
The Denver Water raw water supply system is composed of water rights and physical facilities. The water rights comprise a large number of diversion, storage, and exchange rights. Physical facilities include diversion, storage, and conveyance elements, which are necessary to reliably satisfy the demand of Denver Water users and meet the commitments to other water suppliers in the Denver metropolitan area for raw and treated water. Denver's system is divided into two major units: the southern system and the northern system. Potential Wild and Scenic River designation would affect only the southern system, which consists of the

water that is released from Antero, Elevenmile, Cheesman, and Dillon Reservoirs and conveyed through the South Platte, the Roberts Tunnel, and the North Fork to the Marston and Foothills water treatment plants (map 2-6).

Antero Reservoir.—Antero Reservoir, located on the South Fork of the South Platte River, has a capacity of 20,015 acre-feet. The reservoir has a relatively junior water right (1907) and is operated to provide Denver Water with carryover storage that is needed during long drought periods. Once Antero Reservoir is filled, it is maintained as full as possible and is not used to provide for normal seasonal fluctuations in demand. When Antero Reservoir's storage is depleted, it may take many years to refill because of its junior water right and upstream location. Evaporation losses from Antero Reservoir, Elevenmile Reservoir, and Cheesman Reservoir (discussed below) are made up to the South Platte River system through exchange at the Metropolitan Denver Sewage Disposal District 1 Central Plant (MDSDD No. 1) by discharging sewage effluent derived from western slope water.

Elevenmile Reservoir.—Elevenmile Reservoir, located on the South Platte River, has very junior decreed rights (1926 and 1957). The storage capacity is 97,778 acre-feet. The reservoir is operated in the Denver Water system to provide carryover storage that is needed during long drought periods. Once Elevenmile Reservoir is depleted, it may take many years to refill because of the junior water rights.

Cheesman Reservoir.—Cheesman Reservoir, located on the South Platte River, has relatively senior decreed rights (1889, 1893, and 1929) for an active storage capacity of 79,064 acre-feet. Cheesman Reservoir is operated to provide storage to accommodate seasonal fluctuations in supply and demand and provide carryover storage for long-term dry periods. Because of its senior rights and downstream location, Cheesman Reservoir is more easily refilled than any of the other large South Platte reservoirs.



LEGEND

- | | | | |
|---|-----------------------------------|---|-------------------------|
|  | South Platte Collection System |  | Continental Divide |
|  | Roberta Tunnel Collection System |  | Major Stream or River |
|  | Moffat Collection System |  | Major Canal or Tunnel |
|  | Williams Fork Reservoir Watershed |  | Major Lake or Reservoir |
|  | Denver Water Treatment Plant |  | Town |



Scale 1:1,000,000



Map 2-6.—Water Collection System.

Dillon Reservoir.—The upstream component of the Blue River basin subsystem is Dillon Reservoir, which was constructed in the 1960s as part of the development of the Blue River basin as a water supply source for Denver. Dillon Reservoir has a capacity of 254,346 acre-feet of storage above the outlet to the Roberts Tunnel. The terms of a Federal right-of-way provide for a minimum release to the Blue River of 50 cfs or the natural inflow to Dillon Reservoir, whichever is less. Historically, the minimum release and downstream tributary inflows have been sufficient to satisfy active senior agricultural water rights downstream on the Blue River.

The Roberts Tunnel conveys water from Dillon Reservoir to the North Fork at Grant. The direct flow decreed capacity of the tunnel is 788 cfs. The Roberts Tunnel also intercepts a ground water source and produces approximately 5 cfs of yield in addition to the transmitted flow. Water delivered to the eastern slope through the Roberts Tunnel flows down the North Fork from Grant to the confluence with the mainstem of the South Platte River. Flow in the North Fork is constrained by channel capacity, which is 680 cfs at Grant and 980 cfs at the confluence with the mainstem. The flow in the North Fork is further constrained in the winter because of icing conditions that reduce channel capacity. Roberts Tunnel releases are restricted to the differences between actual flow in the North Fork and the capacity constraints of the channel. Conveyance losses of 5 percent are charged by the State Engineer against water delivered from Dillon Reservoir to account for seepage losses in the North Fork.

Denver looks to the South Platte basin to provide approximately 75 percent of its water supply needs (50 percent from the South Platte and 25 percent from the North Fork). The current demand on the Denver system averages 285,000 acre-feet per year. The current yield is approximately 375,000 acre-feet per year, which is a long-term average. In extended periods of drought—such as has occurred in the last few

years—available water supplies can become inadequate. Water restrictions and pricing disincentives ensue, serving as reminders to citizens and governments that abundant water cannot be assumed.

Other water providers manage their systems in much the same way as Denver Water to one degree or another. Only those listed below have rights that make a noticeable impact on the South Platte basin.

Aurora.—The current demand for Aurora is approximately 60,000 acre-feet per year and growing at about 2 percent per year. Of that, 45 percent is native South Platte River water, 50 percent is imported from the Arkansas and Colorado basins using the South Platte as a conduit, and 5 percent is from local supplies. Current water rights available through the South Platte basin total 35,000 acre-feet per year.

Aurora is projecting a need for an additional 10,000 acre-feet every decade. Some of that will come from water conservation, additional reuse within the service area, and other local supplies. It is expected that a majority of the new supplies will be delivered through the existing South Platte system.

Thornton.—Thornton derives approximately 15 percent of its water supply needs from the South Platte basin during average or wet years. During drought years, that figure rises to approximately 25 percent. Thornton's current demand is approximately 24,000 acre-feet per year.

Future Demands for Water

Projecting the future water needs of the Denver metropolitan area is a highly complex undertaking. Studies are made every few years on the matter; and while the general pattern of projected shortages regularly appears, the details vary. For example, information supplied by the water providers indicates that their long-term needs for additional firm annual supplies total 34,000 acre-feet for Denver Water (after the year 2035), 125,000 acre-feet for the Suburban

Water Providers, and 39,000 acre-feet for Aurora. (Denver Board of Water Commissioners, 1997; Suburban Water Suppliers Wild and Scenic Task Force, 1997).

In another view of projected water needs, the Metropolitan Water Supply Investigation (MWSI) (Hydrosphere Resource Consultants, Inc., 1999) explored cooperative solutions to future water supply needs in the metropolitan Denver area. Prepared for the Colorado Water Conservation Board, the investigation reviewed supply and demand projections, as summarized in table 2-12. It also identified future unmet water needs in the range of 79,000 to 148,000 acre-feet and reviewed cooperative approaches that could help address the unmet needs of the metropolitan area. Considerable uncertainty surrounds the projections made therein, related to the assumptions that had to be made for environmental factors, political factors, population growth, price changes, and other factors.

While Denver Water, Suburban Water Suppliers Wild and Scenic Task Force, and MWSI reports do not appear completely consistent, any actual discrepancies simply point out the complexity that is inherent in projections of this nature. Additional complexity comes from the magnitude of information and analytical systems required for making comprehensive analyses of water resource issues. An effort currently underway is described in the *South Platte Decision Support System* by the Colorado Water Conservation Board (2001; see especially p. 1-1 to 1-3). A summary of various efforts can be found also in a study published by the Natural Resources Law Center at the University of Colorado School of Law (Nichols et al., 2001, pp. 15-20). While this Wild and Scenic River study takes note of these complexities, it is beyond the scope of this study to resolve them. Regardless of the actual numbers, it remains clear that the Denver metropolitan area will need to obtain additional water, from some source, to serve projected growth.

Water suppliers in the Denver metropolitan area are not equally prepared for these future demands for water. Denver Water is the best prepared, having secured adequate supplies for at least the next 50 years. Some suburban providers are much less prepared, as they rely on ground water supplies that are being recharged either not at all or at a rate insufficient to perpetually supply the demands of a rapidly growing area. Surface water rights from the South Platte, Arkansas, and Colorado River basins have been the preferred source of water supplies.

As surface water supplies become more costly because of limited supplies, environmental regulations, and political resistance to new dams and reservoirs, other sources are being explored. Northern Denver suburbs have acquired irrigated farmland and concomitant water rights with plans to divert and use the water for municipal purposes. Agriculture accounts for more than 90 percent of all Colorado water consumption, and municipal use of the same water would actually reduce consumption (Natural Resources Law Center, University of Colorado School of Law, 2001, p. 111). However, Denver area residents and local governments are concerned that pursuing agricultural water could threaten the traditional and desirable land use and small town economies just outside the metro area.

Southern Denver suburbs have chosen ground water as their primary source, at least temporarily. The southern suburbs are located on top of four vast deep aquifers—Dawson, Denver, Arapahoe, and Laramie-Fox Hills. Each is being heavily tapped by subdivisions in Douglas County. Experts disagree on the merits of using this resource. While all recognize that the water source is limited, some believe it is acceptable to draw down the aquifers and rely on the supplies for many years. Others see this as prudent only in the short term, allowing local water providers time to pursue more reasonable long-term supplies.

**Table 2-12.—Projected Water Supply and Demand, Denver Metropolitan Area
(Data in Acre-Feet per Year)**

Sub-region	Projected Future Water Demand	Basis of Projection	Reasonably Certain Future Supply ¹	Future Unmet Needs ²	Applicable Cooperative Supply Opportunities ³
Denver Central	⁴ 454,000	Build-out	410,000	⁵ 14,000 to 44,000	Conjunctive use with South sub-region, effluent management with northeast sub-region, system integration with northwest sub-region and Aurora
South Metro	127,000	Build-out	127,000	0	Conjunctive user with Denver, effluent management within Cherry and Plum Creek basins
City of Aurora	⁶ 105,000	2030	75,000	⁶ 30,000	Effluent management with Northeast sub-region, coordinated reservoir operations with Denver
Northeast metro	125,000	Build-out	⁷ 61,000 to 100,000	⁷ 25,000 to 64,000	System integration and effluent management among Denver, Aurora, Brighton, South Adams County WSD, Thornton and the Barr Lake companies
Northwest Metro	100,000	Build-out	90,000	10,000	System integration with Denver, effluent management within Clear Creek and Big Dry Creek basins
Total	911,000		763,000 to 802,000	79,000 to 148,000	

¹ Based on their planning efforts to date, water providers have a relatively high degree of confidence in these supplies.

² Providers have a relatively lower degree of confidence in their plans to meet these needs, based on uncertainty factors and the comparatively longer time frames before these supplies would be needed.

³ Cooperative supply opportunities could be used to meet future unmet needs or as an alternative to reasonably certain future supplies.

⁴ Includes Denver Water and Englewood; includes Denver Water's 30,000 AF safety factor

⁵ Based on the expected range of Denver Water's future safety factor.

⁶ Includes Aurora's 10,000 AF planning reserve

⁷ Depending on the degree of implementation of Thornton's Northern Project.

All of the study corridors contain areas that have potential dam sites for water storage for the Denver metropolitan area. Some of these sites have been under consideration for more than a century. The entire South Platte study corridor is within existing power site withdrawals—lands reserved for power development under section 24 of the Federal Power Act of June 10, 1920, as amended (16 United States Code [USC] 818). This land was withdrawn in cooperation with the Federal Energy Regulatory Commission (FERC) for the planned Two Forks dam and reservoir, and

the withdrawals are still in effect. As a result, none of the study rivers currently receive any legal protection from hydropower development, dam construction, diversions, or other water developments other than under section 404 of the Clean Water Act (dredge and fill permit system administered by the U.S. Army Corps of Engineers and the Environmental Protection Agency).

In addition, Denver Water has an approved right-of-way for a 345,000-acre-foot reservoir, issued in 1931 by the

U.S. Department of the Interior pursuant to the provisions of the Transfer Act of February 15, 1905 (33 Statute 628). A reservoir on this right-of-way would inundate private and National Forest System lands from just below the confluence of the South Platte and the North Fork to just upstream of Foxton on the North Fork and to just upstream of Deckers on the South Platte (map 2-7).

In the 1980s, a proposal for a 1,100,000-acre-foot reservoir was analyzed in the 1988 *Metropolitan Denver Water Supply Environmental Impact Statement* (USACE, 1988). The preferred alternative proposed the construction of a 600-foot-high Two Forks Dam just below the confluence of the South Platte and the North Fork in the same general vicinity as the reservoir contemplated under the 1931 right-of-way (map 2-7). Other alternatives proposed included a smaller, 400,000-acre-foot Two Forks Reservoir, a 200,000-acre-foot reservoir at Estabrook, and a new Cheesman Reservoir formed by a dam just downstream from the current Cheesman Dam (Cheesman Expansion). The Environmental Protection Agency issued a Recommendation Determination in 1989 to prohibit construction of all proposed options under section 404(c) of the Clean Water Act. The Final Determination, issued by EPA in 1990, was upheld in a June 5, 1996, U.S. District Court decision on an appeal by eight suburban water districts. (See Section 3.3, History.) The decision to prohibit dam construction under the 1988 proposals does not affect the original 1931 right-of-way for a 345,000-acre-foot reservoir.

Interest in dam construction in the study corridors is likely to continue, inasmuch as the two study rivers serve as major conduits for transporting water to the Denver metropolitan area from within the basin and from the western slope. Some water

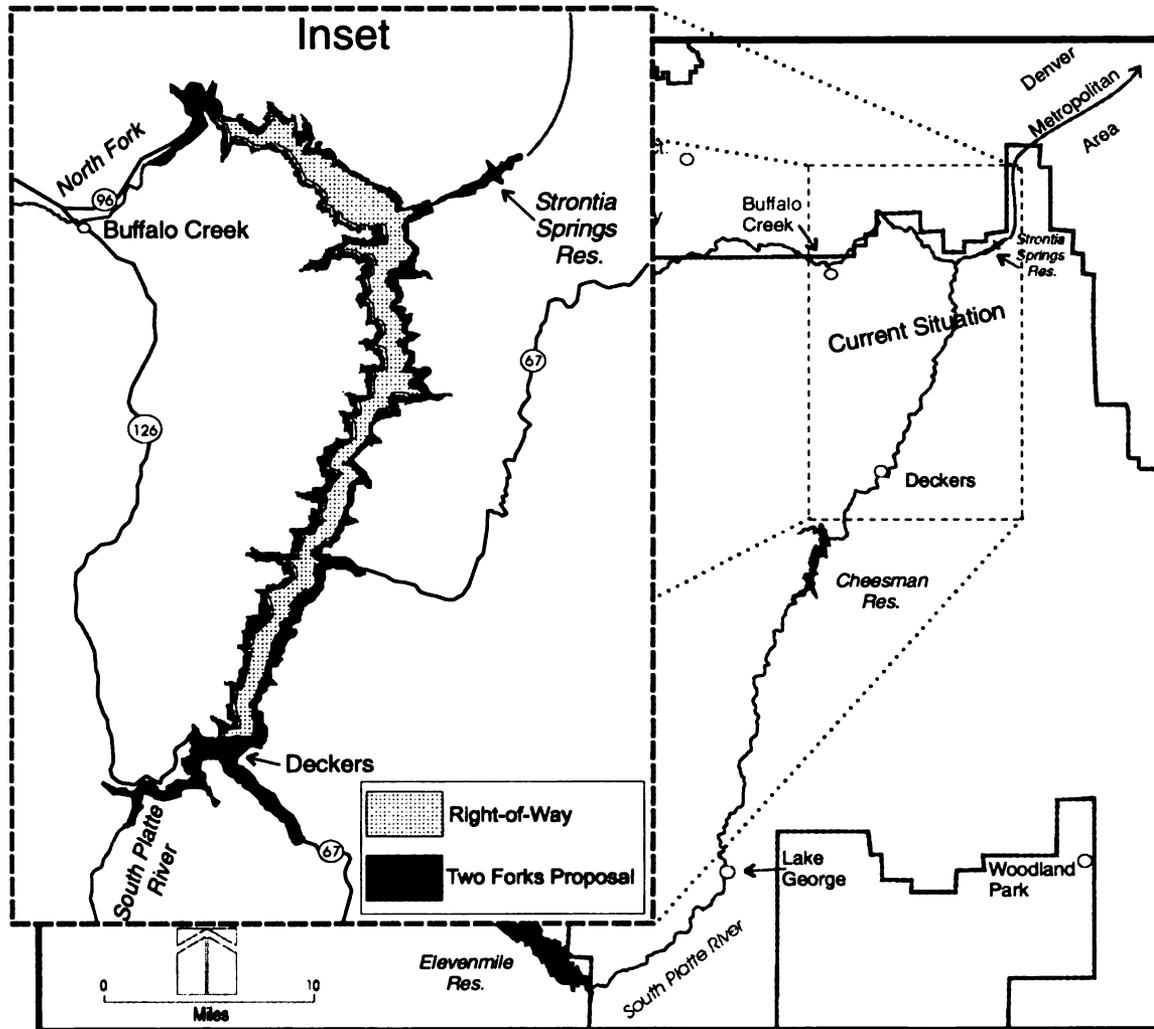
resource development interests claim the study area contains the most efficient and least costly storage sites for supplying the future water needs of the Denver metropolitan area. However, there are no current projects or active applications for dam construction or energy development within the study segments.

Interest arises, from time to time, in obtaining additional western slope waters for use in the Denver metropolitan area. Western slope interests tend to be strongly opposed to such transbasin diversion. Should any such efforts prove successful, the obtained waters would probably be transported to the Denver area via the South Platte River system. However, it is unclear how much of this water would require additional reservoir storage within the study corridors. The kind of water involved would undoubtedly be snowmelt water from years of abundant runoff, and storage would initially be needed in the river basin where the runoff occurs. From there, the water would only need to be delivered to the Front Range area for treatment and use—and an additional storage facility in the study corridors might not be necessary.

Alternatives to dam construction are receiving increased interest. These alternatives include conservation, agricultural water, and conjunctive use.

Conservation.—For several years, Denver Water has been stressing water conservation within its service area, with notable success. While population has increased more than 10 percent in that area since 1980, water consumption has not changed appreciably (Denver Water, 1998).

Agricultural Water.—Substantial amounts of water are devoted to agricultural uses in the Front Range area. Portions of these waters have been converted to municipal uses in the past (Hydrosphere, 2001, p. 26),



Inset shows the approximate extent of water-line for (1) the 1931 USDI Right-of-Way and (2) the Two Forks reservoir proposed in the 1980's.

Map 2-7.—Areas Associated with Right-of-Way and Once-Proposed Two Forks Reservoir. South Platte River and North Fork of the South Platte River Wild and Scenic River Study.

and more could be converted as provided by Colorado water law. This practice is highly controversial. Communities, governments, and other institutions located in agricultural areas are generally reluctant to support conversion to nonagricultural uses elsewhere because of concerns that economic contraction in the agricultural areas could follow (Nichols et al., 2001, pp. 111-121). This is an ongoing issue and is far from being resolved.

Conjunctive Use.—A promising avenue for increasing water supplies in the Denver metro area lies with conjunctive use. The same geologic formations that contain the aquifers mentioned above could be used as underground reservoirs. Suburbs that acquire surface water rights could divert them to the area and pump them down into the formations during seasons and years of high flows. During dry seasons and drought years, this stored water would then be pumped back up. This strategy relies on the efficient use of all existing water delivery systems (dams, reservoirs, canals, natural channels, etc.) of most metro area water providers, plus an investment in aquifer pumping and distribution facilities. Improved cooperation among water providers would also be necessary.

2.13 FISHERIES

HISTORY

The Arkansas River and the South Platte River are the two main drainages east of the Continental Divide in Colorado. Because of its size, accessibility, and high quality fishery resource, the South Platte River has an extensive history, in terms of its fishing heritage. Being relatively large and close to the major population centers of Colorado, it offers the most prolific and probably highest quality trout fishing resource in

eastern Colorado. Close to the city of Denver, the fishery in the South Platte River has been utilized since Euro-Americans first settled the area. Native Americans most likely used the fishery in the system as well.

The high quality of the fishery has historically provided anglers from throughout the country with a quality recreational fishing experience. The Platte Canyon was a popular resort area from 1880 through the early decades of the 20th century. In addition to other services, the famous “fish train” operated in the summer months (Kindig et al., 1959). The fish train brought anglers from the Front Range communities into the Platte Canyon, dropping them off along the South Platte River for a day or weekend of fishing. The trains were a popular way to reach the numerous resorts along the river. A Monday morning run was made early enough to ensure that weekend guests could be back to work on time.

The native trout in the South Platte River was the greenback cutthroat trout (*Oncorhynchus clarki stomias*). This species was apparently highly utilized, and the large number of anglers and abundant catches eventually took their toll on the native trout fishery. As early as the 1880s, fish culturists began rearing non-native trout in the Denver area. An early explanation for introducing brook trout included the observation that the greenback cutthroat “is so easily caught, it is so unwary and confiding, that the fish in a moderate-sized stream can be taken out in one season with a hook line and grasshopper” (Wiltzius, 1985). Private hatcheries began operation along the South Platte River as early as 1872, which began the introduction of non-native trout in Colorado. The result of these and subsequent stocking of brook, rainbow and brown trout in the South Platte

drainage was largely responsible for the loss of the greenback, through competition and hybridization.

Whirling disease was introduced in Colorado accidentally in 1987 from a private hatchery in Idaho (CDOW, 2003). Since then, it has spread throughout the State. The water borne parasite that causes the disease, *Myxobolus cerebralis*, has a two-host lifecycle that involves trout and a common bottom-dwelling tubifex worms. Young-of-the-year less than 5 inches in length are most susceptible as the myxobolus organism attacks soft cartilage before it turns to bone. In larger fish, this cartilage has hardened into bone making them less susceptible to the effects of the disease. These larger fish can, however, carry the whirling disease spores. Symptoms include deformities resembling scoliosis and erratic tail-chasing, hence the name.

Mortality of young trout results from various histological and physical impairments caused by the disease which leaves the fish vulnerable to limiting over-winter habitat factors. Thus, recruitment of the young trout through the winter is severely reduced or eliminated. All species of trout are susceptible to the disease, especially rainbow and cutthroat trout. Brook trout are more susceptible in areas with high infestations of the infective stage of the disease. Brown trout appear to be less susceptible to losing a lot of young to the disease but can carry a large number of spores throughout the adult life stage. Also, there is some evidence to suggest brown trout immune systems work to reduce the level of spores carried throughout the adult life stage.

The tubifex worms that host the disease are found throughout the South Platte River system, but the level of spore burdens in trout vary with changes in habitat. There appears to be no correlation between the level of nutrients and sediment in the water

and level of infestations of spores. The level of fine sediment does appear to be more of a controlling factor than nutrient enrichment. CDOW has made tremendous strides in containing the disease, ensuring that stocked fish are either disease free or are large enough (greater than 5 inches) to lessen susceptibility to the effects of the disease.

The effects of the disease for each river segment are described below.

The South Platte River, in particular the Cheesman Canyon area, has been the subject of magazine articles, television shows, and even books. The high quality and aesthetic values of the fishery have drawn considerable attention to this area for a number of years.

CDOW manages fish populations within the study area.

SEGMENT DELINEATION

River segments referred to throughout Chapter 2 are described in table 1-2 and shown on map 1-3.

South Platte – Segments A and B

Habitat Characteristics.—These segments of the South Platte River probably contain the most diverse habitat conditions of any of the study areas. The river exits the Elevenmile Dam, which influences physical characteristics of the river channel, as well as several water quality parameters.

The physical characteristics of the South Platte River in Elevenmile Canyon are, in large, part a result of the canyon morphology. The river flows through cascades and high-gradient boulder rapids in areas where the canyon is relatively narrow and the valley gradient is high. These areas also include deep pools where the river has scoured the streambed adjacent to bedrock

cliffs. Areas where the valley is wider and the gradient is less exhibit different characteristics. These areas are dominated by wide, shallow riffles and glides, and they are depositional areas for sediment that has been produced from erosional processes upstream. Erosion is also more prevalent in the low-gradient areas, primarily due to the unconsolidated banks and the depositional nature of the channel.

As the stream exits the canyon, it travels through private land that is channelized around the town of Lake George. This area provides little fish habitat, as adequate depths and other forms of cover are extremely limited. Just downstream of this channelized section, the river passes through a wide valley, where it exhibits considerable meandering. Unfortunately, there is little woody riparian vegetation along this stretch; and, as a result, there is considerable bank erosion and poor pool development.

As the river enters a steeper canyon downstream of the private land, meandering decreases, and habitat also improves. A variety of habitat conditions exist in this portion of the segment, between the private land and Beaver Creek. Pools, rapids, and glides are more abundant here, and the substrate is more variable, with large boulders becoming more prevalent, providing additional habitat.

The river exits Elevenmile Reservoir through a surface release outlet. Although the amount of released water can be regulated to some extent, the storage capacity of the reservoir dictates the amount of water released during the snowmelt runoff period. The flow releases from the dam affect the hydrologic conditions downstream. A hydrograph of the river in this section generally follows a pattern normally seen in stream systems in the Rocky Mountain Region, with peak flows occurring in the summer months, and low

flows occurring in the fall, winter, and part of the spring. The main difference is that there are relatively sudden increases and decreases in flows, which typically are not as often and dramatic as in unregulated streams.

Historically, extremely low flows during winter months contributed to poor habitat conditions during the winter months (CDOW, unpublished sampling report, 1985). Indeed, flows of less than 3 cfs were recorded as late as 1978. The completion of Spinney Mountain Reservoir in 1981 provided sufficient storage to improve winter flow conditions. Records indicate that winter flows have not been less than 15 cfs since 1987.

Surface-release reservoirs have several effects on the stream system downstream. Because the water is coming from the upper portion or epilimnion of the reservoir, stream temperatures tend to be warmer during summer months. During the winter months, when the reservoir is ice covered, the coldest water is typically found at the top of the reservoir. As a result, the river downstream carries colder water than would typically be found if the reservoir were not present. Temperatures in the South Platte River downstream of Elevenmile Dam exhibit higher seasonal fluctuations than they would if a bottom-release reservoir or no reservoir were present. Although there is evidence to indicate that these temperature fluctuations may improve conditions for the native sucker species in Elevenmile Canyon, they do not appear to benefit the trout fishery.

The surface-release outlet works on the dam may provide a food source for aquatic macroinvertebrates directly downstream of the reservoir. Nutrients, algae, and zooplankton in the surface layer are typically washed over the dam, where aquatic insects downstream consume them. These insects, in turn, are a primary food source for fish in

close proximity to the dam. Many of these insects are highly specialized to capture the floating material and organisms coming over the dam by the use of specialized filtering appendages and net-like devices they construct. Because there is little information on the aquatic macroinvertebrate populations downstream of Elevenmile Dam, it is impossible to say whether the current situation benefits the fishery or not.

Chadwick Ecological Consultants (1986) used the Instream Flow Incremental Methodology (IFIM) to model flows in this reach during the 1980s. Their results indicated that for brown trout, juvenile habitat is the most abundant type of habitat in this section. For adult rainbow trout, suitable habitat is almost twice as abundant as adult brown trout habitat. The amount of suitable habitat, for all life stages, decreases during the high flows of the snowmelt runoff period. Although this seasonal trend is also apparent for rainbow trout, adult habitat far exceeds that of other life stages. When compared to other sections of the South Platte River, Segments A, B, and C, contain the second highest amount of suitable trout habitat in the river. Only Cheesman Canyon (Segment D) contains more adult habitat for both species. This may be due in part to the variety of habitats in this reach, especially the deeper pools and runs associated with large rocks and boulders.

Fishery Management.—Segment A is managed as a quality regulation area, from Elevenmile Dam to the Wagon Tongue Gulch Bridge, approximately 2.5 miles downstream. Regulations include a limit of two fish over 16 inches. This regulation provides a higher quality fishery in terms of the ability of anglers to catch larger, trophy-size trout. The remainder of Segments A and B are managed as a standard regulation area, with an eight-fish limit.

Several game fish found in this reach, some actively managed by CDOW and others, are a result of migration from Elevenmile Reservoir (Chadwick and Associates, 1986). Catchable and subcatchable rainbow, brown, and cutthroat trout have been planted in this section of the river to provide a put-and-take fishery and to establish self-sustaining populations of trout. Although rainbow trout reproduction is limited in this segment, the brown trout population is, by and large, self-sustaining.

Native fish in these segments include white suckers (*Catostomus commersoni*), longnose suckers (*Catostomus catostomus*), and creek chubs (*Semotilus atromaculatus*). Although the two sucker species are common, they are generally not considered a desirable game fish.

Whirling disease becomes more prevalent in trout populations the further downstream one gets from Elevenmile Dam. The rainbow trout in Elevenmile Canyon still maintain self-sustaining populations because much of the in-stream habitat is not conducive to supporting the whirling disease two-stage life cycle.

Angler Use.—Angler use in the public sections of these segments is relatively high (CDOW, 1993, 1994). In 1994, the CDOW conducted creel census estimates of three segments of this section, all in Elevenmile Canyon. This census was conducted between May and September, when the highest number of anglers was present. Results indicated that the lower and middle portions of the canyon received similar fishing pressure (651 and 737 hours per acre, respectively). The upper portion closer to the dam received considerably more use (4,018 hours per acre). Discrepancies between the two areas could be attributable to available camping in the upper portion of the canyon, preference for special regulations in that area, or a

combination of factors. The relatively high fishing pressure in these segments may be attributable to several factors, including accessibility from adjacent roads, close proximity to major population areas along the Front Range, the high quality fishery, intensive management by the CDOW, and the aesthetic value of the area. Most likely, it is a combination of these factors that provides the high quality fishery observed in this segment.

South Platte – Segment C

Habitat Characteristics.—This segment of the South Platte River is, in most part, confined in a narrow, high-gradient canyon. Sinuosity is relatively low, while stream gradient is higher than in many portions of Segments A and B. Although there are areas of reduced gradient, much of this segment is typified by pool-riffle complexes associated with boulders and bedrock. Riparian vegetation is restricted to areas directly adjacent to the river, and several tributaries, including Tarryall Creek, enter the river in this segment.

The nutrient enrichment and the thermal and chemical modifications associated with Elevenmile Reservoir most likely do not significantly influence this section of the river. However, the flow releases from the dam do affect the hydrologic conditions here. The hydrograph of the river in this section generally follows a pattern normally seen in stream systems in the Rocky Mountain Region, with peak flows occurring in the summer months and low flows occurring in the fall, winter, and part of the spring. The main difference is that there are relatively sudden increases and decreases in flows, which are not observed to this extent in unregulated streams. Although the inputs from tributaries such as Tarryall Creek ameliorate these fluctuations more than in Segments A and B, they are, nevertheless, a significant influence.

Historically, extremely low flows contributed to poor habitat conditions during the winter months (CDOW, unpublished sampling report, 1985) although these flows were not as low as those in Segments A and B, owing to the influence from tributaries in this segment. In addition, recent flow conditions in the river have provided considerably more water during the winter months as a result of additional upstream reservoirs and the transmission of additional water to Denver. Habitat conditions for brown and rainbow trout is similar to segments A and B and is described above for those segments.

Fishery Management.—This segment of the South Platte River is designated as “wild trout waters” by the CDOW. This designation is given to relatively high quality waters that are capable of producing a quality trout fishery. These waters receive little, if any, hatchery supplementation and rely primarily on natural reproduction for recruitment to the fishery. This designation was placed on this portion of the river for two primary reasons: (1) the lack of fishing pressure due to the inaccessible nature of the area and (2) the relatively high potential for natural reproduction. CDOW last stocked fingerling brown trout in this segment in 1990. Steelhead rainbow fry were stocked in Happy Meadows (Segment B) and Wildcat Canyon (Segment C) from 1990 through 1994. This stocking was conducted to supplement natural reproduction of brown trout and to introduce a large rainbow trout strain that would migrate to Cheesman Reservoir as juveniles and return to the river as large adults. However, it was learned that the stocked fish were not a true steelhead trout strain but were an undetermined rainbow trout strain. The likelihood that these fish will exhibit migration behavior akin to a true steelhead strain (migrating from Cheesman Reservoir upstream to spawn annually) is low (Gerlich, 1997).

Fish population information is limited, primarily due to the inaccessibility of the area. As part of the Two Forks study, two fish sampling stations were located in this segment, upstream and downstream of the confluence of Tarryall Creek. Sampling at these stations revealed that both brown and rainbow trout are self-sustaining in this area and constitute a healthy fishery. In addition, native longnose and white sucker populations are present.

When disasters (natural or manmade) eliminate or severely reduce the existing fish populations or preclude the ability of the fish to maintain self-sustaining populations, the CDOW has the authority to re-stock the stream or river with suitable numbers, species, and sizes of fish to re-build the fish community. The CDOW will continue to monitor the fishery over time and may discontinue stocking when self-sustaining fish populations are re-established and/or the instream habitat conditions improve. Sampling in the spring of 2003 showed that adult fish were present in this segment despite large inputs of sediment resulting from the Hayman Fire of June 2002. The CDOW will sample more intensively in the fall of 2003 to determine if stocking is needed to boost populations.

Infectivity levels here have not been actively monitored, but it is assumed that the segment is positive for whirling disease since Segments A, B and D are known to be positive. The fishery through this segment is considered wild trout water, there is no stocking, and the brown and rainbow trout populations are self-sustaining.

Angler Use.—Angler use in this area has not been formally monitored. In part, this lack of information has been the result of the difficulty in accessing this portion of the river. Access is limited to a relatively few trails and primitive roads. The Forest Service and CDOW have made attempts at

limiting access on severely degraded roads, to control erosion. The result of this restricted access is a fishery experience in a relatively undisturbed setting. Except in the Corral Creek area, this segment provides an opportunity to fish the river with little contact with civilization. Roads and trails are rare, which limits the public's access. As a result, fishing pressure in this segment is probably lower than in any of the other South Platte River study segments.

South Platte – Segment D

Habitat Characteristics.—This segment of the South Platte River is located primarily in a confined canyon, known as Cheesman Canyon. Although it is a relatively short segment, it contains probably the best habitat in the study area (Chadwick and Associates, 1986). The confined nature of the canyon and the abundance of exposed bedrock and boulders provide excellent pool development and other habitats for both rainbow and brown trout.

Habitat for adult rainbow trout in this segment had the highest weighted usable area (WUA) of habitat for any life stage of trout. WUAs for all life stages of brown and rainbow trout were highest during the fall and winter months. Flows during this period are moderate and relatively stable (Chadwick and Associates, 1986). Habitat appears to be at a minimum during the snowmelt runoff period, when velocities are at their greatest. This trend was similar to those seen in the two previously described segments. Nehring (1986) found a strong negative correlation between monthly discharge and rainbow and brown trout year class strength. Nehring concluded that flows during May and June were critical for brown trout survival, while those of June and July were the most critical for rainbow trout. Recruitment during years with moderate and relatively stable flows during the spawning and rearing period produced

higher numbers of young and ultimately higher adult biomass. As a result, increased flows during critical times of the year can have a negative effect on the trout population in this section. (Nehring and Anderson, 1993)

The releases from Cheesman Reservoir have affected the flow levels as well as the physio-chemical properties of the downstream environment. Unlike Elevenmile Reservoir, the flow releases from Cheesman Reservoir are from the bottom of the dam, constituting a hypolimnetic release. This type of release results in different water quality properties than the Elevenmile Reservoir surface release. By removing water at the bottom of the reservoir, the receiving stream temperatures are more constant than would be expected in an unregulated stream. Aquatic macroinvertebrate food sources are modified greatly, typically becoming dominated by high densities of smaller organisms. Invertebrates that require seasonal temperature changes to initiate growth and metamorphosis typically disappear soon after bottom releases are initiated.

Fishery Management.—The Cheesman Canyon segment of the South Platte River is one of only a few stream segments in the State designated “Gold Medal.” This is the highest classification given to a river segment or lake. These waters are managed to maximize the outstanding qualities of the river or lake. Specifically, a standing crop of trout must exceed 40 pounds per acre, with at least 12 fish per acre being of quality size (14 inches or greater). In addition, the river must have above average scenic quality and be wider than 20 feet. Fish populations in the Cheesman Canyon segment have been extensively studied (CDOW unpublished sampling result, 1986; Chadwick and Associates, 1986). Typically, rainbow trout biomass exceeds 300 pounds per acre in this

segment, with values documented at over 700 pounds per acre during the mid-1980s. The sustained high quality of the fishery in this segment has resulted in many articles in local newspapers as well as books and nationally distributed magazines. Nationwide, there are extremely few trout fisheries that approach the population dynamics of this segment.

The Hayman Fire appears to have affected rainbow and trout populations downstream from the confluence of the South Platte River and Wigwam Creek (Nehring, 2002). Adult population parameters for both brown and rainbow trout were at all time lows in the fall of 2002 at this site. Most likely, this is due to the effects of flash flood inputs from both Wigwam and Horse Creeks. However, rainbow trout statistics have been hovering at low levels since the mid-1990s, due in large part to the devastating effects of whirling disease.

The Hayman Fire, which began June 8, 2002, appears to have had an effect on survival of young-of-the-year (YOY) wild rainbow trout fry which hatch in late May and emerge from the gravel in mid-June. Given the extremely low levels of rainbow trout fry abundance in the fall of 2002, numbers of age-1 wild rainbow trout juveniles in the fall of 2003 will likely be almost non-existent. This is considered to be an aberration as a result of the fire, and future year classes should rebound. All year classes will continue to be monitored by CDOW for effects of sedimentation as well as whirling disease. Conversely, brown trout fry survival was quite good. This is because brown trout fry hatch in February or March and begin emergence from the gravel in late-April to early May in the South Platte River corridor downstream of Cheesman Dam, thus escaping potential lethal the effects of the fire—including sedimentation, rising water temperatures, and lower dissolved levels of oxygen.

Whirling disease infections are present in this stretch of the river, but recorded incidence has been low due to habitat less susceptible to tubifex worms.

Angler Use.—This segment of the river is only accessible by foot, making it highly desirable to anglers pursuing a more primitive fishing experience. The Gill Trail provides fast access from the lower portion of the canyon to near the base of Cheesman Dam. Fishing accessibility is good throughout the length of the canyon. Creel census information collected from the CDOW during the mid 1980s indicates that this segment of the South Platte River receives heavy fishing use. Total fishing use approached 13,000 hours of angling use in June, and more than 53,000 angler hours were spent during the April through September sampling period. During this time period, more than 59,000 trout were caught, for a catch rate in excess of 1.1 trout per hour. These statistics are higher than those for any of the other areas sampled during the same time period in the segments being studied, and the sustained catch rate is especially high considering the intensive use in this segment.

The fishing is quite challenging in this segment and is limited to artificial lures only. As a result, there are several successful guiding services permitted each year for angling excursions to this segment.

South Platte – Segment E

This segment of the South Platte River constitutes a diverse section of the river, from the standpoint of habitat, management, and angler experience. Beginning at the Forest Service boundary, the river passes through the privately owned Wigwam Club and then enters a relatively wide valley, which ultimately affects the characteristics of the river. Highway access is

good throughout this segment, and private land is scattered throughout its length.

Habitat Characteristics.—As the river exits Cheesman Canyon, the river valley begins to widen. The stream gradient is relatively less; and although pools created from bedrock and boulder outcrops are apparent, they are not as prevalent as in the steep canyon upstream. The riparian area is more extensive in this segment, and the river is wider.

Habitat, in terms of WUA, is less in this section for all life stages of brown and rainbow trout than in the Cheesman Canyon segment (Segment D) (Chadwick and Associates, 1986). However, brown trout spawning habitat appears to be higher in this segment. Adult rainbow trout habitat appears to be higher in this segment than in Segments A, B, or C, and values for all life-stages of brown trout appear to be at least as high in this segment as in the other three South Platte segments.

Sedimentation, a result of erosion from adjacent roads and tributaries, appears to be limiting this segment. Historic road maintenance of the adjacent County Road 533 has contributed excessive amounts of sediment in this segment. However, recent paving efforts by Jefferson and Douglas Counties, as well as travel management by several cooperators, have resulted in a considerable decrease in sediment.

Fishery Management.—This segment of the South Platte River is also managed with special regulations, although it is not considered a Gold Medal section by the CDOW. However, the special regulations in place are restrictive and are designed to maintain a high quality fishery. Prior to this regulation, the vast majority of trout in this segment were less than 3 years of age (Nehring and Anderson, 1983). Indeed, trout biomass in this segment was typically less than 10 percent of that in the Cheesman

Canyon segment. Although habitat in this segment appears to be less than in Segments A, B, and C, Nehring and Anderson attributed part of the reduced trout population to angling pressure. After special regulations were implemented in 1983, extensive monitoring was conducted to determine their effectiveness. Nehring (1986) found that the implementation of special regulations in the Deckers area resulted in a dramatic increase of the rainbow trout population there. Near the downstream portion of this segment, where more liberal fishing regulations are in effect, brown trout still comprised over 80 percent of the trout captured by Nehring and Anderson.

The Wigwam Club is not open to the public and is managed as a trophy fishery for its members. Stocking does occur in this segment, and biomass estimates approach levels seen in Cheesman Canyon.

Spores that cause whirling disease are present in this segment, and infectivity has been slightly higher than in Cheesman Canyon since sediment loading increases downstream. Stocking larger fish has reduced mortality resulting from the disease and reduced continued spread.

Angler Use.—This segment of the South Platte River is easily accessible to the large population centers along the Front Range of Colorado. County Roads 67 and 97 are adjacent to the river throughout its length, with camping, parking, and picnic areas available throughout its length. Although there is some private property along this segment, the majority of the river is open to public angling.

Creel census data collected by the CDOW in 1986 indicate that angling pressure was relatively high during the summer of that year. More than 43,000 hours of angling were estimated for this relatively short section of stream from April through

September. Approximately 34,000 trout were caught, with a total catch rate of 0.78 trout per hour. Catch rates for brown and rainbow trout were identical, which is considerably different from Segment D, which had a much higher catch rate for rainbow trout.

Creel information for the Scraggy View to Twin Cedars area during the same time period revealed that an estimated 38,000 angling hours were spent on this section during the same time period.

Although this estimate is slightly lower than that for the previously discussed section, it should be noted that the area analyzed was considerably longer. As a result, it appears that during the sampling period there was considerably less pressure in this downstream section of Segment E. A total of 41,000 trout were caught during the sampling period in this section, for a catch rate of 1.09 trout per hour. This higher catch rate could be attributed to the fact that hatchery reared trout were planted in this section of the river during the creel census period. Indeed, the rainbow trout catch rate was almost four times the catch rate for brown trout in this section, showing the vulnerability of these fish to anglers.

North Fork – Segment H1

For all segments on the North Fork, H1, H2, and H3, the worms that carry the spores that cause whirling disease are present in these stretches, but little information is available on infectivity levels. Rainbow trout are stocked when greater than 5 inches in length, and browns dominate the stretch.

Habitat Characteristics.—The North Fork of the South Platte River is considerably smaller than the segments addressed for the South Platte River. Originating on the south side of Mount Evans, the river passes the town of Bailey and enters the study

segment downstream. This segment has a relatively low gradient and, typically, a gravel and cobble substrate. Riparian vegetation consists primarily of willows, with grasses and sedges interspersed. Pools are associated mainly with lateral migration of the stream channel and manmade check dams. Although some boulders provide cover, this segment is dominated by riffle habitat, which is typically considered marginal. Because this segment is located on private land, there is little current fishery habitat inventory data available for reference. The stream in this segment averages approximately 30 feet wide, and it averages 1.0 foot deep during low flows (Chadwick and Associates, 1986).

Streamflow in this segment is modified by water delivered from the western slope through the Roberts Tunnel. These imported flows have been known to increase the discharge in the river considerably. Adult rainbow trout habitat was measured to be the highest amount of habitat in this portion of the river, based on IFIM analysis (Chadwick and Associates, 1986). All habitats for rainbow as well as brown trout declined dramatically after April and started to increase again after June. This trend can be related to increased discharges during the summer months from the snowmelt runoff and water augmentation from the Roberts Tunnel.

Fishery Management.—Sampling results indicate that there are cutthroat, brown, brook, and rainbow trout and longnose suckers in this segment (CDOW unpublished results, 1986; Chadwick and Associates, 1986). Brown trout dominate the density and biomass of trout in this segment and are apparently self-sustaining. Rainbow trout are present primarily as a result of stocking efforts. Although the CDOW plants rainbow trout both upstream and downstream of this segment, they do not plant trout within the private areas of

the segment. The private landowners may plant fish or may be conducting habitat improvement projects in this segment. However, this information was not available for this analysis.

Angler Use.—Because this segment is located on private land, there is no information on angler use. No public fishing access is available for this segment.

North Fork – Segment H2

Habitat Characteristics.—This segment is located in a relatively steep canyon, which has a higher gradient than the previous segment discussed. As a result of the steep topography, access is limited; and little information is available about the habitat conditions. Information from other sections of the North Fork and from the South Platte suggests that this section should have abundant boulders and associated habitat. Indeed, evaluation of aerial photographs indicates that the substrate in this segment contains considerable boulders and bedrock outcrops. The best fisheries in the South Platte (Cheesman Canyon, Elevenmile Canyon) are found in areas of this type. The higher gradient generally results in greater scouring of pools and deposition of smaller amounts of fine sand and gravel. The presence of boulders and bedrock would increase the number of pools, which provide good trout cover. Based on information from other segments in the study area and aerial photographs, this segment probably represents the best trout habitat in the study area on the North Fork.

Streamflow in this segment is modified by water delivered from the western slope through the Roberts Tunnel. These imported flows increase the discharge of the river considerably. Adult rainbow trout habitat was measured to be the highest amount of habitat in this portion of the

river, based on IFIM analysis (Chadwick and Associates, 1986). All habitats for rainbow as well as brown trout habitat declined dramatically after April and started to increase again after June. This trend can be related to increased discharges during the summer months from the snowmelt runoff and water augmentation from the Roberts Tunnel. In terms of habitat conditions related to flow, the difference between this segment and Segments A and B is the presence of pools and other deep-water habitats associated with the boulder substrates. These provide refuges in which the trout can avoid high-velocity conditions. As a result, considerably more suitable habitat is preserved during high flows, when habitat is generally at a minimum.

Fishery Management.—Only minimal stream enhancement work has been done on this segment. This is not surprising considering the rugged nature of the canyon, the poor access, and the large boulders in the channel. In addition, it appears that trout habitat is relatively good compared to other reaches in the river. Based on knowledge of preferred trout habitat in the South Platte River system, this boulder-dominated segment of the river probably provides some of the highest quality habitat in the North Fork.

Due to the inaccessibility of this section of river, there is no fish stocking in this segment. As a result, the fishery is most likely dominated by a self-sustaining brown trout population. Hatchery reared rainbow trout may migrate into the segment from upstream, and there may be some residual brook trout in the reach. However, it is doubtful that they comprise more than a fraction of the biomass or density of fish found in this segment. Basically, this segment is managed as a wild trout fishery by the CDOW, although no special regulations have been implemented.

Angler Use.—Because this segment is relatively inaccessible, fishing is limited to a “walk-in” type experience. Relatively few segments of the North Fork corridor provide this type of fishing experience, which is a more secluded, pristine experience than is found in most other portions of the river. Use is light.

North Fork – Segment H3

Habitat Characteristics.—This segment of the North Fork of the South Platte River encompasses a variety of habitats, from steep, boulder-dominated areas, to relatively low gradient gravel substrate stretches. Because roads parallel the river through most of this segment, the channel is constricted, and riprap is abundant between the road and the stream. The unpaved roadway that parallels the river downstream from the town of Bailey results in considerable sedimentation. In addition, riparian vegetation is poorly developed along most of this segment, primarily a result of the encroachment of the adjacent road.

Streamflow in this segment is modified by water delivered from the western slope through the Roberts Tunnel. These imported flows increase the discharge of the river considerably. Adult rainbow trout habitat was measured to be the most abundant sort of habitat in this portion of the river, based on IFIM analysis (Chadwick and Associates, 1986). All habitats for both rainbow and brown trout declined dramatically after April and started to increase again after June. This trend can be related to increased discharges during the summer months from the snowmelt runoff and water augmentation from the Roberts Tunnel.

Fishery Management.—A self-sustaining brown trout populations dominates this segment (Chadwick and Associates, 1986

and 1997; CDOW, 1986). Biomass values typically are greater than 30 pounds per acre, while rainbow trout typically compose less than 5 percent of the total biomass. Brook trout are apparently absent or very rare in this segment and longnose, and/or white suckers are common.

The CDOW typically supplements the brown trout population with thousands of catchable rainbow trout every year. Different species and strains of trout are stocked; but, typically, the management is geared toward a "put and take" type of rainbow trout fishery.

Angler Use.—No formal creel census information is available for this section. Access to public land is good in this segment. However, there is a considerable amount of private land that is not available to the public. Informal creel census information collected by the CDOW indicates that the majority of people fishing in the segment are residents of Colorado, and catch rates are typically less than 0.5 fish per hour. Hatchery reared rainbow trout make up the majority of the fish caught, with brown trout contributing less than 25 percent of the catch.

2.14 WILDLIFE

On the Pike and San Isabel National Forests, there are approximately 375 species of mammals, birds, reptiles, and amphibians. While not all of these species can be found in the study area, many of them are likely to occur on a seasonal or year-round basis.

This analysis will focus on federally listed species (threatened, endangered, and proposed), Forest Service sensitive species, and management indicator species that are likely to occur in the study area and may be

affected by the preferred alternative. Table 2-13 lists these species.

Many other wildlife species such as mule deer, black bear, Rocky Mountain bighorn sheep, and mountain lion are found along the river corridor. Several species of raptors use the corridor for foraging or nesting, including golden eagles, prairie falcon, and osprey. Waterfowl are also common in the corridor, as are smaller birds, mammals, reptiles, and amphibians. Approximately 75 percent of the wildlife species known to occur in Colorado are dependent on riparian areas during all or a portion of their life cycles (National Diversity Information Source [NDIS], 2001).

The study area contains a diverse mix of vegetation types important to wildlife for foraging, resting, and breeding. These include wetland and riparian habitat (2,215 acres), grass-forb (310 acres), shrub-seedling (220 acres), and forested structural stages (17,060 acres). The study area also contains important special habitat features for wildlife such as large rock outcrops and snags, which are used by many avian species for breeding and roosting. Approximately 3,400 acres of the study area burned in the Hayman Fire, primarily under low and moderate burn severities. Several assessments are underway to determine the effect of the fire on wildlife habitats and populations.

On an ecosystem scale, the river provides a path for the flow of organisms through the various wildlife habitat types. It provides outputs such as food, cover, and nest sites. It connects different patches of habitat and allows animals to travel from site to site.

Wildlife in the study area is used both consumptively and non-consumptively. Several of the common mammal species found in the corridor are hunted, with the exception of bighorn sheep. Less than 1 percent of the statewide mule deer and elk

Table 2-13.—Species Considered in the Analysis, with Federal Status and Colorado Natural Heritage Program (CNHP) Rank

Species	Federal Status ¹	CNHP Rank ²
Northern leopard frog <i>Rana pipiens</i>	S	G5S3
Tiger salamander <i>Ambystoma tigrinum</i>	S	G5S5
Western (boreal) toad <i>Bufo boreas boreas</i>	C, S	G4T1QS1
Bald eagle <i>Haliaeetus leucocephalus</i>	T	G4S1BS3N
Flammulated owl <i>Otus flammeolus</i>	S	G4S4
Fox sparrow <i>Passerella iliaca</i>	S	G5S4BSZN
Golden-crowned kinglet <i>Regulus satrapa</i>	S	G5S4
Goshawk <i>Accipiter gentiles</i>	S	G5S3BSZN
Lewis' woodpecker <i>Melanerpes lewis</i>	S	G4S4
Mexican spotted owl <i>Strix occidentalis lucida</i>	T	G3T3S1BSUN
Mountain bluebird <i>Sialia currucoides</i>	MIS	G5S5
Olive-sided flycatcher <i>Contopus cooperi</i>	S	G4S3S4B
Osprey <i>Pandion haliaetus</i>	S	G5S3BSZN
Peregrine falcon <i>Falco peregrinus</i>	MIS	G4S2BSZN
Pygmy nuthatch <i>Sitta pygmaea</i>	S	G5S4
Three-toed woodpecker <i>Picoides tridactylus</i>	S	G5S3S4
Wilson's warbler <i>Wilsonia pusilla</i>	MIS	G5S4BSZN
Pawnee montane skipper <i>Hesperia leonardus Montana</i>	T	G4T1S1
Abert's squirrel <i>Sciurus aberti</i>	MIS	G5S5
Dwarf shrew <i>Sorex nanus</i>	S	G4S2
North American wolverine <i>Gulo gulo luscus</i>	C, S	G4T4S1
Preble's jumping mouse <i>Zapus hudsonicus preblei</i>	T	G5T2S1
Ringtail <i>Bassaricus astutus</i>	S	G5S4
Townsend's big-eared bat <i>Plecotus townsendii</i>	S	G4S2
<i>Botrychium lineare</i>	C,S	G1S1
<i>Carex livida</i>	S	G5S1
<i>Draba smithii</i>	S	G2S2
<i>Machaeranthera coloradoensis</i>	S	G5S2
<i>Malaxis brachyopoda</i>	S	G4QS1
<i>Mimulus gemmiparus</i>	S	G2S2
<i>Primula egaliksensis</i>	S	G4S2
<i>Potentilla rupincola</i>	S	G5?T2S2
<i>Ptilagrostis monogholica ssp porteri</i>	S	G3G5T2S2
<i>Rubus acticus ssp. acaulis</i>	S	G5T5S1
<i>Spiranthes diluvialis</i>	T	G2S2
<i>Viola selkirkii</i>	S	G5S1

¹ Federal Status: E = Endangered; T = Threatened; C = Candidate; S = U.S. Forest Service, Region 2 Sensitive; MIS = Management Indicator Species.

² CNHP Rank: Rare species tracked by CNHP: (G)lobal and (S)tate ranking range from 1 = Critically Imperiled to 5 = Demonstrably Secure. (T)inomial rank indicates subspecies or varieties. See CNHP 2002 for more detail.

harvest occurs in the study area and likely less than 4 percent of the annual statewide small game harvest (Mason, CDOW, personal communication, 1996). Non-consumptive use of wildlife is important for many Coloradans. High proportions (63 percent) consider wildlife viewing a very important part of their recreation activities, and 33 percent take trips specifically to photograph, feed, or observe birds or other wildlife (Colorado State University, CDOW, 1993). The chance to see certain animals, such as eagles, rare or endangered species, and bighorn sheep, is extremely important to people when deciding to take a trip to view wildlife (Manfredo et al., 1991). National Forests are one of the primary locales (25.6 percent) for participating in non-consumptive wildlife activities (Standage, Accureach, Inc., 1990).

THREATENED, ENDANGERED, AND PROPOSED SPECIES

The Endangered Species Act of 1973, as amended, provides Federal protection for threatened and endangered species and their critical habitats. As a land managing agency, the Forest Service makes many decisions that affect wildlife resources. The act directs the Forest Service to ensure that its actions are not likely to jeopardize the continued existence of any proposed, endangered or threatened species or result in the destruction or adverse modification of critical habitat (16 USC 1536(a)(2)). The study area provides potential habitat for five federally listed species. These are the Pawnee montane skipper, Preble's meadow jumping mouse, bald eagle, Mexican spotted owl, and Ute ladies' tresses orchid.

FOREST SERVICE SENSITIVE SPECIES

The Forest Service has established direction in *Forest Service Manual (FSM) 2670* and in

Region 2 Supplement 2600-94-2 to guide habitat management for sensitive species.

Sensitive species include those plants and animals that are declining in either numbers or occurrences, species whose habitat is declining, or species whose population or habitat is limited (FSM 2600-94-2). The study area provides potential habitat for 27 sensitive species (table 2-13).

MANAGEMENT INDICATOR SPECIES

The National Forest Management Act of 1976 directs the Forest Service to provide for the maintenance of viable populations of native and desired non-native vertebrate species. Twenty species were identified as management indicator species (MIS) in the *PSICC Land and Resource Management Plan* to represent the various habitats that occur in the forest. In this study, Albert's squirrel is the MIS selected for mature ponderosa pine forest, Wilson's warbler represents riparian habitat, the mountain bluebird represents forest meadow habitat, and the peregrine falcon represents rock features.

SEGMENT DELINEATION

The following text describes the distribution of wildlife habitat in each of the seven river segments. Occurrences of threatened, endangered, and sensitive species and other notable wildlife species are also discussed.

South Platte – Segments A and B

Habitat Features.—This segment of the South Platte River begins as a rocky canyon below Elevenmile Dam. Riparian vegetation, primarily willow thickets, occurs in a narrow band adjacent to the river and along the tributary streams. Wetland vegetation, more common after the river exits Elevenmile Canyon, can typically be found on the floodplain above the river. Both north- and south-facing slopes contain

a mixed-conifer forest of ponderosa pine and Douglas fir. In Elevenmile Canyon, much of the Douglas fir is dead from insect outbreaks. The upper and lower portions of this segment contain prominent rocky outcrops suitable for nesting raptors. Approximately 520 acres of Segment B burned in the Hayman Fire, primarily under low burn severities.

Wildlife Occurrences.—The Colorado Division of Wildlife records the use of Elevenmile Canyon by golden eagles and prairie falcons (Craig, CDOW, personal communication, 1996). No nest sites have been located.

Threatened, Endangered, and Sensitive Species Occurrences.—A bald eagle winter communal roost site is located along the South Platte River north of Lake George (Public Service Company of Colorado, 1993).

Three sensitive species are known to occur in this segment. A flammulated owl nest was located in the downstream portion of this segment (Public Service Company of Colorado, 1993). The buffer zone established around the nest site overlaps with the study area. Osprey sightings have been recorded around the Lake George area, and approximately 2.5 river miles of this segment are included within the osprey's distribution area (Public Service Company of Colorado, 1993). Northern leopard frogs have been recorded in the river and in small ponds adjacent to the river in this segment (Howard, Forest Service, personnel communication, 1996).

Other Region 2 sensitive species that may occur in this segment include the tiger salamander, fox sparrow, golden-crowned kinglet, goshawk, Lewis' woodpecker, olive-sided flycatcher, pygmy nuthatch, three-toed woodpecker, common loon, dwarf shrew, North American wolverine, ringtail, Townsend's big-eared bat, and all

11 sensitive plants. Although specific locations for these species are unknown at this time, suitable habitat exists within this river segment.

South Platte – Segment C

Habitat Features.—This segment of the South Platte River is fairly confined within a canyon. Riparian vegetation, primarily willow thickets, occurs in a narrow band adjacent to the river and along the tributary streams of Corral Creek and Tarryall Creek. Benches of willow and wetland vegetation can typically be found on the floodplain above the river. Both north- and south-facing slopes contain a mixed-conifer forest of ponderosa pine and Douglas fir. Massive rock formations dominate the lower portion of this segment. Approximately 2,270 acres of this segment burned in the Hayman Fire under high, moderate, and low burn severities.

Wildlife Occurrences.—Golden eagles have used the area in the recent past. The south-facing slopes are considered severe winter range and winter concentration areas for mule deer (NDIS, 2001).

Threatened, Endangered and Sensitive Species Occurrences.—The federally listed Pawnee montane skipper is known to occur in this segment in the vicinity of Corral Creek. This threatened species has a restricted range along the mainstem of the South Platte River and the North Fork of the South Platte. The northeast limit of the ponderosa pine/blue grama grass community overlaps with the southwestern limit of the prairie gayfeather (*Liatris punctata*) to create suitable habitat for the Pawnee montane skipper. Optimum features of its habitat include open ponderosa pine stands with a canopy closure of 30 percent, shrub and grass cover generally less than 10 percent, and the presence of prairie gayfeather and blue

grama in specific densities. Skipper habitat in this segment is limited compared to other river segments.

The bald eagle, a threatened species, may also occur in this segment. Winter concentration areas for this species are found both upstream and downstream. It is likely that the eagle forages along this segment of the South Platte River, particularly in the lower portion that flows into Cheesman Reservoir.

Suitable habitat exists for the Preble's meadow jumping mouse, but it has not been recorded here.

The goshawk is a Region 2 sensitive species known to occur in the study area. The goshawk inhabits montane areas of coniferous, deciduous, and mixed forests. A foraging area created around a known nest site overlaps with the study area (Public Service Company of Colorado, 1993).

Other Region 2 sensitive species that may occur in this segment include the northern leopard frog, tiger salamander, flammulated owl, fox sparrow, golden-crowned kinglet, Lewis' woodpecker, olive-sided flycatcher, osprey, pygmy nuthatch, three-toed woodpecker, dwarf shrew, ringtail, Townsend's big-eared bat, *Malaxis brachypoda* and *Potentilla rupincola*. Although specific locations for these species are unknown at this time, suitable habitat does exist within this river segment.

South Platte – Segment D

Habitat Features.—This segment is also within a confined, steep-sided, rocky canyon. Patches of willow thickets, wet meadows, and other wetland types do occur; but they are more limited because of the abundance of bedrock and boulders along the stream banks. Both north- and south-facing slopes contain a mixed-conifer forest of ponderosa pine and Douglas fir. Large

rock outcrops occur throughout the canyon. Approximately 230 acres of this segment burned in the Hayman Fire primarily under low burn severities.

Wildlife Occurrences.—Severe winter range for mule deer is present throughout this segment.

Threatened, Endangered and Sensitive Species Occurrences.—The federally listed Pawnee montane skipper is known to occur in this segment (Environmental Research & Technology, Inc. [ERT], 1986). This threatened species has a restricted range along both the North Fork and the mainstem of the South Platte Rivers. There are 230 acres of skipper habitat in this river segment.

The bald eagle, a threatened species, also occurs in this segment. Cheesman Reservoir is a winter concentration area, and the eagles are often seen in Cheesman Canyon. The combination of an abundant, readily available food supply with one or more suitable night roost sites is the primary characteristic of winter habitat (USACE, 1988).

Region 2 sensitive species that may occur in this segment include the northern leopard frog, tiger salamander, flammulated owl, fox sparrow, golden-crowned kinglet, goshawk, Lewis' woodpecker, olive-sided flycatcher, osprey, pygmy nuthatch, three-toed woodpecker, dwarf shrew, ringtail, and Townsend's big-eared bat. Although specific locations for these species are unknown at this time, suitable habitat does exist within this river segment.

South Platte – Segment E

Habitat Features.—This segment of the river is predominantly a wide valley with diverse wildlife habitats. The Two Forks study identified an abundance of willow thickets, willow-sedge, cottonwood-willow,

and other wetlands types along the river corridor and tributary streams (USACE, 1988). The upland provides grass-forb, shrub seedling, and forested stages of ponderosa pine and Douglas fir forest. Dominant rock features that provide nesting habitat also occur in this segment. Approximately 373 acres of this segment burned in the Hayman Fire primarily under low burn severities.

Wildlife Occurrences.—Noteworthy wildlife records include active prairie falcon eyries on dominant rock outcrops, severe winter range for mule deer throughout this segment, turkey concentration areas on the eastern portion of the segment, and Rocky Mountain bighorn sheep overall habitat in the lowermost portion of this segment (NDIS, 2001).

Threatened, Endangered, and Sensitive Species Occurrences.—The federally threatened Pawnee montane skipper is known to occur in this segment. The skipper has a restricted range, occupying an area (although not necessarily all the available habitat within it) roughly 23 miles long and 5 miles wide. It occurs along the mainstem of the South Platte River for approximately 20 miles and along the North Fork of the South Platte for approximately 15 miles upstream from their confluence to Cheesman Reservoir and to Crossons, respectively. The present range covers approximately 38 square miles (ERT, 1986). The skipper's habitat forms a continuous band along the mainstem of the South Platte River and the North Fork and includes the Buffalo Creek and Horse Creek tributaries. The northeast limit of the ponderosa pine/blue grama grass community overlaps with the southwestern limit of the prairie gayfeather (*Liatris punctata*) to create suitable habitat for the Pawnee montane skipper. Optimum features of its habitat include open ponderosa pine stands with a canopy

closure of 30 percent, shrub and grass cover generally less than 10 percent, and the presence of prairie gayfeather and blue grama in specific densities (ERT, 1986). The Pawnee montane skipper's existence in this extremely limited and specialized area accentuates the ecological precariousness of the skipper (EPA, 1990). There are 2,605 acres of skipper habitat within this segment.

The Preble's meadow jumping mouse was located in this segment in 1999. Bald eagles are known to use this segment for winter foraging and roosting, and potential habitat exists for the Ute ladies tresses orchid. This segment is within the boundary of designated critical habitat for the Mexican spotted owl.

The osprey, a Region 2 sensitive species, is found in this segment during spring and fall migrations. The osprey will often remain in the area for several days feeding along the river corridor.

Other Region 2 sensitive species that may occur in this segment include the northern leopard frog, tiger salamander, flammulated owl, fox sparrow, golden-crowned kinglet, goshawk, Lewis' woodpecker, olive-sided flycatcher, pygmy nuthatch, three-toed woodpecker, dwarf shrew, ringtail, and Townsend's big-eared bat. Although specific locations for these species are unknown at this time, suitable habitat does exist within this river segment.

North Fork – Segment H1

Habitat Features.—In this short segment, the North Fork of the South Platte runs through a wide river valley. Willow thickets and other wetland types are common in this segment, and cottonwood-willow habitat occurs occasionally. The side slopes are forested with ponderosa pine, Douglas fir, and stands of lodgepole pine.

Wildlife Occurrences.—This segment provides severe winter range for mule deer.

Threatened, Endangered and Sensitive Species Occurrences.—Suitable habitat exists in this segment for the Preble's meadow jumping mouse, but it has not been recorded here.

Region 2 sensitive species that may occur in this segment include the northern leopard frog, tiger salamander, boreal toad, flammulated owl, fox sparrow, golden-crowned kinglet, goshawk, Lewis' woodpecker, olive-sided flycatcher, osprey, pygmy nuthatch, three-toed woodpecker, dwarf shrew, ringtail, Townsend's big-eared bat, *Malaxis brachypoda* and *Potentilla rupincola*. Although specific locations for these species are unknown at this time, suitable habitat does exist within this river segment.

North Fork – Segment H2

Habitat Features.—Because of the narrow canyon structure in this segment, the riparian and wetland components are much reduced, limited to a few areas of willow thickets and cottonwood-willow habitat. A closed-canopy Douglas fir forest dominates the north-facing slope, and the south-facing slope is mixed ponderosa pine and Douglas fir. Several large rock outcrops are in the canyon.

Wildlife Occurrences.—This segment provides severe winter range for mule deer, especially on the south-facing slopes.

Threatened, Endangered and Sensitive Species Occurrences.—Suitable habitat exists in this segment for the Preble's meadow jumping mouse, but it has not been recorded here.

Region 2 sensitive species that may occur in this segment include the northern leopard frog, tiger salamander, flammulated owl, fox sparrow, golden-crowned kinglet, goshawk, Lewis' woodpecker, olive-sided flycatcher,

Lewis' woodpecker, olive-sided flycatcher, osprey, pygmy nuthatch, three-toed woodpecker, dwarf shrew, ringtail, Townsend's big-eared bat, *Malaxis brachypoda* and *Potentilla rupincola*. Although specific locations for these species are unknown at this time, suitable habitat does exist within this river segment.

North Fork – Segment H3

Habitat Features.—This segment of the river includes both a wide valley section with diverse wildlife habitats and a narrower canyon section with roaded access. The Two Forks study identified an abundance of willow thickets, willow-sedge, cottonwood-willow, and other wetland types along the river corridor and tributary streams in the upper portion of this segment (USACE, 1988a). In the lower portion of this segment, the willow component is severely reduced, and other wetland types dominate. The upland habitat provides grass-forb, shrub-seedling, and mature stages of ponderosa pine–Douglas fir forest. Dominant rock features that provide nesting habitat also occur in this segment.

Wildlife Occurrences.—The entire length of this segment provides severe winter range for mule deer. A golden eagle nest site has been recorded in this segment.

Threatened, Endangered and Sensitive Species Occurrences.—There are approximately 2,110 acres of Pawnee montane skipper habitat in this segment. There is potential habitat for Preble's meadow jumping mouse and Ute ladies tresses orchid. The segment is also within designated critical habitat for the Mexican spotted owl.

Region 2 sensitive species that may occur in this segment include the northern leopard frog, tiger salamander, flammulated owl, fox sparrow, golden-crowned kinglet, goshawk, Lewis' woodpecker, olive-sided flycatcher,

osprey, pygmy nuthatch, three-toed woodpecker, dwarf shrew, ringtail, and Townsend's big-eared bat. Although specific locations for these species are unknown at this time, suitable habitat does exist within this river segment.

2.15 RECREATION

SUMMARY

With flows exceeding 200,000 acre-feet a year, the South Platte River is one of the three largest rivers on Colorado's eastern slope. Its large river canyons, leading to the plains, represent a limited recreational resource. Good access, predominantly public ownership, high-quality fishing, and a diversity of other recreation opportunities in close proximity to a large metropolitan area characterize the South Platte.

The gentle stream gradients, level areas, vegetation patterns, and scenic quality along the river enhance recreation activities. These activities include camping, picnicking, fishing and fly fishing, swimming, tubing, sunbathing, motorcycling, sightseeing, rock climbing, and organized activities such as volleyball and horseshoes. The majority of these are day-use activities and are related to the presence of the river either directly (as for boating, tubing, and fishing) or indirectly (as for sightseeing). Designated parking areas and developed campgrounds are also important to activities such as hiking and motorcycling in adjacent areas, which are only marginally related to the river resource.

The study area includes more than 50 miles of discontinuous water suitable for whitewater boating, tubing, and water play. This includes approximately 11 miles of the North Fork between Bailey and Pine, 5 miles near Foxton, 15 miles on the South Platte from Deckers to the backwaters of Strontia Springs Reservoir, 13 miles

between Lake George and Cheesman Reservoir, and 6 miles on the South Platte from Reservoir Campground to Riverside Campground in Elevenmile Canyon. More than 12,000 kayakers and canoeists use the South Platte River and the North Fork each year. This represents 70 percent of the river boating activity in the Pike National Forest and .02% of total whitewater use in Colorado (Griswold, 1997). The study area offers a broad range of whitewater boating conditions, from Class I to Class V (International Scale of Difficulty). The whitewater boating opportunity is especially significant because the area provides river sections that are suitable for teaching and practicing boating skills and is close to the Denver metropolitan area. The North Fork is considered an important kayak area within the region due to its difficulty and due to late-season releases from the Roberts Tunnel, which extend the length of the kayaking season.

Much of the popularity of this area is due to its unique capability to accommodate a wide variety of recreation activities in one location. This diversity of recreation opportunities within the project study area contributes significantly to the popularity and uniqueness of the area.

RECREATION FACILITIES

Developed recreation facilities in the study area are concentrated in Elevenmile Canyon and from Wigwam Creek downstream to the confluence. Public developed recreation facilities in the study corridor include 10 National Forest campgrounds with a combined capacity of 975 persons. Most of the facilities are managed by concessionaires under special use permits. Twelve other campgrounds within a half-hour's drive of the river can accommodate another 2,400 people, although three of these campgrounds were closed due to fire and flood damage in 1996. In addition to the

campsites on the South Platte, there are seven developed picnic areas and numerous trailheads and parking sites. Private recreational facilities in the study corridor include private resorts, two private fishing clubs, a YMCA camp, and a private campground.

The area has long been popular as a site for summer homes. There are several hundred private residences in the study corridor. Some of these are still used primarily as summer homes, although many other former summer homes have now become year-round residences.

There are 29 recreation residences in four summer home groups under special use permit on National Forest lands in the study corridor. Eight summer homes are located in Elevenmile Canyon, and 21 are located along the South Platte in three summer home groups near Nighthawk, Lazy Gulch, and Shadybrook.

OTHER RECREATION OPPORTUNITIES

Rock climbing is a popular activity in the area. A published climbers' guide (Hubbel and Rolofson, 1988) is devoted specifically to the South Platte and the North Fork. Although many of the climbs associated with the South Platte River are outside the half-mile-wide river corridor, the access points for these climbs are within the corridor. Primary climbing routes in or near the study area include Top of the World, Malay Archipelago, Elevenmile Canyon, and Noddle Heads. The available data are insufficient to allow an assessment of how the rock climbing values in this area compare with those of other rock climbing areas in the region.

Special user groups play a large part in the use and management of the South Platte River. Youth groups, such as scouting

organizations, do public service projects on the river each year. Other service groups, such as Trout Unlimited, also do yearly projects designed to protect and enhance the river while promoting their organizations. Trout Unlimited also holds its annual "Masterfly" fishing event in Cheesman Canyon. The Paralyzed Veterans of America provides recreation opportunities for senior citizens and mentally challenged youths as well as for its own members on an annual basis.

Commercial recreation services in the study corridor include eight companies permitted by the Forest Service to conduct guided fly fishing trips and instruction. Guided fishing activities occur primarily below Cheesman Dam and in the Elevenmile Canyon area. The Forest Service also receives many applications for new permits for guided fishing on the South Platte. Several other permitted companies, or nearby church and organization camps, offer tubing, horseback riding, hiking, and other activities, although there are no commercial rafting or kayaking operations.

The study area includes portions of two significant trail systems. Several motorized (motorcycle) trails reach into the corridor between Deckers and the confluence. These trails are part of the extensive Rampart Range Motorcycle Area. The Colorado Trail, which runs from Denver to Durango, crosses the river corridor near the confluence. In 1996, the Buffalo Creek flood destroyed a bridge on the North Fork belonging to the Denver Water Department that was used for access to the Colorado Trail. The Forest Service has requested funds to replace the bridge.

RECREATION USE AND TRENDS

The Pike and San Isabel National Forests rank 8th of 113 National Forests in terms of visitor use, with 7.3 million recreation visitor days (RVDs) in 1996. Typical of many "urban National Forests," this area experiences intense day use, usage that peaks strongly on weekends and holidays, and many activities that are not "traditional" forest recreation. Much of the use is strongly motivated by a desire to escape from the city, relax, enjoy nature, and socialize.

Changes in the management of parking and camping and more intensive law enforcement along the North Fork (Segment H) and the South Platte River (Segment E), initiated in 1992, have led to a resurgence of interest in the area by families, fly fishing enthusiasts, and others who had previously avoided the area's crowding and conflicts. These management actions are the result of a major cooperative effort between the Forest Service, Denver Water, the Colorado Division of Wildlife, and the Douglas and Jefferson County Sheriffs. Management actions include regulations that:

- ◆ Prohibit overnight use in the area from Nighthawk to the confluence on the mainstem and from Buffalo Creek to the confluence on the North Fork,
- ◆ Allow parking and camping in designated areas only,
- ◆ Allow fires in designated fire rings only, and
- ◆ Discourage firearms use.

Additional improvements included:

- ◆ The development of several camping areas by the Forest Service;

- ◆ The placement and maintenance of portable rest rooms by Denver Water;
- ◆ Improved signage, through the joint efforts of all cooperating agencies, directing visitors to recreation sites and informing them of regulations;
- ◆ The closure and revegetation of many erosion-prone parking areas and dispersed campsites, and
- ◆ Agreements with county law enforcement agencies.

These efforts have resulted in improved scenery, more pleasant and secure recreation experiences, a major reduction in erosion, and protection of riparian areas and values from overuse.

Changes in management of the Elevenmile Canyon area (Segment A) have also accomplished similar results. In 1995, the Forest Service developed a management plan, which set up the Elevenmile Canyon Ecosystem Management Project. The purpose of the project is to enhance the quality of recreational experiences and to reduce resource damage in the area. Resource improvements include revegetation, erosion control, and the improvement of fisheries, campgrounds, picnic areas, trails, fishing access sites, roads, parking, interpretation, and information facilities. Management actions include regulations which require payment of a parking fee before entering the area, allow camping in designated areas only, allow fires in existing metal fire rings only, and allow no firearms use.

Use of the South Platte River area and adjacent uplands has increased 3-4 percent annually during the past decade and was estimated at 1,650,000 RVDs in 1995. In 1984, recreation use of the smaller study area associated with the proposed Two

Forks reservoir, which excluded Elevenmile Canyon, was estimated at 317,000 RVDs.

Usage has increased in concert with rapid population growth in the Denver metropolitan area and surrounding counties, particularly Douglas County. New residents moving to the area tend to be young, active, and reasonably affluent, giving rise to a disproportionate increase in demand for "active" sports, dispersed activities (particularly involving sport utility vehicles and other motorized equipment), and activities that tend to require expensive or "high tech" equipment (from mountain bicycles to graphite fly rods).

Angling is a major use of the river in Elevenmile Canyon and from Cheesman Dam downstream and is a clue to the area's overall popularity and recreation use intensity. These areas typically receive 1,500 to 4,000 angling hours per mile of stream annually; and some locations, such as Cheesman Canyon, may see as many as 17,000 angling hours per mile. Catch rates, due mainly to catch and release regulations and other restrictions, are as high as 1.2 fish per hour in some parts of the river. (For comparison, at the time of its designation as a Wild and Scenic River, the Cache La Poudre River was receiving 1,500 to 4,800 angling hours per mile depending on location.) It is estimated that 11,400 anglers fished Cheesman Canyon in 1986 and that 20,000 fished Elevenmile Canyon in 1994.

RECREATION OPPORTUNITY CLASSES

The South Platte from Deckers to Twin Cedars is classified as "rural" in the Recreation Opportunity Spectrum, a system used by the Forest Service to describe the recreation setting in terms of the physical, social, and managerial characteristics of the area. "Rural" applies to areas that include extensive modifications to the natural

environment but still have a pastoral character. High-quality transportation and other facilities and obvious residential and even commercial development are apparent. These areas provide recreation experiences in which socialization with others is important, contact with other visitors is common, and visitors generally do not seek a high degree of risk or wish to practice self-reliance. Management controls such as regulations, signs, and enforcement patrols are obvious and extensive. Developed recreation facilities in this part of the study area include four National Forest campgrounds between the Wigwam Club and Strontia Springs Reservoir, with a combined capacity of more than 520 people. In addition, there are three developed picnic areas that can accommodate as many as 56 people at one time.

The South Platte below Twin Cedars to the confluence, Elevenmile Canyon downstream to Vermillion Creek (north of Lake George), and the North Fork are classified as "roaded natural," which means the area retains a generally natural appearance but has a variety of scattered developments, roads for conventional vehicles, and other modifications. The social environment typically results in frequent encounters between groups. Facilities are designed for structured activities and to influence and control use, and management of the area is obvious (signs, enforcement patrols, etc.). These areas provide an opportunity for experiences that involve some privacy and limited opportunity for challenge and risk but include frequent contact among users at campsites and other developments. The 8-mile-long segment of Elevenmile Canyon is primarily a narrow granite canyon. The road follows the route of the historic DSP&P and passes through two tunnels, which add to the scenic driving experience. The canyon has six campgrounds that

provide capacity for as many as 455 campers, and three picnic areas that can accommodate 95 people at a time. Along with camping and picnicking, fishing, swimming, tubing, and rock climbing are the most significant activities.

The South Platte from Vermillion Creek (just downstream from Lake George) to near Corral Creek is classified "semi-primitive motorized." This area has an extensive network of poor-quality and four-wheel drive roads into the river corridor and across the river at Longwater Crossing. This area has an essentially natural physical environment with few developments and only primitive roads or trails. It offers a type of experience that involves solitude, closeness to nature, and the opportunity to experience self-reliance and risk using motorized equipment. Managerial controls and presence are not highly obvious, and restrictions are few.

Wildcat Canyon from Corral Creek to the inlet of Cheesman Reservoir is classified as "semi-primitive nonmotorized." This area is accessible only by trail and is a natural appearing environment in which visitors have a high probability of experiencing solitude, closeness to nature, self-reliance and risk, with low interaction between visitors and only some evidence of past use by others. This 3-mile segment is the only part of the study corridor where visitors do not encounter vehicular use in close proximity to the river.

Cheesman Canyon, from the dam downstream to the Wigwam Club property, meets the criteria for semi-primitive nonmotorized, as it is accessible only by trail. While the semi-primitive classification implies few encounters with other people or groups, the use of this area is so high at present that it is often crowded. Parking to serve Cheesman Canyon and the Gill Trail is limited and typically crowded.

2.16 SCENERY

SUMMARY

The South Platte River study corridor is located within the Southern Rocky Mountains physiographic region and the "Front Range" landscape character subtype, for the purpose of evaluating scenic quality. Landscape character is defined as the particular attributes, qualities, and traits of a landscape that give it an image and make it identifiable or unique (Forest Service, 1995).

The river has a variety of visual settings, ranging from deep, narrow canyons, to flat-bottomed valleys, to broad meadows. This allows a range of visual experiences, from total enclosure and immediate foreground views only to distant or background views. Water is present in many forms, including waterfalls, whitewater, still pools, long straight sections, and very sinuous sections. Water clarity is generally high.

The vegetation surrounding the river includes riparian forms such as alder, cottonwood, and willow. Upslope from the river, aspen, ponderosa pine, and Douglas fir are all present. In some areas the tree stands are very dense while in others, particularly on the south slopes, the stands are commonly park-like. Many tree stands are interrupted by grassland openings.

Landforms are quite varied as well, including rock outcrops, vertical walls, and boulder-strewn streambeds. The color of the rock formations is primarily gray, with some isolated spots of red and light gray. Scraggy View, Slide Rock, and the Chutes are a few of the named features.

The visual resource of the study area has been inventoried according to the National Forest Visual Resource Management System. This provides an inventory of the existing visual quality objectives. Current land management direction from the Forest

Plan requires that these objectives be met to the extent practical in all management activities.

VARIETY CLASSES

Variety classes are obtained by classifying the landscape into different degrees of variety. This determines those landscapes that are most important and those that are of lesser value from the standpoint of scenic quality. This visual variety is the basis for a further delineation of landscapes. The variety classes are designated A, B, and C. "A" landscapes are those with the most variety and are, therefore, considered the most scenic. "C" landscapes represent those areas with the least variety in form, line, color, or texture.

These inventory classifications are based upon a variety of factors, such as landforms, vegetation patterns, water forms, rock formations, line, color, and texture.

Class A is distinctive. It refers to those areas where features of landform, vegetation patterns, water forms, and rock formations are of unusual or outstanding visual quality. Such features are usually not common in a given landscape character type.

Class B is typical or common. It refers to those areas where features contain variety in form, line, color, and texture, or combinations thereof, but which tend to be common throughout a character subtype area and are not outstanding in visual quality.

Class C is minimal or indistinctive. It refers to those areas whose features have little change in

form, line, color, or texture. It includes all areas not found in Classes A and B.

The majority of the river corridor is in either "A" or "B" variety class settings. Variety classes are combined with sensitivity level and viewing distance.

SENSITIVITY LEVEL

Sensitivity levels are a measure of the public's concern for the scenic quality of the National Forests. Level 1 is the highest sensitivity, level 2 is average sensitivity, and level 3 is the lowest sensitivity.

DISTANCE ZONES

Distance zones are divisions of particular landscapes being viewed.

Foreground is limited to those distances at which details can normally be perceived. Normally, in foreground views, the individual boughs of trees form texture. Foreground is usually limited to areas within one-quarter to one-half mile of the observer.

Middleground extends from the foreground zone out to 3 to 5 miles from the observer. Texture is normally characterized by masses of trees in stands of uniform tree cover.

Background extends from the middleground to infinity. Texture in stands of uniform tree cover is generally weak or nonexistent.

Variety class, sensitivity, and distance are combined to determine visual quality objectives (VQOs).

VISUAL QUALITY OBJECTIVES

VQOs are a measurable set of standards for management of the land. They are measured in terms of the deviation from the natural landscape based upon the importance of aesthetics.

The following terms are used to describe VQOs:

Preservation is assigned to all existing and recommended wilderness and other primitive non-roaded areas.

Retention provides for management activities that are not visually evident. Activities may only repeat forms, lines, colors, and textures that are frequently found in the characteristic landscape. Changes in the size, amount, intensity, direction, or pattern of these properties should not be evident.

Partial Retention provides for management activities that remain visually subordinate to the characteristic landscape.

Modification allows management activities to be visually dominant, but natural in appearance, even when viewed as foreground or middleground within the surrounding area.

Maximum Modification allows alterations of vegetation and landforms to dominate the characteristic landscape. However, when viewed as background, the visual characteristics must be those of the natural setting within the surrounding area.

EXISTING VISUAL CONDITION

The existing visual condition (also known as "existing scenic integrity") is an inventory of the current state of the landscape, considering previous human alterations. This inventory is not influenced by variety class or sensitivity level but is based solely on physical conditions and appearance. The six categories or condition levels are defined below. Type I includes those areas that are least impacted, and Type VI represents areas that receive the heaviest impacts.

TYPE I Areas in which only ecological change has taken place except for trails needed for access. They appear to be untouched by human activities.

TYPE II Areas in which changes in the landscape are not visually evident to the average person unless pointed out. They appear undisturbed.

TYPE III Areas in which changes in the landscape are noticed by the average visitor, but do not attract attention. The natural appearance of the landscape dominates. Disturbances appear to be minor.

TYPE IV Areas in which changes in the landscape are easily noticed by the average visitor and may attract attention. They appear to be disturbances but resemble natural patterns.

TYPE V Areas in which changes in the landscape are strong and would be obvious to the average forest visitor. These changes stand out, dominating the landscape, yet are shaped so they might

resemble natural patterns when viewed from a distance. They appear to be major disturbances.

TYPE VI Areas in which changes in the landscape are in glaring contrast to the natural appearance. Almost all forest visitors would be displeased with the effect. They appear to be drastic disturbances.

Review of an "Existing Visual Condition" inventory completed prior to 1989 shows that the visual types of various areas within the Wild and Scenic River study corridor range from Type II to Type V. The impacts are associated primarily with the roads paralleling the river, the many small towns, artificial stream banks, road and train bridges, modification of the streambed configuration, irrigation diversions, riprap that doesn't match the surroundings, impacts from use, recreation facilities, and water clarity.

DESCRIPTION OF SPECIFIC RIVER SEGMENTS

As a result of the foreground viewing distance, sensitivity levels, and variety class considerations, most of the study segments have a VQO of "Retention."

South Platte – Segment A

This segment of the river, from Elevenmile Dam to Lake George in Elevenmile Canyon, passes by several campgrounds and picnic areas. The area is known for its rock formations, attractive water features, and old railroad tunnels. Its scenic beauty draws people from all over the region. A road closely parallels the river, and two road bridges cross the river. A third bridge is for

pedestrian access to the Elevenmile picnic area. The Elevenmile Reservoir Dam dominates the upstream end of the canyon, and a 10-foot diversion dam stands at the mouth of the canyon. Lake George and Highway 24 are visible, as are powerlines and other utilities. This segment has a VQO of Foreground Retention, Variety Class A, Sensitivity Level 1, and an Existing Visual Condition of Category IV along the river and Category II along the canyon rims. One generally cannot see outside the river corridor.

South Platte – Segment B

This segment, from Lake George to Beaver Creek, shows visible human influences, particularly around the Lake George area. Utility lines, Highway 24, private residences, and businesses are all visible. North of Happy Meadows campground, a more natural appearance is evident. The river exits a steep-sided canyon from Segment A and meanders through broad meadows, until it enters another steep-sided canyon near Vermillion Creek. This segment has a VQO of Foreground Retention, Variety Class B, Sensitivity Level 1, and an Existing Visual Condition of Category V. The area just outside the study corridor has a VQO of Middleground Partial Retention, Variety Class B, Sensitivity Level 1, and an Existing Visual Condition of Category II.

South Platte – Segment C

Segment C, from Beaver Creek to Cheesman Reservoir, known as Wildcat Canyon, is entirely on National Forest System lands and shows little human impact except for a high-voltage powerline, several abandoned mining cabins, and several four-wheel-drive roads. The area is known for its remoteness, undeveloped character, and rock formations. This segment has a VQO of Foreground Retention, Variety Class A, Sensitivity Level 1, and an Existing Visual

Condition of Category II, except for a small section along Northrup Gulch where it is Category III. One generally cannot see outside the river corridor. The Hayman Fire in 2002 burned acreage, which can be viewed from the river corridor. The intensity of the fire was low in this segment, and subsequent assessment found no change to the VQO or Existing Visual Condition.

South Platte – Segment D

Segment D, from Cheesman Dam to the Wigwam Club property, lies within 600-foot deep Cheesman Canyon and is marked by steep side slopes. The area is only accessible by trail, and there are no developments in this segment. Cheesman Dam dominates the view in the upper third of this river segment, and the Wigwam Club improvements are visible from the lower third. The area is known for its limited access, undeveloped character, and rock formations. This segment has a VQO of Foreground Retention, Variety Class A, Sensitivity Level 1, and an Existing Visual Condition of Category II west of the river and Category III east of the river. One cannot see outside the river corridor.

South Platte – Segment E

In Segment E, from the Wigwam Club property to Strontia Springs Reservoir, the valley bottom widens, and there are many flat areas covered with willows and grass. Numerous recreation facilities are located along the riverbanks. A road parallels the river from Deckers to the confluence. Many private residences, bridges, and roads are visible. Dispersed recreation and the impacts associated with it are heavy along this section of the river. At the recreation sites and in other dispersed areas, the vegetation is often park-like, with small openings. This segment has a VQO of Foreground Retention, Variety Class A,

Sensitivity Level 1, and an Existing Visual Condition of Category IV along the river and Category II outside the river corridor.

North Fork – Segment H

This segment is predominately privately owned. It begins on the Berger property, used mostly for grazing, passes the small community of Estabrook, enters the National Forest for several miles through an inaccessible undeveloped canyon between Estabrook and Cliffdale, and then remains mostly on private land passing through the town of Pine and several smaller communities, the Pine Valley Ranch Open Space Park, and several ranches. Most of the corridor's scenery includes either rural communities with roads, powerlines, and private residences or small ranches and grazing pastures. From Buffalo Creek to the confluence with the South Platte, there are large rock formations such as Cathedral Spires and Dome Rock, which loom over the study corridor, but a graveled county road paralleling the North Fork right along the riverbank detracts from scenic views in the corridor.

This segment has a VQO of Foreground Retention or Middleground Partial Retention, Variety Class B, and Sensitivity Level 1. The Existing Visual Condition Category varies within the segment: it is IV along the river and III along the side slopes from Insmont to Estabrook, Category IV along the river and II along the side slopes from Estabrook to Crossons, Category I within the National Forest System lands from Crossons to downstream of Pine (no rating outside the National Forest), Category V along the river and II along the side slopes from Pine to Ferndale, and Category IV along the river and II along the side slopes from Ferndale to the South Platte confluence. The area outside the study corridor, where visible, has a VQO of

Middleground Partial Retention, Variety Class B, and Sensitivity Level 1.

This segment includes several diversion dams for irrigation, constructed of rocks, concrete, or a combination of the two. It also includes many check dams, some channelization, and areas of riprap, which is used along the highway side of the river and on the outside of some of the meanders. The material generally matches the surroundings in color and style, and it would appear natural to the casual observer. Several abandoned railroad bridge abutments are evident. Several other foot and vehicle bridges, in varying states of repair, are also visible.

2.17 CULTURAL RESOURCES

INTRODUCTION

Although cultural resource inventories undertaken by the Forest Service and other State and Federal agencies within the study corridors are incomplete, considerable knowledge regarding cultural resources within the analysis area has been accumulated. Most of the knowledge is based on the cultural resources investigations done by the Denver Water Board and the Metropolitan Water Providers for the Two Forks study. Other investigations have been done by the Forest Service as part of its continuing cultural resources management program and by the Colorado Department of Transportation in the U.S. Highway 285 corridor, which parallels the North Fork along its upper reaches. Currently, 92 recorded cultural properties are known within the analysis area; 44 of these reflect prehistoric occupations, and the other 47 can be characterized as historic uses or occupations. Many more resources are known but have not been adequately

documented. Included in this category are 216 structures with possible architectural significance at 17 historic sites that were visited and photographed during the analysis for the Two Forks Reservoir project.

PREHISTORIC RESOURCES

The study area contains a relatively high density of prehistoric sites when compared to the more rugged higher elevation areas adjacent to the river corridor. The prehistoric sites range in their expressions from isolated single artifacts to large areas of chipped stone debris near the river, to sheltered caves on the slopes adjacent to the floodplain. Culturally scarred trees, which reflect the American Indian practice of harvesting the inner bark of the ponderosa pine in the late 18th or early to middle 19th century, are known but have not been well documented in the Elevenmile Canyon portion of the corridor. Intuitively, it seems that both the North Fork and South Platte valleys would have been very attractive to prehistoric groups both as seasonal living locations and as areas where critical natural resources were relatively plentiful.

The valleys were probably occupied for hundreds of generations, although this has not been conclusively documented. Contemporary 19th century accounts by the first European settlers in the area describe encounters with Ute Tribe groups and individuals. These accounts mention Horse Creek, the Long Scraggy vicinity, and Wigwam Creek on the South Platte, and Pine Creek and Buffalo Creek on the North Fork as traditional summer camping places for Ute groups. The recorded archeological sites in these areas are probably the camping spots used most recently by the Ute Indians. Groups affiliated with other Colorado Indian tribes known to the first European settlers (for example, the Arapaho and Cheyenne) probably used the same areas.

Earlier groups probably frequented these valleys also, and they may well have used the same camping locations. Radiocarbon dates from Dancing Pants Shelter, located on the South Platte a few miles upstream from the confluence, suggest 4,000 years of use. Artifacts collected during the Two Forks archeological survey also suggest a lengthy prehistoric occupation. Archeological sites were identified upstream from the confluence along both forks (along the South Platte from the confluence to Cheesman Dam, and upstream along the North Fork to Pine). As a group, these sites constitute a significant resource, which could make the area eligible for the National Register. As a case set for archeological research, they contain the vital data necessary to build a local sequence of mountain prehistory and also could be used to reconstruct the lifeways of the prehistoric Ute Indians and other earlier groups. These resources also would be significant for descendant modern American Indian groups in the context of their heritage.

HISTORIC RESOURCES

Recorded historic resources differ widely in their expression and represent a variety of historic uses. Among the major themes in Colorado history reflected in the study area are early transportation (stagecoach roads and railroad routes), mining (mines, mills, and tramways), logging (charcoal production sites and timber mills), recreation and tourism (hotels, resorts, and summer residences), water development (Cheesman Dam and related construction camps), and ranching (homesteads and ranches along the river). Three resources—the North Fork Historic District, the Estabrook Historic District, and the Glen Isle Resort—are listed on the National Register.

There are several recorded resources in the study area that contribute to the mining theme. At the head of the North Fork

north of Kenosha Pass is Hall Valley, which was the site of an extensive silver mining operation beginning in 1869. The several mines, tramway, smelter and mill sites, and company town were the holdings of the Hall Valley Silver-Lead Mining and Smelting Company, Ltd. One of the first ore smelters in Colorado was built in Hall Valley about 4 miles downstream from the principal mines. The original firm failed in 1876, but the holdings were taken over by a series of owners; the last full-scale operations apparently occurred in the 1920s. The Hall Valley mining-related sites are eligible for the National Register. Lower on the North Fork is the Saxonia area, which contains a mill and several mines; Saxonia is recommended eligible to the National Register. At the confluence of Metberry Gulch and the South Platte River in Wildcat Canyon were the Custer Cabins, circa 1870, and an associated mining complex. These cabins were recommended eligible to the National Register prior to being destroyed by the Hayman Fire in June of 2002.

RAILROAD HISTORY RESOURCES

The remains of two pioneering railroads—the DSP&P and the Midland Railroad—are very significant heritage resources located in the study area. The initial settlement of Colorado by people of European descent was tied closely to the discovery of gold and silver in the high country. Travel to the mineral areas from the new cities located on the eastern plains initially was difficult and could be measured in terms of a week or more. Enterprising railroad men were quick to remedy this situation, and several railroads were soon under construction, using the most easily constructed routes. The South Platte River corridor offered one of the easiest routes for the railroad entrepreneur. Beginning in 1872, the DSP&P thrust up the South Platte canyon from Waterton south of Denver to the

confluence of the Forks and then up the North Fork to Kenosha Pass and on to the gold and silver fields near Fairplay and Leadville. For more than 50 years, the DSP&P and its successors hauled mining barons, their agents, and supplies to the mountains and hauled ore back down to the plains. A second major source of DSP&P trade was the burgeoning tourist and recreation industry, which became a major factor in the Colorado economy after 1890. The North Fork was a popular summer destination noted for its spectacular scenery, quiet rural setting, and fishing opportunities. The railroad and other private entrepreneurs built several tourist resorts along the North Fork to accommodate potential visitors. These included several large facilities at Bailey (the Kiowa Lodge), Glen Isle, and Shawnee. Glen Isle is currently listed on the National Register. Today, much of the abandoned grade has been destroyed or altered by highway construction and other developments. There are two stretches within the study corridor that exhibit better preservation. One is in the lower canyon beginning below the confluence and continuing up the North Fork to the vicinity of Pine. Much of this stretch is a contributing element of the North Fork Historic District, listed on the National Register. The surviving features of the railroad include the grade itself, rock work and quarries along the grade, the highway bridge (formerly a railroad bridge) across the river just downstream from the confluence, a boxcar modified to serve as a residence about a mile upstream from the confluence, a second boxcar turned on its back and used as a bridge across the river, the former station building at Dome Rock, and the Westfall Monument (commemorates a heroic engineer who died in a train accident).

A portion of the grade west of Pine to the vicinity of Bailey is not within the North Fork District; however, most of this section

is well preserved and displays the engineering acumen necessary to construct a railroad in a wild and rugged river canyon. Within this section is the Estabrook Historic District, which includes the former Estabrook Depot, now used as a private residence. Farther upstream near the town of Bailey is the Keystone Bridge spanning the river; this former railroad bridge has been relocated; it originally crossed the river downstream from the confluence near Strontia Springs. The bridge was salvaged during construction of the Strontia Springs Dam. The North Fork Historic District and the Estabrook Historic District possess outstandingly remarkable values for the purposes of this study.

The DSP&P was a narrow gage operation and, hence, was limited in the tonnage and volume of freight it could haul. In 1886, the Midland Railroad, a standard gage line, began constructing grade and track between Colorado Springs and Aspen. With its standard gage permitting larger cars and bigger engines with more horsepower, the Midland figured to have an inherent competitive advantage over its narrow gage rivals. The line was routed over Ute Pass to Florissant, then through Elevenmile Canyon on the South Platte, and across South Park to the Arkansas Valley and Leadville. Eventually, the line was connected to Aspen and its mining district via the Hagerman Tunnel under the Continental Divide. The Midland also catered to tourists and local recreationists from Colorado Springs; a favorite destination was the Elevenmile Canyon area, with its spectacular rock formations and sparkling mountain stream. The Midland had approximately 35 years of operation, from 1887 through October 1921; it did not survive the economic upheavals resulting from World War I. The basic alignment of the grade is preserved in Elevenmile Canyon; other surviving features include three tunnels, several cuts and fills, quarries for fill material, the former railroad

stops at Lidderdale and Idlewild, and several railroad construction crew camps located in side canyons. The grade and features of the Midland are eligible for the National Register.

RECREATION – TOURISM RESOURCES

Recreation and tourism is a second major theme prominent in Colorado history and relevant to this study. The mountains west of Denver and other young Front Range cities were recreation havens for the stressed-out urbanites even before the establishment of permanent towns and roads. Once the railroads were constructed in the last decades of the 19th century, they became the most efficient means of reaching mountain recreation sites. The North Fork was a particularly favored recreation and resort destination for well-to-do citizens of Denver. Bailey was initially developed to accommodate travelers journeying between Denver and the mining districts in South Park and further west, but soon it also catered to the recreation trade. During the 1890s, many resorts and private summer retreats were built along the North Fork, which was easily accessible via the railroad. Recreation development also occurred to a lesser degree along the South Fork above the confluence; resorts and private cabins and clubs along the stretch of the river from South Platte to present day Cheesman Dam catered especially to anglers. The popularity of the South Platte west of Denver as a recreation and tourism destination seems to have peaked in the period between the world wars. The industry was severely hampered by World War II and did not recover after the war.

Some significant historic recreation/tourism related properties are located along the North Fork. Previously noted are the historic railroad-associated resorts, such as the Kiowa and Shawnee Lodges and Glen Isle. The North Fork Historic District

contains some recreation-related historic components, including the South Platte Hotel near the confluence; a log summer home in colonial style east of Ferndale; several jointed-log cabins in Ferndale that were double family company resort houses; the community of Longview, which contains some summer cabins vintage 1910–20; similar resort houses at Dome Rock; historic cabins at Foxton; company cabins of the Hendrie and Bolthoff Manufacturing Company at Riverview; the La Hacienda summer home built by John Jerome, the J.W. Green Mercantile Store, the Little Chapel in the Hills, and the Bluejay Inn, all at Buffalo Creek; and summer homes at Pine.

On the South Platte above the confluence are the Deckers (formerly Daffodil) Resort, the Wigwam Club, and the Grandview Resort, which also are significant resources in terms of the recreation/resort theme. Farther downstream are Tanglewood and the Childs' Cabin. These are summer residences constructed in the 1930s that are related to the recreation theme and also appear to have architectural significance.

OTHER NOTEWORTHY HISTORIC RESOURCES

Cheesman Dam and Reservoir and related sites, located on the South Platte, constitute a significant historic site because of their association with Colorado water development and a more general connection with the history of metropolitan Denver. Completed in 1902, the dam and its construction (featuring the use of large granite blocks) also are significant in the context of engineering history and development. Several properties along the South Platte are significant in terms of the early settlement of the Colorado Mountains and ranching and homesteading themes. These include the Fletcher Ranch, a former stage stop on Horse Creek; the Swayback

Ranch, which was originally developed and operated by Dell Manning, who tried lumbering and cattle raising in the area; and the Oxyoke Ranch, which was operated by the historically prominent Ammons family (Elias and Teller Ammons were governors of the State of Colorado). Farther downstream, at Scraggy View, is the Corbin Homestead or the "Little White House," which was the home and ranch headquarters for the Ammons ranching operations. On the North Fork is the community of Bailey, which was established by William Bailey, his wife, and her sister, Mrs. Entriken. The Bailey family established the Bailey Ranch for travelers in 1864. The Bailey town site and perhaps some of the surviving older structures in the community probably are historically significant.

2.18 SOCIOECONOMICS

This section reviews the demographic statistics of the people who live in the towns and counties of the area, along with recent and projected growth.

AREA OF INFLUENCE

The area of influence for this study is much broader than the river corridor study area. The counties chosen as the area of influence are comprised of people whose cultural and economic development is tied, to some degree, to the study area and its management. Dependence on and use of the water resources in the study area are very important to the public in the area of influence.

The area of influence for this study includes the heavily populated metro counties (Adams, Arapaho, Denver, El Paso, Douglas, and Jefferson) and the more rural, less densely populated non-metro counties (Park and Teller). The Metro counties all

depend on the South Platte River for some or all of their water consumption needs. El Paso County water needs are met mostly from the Arkansas River but are included because its citizens heavily use the study area for recreation and because the county exchanges some of its water with other municipalities that use the South Platte system.

Some of the economic and social differences in the distinction between the metro and non-metro communities are blurring, if not disappearing. New communities in Park, Douglas, and El Paso Counties, while not yet major population centers, are well within commuting distance of Denver and Colorado Springs. The 2000 Federal census reported that Douglas County was the fastest growing county in the United States during the 1990s as a percentage of current population.

POPULATION GROWTH IN THE AREA OF INFLUENCE

Population statistics and projections in this section are based on preliminary population projections (see table 2-14) (Colorado Department of Local Affairs, 2001). This area, in both metro and non-metro counties, has been experiencing significant population growth. The total population living in the counties in the area of influence grew from 2.0 million to 2.6 million between 1990 and 2000. This represents a total percentage change of 30 percent for the 10-year period. The population in the area of influence has been growing faster proportionately than the total population of the State of Colorado, a State whose population growth rate is among the highest of all States in the Nation.

Table 2-14.—Population Projections

County	1990	1995	2000	2005	2010	2015	2020	2025	Average Annual Percent Change				
									'90-95	95-00	'00-05	'05-15	'15-25
Adams	265,708	312,593	365,858	411,878	471,403	531,413	587,065	640,996	3.3	3.2	2.4	2.6	1.9
Arapahoe	393,284	442,539	490,651	520,672	547,690	570,785	593,011	612,621	2.4	2.1	1.2	0.9	0.7
Denver	467,854	507,723	557,688	584,916	608,976	629,887	653,966	685,505	1.6	1.9	1.0	0.7	0.8
Jefferson	439,885	491,314	529,956	551,427	572,996	594,755	617,495	638,022	2.2	1.5	0.8	0.8	0.7
El Paso	397,887	469,693	519,773	562,500	607,295	653,736	700,016	744,645	3.4	2.0	1.6	1.5	1.3
Douglas	61,559	103,839	176,733	222,649	270,075	315,701	353,864	389,438	11.0	11.2	4.7	3.6	2.1
Metro	2,026,177	2,327,701	2,640,659	2,854,042	3,078,435	3,286,277	3,505,417	3,711,227	2.8	2.6	1.6	1.5	1.2
Park	7,269	10,577	14,603	23,629	37,004	56,470	83,873	121,377	7.8	6.7	10.1	9.1	8.0
Teller	12,511	16,981	20,668	24,041	26,217	28,019	29,654	31,121	6.3	4.0	3.1	1.5	1.1
Non-Metro	19,780	27,558	35,271	47,670	63,221	84,489	113,527	152,498	6.9	5.1	6.2	5.9	6.1
Area of Influence	2,045,957	2,355,259	2,675,930	2,901,712	3,141,656	3,380,766	3,618,944	3,863,725	2.9	2.6	1.6	1.5	1.3
Colorado	3,304,042	3,811,077	4,327,192	4,717,697	5,131,089	5,567,551	6,009,699	6,463,157	2.9	2.6	1.7	1.7	1.5

Source: Colorado Department of Local Affairs, 2001.

In the area of influence, the total population of the metro counties dwarfs the population of the non-metro counties (2,640,659 versus 35,271 in 2000). The total population growth of the metro counties in the area of influence is much larger than that of the non-metro counties (614,482 to 15,491).

However, the growth rates of the non-metro counties exceed those of all metro counties except for Douglas County. Douglas County, while classified as a metro County in most published census statistics, has been transforming from a non-metro county to a Denver suburban county. The non-metro counties grew by 78 percent versus 30 percent for the metro counties over the 10-year period. This trend would be even more pronounced if El Paso County were artificially split between metro and non-metro areas, since the majority of the population increase is taking place in the Colorado Springs vicinity. The same generalization is true of Douglas County. A notable part of the population growth in these two counties, as well as in Jefferson and Douglas Counties, is at the urban-forest interface.

Most of the population growth is due to immigration and births exceeding deaths. The people migrating to these towns include people leaving eastern Colorado, people from southern California and other cities along the West Coast, and a smaller percentage of people from all other parts of the Nation. These population changes are part of a national pattern of population movement.

PROJECTING FUTURE POPULATION GROWTH FOR THE AREA OF INFLUENCE

Table 2-14 shows recent population projections made by the Colorado Department of Local Affairs for the area of influence. This set of projections predicts

population growth of approximately 1.2 million additional people in the area of influence in the next 25 years, with 1 million of these people projected to move into the metro counties.

By 2025, the area population is projected to be approximately 57 percent of the population of the entire State of Colorado. Several of the counties will grow significantly faster than the State average, even though the entire area of influence will grow slightly slower than the State of Colorado.

As discussed under Water Uses, demands for water are projected to exceed water supply in coming years. This begs the question 'How would Front Range growth be affected'. Other areas in dry climates have asked similar questions, and the answers are not clear. Residential water demand is dependent on a variety of factors, but one of the best correlated is price. As price goes up, some water uses are curtailed significantly. Prices can be increased through such things as fines during water restrictions or increases in use rates. What is regarded as a water shortage under one price structure may be a water surplus under another. Aggressive conservation measures also affect the determination of adequate water supplies. New technologies in water treatment and reuse and in industrial processing affect water consumption rates. Finally, aggressive conservation measures affect the determination of adequate water supplies. Some may claim that if little or no additional water is provided, then metro area growth will cease and economic ruin will follow. Research in other parts of the arid West has been unable to substantiate these claims (Nichols et al., 2001).

2.19 WILD AND SCENIC RIVERS IN THE REGION

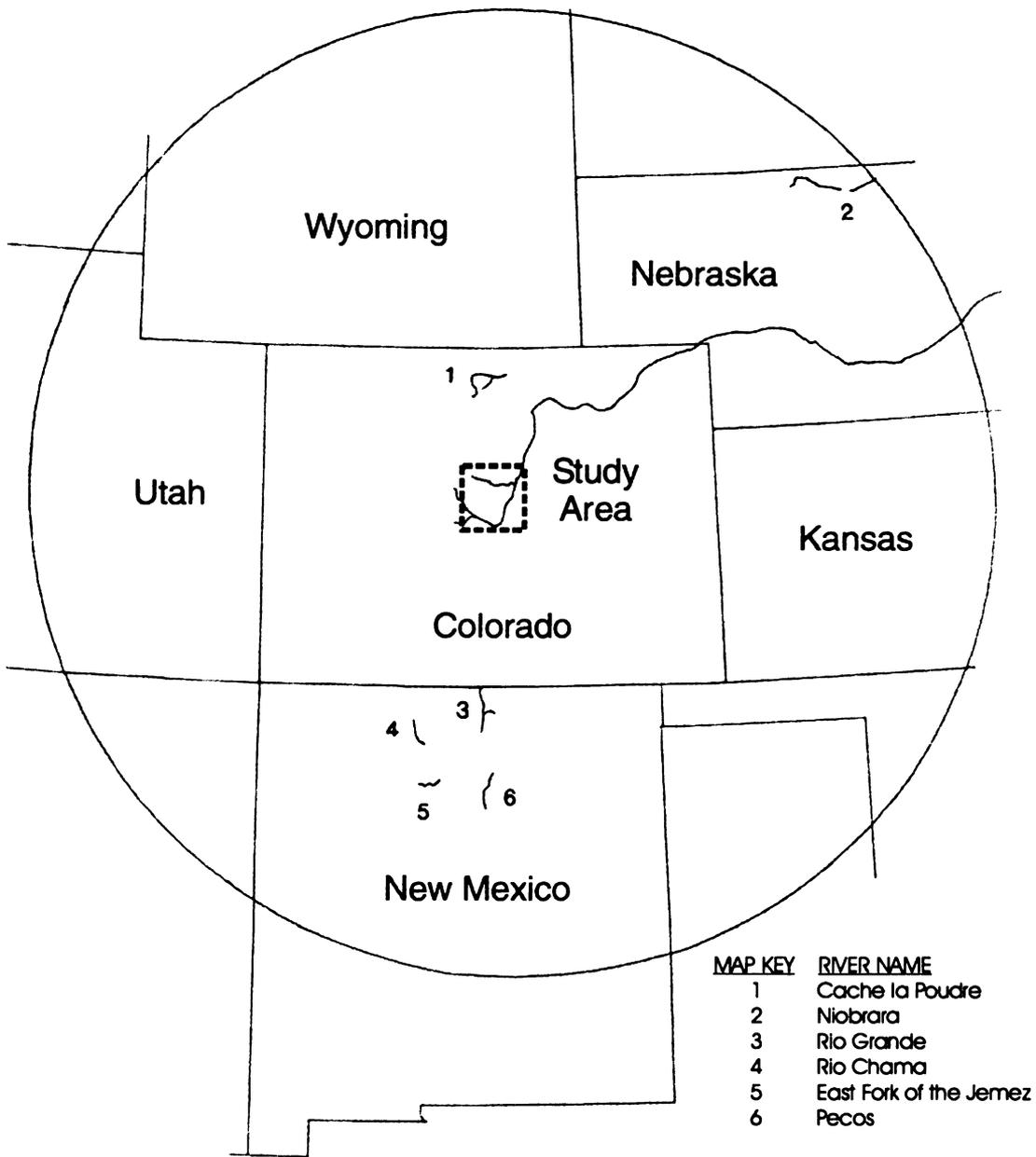
NATIONAL WILD AND SCENIC RIVERS SYSTEM

The Cache la Poudre River is the only designated Wild and Scenic River in the Front Range physiographic province and the only designated river within the State of

Colorado. Within the Forest Service's Rocky Mountain Region, there is only one other designated river, 20.5 miles of the Clarks Fork of the Yellowstone in northwestern Wyoming, about 450 miles from the study area. There are six designated rivers within 400 miles of the study area: they are listed in table 2-15 and shown on map 2-8.

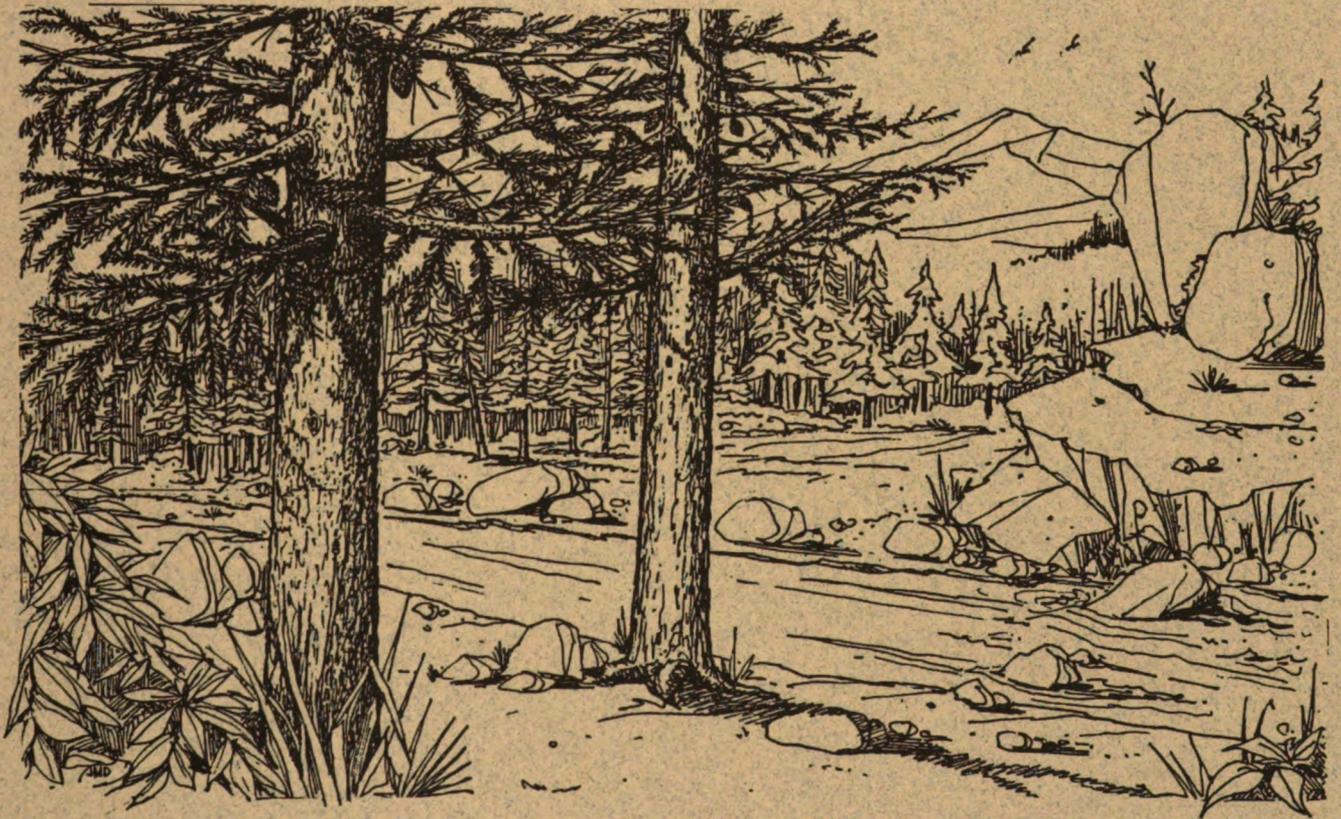
Table 2-15.—Rivers with Federal or State Protection Within 400 Miles of the Center of the Study Area

River Name	State	Administering Agency	Map Key	Mileage	River Status
Cache la Poudre	Colorado	Forest Service/National Park Service	1	76.0	National System
Niobrara	Nebraska	National Park Service/USFWS	2	103.0	National System
Rio Grande	New Mexico	Forest Service/BLM	3	64.75	National System
Rio Chama	New Mexico	Forest Service/BLM	4	24.6	National System
East Fork of the Jemez	New Mexico	Forest Service	5	11.0	National System
Pecos	New Mexico	Forest Service	6	20.5	National System



Map 2-8.—Rivers with Federal or State Protection Within 400 Miles of the Center of the Study Area, South Platte River and North Fork of the South Platte River Wild and Scenic River Study.

Findings of Eligibility and Classification



CHAPTER 3

Findings of Eligibility and Classification

3.1 PURPOSE

The purpose of this chapter is to present the findings and summarize the methods and results of the eligibility and classification determinations that are described in detail in Appendix D. The goal of these analyses was to determine whether the study rivers met the minimum requirements to be eligible for inclusion in the National Wild and Scenic Rivers System and, if so, to determine their highest inventoried classification as *wild*, *scenic*, or *recreational*.

3.2 SEGMENTS STUDIED

The area studied for potential eligibility includes 26.8 miles of the South Platte River from Elevenmile Dam to Cheesman Reservoir, 22.6 miles of the South Platte River from Cheesman Dam to Strontia Springs Reservoir, and the entire 50.1-mile North Fork of the South Platte River. The rivers have been further divided into segments for analytical purposes. These segments are shown on map 3-1 and described below.

Segment A - The South Platte River from Elevenmile Dam (downstream from fence on the Denver Board of Water Commissioners' (Denver Water's) special-use permit area) downstream to the southernmost boundary of private lands in the vicinity of Lake George (8.7 miles rather than the 8.0 miles listed in the *Land and Resource Management Plan for the Pike and San Isabel National Forests, Comanche and Cimarron*

National Grasslands (Forest Plan), from SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 20, T. 13 S., R. 72 W. to SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 31, T. 12 S., R. 71 W.).

Segment B - The South Platte River from the southernmost boundary of private lands in the vicinity of Lake George downstream to the northernmost boundary of private lands near Beaver Creek (7.7 miles rather than the 6.0 miles listed in the Forest Plan, from SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 31, T. 12 S., R. 71 W. to SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 33, T. 11 S., R. 71 W.).

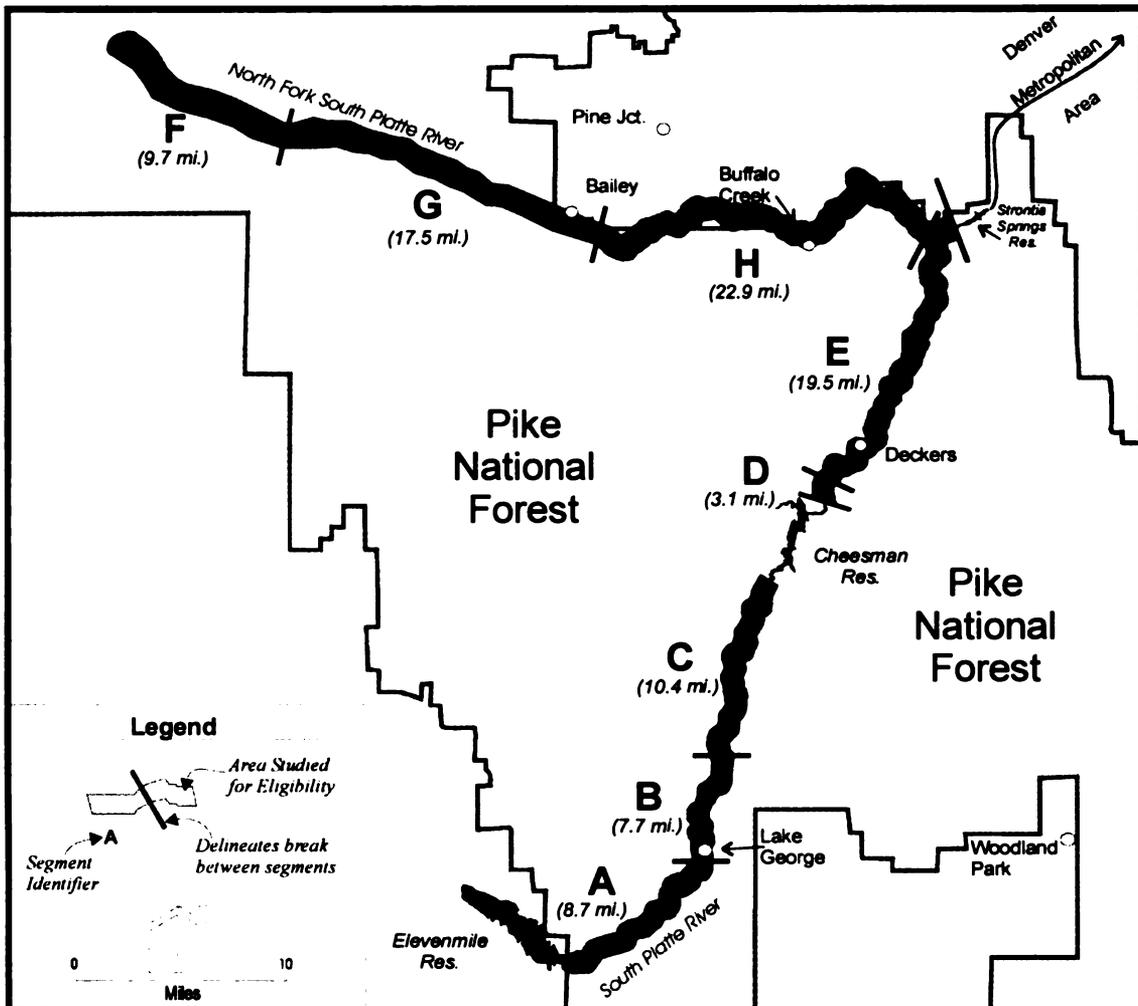
Segment C - The South Platte River from the southernmost boundary of private lands near Beaver Creek downstream to the upstream end of the stream gage above Cheesman Reservoir (10.4 miles rather than the 9.4 miles listed in the Forest Plan, from SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 33, T. 11 S., R. 71 W. to SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 23, T. 10 S., R. 71 W.).

For classification purposes, Segment C has been further divided into three subsections. These are:

Segment C1 - From Beaver Creek downstream to $\frac{1}{4}$ mile upstream of Hackett Gulch (2.9 miles).

Segment C2 - From $\frac{1}{4}$ mile upstream of Hackett Gulch downstream to $\frac{1}{4}$ mile downstream of Corral Creek (3.0 miles).

Segment C3 - From $\frac{1}{4}$ mile downstream of Corral Creek to high-water line of Cheesman Reservoir (upstream of the stream gage) (4.5 miles).



Map 3-1.—River Segments Studied for Eligibility; South Platte River and North Fork of the South Platte River Wild and Scenic River Study.

Segment D - The 3.1-mile section of the South Platte River downstream from the stream gage below Cheesman Dam downstream to the upstream boundary of the Wigwam Club property (from NW¹/₄NW¹/₄ sec. 6, T. 10 S., R. 70 W. to SW¹/₄NW¹/₄ sec. 29, T. 9 S., R. 70 W.).

Segment E - The South Platte River from the upstream boundary of the Wigwam Club property downstream to the high-water line of Strontia Springs Reservoir (6029-foot contour) (19.5 miles from SW¹/₄NW¹/₄ sec. 29, T. 9 S., R. 70 W. to SW¹/₄NW¹/₄ sec. 29, T. 7 S., R. 69 W.).

Segment F - The North Fork of the South Platte River from the headwaters downstream to its confluence with Kenosha Gulch (9.7 miles).

Segment G - The North Fork of the South Platte River from its confluence with Kenosha Gulch downstream to the upstream boundary of the Berger property (NW¹/₄SW¹/₄ sec. 4, T. 7 S., R. 2 W.) near Insmont (17.5 miles).

Segment H - The North Fork of the South Platte River from the upstream boundary of the Berger property near Insmont downstream to within a quarter mile of its confluence with the

South Platte River (22.9 miles from SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 33, T. 7 S., R. 72 W. to SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 25, T. 7 S., R. 70 W.).

For classification purposes, Segment H has been further divided into three subsections. These are:

Segment H1 - From Insmont (upstream end of Berger property) downstream to Estabrook (downstream side of old stone house) (1.5 miles).

Segment H2 - From Estabrook (downstream side of old stone house) to east of Cliffdale (section line between sections 29 and 30) (4.9 miles).

Segment H3 - From east of Cliffdale (section line between sections 29 and 30) to within a quarter mile of the confluence with the South Platte River (16.5 miles).

3.3 HISTORY

In 1931, the Secretary of the Interior issued a right-of-way to the Denver Board of Water Commissioners for a water storage reservoir (D-032121) along the mainstem and North Fork of the South Platte River pursuant to the provisions of the Transfer Act of February 1, 1905 (33 Statute [Stat.] 628). The right-of-way runs from $\frac{1}{2}$ mile below the confluence of the South Platte and the North Fork to 1 mile below Deckers on the South Platte and from $\frac{1}{2}$ mile below the confluence to just below Riverview on the North Fork. If constructed within the right-of-way, this 345,000-acre-foot reservoir would inundate approximately 17 miles of the South Platte River and 6 miles of the North Fork.

In 1972, the *Western U.S. Water Plan, Streams and Stream Systems, Working Document*, a multi-agency report, said that the South Platte River has “free-flowing values” and “should be

appropriately considered and evaluated in Federal planning.” (U.S. Bureau of Outdoor Recreation, 1972)

In 1974, *A Conceptual Proposal for a South Platte Canyons Free-Flowing Recreational River*, published by the U.S. Department of the Interior (USDI), Bureau of Outdoor Recreation found that the river possessed attributes that would make it eligible for Wild and Scenic River protection. This was not, however, an eligibility determination (U.S. Bureau of Outdoor Recreation, 1974).

In 1977, the Bureau of Outdoor Recreation's Water and Land Resources Management Study for Metropolitan Denver and South Platte River and Tributaries, Colorado, Wyoming, and Nebraska lists the South Platte as “free-flowing” and “potential regional park,” “general park,” or “recreation area” (U.S. Bureau of Outdoor Recreation, 1977).

The Heritage Conservation and Recreation Service (HCRS), the former agency of the USDI that was responsible for developing the Nationwide Rivers Inventory (NRI), examined the entire South Platte River during the late 1970s. Following the dissolution of the HCRS, the National Park Service published the NRI in 1982. It is a list of rivers potentially eligible for Wild and Scenic River designation. It included the South Platte River from below Elevenmile Dam to the high-water line of Cheesman Reservoir. The Park Service concluded that these segments (A, B, and C) have outstandingly remarkable values which might make them eligible for addition into the National Wild and Scenic Rivers System.

On June 1, 1983, the Chief of the USDA Forest Service (Forest Service) approved the Regional Guide for the Rocky Mountain Region (Regional Guide). The guide confirmed the decision made previously by the HCRS and committed the Forest Service to study the eligibility of the South Platte River between Cheesman Reservoir and Elevenmile Dam.

On October 18, 1984, the Regional Forester approved the Forest Plan. The Forest Plan was developed in compliance with the National Forest Management Act (36 Code of Federal Regulations 219) and the National Environmental Policy Act. The Forest Plan included an eligibility determination for the South Platte River between Cheesman Reservoir and Elevenmile Dam (see Appendix D). The eligibility determination concluded that this section was eligible for inclusion in the Wild and Scenic Rivers System with a classification of *wild* between Cheesman Reservoir and Beaver Creek (Segment C) and *recreational* from Beaver Creek to Elevenmile Dam (Segments A and B). This reconfirmed the recommendations previously made by the HCRS and the Regional Guide and committed the Forest Service to do a suitability study for these three eligible segments for potential inclusion in the Wild and Scenic Rivers System. Because these river segments were identified through the forest planning process, they are recognized as study rivers under the provisions of Section 5(d)(1) of the Wild and Scenic Rivers Act (WSRA) (Public Law 90-542 et seq.).

In March 1988, the final environmental impact statement (EIS) for the Metropolitan Denver Water Supply, issued by the U.S. Army Corps of Engineers, disclosed that the segment of the South Platte from Cheesman Reservoir to Elevenmile Dam was eligible for study under the WSRA. No comments were received on the draft EIS concerning the question of eligibility below Cheesman Dam. The final EIS, supported by the Governor, Colorado Water Quality Control Commission, and 41 cities and utilities in the Denver metropolitan area, recommended construction of a dam for water storage just below the confluence of the mainstem and North Fork of the South Platte River. If constructed, this 1.1-million-acre-foot Two Forks Reservoir would provide a dependable future water supply for the Denver metropolitan area but would flood approximately 21 miles of the South Platte River, from 1 mile below the confluence with the North Fork to ½ mile below Cheesman

Dam, and 9 miles of the North Fork from the confluence to just below Riverview.

In May 1988, the Rocky Mountain Regional Office of the National Park Service evaluated the South Platte River from below Cheesman Dam to its confluence with the North Fork (Segments D and E) for possible inclusion in the NRI. In their letter to the Director of the National Park Service, the Regional Office's investigators wrote that the river "possesses outstandingly remarkable recreational, fish, historic, and other (endangered species) values." Furthermore, their field inspection "disclosed no characteristics which would cause the stream to be considered ineligible as a Recreational component of the Wild and Scenic Rivers System." It is important to note that this was an opinion and not an eligibility determination.

On April 7, 1988, Regional Forester Gary Cargill, in a letter to the Regional Director of the National Park Service, stated that the Forest Service did not believe that the South Platte below Cheesman (Segments D and E) should be added to the NRI. On June 9, 1988, the Director of the National Park Service accepted Cargill's recommendation and withdrew the Park Service's earlier recommendation for listing Segments D and E in the Nationwide Rivers Inventory.

In 1989, the Environmental Protection Agency (EPA) rejected the Two Forks Dam project as proposed in the March 1988, final EIS for the Metropolitan Denver Water Supply. EPA concluded that the proposal was "the most environmentally damaging of the alternatives considered" and concluded "construction and operation of the dam would have unacceptable adverse effects on fishery, wildlife, and recreation areas."

In 1989, Congress appropriated \$75,000 to study the recreation potential of the South Platte River. The Forest Service felt that a Wild and Scenic River eligibility determination was the best way to accomplish this and began the study, which included the South Platte River below Cheesman Dam (Segments D and E) and

the entire North Fork of the South Platte River (Segments F, G, and H). A draft of this document was made available for public review on August 7, 1995. Following receipt of comments, the document was revised. Since the study found that Segments D, E, and H were eligible for potential Wild and Scenic River designation, the Forest Service decided to continue with a suitability study for these segments and Segments A, B, and C of the South Platte River, which had been found eligible by the Forest Plan in 1984. On November 16, 1995, a notice of intent to prepare a Wild and Scenic River Study Report and legislative environmental impact statement (LEIS) for the South Platte River and North Fork of the South Platte River was published in the *Federal Register* (vol. 60, No. 221, p. 57571). This marked the start of the public scoping period and of the Forest Service's preparation of the suitability study. The 1995 Draft Eligibility Determination and the 1984 Forest Plan Eligibility Determination were then incorporated in the Wild and Scenic River Study Report and the draft EIS for the South Platte and the North Fork of the South Platte Rivers.

On November 23, 1990, EPA's Assistant Administrator for Water issued a Final Determination vetoing Two Forks. That decision prevented the U.S. Army Corps of Engineers from issuing a permit for the construction of the 1.1-million-acre-foot project. The Final Determination also vetoed a 400,000-acre-foot version of Two Forks and the 450,000-acre-foot reservoir in the Corrective Action Proposal proposed by the applicants. EPA based its decision on findings that any of the Two Forks projects would result in unacceptable adverse effects on fishery areas and recreational areas and that those losses would be avoidable because there were less environmentally damaging practical alternatives to Two Forks. Moreover, EPA found that the resources that would be lost were so valuable that the project's impacts, even factoring in the proposed mitigation, were unacceptable. EPA's Final Determination concluded that each of the Two Forks projects "would inundate the South

Platte corridor, which supports a vital aquatic ecosystem offering unmatched fishery and recreation values within a single location easily accessible to major metropolitan areas."

In 1991, EPA's decision not to allow construction of the Two Forks project was appealed by eight suburban water districts. On June 5, 1996, U.S. District Judge Richard Matsch dismissed the appeal, upholding the EPA's 1990 Final Determination. The judge ruled that EPA had not "acted capriciously and arbitrarily" in blocking construction of the dam because of its impact on the environment. The judge also ruled that the eight suburban water districts did not have legal standing to proceed with the case without support of the Denver Water Board.

3.4 ELIGIBILITY DETERMINATION

This eligibility determination is a summary of the two eligibility and classification determinations that are described in detail in Appendices C and D. These include:

1. The Elevenmile Dam to Cheesman Reservoir Eligibility Report (Segments A, B, and C), as presented in Volume II, Appendix F, of the 1984 Forest Plan; and
2. The Eligibility and Classification Determination for the South Platte and North Fork of the South Platte River (Segments D-H), released as a draft in August 1995, and finalized in June 1996, following scoping, for inclusion in the draft LEIS.

Portions of the latter have been summarized, and the former has been updated to show specific outstandingly remarkable values (ORVs) by segment. These changes are documented in the following sections.

ELIGIBILITY

To be eligible, a river must meet both of the following criteria:

1. It must be free-flowing, and
2. It must possess one or more ORVs.

Free-Flowing Character

The WSRA (Section 16b) defines free-flowing as:

“...existing or flowing in natural condition without impoundment, diversion, straightening, rip-rapping, or other modification of the waterway. The existence, however, of low dams, diversion works, and other minor structures...shall not automatically bar its consideration for inclusion: Provided, that this shall not be construed to authorize, intend, or encourage future construction of such structures within components of the National Wild and Scenic Rivers System.”

The free-flowing analysis of Segments D-F is well documented in the Eligibility and Classification Determination (Appendix D). Segments A-C were determined to be free-flowing in the Forest Plan; however, some additional comments are warranted for Segments A and B. Segment A has a small 5-foot dam, located on National Forest System lands just upstream from Lake George. The original intent of the dam was to raise the water level slightly to provide water for irrigation via an aqueduct to the Lake George area. More recently, the floodgates have been removed and the dam has not been used in years. The permittee has asked to abandon the permit and a special-use permit has not been reissued for the dam. Segment B includes the 10-foot-high, 1,100-foot-long earthen Lake George Dam and 85-acre Lake George, which was built for ice production in 1890. At that time, a small, 3- to 5-foot earthen dike was built up on the

southern end of the lake, and the mainstem of the South Platte was channeled around the eastside of the lake for about 0.8 mile. The dam washed out in the 1930s but was rebuilt and used for irrigation and recreation purposes. There is also a small 1-acre lake with a 3- to 5-foot earthen dike immediately below Lake George. Segment B also includes both this channelized portion and the 3- to 5-foot earthen dike. Even though portions of this segment are channelized or behind a low dam, this 0.8-mile section is still considered free-flowing since the dam is small and the diverted portion has taken on a natural riverine appearance over the past 100 years.

All of the study segments are below major dams or diversions, and releases are controlled. Seven of the eight study segments were found to be free-flowing. Only Segment G, from the Roberts Tunnel to the upstream portion of the Berger property near Insmont was found not to be free-flowing. While some minor channel modifications and diversions are present, particularly on Segment H and the lower portion of Segment D, they are not considered significant enough to affect the free-flowing nature of the river. Segment G, downstream from the Roberts Tunnel, has been altered extensively and includes more than 20 diversion dams, numerous check dams, the outlet from the Roberts Tunnel, channel relocations, and countless other human-made intrusions and modifications to the river bed, channel, banks, and vegetation, leaving a majority of the segment no longer in a natural riverine appearance.

Outstandingly Remarkable Values Analysis

The goal of this analysis was to identify “outstandingly remarkable values” or, more simply, outstanding values on the eight study river segments. This analysis was carried out in the 1984 Forest Plan for areas above Cheesman Reservoir and in the Eligibility and Classification Determination of June 1996 (Appendix D) for the segments below Cheesman Dam and on the North Fork. These

assessments document the determination of which river-related values or features are outstandingly remarkable.

Since seven of the eight study segments and a portion of Segment G (from the Roberts Tunnel upstream to Kenosha Gulch) were found to be free-flowing, their ORVs were studied and identified as described in Appendices C and D and in the 1984 Forest Plan. The outstandingly remarkable values studied include: scenic, recreational, geologic, vegetation/ecological, fisheries, wildlife, cultural (historic and prehistoric), traditional use/cultural values, and other resources. The determined ORVs for each river segment are listed in table 3-1 (later in this chapter) and are also summarized briefly in the next section.

South Platte River (Upstream from Cheesman Reservoir - Segments A, B, and C).—The 1984 Forest Plan documented that Segments A, B, and C contained five outstandingly remarkable values: scenery, recreation, geology, fisheries, and wildlife. The Forest Plan, however, did not specify which values were found in each segment. This is clarified here for each of the three segments. This section of the South Platte River flows through a canyon that is approximately 700 feet high and ½ mile wide; it is known as Elevenmile Canyon in Segment A and as Wildcat Canyon in Segment C. The terrain consists of a rocky canyon with steep side walls, interspersed forest cover, and scattered meadows. The central portion (Segment B), around Lake George, consists of a wide, flat canyon bottom. River elevations range from 8450 feet below Elevenmile Dam to 6860 feet near Cheesman Reservoir.

Segment A — Segment A is the 8.7-mile section of the South Platte River from Elevenmile Dam (downstream from fence on Denver Water's special-use area) downstream to the southern end of the private lands south of Lake George. The area is almost entirely National Forest System land except for a few acres owned by the Boy Scouts of America in Camp Alexander. This portion contains several

National Forest System developed campgrounds and picnic areas and receives heavy developed and dispersed recreation use. A gravel road that was the location of the old Colorado Midland Railroad from Colorado Springs to Leadville, of which only the grade and tunnels remain, parallels this segment. It is the finding of the 1984 Forest Plan that Segment A possesses the following ORVs:

- ◆ **Scenery** – The quarter-mile study corridor is located between 8450 and 9200 feet on either side and possesses a great deal of diversity in landform, water, color, and vegetation, notable in the geographic region. This includes the granitic rock formations, the steep forested canyon with several small waterfalls, and the old railroad tunnels one passes through along the gravel road that parallels the river. In addition, there is the diversity of vegetation, including meadows, aspen, willows, Douglas fir, and ponderosa pine forests. The corridor draws people from all over the region because of the area's ruggedness, remoteness, and scenic beauty. A forest-wide visual resource inventory classified the entire canyon as “Class A—Distinctive” due to the highly scenic features found in the area.
- ◆ **Recreational** - This segment in Elevenmile Canyon is one of the most popular destination sites in the Pike National Forest and attracts people from all over the region. Because of the accessibility, scenic beauty, and facilities provided, this area receives heavy year-round use. To control use and limit environmental damage, a parking fee system has been implemented here. Rock climbing, camping, picnicking, fishing, water recreation (floating and tubing), hiking, and sightseeing are the primary recreation activities. User density is high from early spring through late fall.

- ◆ **Geology** - The area is known for its variety of rare and exemplary geologic features. The segment lies in an area of relatively young topography, with north-south-trending complex mountains cut by deep, rugged canyons. The entire area is underlain by Precambrian granite, which forms rocky outcrops throughout the segment. Massive rock outcrops are exposed in the canyon walls, except where the bedrock has been covered by talus and soil.
- ◆ **Fisheries** - This segment contains nationally renowned brown and rainbow trout populations and habitat. This segment and Segment B contain some of the most diverse habitat conditions of any of the study areas, and the Colorado Division of Wildlife recognizes the two segments together as an important, high-quality trout fishery. Along with other study segments of the South Platte, this segment is a nationally important producer of brown and rainbow trout and draws people from all over the region. The upper 3 miles of the segment is a designated quality fisheries area with special fishing regulations in effect.

Segment B — This 7.7-mile segment of the South Platte River, from the southern end of the private lands south of Lake George to the north end of the private lands near Beaver Creek, flows through subdivided private lands that are used as year-round and seasonal recreational property. The area is paralleled, crossed, and otherwise heavily influenced by subdivision roads. U.S. Highway 24 crosses the river at Lake George. About 1½ miles of undeveloped stream occurs on National Forest System land, and a mile or so of the stream frontage is private land used for grazing and hay pastures. It is the finding of the 1984 Forest Plan that Segment B possesses the following outstandingly remarkable value:

- ◆ **Fisheries** - This segment contains nationally renowned brown and rainbow

trout populations and habitat. This segment and Segment A contain some of the most diverse habitat conditions of any of the study areas, and the Colorado Division of Wildlife recognizes the two segments together as an important, high-quality trout fishery. Along with other study segments of the South Platte, this segment is a nationally important producer of brown and rainbow trout and draws people from all over the region.

Segment C — This 10.4-mile segment of the South Platte River, from the north end of the private lands near Beaver Creek to the high water line of Cheesman Reservoir (upstream of the stream gage), flows through undeveloped National Forest System lands that are inaccessible except by trails and a few four-wheel-drive roads. Smooth water alternates with boulder-filled channels. The area is within 2-5 miles of the Lost Creek Wilderness, is essentially undeveloped, and presents a vestige of primitive America. Its primary use is for dispersed recreation, which includes fishing, hiking, and off-highway vehicle use. A high-voltage powerline crosses the river just upstream from Corral Creek. Denver Water owns several acres in the extreme lower portion of the segment. It is the finding of this analysis that Segment C possesses the following outstandingly remarkable values:

- ◆ **Scenery** - The study corridor, located between 8500 and 6860 feet, possesses great diversity in landform, water, color, and vegetation, notable in the geographic region. It includes large outcrops of granitic rock and a steep, forested canyon with several small waterfalls. In addition, it contains a diversity of vegetation, including meadows, aspen, willows, Douglas fir, and ponderosa pine forests. The area lies within an undeveloped canyon that is a vestige of primitive America and draws people from all over the region because of its ruggedness, remoteness, and scenic

beauty. A Pike National Forest visual resource inventory classified the entire canyon as "Class A-Distinctive" due to the highly scenic features found in the area.

- ◆ **Geology** - The area is known for its variety of rare and exemplary geologic features. The segment lies in an area of relatively young topography, with north-south-trending complex mountains cut by deep, rugged canyons. As in Segment A, the entire area is underlain by Precambrian granite, which forms rocky outcrops throughout the segment. Massive rock outcrops are exposed in the canyon walls, except where the bedrock is covered by talus and soil. However, the outcrops in this segment are more numerous and much more vertical and dominant than those in Segment A, and they form massive granite cliffs that tower over the river.
- ◆ **Fisheries** - This segment contains nationally renowned brown and rainbow trout populations and habitat. The fishery in this segment is solely supported by self-reproducing rainbow and brown trout, and, as such, is designated as "wild trout water" by the Colorado Division of Wildlife. This section of the river contains the second highest amount of suitable trout habitat of the study segments (next to Segment D). The area is recognized by the Colorado Division of Wildlife as an important high-quality trout fishery. Along with other study segments of the South Platte, this segment is a nationally important producer of brown and rainbow trout and draws people from all over the region. Although the size of the trout caught here is not exceptional, as in other segments, the catch rates are quite high due to the abundance of fish present.
- ◆ **Wildlife** - This segment contains Pawnee montane skipper butterfly populations

and habitat. The Pawnee montane skipper qualifies under the wildlife population ORV defined for this analysis. The montane skipper is a globally rare subspecies found only in the area of Platte Canyon from near the unincorporated community of South Platte up to approximately 7400 feet in elevation. To add to the significance of this value, this sub-species of the skipper is listed in the *Federal Register* (52 FR 36176) as a threatened species under the Endangered Species Act. Populations occur in this segment upstream to the Corral Creek area. The river, over time, has created the rugged canyon topography that is now the butterfly's preferred habitat.

South Platte River (Downstream from Cheesman Reservoir - Segments D and E).— From the base of Cheesman Dam to the high-water line of Strontia Springs Reservoir, the South Platte River canyon drops approximately 700 feet in elevation (from 6700 feet to 6000 feet). The narrowest canyon and steepest gradient on the South Platte lies between the base of Cheesman Dam and the Wigwam property boundary. The river drops approximately 300 feet within this 3-mile stretch (Segment D). Between the Wigwam property and the community of Nighthawk, the canyon is much broader and more open, with an approximate drop of 200 feet in elevation within a 14-mile stretch (upper end of Segment E). The gradient steepens, and the canyon again narrows from this point, dropping approximately 300 feet between Nighthawk and the Strontia impoundment waters, a distance of almost 6 miles (lower end of Segment E).

Several creeks and gulches drain into the South Platte between Cheesman and Strontia Springs Reservoirs. Many, like Jenny Gulch and Saloon Gulch, are of low volume or are intermittent in nature. Others, such as Horse Creek, Sugar Creek, and Pine Creek, are permanent but also of low volume.

Segment D — Segment D is the 3.1-mile section of the South Platte River from below Cheesman Dam downstream to the upstream boundary of the Wigwam Club property (in the NW¹/₄NW¹/₄ sec. 29, T. 9 S., R. 70 W.). The city and county of Denver owns the first mile below Cheesman Dam, and the next 2 miles are National Forest System lands. It is the finding of this eligibility and classification document that Segment D possesses the following ORVs:

- ◆ **Recreational** - Outstanding fishing and dispersed recreation opportunities such as hiking and sightseeing are present. This segment in Cheesman Canyon attracts people from all over the region for hiking, fly fishing, and sightseeing in its rugged, boulder-strewn canyon. The canyon is one of the most heavily fished sections in the State of Colorado and receives the heaviest fishing use in the Front Range. Anglers, hikers, nature observers, and photographers heavily use the Gill Trail, which parallels the river. Outfitters and guides, permitted by the South Platte Ranger District, cater to local, national, and international clients. This area is also the site of the annual Masterfly Tournament, sponsored by Trout Unlimited and used as a fundraiser to enhance the South Platte River corridor.
- ◆ **Fisheries** - Segment D contains nationally renowned brown and rainbow trout populations and habitat. This segment contains exceptionally abundant fish habitat and is a nationally important producer of wild brown and rainbow trout. According to the Colorado Division of Wildlife, there are more than 9,000 miles of trout streams in Colorado, of which 112.5 miles are designated wild trout streams and 167.8 miles are “Gold Medal” trout streams. This 3-mile stretch carries both designations. Wild trout waters contain fish raised entirely within the natural environment; they are not stocked with hatchery fish. Gold Medal

waters provide outstanding angling opportunities for large trout. Cheesman Canyon is considered the “crown jewel” with more than 500 pounds of fish over a 14-square-foot surface area. The Colorado Division of Wildlife ranks this among the most productive trout streams in the State, if not the country. The U.S. Fish and Wildlife Service has designated this section, down to Scraggy View in Section E, as Resource Category 1. Resource Category 1 waters are unique on a national basis and are considered irreplaceable.

- ◆ **Wildlife** - Segment D contains Pawnee montane skipper butterfly populations and habitat. The Pawnee montane skipper qualifies under the wildlife population ORV defined for this analysis. The montane skipper is a globally rare subspecies found only in the area of Platte Canyon from near South Platte up to approximately 7400 feet in elevation. To add to the significance of this value, this subspecies of the skipper is listed in the *Federal Register* (52 FR 36176) as a threatened species under the Endangered Species Act. The river, over time, has created the rugged canyon topography that is now the butterfly’s preferred habitat.

Segment E — Segment E is the section of the South Platte River from the upstream boundary of the Wigwam Club property downstream to the high-water line of Strontia Springs Reservoir (19.5 miles). Approximately 50 percent of the land is National Forest System land, 45 percent is owned by the city and county of Denver, and 5 percent is privately owned. It is the finding of this eligibility and classification document that Segment E possesses the following ORVs:

- ◆ **Recreational** - This segment provides outstanding dispersed and developed recreational opportunities such as

camping, picnicking, hiking, fishing, scenic driving, and other day-use activities.

The quality and diversity of developed and dispersed recreation opportunities in this segment and the accessibility and proximity of the area to major metropolitan areas provide an excellent year-round recreation resource. The recreational study for the Two Forks EIS indicated that recreational use of public land in the project area exceeds 304,000 recreational visitor-days per year. (This includes an area larger than the river corridor, but most of the visitor use was projected to occur along the river, including the North Fork.) A survey conducted by the South Platte Ranger District in 1993 lists the wide range of activities that occur within Segments E and H. In addition to the premier fly fishing activity that occurs in the upper portion (upper 60 percent) of this segment, the Paralyzed Veterans of America hosts an annual 3-day fishing derby and outing for more than 750 people with disabilities, their families, senior citizens, and developmentally disabled youths. This event occurs near the historic site of Twin Cedars at the lower end of the segment. The area is also popular for waterfowl hunting. This segment is considered the best recreational river within the region of analysis, primarily because of the amount and diversity of opportunities presented to such a large population base.

- ◆ **Fisheries** - Segment E contains nationally renowned brown and rainbow trout populations and habitat. The Colorado Division of Wildlife lists the South Platte from the Wigwam Club to the confluence with the North Fork—approximately 85 percent of this segment's length—as Gold Medal waters. The U.S. Fish and Wildlife Service Resource Category 1 rating extends from

the Wigwam Club to Scraggy View Picnic Grounds, approximately 45 percent of the segment, and Resource Category 2 extends from Scraggy View to Strontia Springs Reservoir. Gold Medal and Resource Category 1 waters were previously described under Segment D. Resource Category 2 waters are also outstandingly remarkable in that they represent aquatic habitat that, if impacted by development, must be mitigated in kind for no net loss.

- ◆ **Wildlife** - Pawnee montane skipper butterfly and habitat. (See description in Segment D)

North Fork of the South Platte River - Segments F, G, and H.—Headwater tributaries for the North Fork are located high on the eastern slope of the Continental Divide at 12,500 feet in elevation. The tributaries combine to form the mainstem of the fork at approximately 11,300 feet. The North Fork flows eastward for approximately 51 miles before reaching the South Platte River at an elevation of 6050 feet. Many small intermittent and perennial streams contribute to the flow.

The North Fork has three distinct segments. Segment F is from the headwaters to Kenosha Gulch near the town of Webster. This segment is known as Hall Valley. The landscape is a result of alpine glaciation, with a primary geologic substrate composed of the granitic Kenosha batholith. The elevation changes approximately 3,500 feet within the 9.7-mile segment. The overall topography is representative of a typical high mountain glacial valley, with narrow and steep tributary canyons, open vistas interrupted by glacial ridges, and alpine to subalpine vegetation.

Segment G, from Kenosha Gulch near Webster to Insmont, includes the community of Bailey. The underlying geology changes from the granitic batholith to a schist-gneiss complex, and the valley is much broader with fewer gradients. The river parallels an ancient fault, and the elevation drops 1,520 feet in

approximately 17.5 miles. Glacial and river gravels form flat terraces along the river. U.S. Highway 285 parallels most of the river. Many ranches, communities, and houses are found in this section, taking advantage of the open topography and transportation network. The water from Roberts Tunnel enters the river in this section, 3 miles downstream from the community of Webster.

Segment H is from Insmont to the confluence with the South Platte River. The North Fork canyon takes on different characteristics within this 22.9-mile segment. The overall effect is a narrow and confined river canyon. The river rapidly drops 800 feet within the first 7 miles. Near the town of Pine, the gradient moderates; and river drops only 150 feet in the next 5 miles. Near the community of Riverview, the canyon again becomes narrower and steeper, dropping 1,500 feet in the next 11 miles before reaching the confluence. Population density within this segment is low, as there are only a few small communities in this area and many of the dwellings are occupied on a seasonal basis. The channel has been modified in spots, and the banks have been stabilized in places during the construction of the historic railroad grade and, more recently, by county road work. The Forest Service maintains a work center at Buffalo Creek.

The entire length of Segment H is paralleled by roads, trails, or the historic (abandoned) railroad grade. Access to the river is restricted in places by private lands, but the majority is accessible to the general public. Jefferson County maintains the Pine Valley Ranch near Pine as a day-use open-space park. Lands managed by Denver Water and the U.S. Forest Service, from near Buffalo Creek to the confluence, are also restricted to day use only. National Forest System land in the Crossons area is open for dispersed recreational use. A portion of the land at Crossons is privately owned, and only nonmotorized access is allowed in that area.

Segment F — Segment F of the North Fork extends from the headwaters downstream

to its confluence with Kenosha Gulch (9.7 miles). Approximately 65 percent of the lands are National Forest System lands, and the rest are in private ownership. Also included in this analysis is the upper 2.3-mile portion of Segment G above the Roberts Tunnel. It is the finding of this eligibility and classification document that Segment F and the upper 2.2-mile section of Segment G possess no ORVs.

Segment G — Segment G of the North Fork extends from its confluence with Kenosha Gulch downstream 17.5 miles to the upstream boundary of the Berger property (in the NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 34, T. 7 S., R. 72 W.) near Insmont. Approximately 14.5 miles of Segment G are private lands, and approximately 3 miles are National Forest System lands.

This segment was not examined for ORVs downstream from the Roberts Tunnel because it did not meet the basic free-flowing eligibility criteria. In the short stretch above the Roberts Tunnel, it was evaluated and found to be similar to Segment F; no ORVs were identified. Consequently, Segment G is considered ineligible for designation as a component of the National Wild and Scenic Rivers System.

Segment H — Segment H of the North Fork extends from the upstream boundary of the Berger property near Insmont, downstream to within $\frac{1}{4}$ mile of its confluence with the South Platte River (22.9 miles). It is the finding of this eligibility and classification document that Segment H possesses the following ORVs:

- ◆ **Recreational** - The quality and diversity of dispersed recreation opportunities along this segment and the accessibility and proximity of the area to major metropolitan areas provide an outstanding year-round recreation resource. Kayaking and dispersed recreation such as picnicking, fishing, hiking, riding, scenic driving, and other day uses are very popular in this area.

The upper portion of this segment, above Buffalo Creek, contains Class IV and V whitewater rapids and is considered to be one of the premier kayaking waters within the region due to the presence of the rapids and the artificial lengthening of the kayaking season. Its unique value is attributed to its level of difficulty, as well as sustained seasonal flows. The importation of water through the Roberts Tunnel makes it possible for kayakers to run the North Fork after other rivers in the region have passed their peak flows. Kayakers who use the area are accustomed to frequent changes in flow volumes that result from the operation of Denver Water's delivery system.

The lower portion of the North Fork, between Buffalo Creek and the confluence, is important to all levels of kayakers and is one of the few areas in the region most suitable for teaching entry-level kayaking.

Summer home residents, some year-round residents, and the general public heavily use the portion between Buffalo Creek and the confluence. The majority of the land in that stretch is owned by the city and county of Denver and is currently managed by Denver Water as a day-use area.

This segment also includes part of the Pine Valley Ranch, a Jefferson County open-space park that contains group picnic sites, an amphitheater, several trails, and striking rock outcrops. The park is very popular regionally for picnicking and hiking.

- ◆ **Wildlife** - This segment contains Pawnee montane skipper butterfly populations and habitat and peregrine falcon habitat. The significance of the skipper butterfly has been described under Segment D. There is a peregrine nest site immediately adjacent to the corridor on Cathedral Spires. The nest is outside the study

corridor, but the 1-mile protective management buffer around the nesting site overlaps the river corridor. The study corridor provides important foraging habitat for the falcon. The nesting site and associated foraging habitat are considered to be of regional importance. The site was the last site to be abandoned during the peregrine decline of the 1960s; and, thus, the habitat in this segment is considered to be outstandingly remarkable.

- ◆ **Cultural** - The Estabrook Historic District and the North Fork Historic District, including the Denver South Park and Pacific Railroad grade, are outstanding heritage resources in this segment. The State Historical Preservation Office provided input on whether the two river corridors contained outstandingly remarkable cultural values. That office examined all the known *National Register of Historic Places* (National Register) sites in the corridor and determined that within the North Fork corridor between the Berger property and the confluence that there are two outstandingly remarkable historic sites. These two sites are listed on the National Register because of their association with the transportation, entertainment, and recreation elements of Colorado history.

The two outstandingly remarkable cultural sites are the Estabrook Historic District (occupying approximately ½ mile of the river corridor on either side of the community of Estabrook) and the North Fork Historic District, which includes the North Fork corridor from ¼ mile west of Pine to 100 feet east of the South Platte Hotel. Included within the North Fork Historic District, but separate from the district designation, are several other historic sites that are also considered outstandingly remarkable on a regional level. The Denver, South Park and Pacific Railroad grade between South

Platte and Pine is included as one of these sites. (NOTE: A segment of this railroad grade, between the North Fork and Estabrook Historic Districts, has not been officially assessed for the National Register but may present a better physical representation of this historic period than the segments currently listed.)

Other values for this segment were evaluated, including scenic, geologic, and fisheries, and were found to be significant but not outstandingly remarkable. Vegetation and ecological values were not considered significant.

ELIGIBILITY DETERMINATION

Six of the eight study segments meet the minimum eligibility requirements as specified by the WSRA. They are all found to be free-flowing and to have at least one ORV. These ORVs are listed in table 3-1.

3.5 CLASSIFICATION

River segments found eligible were classified as to their most restrictive potential classifications as *wild*, *scenic*, or *recreational*, based upon the level of development and degree of naturalness present in the river corridor.

CLASSIFICATION METHODS

The Wild and Scenic Rivers Act requires that eligible rivers be classified as one of the following:

1. **Wild river areas** - Those rivers or sections of river that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.

2. **Scenic river areas** - Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.
3. **Recreational river areas** - Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

The overriding determinant for classification decisions is the degree of naturalness or, inversely, the degree of evidence of human activity in the river area. A determination is based upon the four major topics addressed in the classification definitions of wild, scenic, and recreational rivers. These topics are:

1. Water Resources Development
2. Shoreline Development
3. Accessibility
4. Water Quality

The appropriate classification of the study segments was analyzed for each of these topics. Those individual determinations were then considered as a whole to determine whether the study segments should be classified as *wild*, *scenic*, or *recreational* in the event of inclusion within the National Wild and Scenic Rivers System. This analysis was conducted using the framework suggested by the 1982 joint guidelines developed by the Secretaries of Agriculture and Interior. This framework is best displayed in table 3-3, which is reproduced from the "National Wild and Scenic Rivers System; Final Revised Guidelines for Eligibility, Classification and Management of River Areas," published in the September 7, 1982, *Federal Register*. This table provides an excellent summary of the more lengthy narrative in the guidelines. It is not intended to stand alone and

Table 3-1.—Outstandingly Remarkable Values for the Eight Segments Studied in This EIS

Study River	Segment	Outstandingly Remarkable Values									
		Cultural Resources, Historic	Cultural Resources, Prehistoric	Fishes	Geologic	Recreational	Scenic	Wildlife	Vegetation/ Ecological	Water Volume and Quantity	
North Fork: Confluence to Insmont	H	X				X				X	
	G (lower part)										
Roberts Tunnel to Insmont headwaters	F and G (upper part)										
	A			X	X	X	X				
South Platte: Upstream from Cheesman Reservoir	B			X							
	C			X	X		X			X	
	D and E			X		X				X	

Table 3-2.—Outstandingly Remarkable Values for Other Designated Wild and Scenic Rivers in Colorado

Study River	Outstandingly Remarkable Values									
	Cultural Resources, Historic	Cultural Resources, Prehistoric	Fishes	Geologic	Recreational	Scenic	Wildlife	Vegetation/ Ecological	Water Volume and Quantity	
Cache la Poudre					X	X			X	

Table 3-3.—Classification Matrix

Attribute	Wild	Scenic	Recreational
Water Resource Development	Free of impoundment	Free of Impoundment	Some existing impoundment or diversion.
Shoreline Development	Essentially primitive. Little or no evidence of human activity.	Largely primitive and undeveloped. No substantial evidence of human activity.	Some development. Substantial evidence of human activity.
	The presence of a few inconspicuous structures, particularly those of historic or cultural values, is acceptable.	The presence of small communities of dispersed dwellings or farm structures is acceptable.	The presence of extensive residential development and a few commercial structures is acceptable.
	A limited amount of domestic livestock grazing or hay production is acceptable.	The presence of grazing, hay production, or row crops is acceptable.	Lands may have been developed for the full range of agricultural and forestry uses.
	Little or no evidence of past timber harvest. No ongoing timber harvest.	Evidence of past or ongoing timber harvest is acceptable, provided the forest appears natural from the riverbank.	May have shown evidence of past or ongoing timber harvest.
Accessibility	Generally inaccessible except by trail.	Accessible in places by road.	Readily accessible by road or railroad.
	No roads, railroads, or other provision for vehicular travel within the river area. A few existing roads leading to the boundary of the river area is acceptable.	Roads may occasionally reach or bridge the river. The existence of short stretches of conspicuous or longer stretches of inconspicuous roads or railroads is acceptable.	The existence of parallel roads or railroads on one or both banks as well as bridge crossings and other river access points is acceptable.
Water Quality	Meets or exceeds Federal criteria or federally approved State standards for aesthetics, for propagation of fish and wildlife normally adapted to the environment of the river, and for primary contact recreation (swimming) except where exceeded by natural conditions.	No criteria prescribed by the Wild and Scenic Rivers Act. The Federal Water Pollution Control Act Amendments of 1972 have made it a national goal that all waters of the United States be made fishable and swimmable. Therefore, rivers will not be precluded from scenic or recreational classification because of poor water quality at the time of their study, provided a water quality improvement plan exists or is being developed in compliance with applicable Federal and State laws.	

is applied in this analysis in the context of the longer narrative material and in context with applicable Wild and Scenic River legislation.

3.6 CLASSIFICATION SUMMARY

A detailed analysis of the classification of each study river segment was prepared as a part of

the eligibility determination and classification document process (see Appendix D). If the rivers or river segments are designated, these are the *most restrictive* inventoried classifications that can be implemented. Less restrictive classifications can be recommended in any alternative selection. The classifications are listed in table 3-4 and are briefly summarized below:

Table 3-4—Classifications of the Study Segments

Segment	Classification	Length in Miles
A	Recreational	8.7
B	Recreational	7.7
C1	Wild	2.9
C2	Scenic	3.0
C3	Wild	4.5
D	Wild	3.1
E.	Recreational	19.5
H1	Recreational	1.5
H2	Scenic	4.9
H3	Recreational	16.5
Total	Wild	10.5
	Scenic	7.9
	Recreational	53.9
Total Miles		72.3

campgrounds, parking areas, and several picnic areas. It is classified *recreational* (8.7 miles) due to the amount of road access and the amount of water resource shoreline development.

Segment B: This segment is paralleled by gravel county and National Forest System roads. It is also intersected by several other roads, including U.S. Highway 24. The segment includes the 150-acre Lake George, a low but long earthen dam that makes up at least half of the lake's shoreline, a cemetery, several bridges, a National Forest System campground and trailhead, several rural subdivisions, and the community of Lake George. Many user-created trails are evident along both riverbanks. It is classified as *recreational* (7.7 miles) because of the amount of road access and water resource and shoreline development.

Segment C1: This segment is entirely National Forest System lands and is undeveloped and primitive. This segment is classified as *wild*

(2.9 miles) due to its undeveloped and primitive nature and lack of water resource and shoreline development.

Segment C2: Forest Development Trail #654 parallels the river for several miles, and several National Forest System four-wheel-drive roads bisect the corridor and cross the South Platte River near the mouths of Corral and Longwater Creeks. Because motorized access is allowed with crossings in the section from Hackett Gulch to the Corral Creek-Longwater Gulch crossing, this section of the segment is classified *scenic* (3.0 miles). This is a correction from the original eligibility determination conducted in 1984 in Segment C2. Classifications are intended to reflect current conditions and not anticipated conditions. If conditions change, for instance motorized travel in the canyon is prohibited, then the classification for this segment would be re-evaluated for a possible change to *wild* status.

Segment C3: This segment is entirely National Forest System lands and is undeveloped and primitive. It does contain a very small amount of undeveloped land owned by Denver Water near Cheesman Reservoir and several abandoned cabins on National Forest System land. This segment is classified as *wild* (4.5 miles) due to its undeveloped and primitive nature and lack of water resource and shoreline development.

Segment D: This segment is accessible at either end by foot from the Gill Trail. Some cultural development has occurred in the past, primarily relating to mining and fishing activities. Many non-system trails are evident along both riverbanks. It is classified as *wild* due to the lack of road access and lack of water resource and shoreline development.

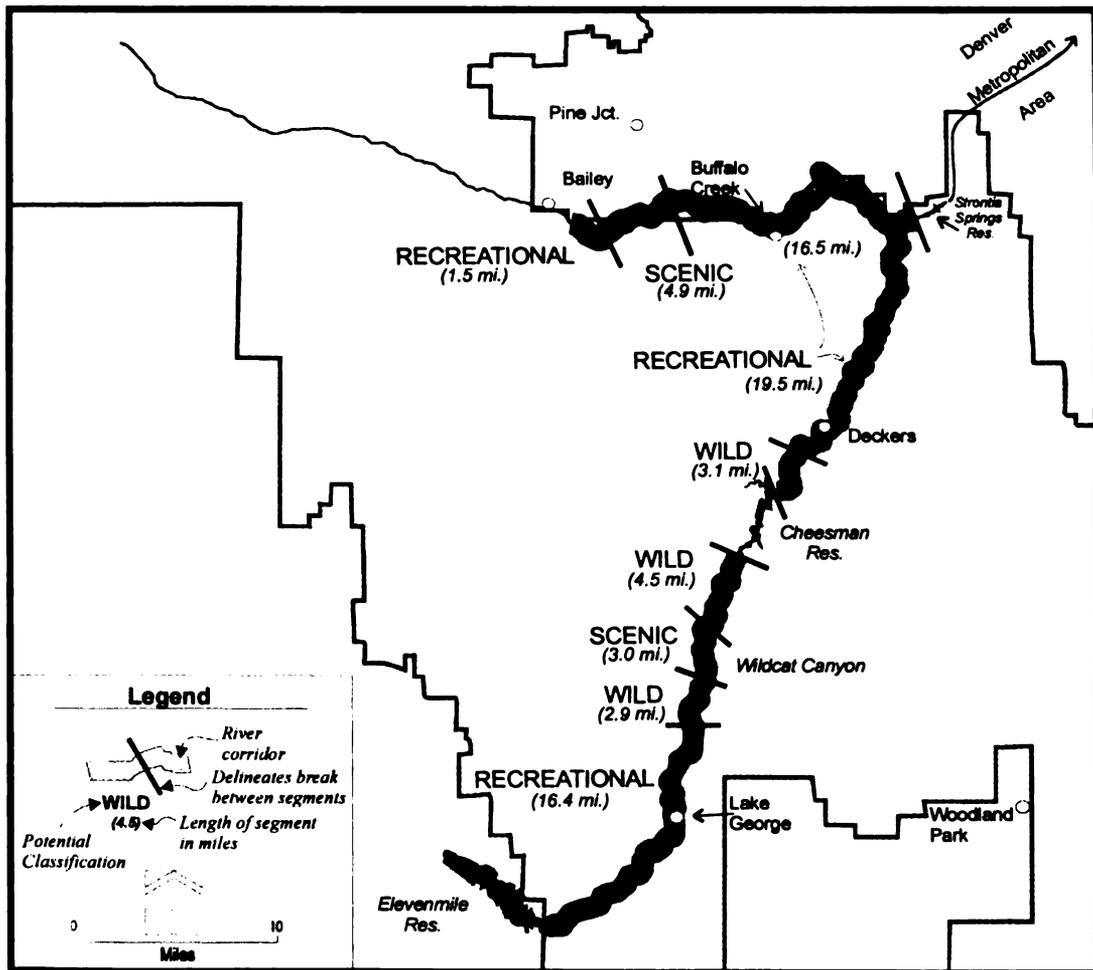
Segment E: This segment is paralleled by paved and gravel roads. Several small communities and isolated houses are located along the river, and there are several bridges and developed picnic and campsites. Many parking areas that accommodate the large number of

day-users and anglers are located in this segment. Several resorts and private camps are also located in this segment. This segment is classified as *recreational* due to road access and the amount of water resource and shoreline development.

Segments H1 and H3: Segment H1, on the North Fork from Estabrook to the upstream end of the Berger property, and Segment H3, on the North Fork from the confluence with the South Platte River to Cliffdale, are classified as *recreational* because they are paralleled by an historic railroad grade and graveled county roads, and they contain several residential communities, a highly developed recreation area

(Jefferson County's Pine Valley Ranch), many bridges and dwellings, and minor diversions and channel work.

Segment H2: This 4.9-mile segment, located within Segment H, extends from the downstream side of the old stone house downstream of Estabrook to the section line between sections 29 and 30 downstream of Cliffdale. It is classified as *scenic* since the area is predominately undeveloped National Forest System lands with very limited access. There is an old abandoned railroad grade though the area, a footbridge, some small check dams, and a few dwellings at Crossons, but the area remains largely primitive and undeveloped.



Map 3-2.—Eligible Segments with Potential Classification; South Platte River and North Fork of the South Platte River Wild and Scenic River Study.

3.7 ELIGIBILITY SUMMARY

The South Platte River from Elevenmile Dam (downstream from the fence on the Denver Water special-use area) downstream to the high-water line of Cheesman Reservoir (upstream of the stream gage) meets the minimum eligibility requirements as specified by the WSRA. Thus, Segments A, B, and C are found to be free-flowing and to contain the following ORVs: scenic (Segments A and C), recreation (Segment A), geologic (Segments A and C), fish (Segments A, B, and C), and wildlife (Segment C).

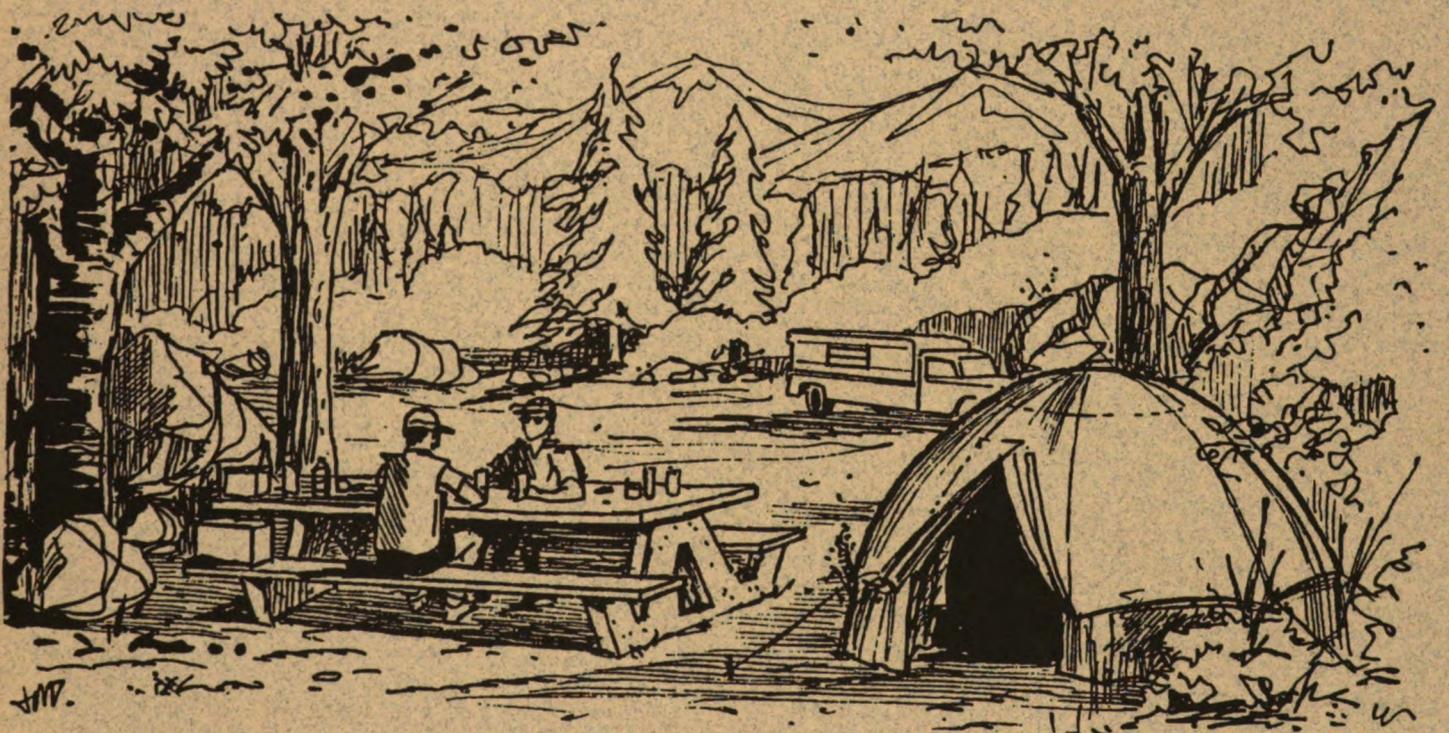
The South Platte River, from downstream of the stream gage weir below Cheesman Reservoir to the backwaters of Strontia Springs Reservoir (6029-foot contour), also meets the minimum eligibility requirements as specified by the WSRA. Thus, Segments D and E are found to be free-flowing and to contain outstandingly remarkable recreation, fish, and wildlife values.

The North Fork of the South Platte River, from the upstream boundary of the Berger property near Insmont to the confluence with the South Platte, also meets the minimum eligibility requirements as specified by the WSRA. Segment H is found to be free-flowing and to contain outstandingly remarkable recreation, wildlife, and cultural values.

The North Fork of the South Platte River, from its headwaters to its confluence with Kenosha Gulch near Webster, is found to be free-flowing but possesses no ORVs. As a result, this segment (Segment F) is ineligible for inclusion into the National Wild and Scenic River System.

The North Fork of the South Platte River, from its confluence with Kenosha Gulch near Webster to the upstream boundary of the Berger property near Insmont (Segment G), is found not to be free-flowing and is, therefore, ineligible for inclusion into the National Wild and Scenic River System.

Issues and Alternatives



CHAPTER 4

Issues and Alternatives Including the Preferred Alternative

4.1 PURPOSE OF THIS CHAPTER

This chapter introduces the issues and alternatives developed during the study process. The study analyzed each of the study rivers for their suitability for designation as a component of the National Wild and Scenic Rivers System (National System). The issues listed in this document were raised during the scoping process. Others were raised regarding the A2 local alternative when it was submitted to the USDA Forest Service (Forest Service) for further consideration. The A2 alternative is entitled the “South Platte Protection Plan” (SPPP).

For this study, 10 alternatives were developed and evaluated by an interdisciplinary group of Forest Service resource specialists (ID Team). The preferred alternative is a modified version of Alternative A3.

Alternative A1, the “no action” alternative required by NEPA, describes the current management of the study river corridors under the *Land and Resource Management Plan for the Pike and San Isabel National Forests, Comanche and Cimarron National Grasslands* (Forest Plan). This best addresses the concerns of potential water storage, continued water delivery, current water operations, channel maintenance, and potential and/or perceived impacts to private landowners.

Alternative A2 (the SPPP) is summarized in this chapter and reprinted in full in Appendix A. It is a “no action with outstandingly remarkable values protected” alternative. This alternative addresses the concerns of potential water

storage, continued water delivery, current water operations, channel maintenance, potential and/or perceived impacts to private landowners, and protection of the river’s “outstandingly remarkable values” (ORVs). Because Alternative A2 would be a form of cooperative management by local governments, water resource agencies, and other entities, it includes a variety of mechanisms to afford protection to the river’s ORVs. Detailed information about these mechanisms and their effect on river values and the uses of lands and waters is found in the SPPP.

Alternative A3 (the “Modified South Platte Protection Plan”) was developed by the Forest Service in response to issues and concerns raised about Alternative A2 and is fully described in this chapter.

The preferred alternative is Alternative A3 modified to exclude a decision on suitability. Under this alternative, the Forest Service will defer a decision on suitability, implement the South Platte Protection Plan, and amend the Forest Plan to protect the outstandingly remarkable values, free-flow, and water quality

Alternative B recommends the designation of the study rivers at their most protective inventoried classifications. This maximizes the protection and enhancement of free-flow, water quality, and the ORVs in the study area.

Alternatives C, D, F, G, I, and J present differing combinations or classifications of rivers or river segments that also protect and enhance the free-flow, water quality, and ORVs on the segments recommended for designation.

Alternatives E and H were considered but eliminated from detailed study (see section 4.5).

Alternative C recommends the designation of the same rivers as Alternative B but at a less protective classification than inventoried from Beaver Creek to Hackett Gulch and from Corral Creek to Cheesman Reservoir. This alternative better addresses concerns related to continued off-highway vehicle use in the area. It also provides additional river protection compared to non-designation while allowing a wider range of natural resource management than with a more protective classification.

Alternative D recommends the same segments and classifications of the South Platte River as Alternative B but finds the North Fork not suitable for designation. This protects and enhances the South Platte River at the most protective inventoried classification while addressing the concerns of potential water storage, continued water delivery, current water operations, channel maintenance, and potential and/or perceived impacts to private landowners in the North Fork study corridor.

The emphasis of Alternative F is to protect and enhance the ORVs while minimizing restrictions on private landowners and avoiding interference with Denver Board of Water Commissioners' (Denver Water's) right-of-way for a reservoir from the confluence of the North Fork and the South Platte to Deckers (as granted by the Department of the Interior in 1931). The alternative recommends the designation of one segment of the North Fork and four segments on the South Platte River that are entirely on National Forest System land and free of encumbrances. This protects and enhances the study rivers at the most protective inventoried classification on National Forest System land.

Alternative G recommends the designation of the South Platte upstream from Cheesman Reservoir with the same classifications as Alternative B. It finds the North Fork not suitable for designation. This alternative

protects and enhances the ORVs at the most protective inventoried classification above Cheesman Reservoir while addressing the concerns of potential water storage, continued water delivery, current water operations, channel maintenance, and potential and/or perceived impacts to private landowners on the North Fork and the South Platte downstream from Cheesman Reservoir.

Alternative I recommends the designation of the South Platte upstream from Corral Creek to Beaver Creek with a scenic classification and from Beaver Creek to Elevenmile Dam with a recreational classification. It finds the North Fork not suitable for designation. This alternative protects and enhances the ORVs above Cheesman Reservoir but at a less protective classification than inventoried from Beaver Creek to Hackett Gulch. It addresses off-highway use in the area, the concerns of additional potential water storage, continued water delivery, current water operations, channel maintenance, and potential and/or perceived impacts to private landowners on the North Fork and the South Platte downstream from Cheesman Reservoir.

Alternative J recommends segments similar to Alternative D but finds the portion of the South Platte from the North Fork confluence to Strontia Springs Reservoir not suitable for designation. It also finds the North Fork not suitable for designation. Classifications are the same as Alternative D. This protects and enhances the ORVs in the South Platte study corridor; addresses the off-highway vehicle use in the area; and addresses the concerns of potential water storage, continued water delivery, current water operations, channel maintenance, and potential and/or perceived impacts to private landowners in the North Fork study corridor.

Section 4.2 discusses the key study issues that formed the basis for developing the alternatives. Section 4.3 gives fuller descriptions of the alternatives considered. Section 4.4

describes alternatives that were not considered in detail and explains why they were not considered further.

Factors that were considered in determining the rivers' suitability include:

- ◆ The characteristics that make the river a worthy addition to the National System (i.e., its ORVs—scenery, recreation, geologic, vegetation/ecologic, fisheries, wildlife, historic cultural, prehistoric cultural, and traditional use cultural values).
- ◆ The amount of private land within the study corridors and the land's present use
- ◆ All present and reasonable foreseeable potential uses of the land and waters within the river corridors that would be enhanced, foreclosed, or curtailed if they were included in the National System.
- ◆ Public, State and local government interest in designation of the rivers.
- ◆ The estimated cost of land acquisition, if necessary.
- ◆ Ability of the Forest Service to manage the river under a Wild and Scenic River designation
- ◆ Historical or existing rights which could be adversely affected. In determining suitability, consideration of any valid existing rights must be afforded under applicable laws (including the Wild and Scenic Rivers Act [WSRA]), regulations, and/or policies
- ◆ Key issues and any other issues and concerns identified by the public or the ID Team.

In developing alternatives, the Forest Service has considered all relevant issues that the public raised during the scoping process. The alternatives that are considered in detail in this chapter reflect pertinent issues, concerns, current conditions, and provide for a full range

of reasonable management options for the study rivers as required by NEPA.

4.2 KEY STUDY ISSUES

Several key issues guided the development and evaluation of the suitability of the study rivers. All of these issues were identified through the public involvement process. In addition, the ID Team identified these same issues. The issues also encompass the suitability factors specified in Forest Service guidelines on Wild and Scenic River evaluation.

The A2 local alternative, the SPPP was developed by a wide variety of interest groups and local governmental agencies. At the time it was submitted to the Forest Service for further consideration in the Wild and Scenic River Study, all the participating groups were asked to submit letters of support to the Forest Service. The letters received were of mixed support, with some groups or individuals in full support of the A2 alternative as presented, some groups supportive of the A2 alternative but listing issues and concerns about the alternative as presented, and some groups listing issues and concerns and stating a preference for designation of the river corridor.

The Forest Service ID Team reviewed the A2 alternative to determine whether it met the standards listed in the draft legislative environmental impact statement (DLEIS) and, therefore, was a viable alternative to be considered further in a supplemental DLEIS (SDLEIS). The DLEIS standards applied to A2 were that a wide spectrum of interests be represented and the ORVs be protected. The ID Team determined that the A2 alternative met these requirements, and it was included in the SDLEIS. After release of the SDLEIS, the groups who developed the A2 alternative submitted supplemental material to the Forest Service. The new material addressed the concerns noted above. Additional letters were submitted by some of the groups who had

expressed concerns earlier, with some expressing full support and others expressing conditional support.

The issues listed below were the result of the public comments received from the DLEIS and SDLEIS, public meetings, recent concerns expressed as a result of the Hayman and Schoonover Fires, and the ID Team's review of all alternatives to determine whether the ORVs would be protected.

WATER DEVELOPMENTS (CONSTRUCTION OF DAMS OR DIVERSIONS FOR WATER STORAGE)

Increased water supply needs for the Denver metropolitan area and other Front Range communities are inevitable. Changes in how the rivers are managed may affect opportunities for water storage, diversions, and dam construction.

Specific Concerns

- ◆ Ability to construct water storage to meet the growing residential, industrial, and agricultural needs of the Denver metropolitan area.
- ◆ Ability to implement current and planned water developments and channel maintenance in the study corridors. This includes providing for (1) continued high flows on the North Fork due to releases from the Roberts Tunnel, (2) increased flows in the South Platte due to additional storage or water brought in from outside the drainage, and (3) flow changes and reservoir drawdowns for conjunctive use.
- ◆ Ability to maintain flexibility of a high-quality, reliable, economic, raw-water delivery system, including operations, flows, timing of releases, storage, off-channel reservoirs, diversion, channelization, and exchanges. This also includes the management of these flows

to protect resource values, recreational concerns, property protection, and other considerations.

- ◆ Flexibility for stream improvement work to manage flows and protect riverine environment.
- ◆ The desire of some communities to reduce their dependence on nonrenewable ground water by acquiring additional surface supplies or recharging the aquifers with excess surface water.
- ◆ Loss of agricultural production by conversion of agricultural water rights for municipal use.
- ◆ Concerns that designation would cause metropolitan water needs to come from other sources that may cause more negative impacts elsewhere.
- ◆ Threat of loss of ORVs by inundation.
- ◆ Threat of damage to or inundation of private property.
- ◆ Possible prohibition, due to designation, of potential dam construction, diversions, and water storage.

Concerns Related to South Platte Protection Plan

- ◆ The 20-year moratorium and relinquishment of Denver Water's right-of-way are only voluntary, so dam and reservoir development are still possible.
- ◆ Segments B and C are not protected from future development.
- ◆ The river corridor is not protected from future growth pressures.
- ◆ Diversions, modifications, or other project construction are still allowed.
- ◆ "Off-channel diversion structures" and "sediment ponds" may not meet free-

flowing character limitations for water resource development.

- ◆ Water providers need flexibility in river corridor management to expand existing reservoirs, replace existing dams, or construct off-channel diversion structures to meet future water supply operation needs.
- ◆ Method of evaluation of future project proposals for potential impacts to the rivers' ORVs and free-flowing character?

The issue is: How best to ensure the protection and enhancement of ORVs while minimizing effects on current and future water supply of the Denver and Colorado Springs areas.

LANDOWNER RIGHTS

Changes in how the rivers are managed may affect landowners' latitude in managing and/or developing their property.

Specific Concerns

- ◆ Ability of Denver Water to exercise its 1931 right-of-way to build a reservoir from just below the confluence of the North Fork and the South Platte Rivers (Two Forks site) to just above the community of Deckers.
- ◆ Effect of possible Wild and Scenic River designation on the value of Denver Water's right-of-way and its other property in the corridor.
- ◆ Protection of Estabrook and Cheesman expansion dam and reservoir sites for future water storage.
- ◆ Effect on water and storage rights and the ability to operate and develop the two rivers to fully use existing and future water rights (those approved but not in use and those in the planning stages).
- ◆ Protection of private landowners' property from fee-title condemnation

for construction of water developments or reservoirs.

- ◆ Impact upon private land by recreationists.
- ◆ Limitations on economic activities.
- ◆ Limitations on activities that change the appearance of river corridors.
- ◆ Loss of self-determination in land management decisions and associated feelings.
- ◆ Fear of additional interference, regulation, or review processes by a government agency (i.e., threat of scenic easement condemnation).
- ◆ Increasing levels/layers of bureaucracies.
- ◆ Landowner liability.
- ◆ Potential increase or reduction in land management costs.
- ◆ Potential increase or reduction in revenue of the land to the landowner.
- ◆ Changes in desirability of owning the land.
- ◆ Potential effects of local zoning.

The issue is: How to protect and enhance the ORVs while minimizing the effects on private and municipal landowners.

FISHERIES

Changes in river management could affect resident fish species, primarily spawning and rearing areas for resident fish. Both study corridors contain important fisheries populations that include wild brown and rainbow trout.

Clean, cool water is required to support healthy trout populations. It is important to recognize that many other activities within the drainage

basin, outside of this river segment, have an impact on both water quality and resident fish populations.

The Streamflow Management Plan (SFMP) of Alternative A2 includes alterations to water supply operations to protect or enhance fisheries. The SFMP was amended to respond to (1) concerns about impacts to the stream channel, aquatic habitats, and riparian areas from anticipated increased flows and unnaturally long duration flows and (2) the need for a full ecosystem design rather than one that focuses on recreational trout species. In response to concerns raised on the original proposed plan, the supplemental material submitted by the groups who developed the SPPP included enforcement procedures for the SFMP and is included in Appendix A.

Specific Concerns

- ◆ Protection of a remarkable wild-trout fishery so close to a major metropolitan area. This includes, but is not limited to, (1) the maintenance and enhancement of fish populations and habitats and (2) the direct, indirect, and cumulative effects on fish populations.
- ◆ Maintenance and enhancement of riparian habitat and stream structure.
- ◆ Maintenance and enhancement of water quality and flow rates.
- ◆ The possibility of implementing projects that are beneficial over the long term but may have detrimental short-term impacts (e.g., road improvements that cause short-term siltation but reduce siltation over the long term, or channel improvements that also produce short-term siltation but ultimately improve fisheries habitat).

The issue is: How to best protect and enhance the wild resident trout populations in the corridors.

WILDLIFE

Changes in river management could affect options for management of many game and nongame species. Of particular interest are big game species—primarily mule deer, bighorn sheep, and Rocky Mountain elk—and their respective wintering habitats. Additionally, several fur-bearing species (e.g., mink, otter, raccoon) and nongame mammals and birds inhabit the areas year-round. The corridors contain portions of the sole remaining habitat of the Pawnee montane skipper butterfly and have been found to be suitable habitat for the Prebles jumping mouse. The corridors also provide wintering habitat for bald eagles, and peregrine falcons nest just outside the North Fork corridor. These raptors hunt extensively in the corridor. The Pawnee montane skipper, Prebles jumping mouse, and bald eagle are listed as threatened under the Federal Endangered Species Act. Peregrine falcons are a Forest Service Region 2 Management Indicator Species (MIS). Additionally, any loss of riparian cover could have an adverse effect on a wide variety of game and nongame animal species.

The “Recreation, Wildlife, Scenery, and Other Values Plan” in Alternative A2 establishes a management structure and identifies concerns to be addressed in a future “Comprehensive Recreation Management Plan.” Issues raised in the review process were:

- ◆ Recreation values are emphasized over wildlife values, particularly in the important wildlife corridor in Wildcat Canyon.
- ◆ The Pawnee montane skipper needs management protection even if it is delisted by the U.S. Fish and Wildlife Service.

Specific Concerns

- ◆ Protection of endangered and threatened species and their habitat.
- ◆ Protection of migration routes and connecting corridors.
- ◆ Winter range for bighorn sheep, elk, and deer.
- ◆ Nongame species populations and habitat.
- ◆ Effects of protection of wildlife ORVs on rights of adjacent private property owners.
- ◆ Accessibility (e.g., access of wildlife to habitat and protection of wildlife from various human-caused pressures).

The issue is: How to best protect and enhance the game and nongame species in the corridors.

RECREATION

Changes in river management could affect recreational use of the river. Recreation use in the river corridor influences the local counties economically, socially, and biologically.

The "Recreation, Wildlife, Scenery, and Other Values Plan" outlined in Alternative A2 recommends a preferred management scenario of a Forest Service and Colorado State Parks partnership, working with Denver Water and the counties. The Denver Water lands would be managed for public recreation access in conjunction with other public lands in the river corridor. Issues raised in the review process were:

- ◆ How would the Forest Service–Colorado State Parks partnership be structured and funded?
- ◆ What would be the alternative if a Forest Service–Colorado State Parks partnership did not work out?
- ◆ Private landowners are concerned about impacts to their lands and county services from increased number of recreationists.

- ◆ Off-highway-vehicle enthusiasts want to maintain access to the challenging road network in Segment C, Wildcat Canyon.

However, given the current economy and the budget shortfall of the State of Colorado, the involvement of State parks in the foreseeable future appears unlikely. The recommendation, currently, is for an interim partnership among the Forest Service, Denver Water, Jefferson County, and Douglas County to cooperatively manage portions of the area.

Specific Concerns

- ◆ Motorized and nonmotorized use opportunities, especially the opportunity for continued motorized use between Cheesman Reservoir and Lake George.
- ◆ Conflicts between motorized and nonmotorized use in the area between Cheesman Reservoir and Lake George.
- ◆ Conflicts between other types of public recreational use (such as mountain bikes and hikers on the Gill Trail).
- ◆ How camping, fishing, hiking, driving, and boating for pleasure might affect the riverine environment.
- ◆ Level of recreation development (access points, campground development, etc.).
- ◆ Importance of preserving one of the best river-related recreation experiences (fishing, hiking, camping, wildlife viewing, driving for pleasure) in close proximity to the Denver metropolitan area.
- ◆ Importance of the area as a recreational safety valve for a natural recreation experience—i.e., solitude.
- ◆ Protection of primitive backcountry recreational opportunities in portions of the study area.
- ◆ Preserving the quality and recognizing the economic importance of this area's fly

fishing experience (most technically challenging in the State) and other family-oriented fishing activities.

- ◆ Prevention of overuse during peak seasonal periods.
- ◆ Maintaining a high-quality recreational experience.
- ◆ Possible overuse because of designation.

The issue is: How to best provide opportunities for a quality river-related recreation experience in the future.

SCENERY AND GEOLOGY

Changes in river management could affect the scenic and geologic qualities of the study corridors. Steadily increasing recreational use is already having its effect.

Specific Concerns

- ◆ Intentional and unintentional changes in scenic quality due to human disturbance.
- ◆ Changes in vegetation.
- ◆ Scenic impact of mineral-resource exploration and development.
- ◆ Scenic impact due to inundation by new or expanded reservoirs.

The issue is: How to protect and enhance the scenic and geologic qualities of the corridors.

CULTURAL RESOURCES (INCLUDING ARCHAEOLOGICAL RESOURCES)

Changes in river management could affect cultural resource sites.

Specific Concerns

- ◆ Protection of historic railroading and tourism sites.

- ◆ Interpretation of historic and prehistoric uses and peoples of the area.
- ◆ Identification of sites, where appropriate, with signs and brochures.

The issue is: How to protect the cultural resources in the corridors.

SOCIAL AND ECONOMIC CONSIDERATIONS

Changes in how the river corridors are managed can alter the mix and the scope of economic opportunities as well as the mix and magnitude of impacts on social values.

Specific Concerns (About Federal Wild and Scenic River Designation)

- ◆ Potential growth limitations, quality of life, and economic impacts to the Denver metropolitan area imposed by designation (i.e., flow regulation, storage limitations, takings, impairment of municipalities' water development plans, and potential cost of alternate water supply studies).
- ◆ Importance of recreation and tourism supported by the study rivers to local economies, and the possible impacts to these economies from designation or non-designation.
- ◆ Issues of equity (i.e., those who benefit from changes are rarely the same as those who are negatively affected).
- ◆ Protection of the quality of life in the Front Range through protection of its scenic and recreational treasures.
- ◆ Mistrust of Federal Government.
- ◆ Fear of more Federal control of citizens' lands and lives.
- ◆ Fear of the loss of a way of life.
- ◆ Additional costs to counties to help administer a Wild and Scenic corridor.

- ◆ Recognition that the amenities of the corridors may have a social and economic value in their own right.
- ◆ Unavailability of mineral resources or timber due to acts of government.
- ◆ Fear of another layer of bureaucracy and waste of taxpayer's money.

The issue is: How to manage the corridors to protect and enhance the ORVs while minimizing social and economic impacts to local private landowners and the water providers and water users in the Denver and Colorado Springs metropolitan areas.

IMPLEMENTATION AND ENFORCEMENT

The South Platte Protection Plan would be implemented through a series of agreements between the governmental agencies making commitments. Private parties, companies, organizations, and other entities that are not parties to the agreements could make use of the Federal Administrative Procedures Act as an enforcement mechanism. The supplemental material to the A2 proposal submitted in June of 2001 included proposed language for an amendment to the Forest Plan to further protect river values. This was seen as a mechanism for third-party enforcement on National Forest lands. The following issues were raised in the review process:

- ◆ The Forest Service must retain the option to recommend designation in the future if a local alternative is selected but eventually is determined to not adequately protect the ORVs, water quality, or free-flow.
- ◆ Should the SPPP be accepted just because likelihood of a successful designation recommendation is low? How would acceptance of the SPPP affect the likelihood of a successful designation recommendation in the future?

- ◆ Memorandums of understanding (MOU) and Forest Land and Resource Management Plans do not provide the same permanent protection as congressional designation.
- ◆ The public needs to be involved in developing and enforcing the implementing agreements. There needs to be a third-party mechanism to enforce the agreement.
- ◆ The public needs to be involved in periodic reviews of the implementation of this decision.
- ◆ Can the finding of eligibility be maintained if the SPPP is implemented?
- ◆ Can the SPPP be implemented and the decision on suitability delayed to allow for evaluation of its effectiveness?

4.3 DESCRIPTION OF ALTERNATIVES

This section presents the 10 alternatives considered in detail.

ALTERNATIVE A1

This is the “no action” or “no change” alternative. It describes the existing situation and serves as a baseline to evaluate the other alternatives. Under this alternative, current management of the river corridors would continue under the Forest Plan, none of the eligible study segments would be found suitable for addition to the National Wild and Scenic Rivers System or for any other special Federal designation (see table 4-1). Adoption of this alternative would mean that no new programs, protection measures, or designations would be implemented. There would be no further efforts to coordinate management activities in the corridors beyond what currently exists. The

corridor boundaries for Alternative A1 are shown in map 4-1.

Table 4-1.—Alternatives A1, A2, and A3 – Segments Recommended for Designation

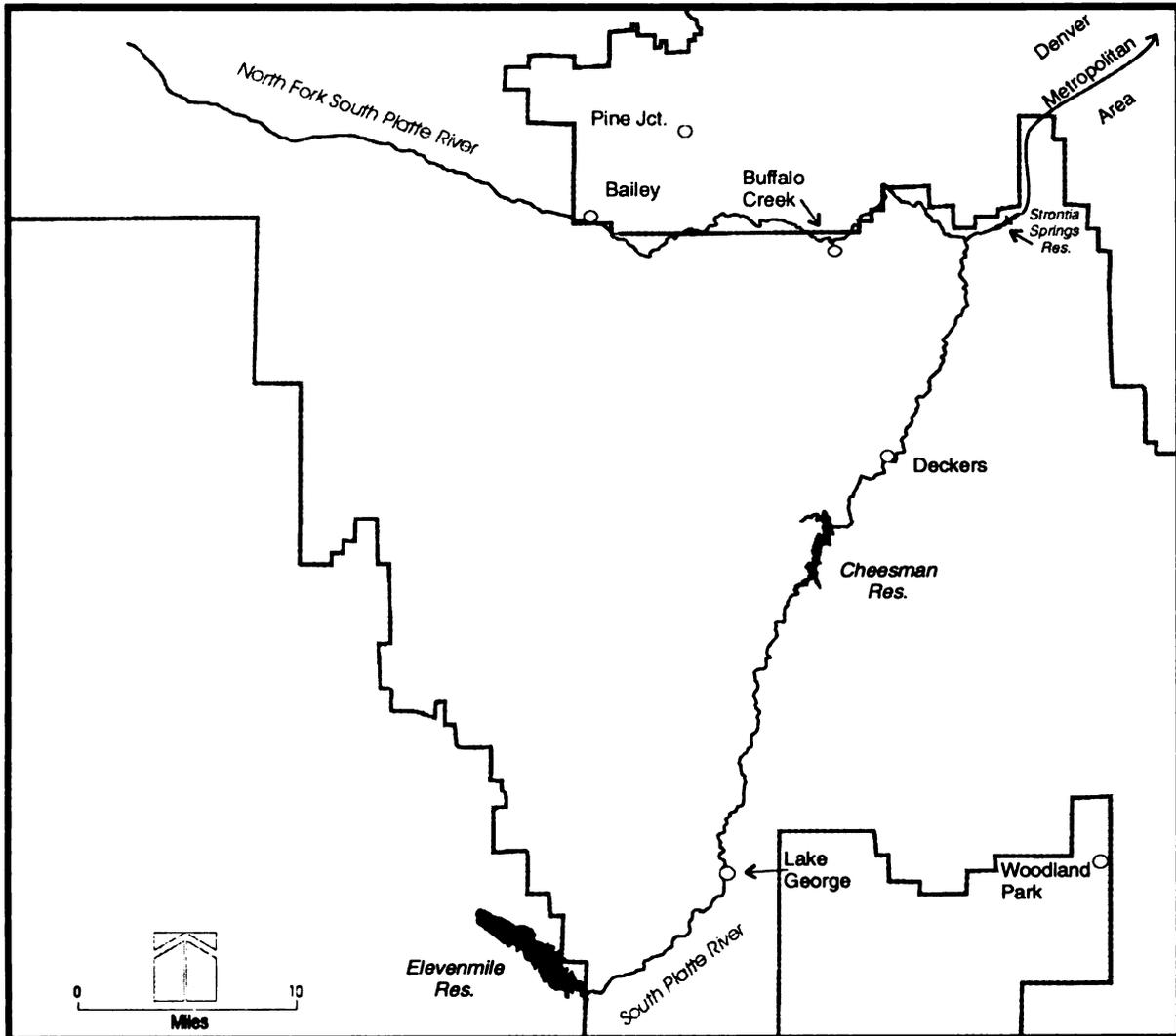
Segment	Length	Classification	Description
None recommended	0	None	No river segments recommended for designation

ALTERNATIVE A2

This is the “no action with ORVs protected” alternative. It is an outgrowth of a concept originally posed as Alternative H during scoping (See section 4.5), and it responds to an expression of interest raised by the local community to find a local solution to the challenge of protecting the rivers' ORVs. The purpose of the South Platte Protection Plan is to protect the ORVs identified by the Forest Service and preserve water supply functions without designating the river under the Wild and Scenic Rivers Act. These values are historical, fishery, geological, recreational, scenic, and wildlife resources. The SPPP also recognizes that Colorado’s Front Range communities rely heavily upon the South Platte for drinking water supply and other municipal and industrial uses and that agriculture throughout northeastern Colorado depends heavily on South Platte flows. The ORVs must be protected in the context of preserving these functions as well. The interests of all these communities can be maintained through common dialogue toward an approach in which the many values on the river—habitat, ecosystem, and human-based—can all be addressed in coordination and balance with one another. Mutual respect for the many important uses is central to the SPPP. It creates a cooperative management structure of local, State, and Federal agencies. The underlying principle is no loss of existing or future water supply.

The entire text of the SPPP is in Appendix A of this document. Its major components are summarized below.

1. **Protect Canyons.** A commitment not to build any water works facilities in Cheesman Canyon or Elevenmile Canyon.
2. **Streamflow Management Plan.** A series of commitments and goals to alter current water facility operations to protect and enhance fisheries. The following are obligations to be met by the responsible parties:
 - a. No loss of existing or future water supply.
 - b. Minimum outflows from Spinney Mountain, Elevenmile, and Cheesman Reservoirs. The minimum streamflow will be measured at the streamflow gage directly below the reservoirs. Aurora’s and Denver’s operating streamflow records will be the official record of the reservoir and tunnel releases for the Streamflow Plan. These records will be available upon request. Denver’s releases for minimum streamflows will be calculated by averaging the 24 “top-of-the-hour” readings 8:00 a.m. one day through 7:00 a.m. the next day. All top-of-the-hour gage readings must be no less than 80 percent of the minimum streamflow. Any daily or hourly violation will result in a penalty of \$10,000 per violation to be paid to the Endowment Fund (see number 5 below). This is the maximum penalty per daily period. The penalty will be indexed to the



Map 4-1.—South Platte River and North Fork of the South Platte River Wild and Scenic River Study—Alternatives A1, A2, and A3.

No action — No segments are recommended for designation under these alternatives. See text for further details.

Consumer Price Index and adjusted each year at the annual operating meeting. Any known failure to meet the minimum streamflow commitment will be reported to the Forest Service and the Colorado Division of Wildlife within 1 week of occurrence. Exemptions to this are:

- ◆ Minimum streamflows that are due to emergencies where public safety or dam safety are concerned and will be reported to the Forest Service.
 - ◆ Severe drought conditions when Aurora's or Denver Water's customers are on mandatory water use restrictions and the combined contents of Aurora's or Denver Water's major storage reservoirs are less than 40 percent full, the minimum outflow requirement at Spinney Mountain, Elevenmile, and Cheesman reservoirs (as appropriate) will be 20 cubic feet per second.
 - ◆ The hourly minimum will not apply when reservoirs are spilling (the daily minimum still applies). Reservoir outflows may be reduced below the hourly minimum for up to 2 hours to rate, clean, and maintain the streamflow gaging stations below the reservoirs.
- c. Ramping (changing gradually) outflow changes from Elevenmile and Cheesman Reservoirs and the Roberts Tunnel.
 - d. New valves, monitors, gages.
 - e. Channel work on North Fork to be coordinated with Colorado Division of Wildlife.
- f. Public input to annual operating plans.
 - g. Stream channel maintenance and improvement: the Forest Service, Division of Wildlife, water users, and other interested parties work together to identify degraded stream channel areas and sedimentation sources and develop instream channel improvement projects. Develop a stream habitat improvement plan.
 - h. The following represent desirable outcomes and goals for water suppliers to use as guidance in their operating decisions.
 - ◆ Operate Spinney Mountain, Elevenmile, and Cheesman Reservoirs to release stored water to maintain minimum outflow when inflow is low.
 - ◆ Operate Spinney Mountain, Elevenmile, and Cheesman Reservoirs for outflows in an optimum range the remainder of the year.
 - ◆ Operate Elevenmile and Cheesman outflow for optimal temperatures and ramping of daily temperature fluctuations to benefit fisheries below the dams.
 - ◆ Consideration of whitewater and fisheries in Roberts Tunnel discharges, within the limitations described in the Streamflow Management Plan.
 - ◆ Revise annual operating plans to limit fluctuations when the potential exists to harm vulnerable life stages of brown or rainbow trout.

Future water projects, especially those that would significantly extend bank-full stream conditions, would require an

analysis by the project proponent of channel capacity related to adequate protection of fisheries habitat and populations, channel stability, and maintenance of the ecosystem. The new project proponent is responsible for any necessary analysis and channel reconstruction. Changes to channel capacity should be accomplished by physically reconstructing the channel where necessary. These alterations should be achieved by means other than flow manipulation in order to maintain the ORVs in the river corridor. Proposals for flow and channel modification for new projects would be reviewed by the annual operations meeting participants.

3. **Partnership for Recreation, Wildlife, Scenery, and Other Values.** A management partnership between a qualified recreation management agency and the Forest Service is proposed for the mainstem of the river—from Elevenmile Reservoir to Chatfield Reservoir. Until the partnership is in place, the Forest Service, Denver Water, Jefferson County, and Douglas County would cooperatively manage portions of the area. The SPPP proposes recreation management by Jefferson County Open Space along portions of the North Fork, where the river flows through the park, and a special recreation area at Bailey Canyon to be managed by the Forest Service. (NOTE: The qualified recreation management agency in the SDLEIS was identified as Colorado State Parks. However, given the current economy and the budget shortfall of the State of Colorado, the involvement of State Parks in the foreseeable future appears unlikely.)
4. **Cooperative Water Quality Initiatives** would be implemented through the Coalition for the Upper South Platte (CUSP), which is

composed of interested local governments, agencies, and parties in the basin. This coalition (originally the Upper South Platte Watershed Protection Association) was triggered by this proposal but is expected to continue independent of the SPPP.

5. **Endowment Fund.** Front Range local governments and water suppliers would contribute at least \$1 million to be spent on the values identified by the Forest Service. A board would be convened within 90 days following a decision by the Forest Service to adopt the SPPP in lieu of designation. The fund would be fully financed within 3 ½ years.
6. **Enhancement Board.** A coordinating forum, possibly named the Friends of the South Platte River, Inc., would provide comments and responses on activities such as land use or land management planning decisions, as well as deciding expenditures from the endowment.
7. **Withdrawal of 1986 Applications for Conditional Storage Rights.** Both Denver Water and the Metropolitan Denver Water Authority would withdraw Water Court applications for 780,000 acre-feet of additional storage at the Two Forks reservoir site.
8. **Alternative to Development of Denver's Right-of-Way.** Denver Water and environmental groups have proposed a working relationship that could lead to alternative projects and allow Denver Water later to relinquish its 1931 right-of-way on the South Platte at the Two Forks site. As a demonstration of good faith in pursuing alternative projects, Denver Water would voluntarily impose a moratorium on applications for development of the right-of-way for a period of 20 years from formal acceptance of the SPPP.

9. Provision for Limited Development.

In addition, Denver Water and other present and future water suppliers would continue to have access to the river for operational and maintenance purposes, such as channel repair and stabilization, construction of sedimentation ponds and removal of sediment, and construction of diversion dams for off-channel reservoirs. It is expected that such projects, if any, would demonstrate, after mitigation, the lack of significant long-term adverse effects on the resource values identified and protected by the Plan (Attachment F).

Enforcement of the SPPP would be provided by a written agreement between the Forest Service and those entities making commitments within the SPPP. The agreement shall be written in a manner to provide for enforcement through the Administrative Procedures Act by citizens or groups with standing, using remedies similar to those that would be available if a river were designated under the WSRA. The agreement should provide for public participation in the event of (1) significant changes to the written agreement, (2) leases to Colorado State Parks or other major concessionaires, (3) adoption of a recreation management plan, or (4) changes to any existing recreation management plan. In all such cases, the public should have the opportunity to ascertain and comment on consistency of the proposed changes with the SPPP. Further enforcement would be provided through an amendment to the Forest Plan, which would provide protection for the ORVs and related resources on National Forest System lands within the river corridor. For forest lands, this could include providing special management area status in the study corridor similar to what exists for the Elevenmile Canyon area.

This alternative is silent on a finding of suitability. By remaining silent, the Forest Service would continue to protect the ORVs, water quality, and free-flow on eligible segments.

Additional measures that might be employed under this alternative to further protect the ORVs would include:

- ◆ Purchase of scenic easements, exchange agreements, water rights, or rights-of-way from willing sellers, where needed, to better protect the area.
- ◆ Acquisition of properties in the study corridor from willing sellers, through purchase or exchange, to ensure better resource protection.
- ◆ County or other local government acquisition of additional properties for park or open space from willing sellers in the study corridor.

ALTERNATIVE A3: MODIFIED SOUTH PLATTE PROTECTION PLAN

As described above, both the public and the Forest Service raised issues and concerns about the South Platte Protection Plan. The Modified South Platte Protection Plan, Alternative A3, was developed to respond to those issues and concerns. Alternative A3 builds on A2 by adding provisions directly related to the issues listed above. It recognizes water supply as a use of the river corridor to be continued while protecting the ORVs, water quality, and free-flow. The basic principle of no effect on water yield or supply and the multi-agency management framework are maintained. Alternative A3 is designed to more closely emulate the protection measures that would apply under a Wild and Scenic River designation utilizing existing Forest Service legal authorities. The protection measures would be effective only on National Forest lands. Non-National Forest lands would continue to be managed under the existing legal authorities implemented by other Federal, State, and local government agencies.

Major components of Alternative A3 are listed below.

1. All new dams or impoundments in the river corridor on Federal land are prohibited.
2. Any proposals for limited water development projects in the river corridor would be evaluated for potential effects to ORVs, free-flow, and water quality. The standard of review and resultant degree to which eligibility is protected would depend on which variation of A3 is assumed for analysis. See the following section on "Variations."
3. The Forest Service would work with Denver Water and the Colorado Division of Wildlife on stream reconstruction and habitat improvement projects on the North Fork and mainstem of the South Platte River.
4. The Forest Service would work with Denver Water, the Coalition for the Upper South Platte (formerly the Upper South Platte Protection Association), and other interest groups to conduct water quality restoration projects for sediment reduction and control, addressing problems caused by road maintenance, travel management, stream crossings, and degraded areas (e.g., Buffalo Creek and Hayman Fires).
5. The alternative would be implemented through a MOU between the Forest Service and other concerned agencies, listing the commitments of all involved parties. Citizen groups shall be involved with development of the MOU.
6. The potential interim cooperative recreation management agreement to include Forest Service, Denver Water, Jefferson County, and Douglas County would be addressed in the implementation of this decision, as part of the MOU development process.
7. All parties to the MOU, with extensive public involvement, shall coordinate management planning activities to address all river resources in an ecosystem management framework. The Forest Plan shall be used for management guidance on forest lands. Private landowner concerns about impacts from recreation users would be addressed in this planning effort.
8. The North Fork would be managed consistently with the Forest Plan, emphasizing big game species' winter range. Summer season dispersed recreation activities, with no road or facility development, are compatible with this management scheme.
9. The special emphasis on managing forest lands for the benefit of the Pawnee montane skipper would continue even if the skipper's "endangered" status is downgraded to "sensitive."
10. The Forest Service would work with interest groups to develop a management plan for Wildcat Canyon (Segment C) that addresses recreation use, wildlife corridors, ORVs, and water quality protection needs.
11. For any individual projects implementing the cooperative management plan, the Forest Service shall develop an agreement with the project proponent, whether the project is conducted by the project proponent alone or cooperatively with the Forest Service.
12. Any project funded by the Friends of the South Platte River, Inc., to take place on Forest Service lands, must first be analyzed and approved by the Forest Service.

13. Third party access to enforce the finding of eligibility will be through the Forest Plan.
14. The MOU shall include provisions for citizen group involvement in periodic management reviews of the decision implementation.
15. The Record of Decision shall include indicators to be used to measure changes to free-flow, ORVs, and water quality. Indications that these values are being threatened shall be sufficient cause for the Forest Service to initiate a suitability determination.
16. The Forest Service would apply to the Bureau of Land Management to withdraw the eligible river segments from mineral entry and development. This action, once approved, would prevent the filing of any new mining claims or location notices in this area. Existing claims would remain valid.
17. The Forest Plan would be amended as appropriate to reflect plan level aspects of Alternative A3.

Variations

The A2 process did not clearly identify whether the eligible segments were suitable for inclusion in the Wild and Scenic Rivers System. Suitability is a controversial topic because of its implications regarding long-term protection of ORVs and the rigidity of protection standards to be applied. In its review of the SPPP, the Forest Service found that it could not analyze the SPPP's long-term protective merits adequately without introducing the matter of suitability into the analysis. Accordingly, two variations of A3 were developed to represent a full range of suitability-related concepts for managing the South Platte and North Fork river corridors.

A3-Suitable.—Under this variation, eligible river segments are found suitable for inclusion in the

Wild and Scenic River System, but they are not recommended for designation at this time. The river corridor ORVs, free-flow, and water quality would be managed under a Federal/State/local government partnership using existing legal authorities to protect eligibility. River corridor management would be monitored and periodically reviewed to ensure continued protection. If partnership management is found to have failed—i.e., if the rivers' ORVs, free-flow, or water quality become threatened—the Forest Service would forward a designation recommendation for protection of the river corridor under the WSRA by an Act of Congress. A new dam proposal in the river corridor would trigger a designation recommendation, since the dam would be an imminent threat to the riverine character, ORVs, and free-flow.

Forest Service management standards for maintaining eligibility are in *Forest Service Handbook 1909.12*, Chapter 8, section 8.12 (see Appendix G):

1. To the extent the Forest Service is authorized under law (existing authorities only, not WSRA) to control stream impoundments and diversions, the free-flowing characteristics of the identified river cannot be modified.
2. ORVs of the identified river area must be protected and, to the extent practicable, enhanced.
3. Management and development of the identified river and its corridor cannot be modified to the degree that eligibility or classification would be affected (i.e., classification cannot be changed from wild to scenic or from scenic to recreational).

A3-Not Suitable.—Under this variation, eligible river segments are found not suitable at this time due to the need for flexibility to accommodate reasonably foreseeable future uses of the land and water which would be foreclosed or curtailed if the area were included,

or found suitable for inclusion, in the Wild and Scenic River System. The river corridor ORVs, free-flow, and water quality would be managed under a Federal/State/local government partnership using existing legal authorities to a standard that might be lower than one intended to maintain eligibility. River corridor resources would be monitored to ensure continued protection. If partnership management is found to have failed—i.e., if the rivers' ORVs, free-flow, or water quality become threatened unreasonably—the Forest Service could initiate a new suitability determination at that time and reconsider a designation recommendation for protection of the river corridor under the WSRA. A new dam proposal in the river corridor would trigger a new suitability determination since the dam would be an imminent threat to the riverine character, ORVs, and free-flow.

The management standards for maintaining river corridor ORVs, free-flow, and water quality would be used as goals rather than requirements. This variation would allow flexibility for limited project development that was deemed critical enough to allow limited effects to the ORVs or free-flow. Forest Service concerns for project proposals would be the same as under the *A3-Suitable* alternative, but there would be greater flexibility and range of considerations possible under *A3-Not Suitable*. Water quality would continue to be protected and enhanced to the standards provided in the Clean Water Act and the Safe Drinking Water Act.

Any proposals for limited developments would be evaluated using the procedures in *Forest Service Manual 2354* to analyze and document potential effects to ORVs, free-flow, or water quality. The full text of *Forest Service Manual 2354* is in Appendix G of this final environmental impact statement (FEIS). Project design and mitigation measures would

be identified so that the project would meet the management standards above to the extent possible.

A major concern was raised about whether the Forest Service might forgo any further consideration of designation if a local alternative were selected but was not successful in protecting the river. Alternative A3, therefore, includes a provision addressing this concern by creating a bilevel decision statement, which could be included in the Record of Decision. The decision statement for each Alternative A3 variation is as follows.

- ◆ **A3-Suitable:** The study area is determined to be suitable for designation to the Wild and Scenic River System, but a recommendation for designation would not be forwarded at this time. A partnership of Federal, State, and local government agencies would manage eligible segments of the river corridor to maintain eligibility as required by the WSRA. If the partnership is not successful and the Forest Service finds that eligibility is threatened, the Forest Service would forward a designation recommendation at that time.
- ◆ **A3-Not Suitable:** The study area is determined to be not suitable for designation to the Wild and Scenic River System at this time, and the study area is released for multiple-use management. The area would be managed by a partnership of Federal, State, and local government agencies with the goal of protecting river values as much as possible. If eligibility were threatened beyond a limited or reasonable level, the Forest Service would begin a new study to reanalyze suitability and would determine at that time whether to recommend designation for threatened portions of the rivers.

Summary of Public Involvement Features in Alternatives A2 and A3

Public involvement in management and oversight is a key element of the A2 and A3 alternatives. Alternative A2 includes:

- ◆ Citizen and nongovernmental group representation on the Enhancement Board,
- ◆ Open public meetings for the review of Denver Water's and Aurora's annual operating plans,
- ◆ Inclusion of area residents' concerns in the Recreation Management Plan process,
- ◆ Water-quality concerns addressed by the Upper South Platte Watershed Protection Association,
- ◆ Environmental group representation on Denver Water's water development task force,
- ◆ Public involvement whenever significant changes in written agreements or leases are proposed, or upon the adoption of a Recreation Management Plan, and
- ◆ Enforcement of agreements through the Administrative Procedures Act by citizens or groups with standing.

Alternative A3 adds several more opportunities for public involvement to the A2 alternative:

- ◆ Citizen and group involvement in developing an MOU for the implementing agencies,
- ◆ Citizen and group involvement in periodic reviews of selected alternative implementation, including consideration of pursuing a recommendation for designation, and
- ◆ Citizen and group involvement in development of the Wildcat Canyon Plan.

ALTERNATIVE B

Alternative B finds all eligible river segments *suitable* and recommends them for designation at their most protective classifications. The goal of this alternative is to add all eligible river segments to the Wild and Scenic Rivers System; maximize protection and enhancement of ORVs, free-flow, and water quality; and maintain system integrity. This alternative was developed as a result of concerns about how to ensure the best protection of the rivers' natural environment and ORVs. In this alternative, all of the eligible segments of the two study rivers, totaling 72.3 miles, would be recommended for addition to the National Wild and Scenic Rivers System (see map 4-2). Classification would be in accordance with the potential classifications as listed in table 4-2 and would total 10.5 miles *wild*, 7.9 miles *scenic*, and 53.9 miles *recreational*.

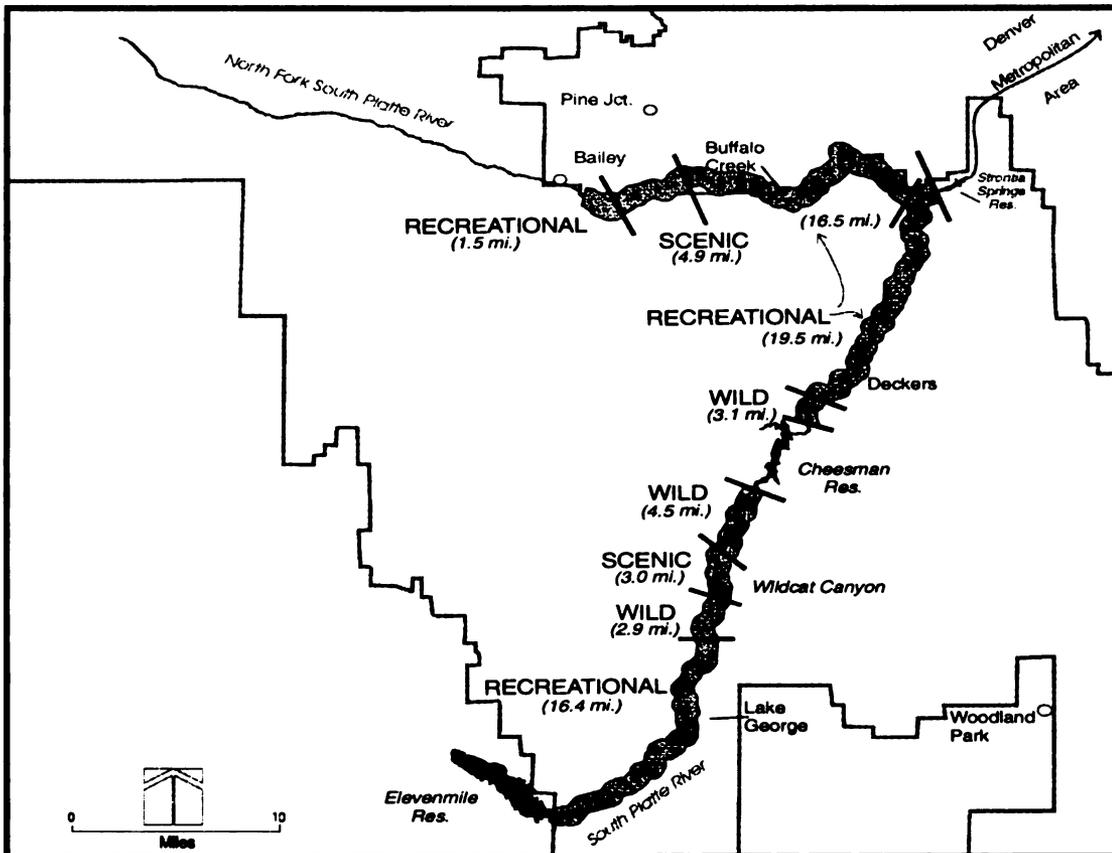
The corridor boundaries would average one-quarter mile from each riverbank; the exact boundary location would be determined as part of the management planning process after the river was designated.

ALTERNATIVE C

Like Alternative B, Alternative C finds all eligible river segments *suitable* and recommends them for designation. All segments are recommended at their most protective classification, except that the classification of the 10.4-mile segment of the South Platte River from Cheesman Reservoir to Beaver Creek would be *scenic* for its entire length. The goal of this alternative is to add all eligible river segments to the Wild and Scenic Rivers System, provide protection and enhancement of the ORVs, maintain system integrity, and follow the current Forest Plan direction. This alternative was developed as a result of concerns expressed by some stakeholders who wished to ensure protection of the river's natural environment and ORVs while allowing a wider range of natural resource management, including continued off-highway-vehicle use between Beaver Creek and

Table 4-2.—Alternative B – Segments Recommended for Designation

Segment	Length (miles)	Classification	Description
A and B - South Platte	16.4	Recreational	From Elevenmile Dam (downstream from fence on Denver Water's special-use area) downstream to Beaver Creek (northernmost boundary of private land).
C1 - South Platte	2.9	Wild	From Beaver Creek downstream to 1/4 mile upstream of Hackett Gulch.
C2 - South Platte	3.0	Scenic	From 1/4 mile upstream of Hackett Gulch downstream to 1/4 mile downstream of Corral Creek.
C3 - South Platte	4.5	Wild	From 1/4 mile downstream of Corral Creek to high-water line of Cheesman Reservoir (upstream of the stream gage).
D - South Platte	3.1	Wild	From Cheesman Dam (downstream of the stream gage weir) downstream to Wigwam property (southern end).
E - South Platte	19.5	Recreational	From the Wigwam property downstream to the high water line of Strontia Springs Reservoir (6029-foot contour).
H1 - North Fork	1.5	Recreational	From Insmont downstream to Estabrook (downstream side of stone house).
H2 - North Fork	4.9	Scenic	From Estabrook downstream to Cliffdale (the section line between sections 29 and 30 east of Cliffdale).
H3 - North Fork	16.5	Recreational	From Cliffdale downstream to within 1/4 mile of the confluence with the South Platte River.
Total	72.3		



Map 4-2.—South Platte River and North Fork of the South Platte River Wild and Scenic River Study—Alternative B.

Maximizes protection and enhancement of ORVs.

Cheesman Reservoir. In this alternative, all of the eligible segments of the two study rivers, totaling 72.3 miles, would be recommended for addition to the National Wild and Scenic Rivers System. Classification would be in accordance with potential classifications as listed in table 4-3 and would total 3.1 miles *wild*, 15.3 miles *scenic*, and 53.9 miles *recreational* (map 4-3).

The corridor boundaries would average one-quarter mile from each riverbank; the exact boundary location would be determined as part of the management planning process after the river was designated.

ALTERNATIVE D

Alternative D finds all eligible South Platte River segments *suitable* and recommends them for designation at their most protective classification, but finds the North Fork *not suitable* for designation. The goal of this alternative is to add all eligible South Platte River segments to the Wild and Scenic Rivers System, maximizing protection and enhancement of the ORVs and maintaining system integrity. This alternative was developed as a result of concerns to ensure the best protection of the South Platte River's natural environment and ORVs. The chief assumptions underlying this alternative are that:

1. The current operations of the Roberts Tunnel might be affected by designation either on the North Fork; and
2. The influence of transbasin diversions is greater on the North Fork than on the South Platte.

In this alternative, all eligible segments on the South Platte River, totaling 49.4 miles, would be recommended for addition to the National Wild and Scenic Rivers System. Classification would be in accordance with potential classifications as listed in table 4-4 and would total 10.5 miles *wild*, 3.0 miles *scenic*, and 35.9 miles *recreational* (map 4-4).

The corridor boundaries would average one-quarter mile from each riverbank; the exact boundary location would be determined as part of the management planning process after the river was designated.

ALTERNATIVE F

Alternative F recommends the designation of one small segment on the North Fork and four small segments on the South Platte that are entirely on National Forest System land and have no encumbrances. The goal of this alternative is to protect the ORVs while minimizing the potential and/or perceived effects of designation on private property rights and on Denver Water's ability to exercise its 1931 right-of-way for a reservoir from the confluence of the North Fork and the South Platte to Deckers.

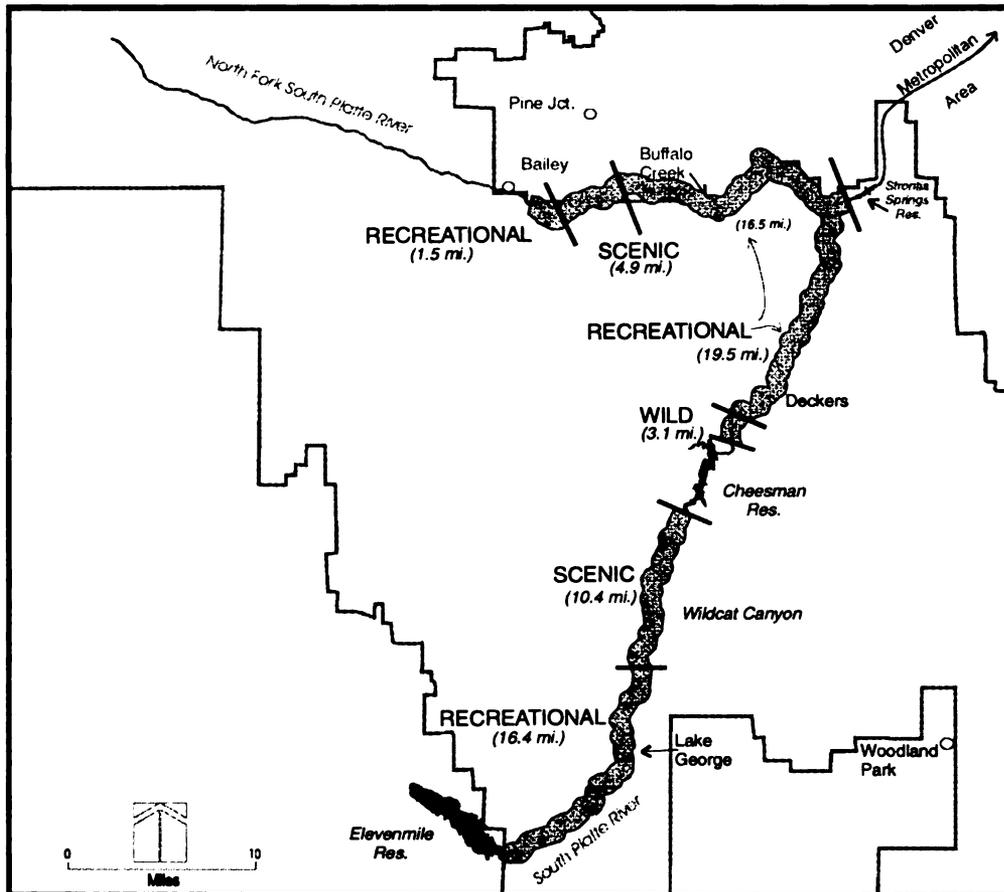
In this alternative, five segments of the two rivers, totaling 26.2 miles, would be recommended for addition to the National Wild and Scenic Rivers System. Only National Forest System lands within the following segments would be recommended for the classifications shown below:

- ◆ North Fork, Estabrook to Crossons — *Scenic*
- ◆ South Platte, Elevenmile Dam to Lake George — *Recreational*
- ◆ South Platte, Tappan Gulch to Vermillion Creek — *Recreational*
- ◆ South Platte, Beaver Creek and Cheesman Reservoir — *Wild*
- ◆ South Platte, Cheesman Dam to the Wigwam property — *Wild*

Classification would be in accordance with potential classifications as listed in table 4-5 and would total 10.5 miles *wild*, 5.6 miles *scenic*, and 10.1 miles *recreational* (map 4-5).

Table 4-3.—Alternative C – Segments Recommended for Designation

Segment	Length (miles)	Classification	Description
A and B - South Platte	16.4	Recreational	From Elevenmile Dam (downstream from fence on Denver Water's special-use area) downstream to Beaver Creek (northernmost boundary of private land).
C - South Platte	10.4	Scenic	From Beaver Creek downstream to high-water line of Cheesman Reservoir (upstream of the stream gage).
D - South Platte	3.1	Wild	From Cheesman Dam (downstream of the stream gage weir) downstream to Wigwam property (southern end).
E - South Platte	19.5	Recreational	From the Wigwam property downstream to the high water line of Strontia Springs Reservoir (6029-foot contour).
H1 - North Fork	1.5	Recreational	From Insmont downstream to Estabrook (downstream side of stone house).
H2 - North Fork	4.9	Scenic	From Estabrook downstream to Cliffdale (the section line between sections 29 and 30 east of Cliffdale).
H3 - North Fork	16.5	Recreational	From Cliffdale downstream to within 1/4 mile of the confluence with the South Platte River.
Total	72.3		

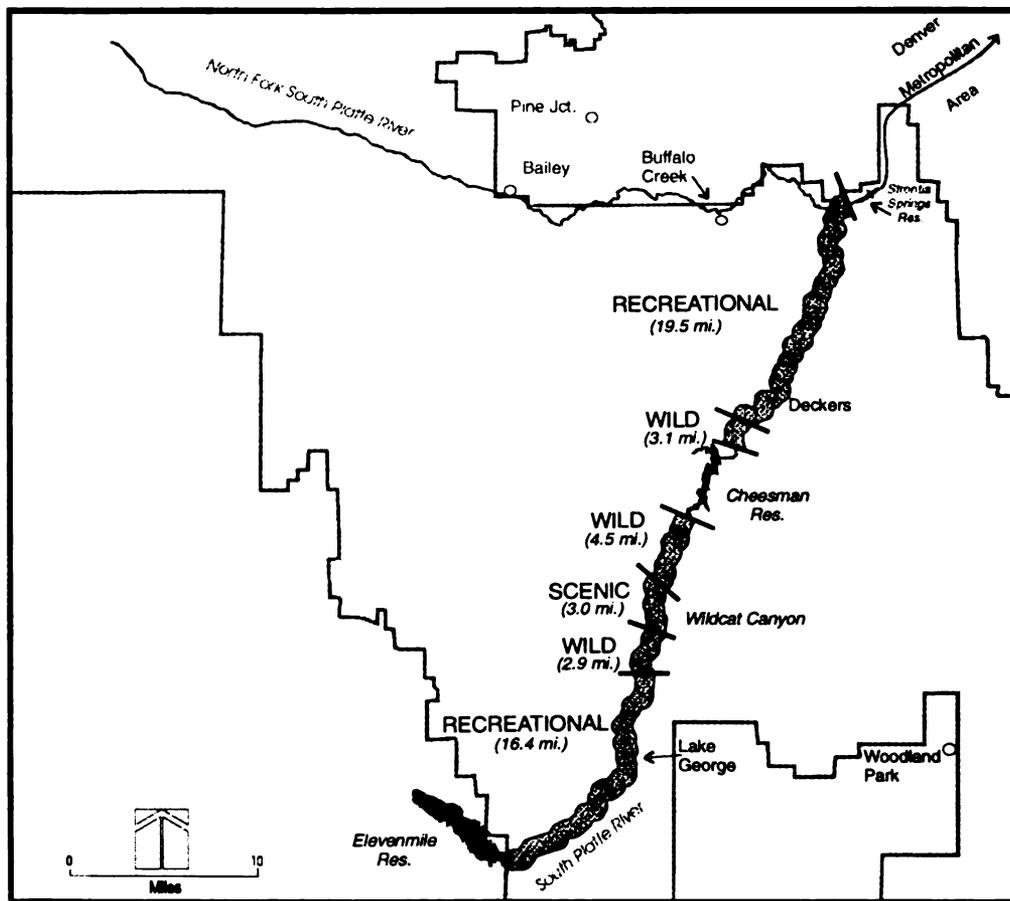


Map 4-3.—South Platte River and North Fork of the South Platte River Wild and Scenic River Study—Alternative C.

Protects and enhances ORVs while allowing for off-highway vehicle use in Wildcat Canyon south of Cheesman Reservoir.

Table 4-4.—Alternative D – Segments Recommended for Designation

Segment	Length (miles)	Classification	Description
A and B - South Platte	16.4	Recreational	From Elevenmile Dam (downstream from fence on Denver Water's special-use area) downstream to Beaver Creek (northernmost boundary of private land).
C1 - South Platte	2.9	Wild	From Beaver Creek downstream to 1/4 mile upstream of Hackett Gulch.
C2 - South Platte	3.0	Scenic	From 1/4 mile upstream of Hackett Gulch downstream to 1/4 mile downstream of Corral Creek.
C3 - South Platte	4.5	Wild	From 1/4 mile downstream of Corral Creek to high-water line of Cheesman Reservoir (upstream of the stream gage).
D - South Platte	3.1	Wild	From Cheesman Dam (downstream of the stream gage weir) downstream to Wigwam property (southern end).
E - South Platte	19.5	Recreational	From the Wigwam property downstream to high-water line of Strontia Springs Reservoir (6029-foot contour).
Total	49.4		

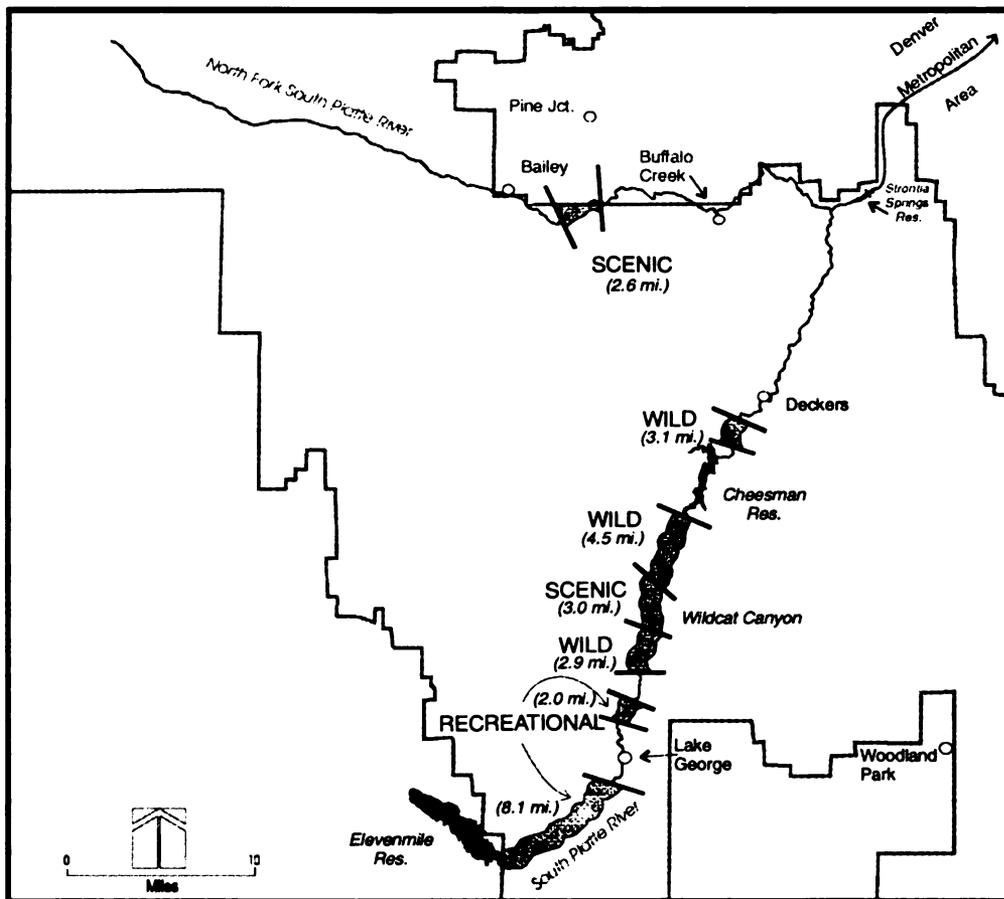


Map 4-4.—South Platte River and North Fork of the South Platte River Wild and Scenic River Study—Alternative D.

Provides for (protection and enhancement of ORVs and (2) water delivery, by recommending the South Platte for designation while not recommending the North Fork.

Table 4-5.—Alternative F – Segments Recommended for Designation

Segment	Length (miles)	Classification	Description
A - South Platte	8.1	Recreational	From Elevenmile Dam (downstream from fence on Denver Water's special-use area) downstream to Lake George (southern boundary of private property upstream from Lake George, not including Boy Scout Camp Alexander).
B - South Platte	2.0	Recreational	National Forest System land between Tappan Gulch and Vermillion Creek.
C1 - South Platte	2.9	Wild	From Beaver Creek downstream to 1/4 mile upstream of Hackett Gulch.
C2 - South Platte	3.0	Scenic	From 1/4 mile upstream of Hackett Gulch downstream to 1/4 mile downstream of Corral Creek.
C3 - South Platte	4.5	Wild	From 1/4 mile downstream of Corral Creek to high-water line of Cheesman Reservoir (upstream of the stream gage).
D - South Platte	3.1	Wild	From Cheesman Dam (downstream of the stream gage weir) downstream to Wigwam property (southern end).
H - North Fork	2.6	Scenic	From National Forest System lands downstream from Estabrook, downstream to Pike National Forest Boundary.
Total	26.1		



Map 4-5.—South Platte River and North Fork of the South Platte River Wild and Scenic River Study—Alternative F.

Maximizes protection and enhancement of ORVs on Federal lands only.

The corridor boundaries would average one-quarter mile from each riverbank; the exact boundary location would be determined as part of the management planning process after the river was designated.

ALTERNATIVE G

Alternative G finds all eligible segments of the South Platte upstream from the gaging station above Cheesman Reservoir (26.8 miles) *suitable* and recommends them for designation at their most protective classification. This alternative finds the North Fork and Segments D and E of the South Platte River *not suitable* for designation. The goal of this alternative is to provide protection for some of the ORVs while lessening the potential and/or perceived effects of designation on private property rights and on Denver Water's ability to exercise its 1931 right-of-way for a reservoir from the confluence of the North Fork and the South Platte to Deckers. It also allows for continued off-highway vehicle use between Beaver Creek and Cheesman Reservoir.

The chief assumptions underlying this alternative are that:

1. The current operations of the Roberts Tunnel might be affected by designation either on the North Fork or on the mainstem between the confluence and Strontia Springs Reservoir;
2. The influence of transbasin diversions is greater on the North Fork than on the South Platte; and
3. Potential storage sites downstream from Cheesman Reservoir would be foreclosed by designation.

Classification would be in accordance with potential classifications as listed in table 4-6 and would total 7.4 miles *wild*, 3.0 miles *scenic*, and 16.4 miles *recreational* (map 4-6).

ALTERNATIVE I

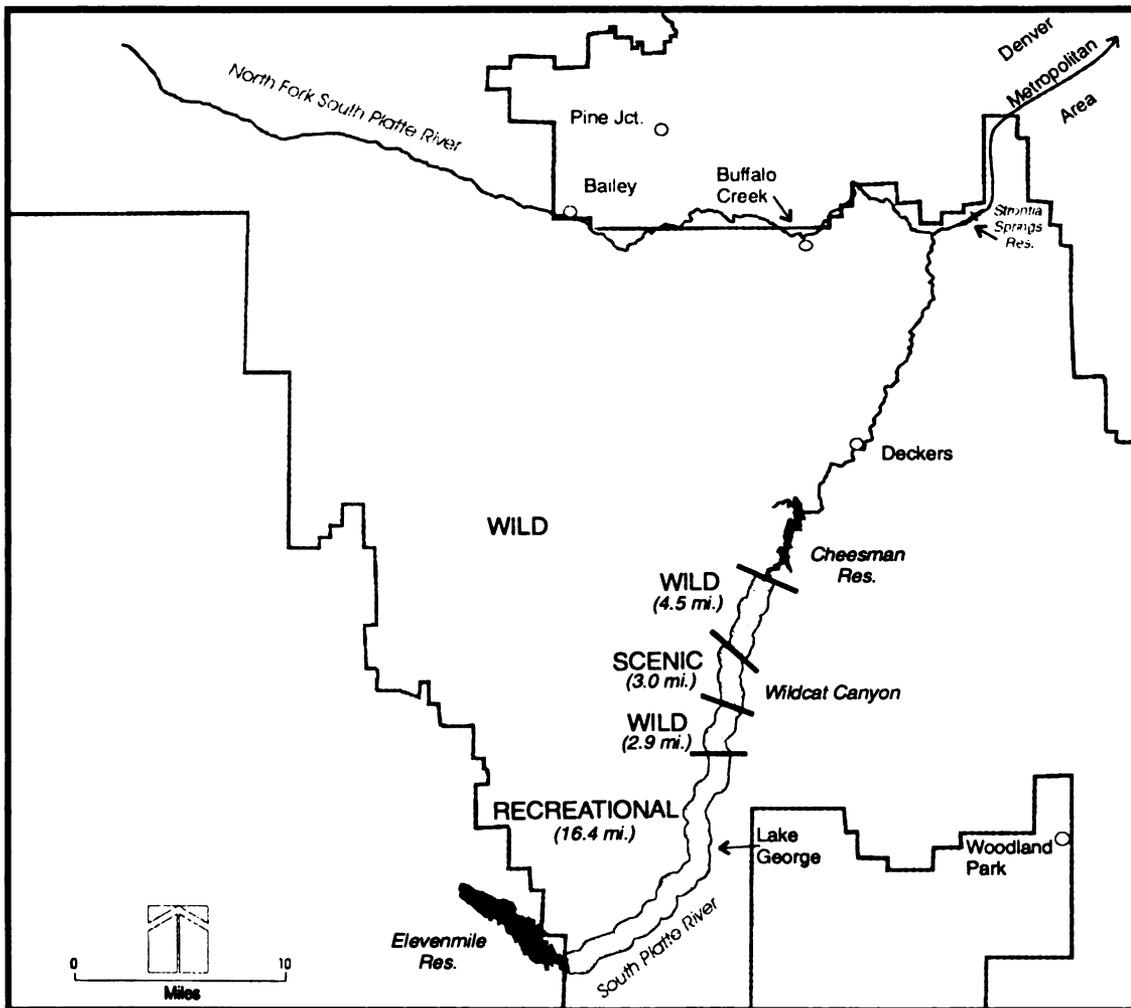
Alternative I recommends a *scenic* designation for the 6.0-mile stretch of the South Platte River from Corral Creek to Beaver Creek and a *recreational* designation for the 16.4-mile stretch of the South Platte from Beaver Creek to Elevenmile Dam. This alternative finds the North Fork and Segments C3, D, and E of the South Platte River *not suitable* for designation. The goal of this alternative is similar to that of Alternative G: to protect and enhance ORVs upstream from Corral Creek while lessening the potential and/or perceived effects of designation on private property rights and on Denver Water's ability to exercise its 1931 right-of-way for a reservoir from the confluence of the North Fork and South Platte to Deckers. This alternative also provides for the protection and enhancement of ORVs upstream from Corral Creek while allowing for the possibility of additional water storage (especially from a potential Cheesman expansion) and facilitates continued water delivery, current water operations, and channel maintenance. It also would allow the continued use of off-highway vehicles between Beaver Creek and Corral Creek.

The goal of this alternative is to designate only those South Platte River segments for which Wild and Scenic River designation would have the least potential adverse effect on water delivery and potential storage. The chief assumptions of this alternative are that:

1. The current operations of the Roberts Tunnel might be affected by designation either on the North Fork or on the mainstem between the confluence and Strontia Springs Reservoir;
2. The influence of transbasin diversions is greater on the North Fork than on the South Platte; and
3. Potential storage sites downstream from Corral Creek would be foreclosed by designation.

Table 4-6.—Alternative G – Segments Recommended for Designation

Segment	Length (miles)	Classification	Description
A and B - South Platte	16.4	Recreational	From Elevenmile Dam (downstream from fence on Denver Water's special-use area) downstream to Beaver Creek (northernmost boundary of private land).
C1 - South Platte	2.9	Wild	From Beaver Creek downstream to 1/4 mile upstream of Hackett Gulch.
C2 - South Platte	3.0	Scenic	From 1/4 mile upstream of Hackett Gulch downstream to 1/4 mile downstream of Corral Creek.
C3 - South Platte	4.5	Wild	From 1/4 mile downstream of Corral Creek to high-water line of Cheesman Reservoir (upstream of the stream gage).
Total	26.8		



Map 4-6.—South Platte River and North Fork of the South Platte River Wild and Scenic River Study—Alternative G.

Maximizes protection and enhancement of ORVs on areas of the South Platte River upstream from Denver Water's reservoir right-of-way.

Classification would be in accordance with potential classifications as listed in table 4-7 and would total 6.0 miles *scenic* and 16.4 miles *recreational* (map 4-7).

The corridor boundaries would average one-quarter mile from each riverbank; the exact boundary location would be determined as part of the management planning process after the river was designated.

ALTERNATIVE J

Alternative J finds the North Fork and 1.3 miles of the mainstem of the South Platte River from the confluence to Strontia Springs Reservoir *not suitable* for designation but finds portions of the South Platte River from the confluence of the North Fork to Elevenmile Dam *suitable* and recommends them for designation into the National Wild and Scenic Rivers System. Recommended classifications are:

- ◆ From North Fork confluence to the Wigwam Club property — *Recreational*
- ◆ From Wigwam Club property to Cheesman Dam — *Wild*
- ◆ From Cheesman Reservoir to one-quarter mile downstream of Corral Creek — *Wild*
- ◆ From one-quarter mile downstream of Corral Creek to one-quarter mile upstream of Hackett Gulch — *Scenic*
- ◆ From one-quarter mile upstream of Hackett Gulch to Beaver Creek confluence — *Wild*
- ◆ From Beaver Creek confluence to Elevenmile Dam — *Recreational*

The goal of this alternative is to provide protection and enhancement of the ORVs and maintain the integrity of the water-delivery system. This alternative was developed to balance the concerns for maintaining water delivery and storage capability with the protection of the area's natural environment and ORVs while still meeting present uses. The chief assumptions underlying this alternative are that:

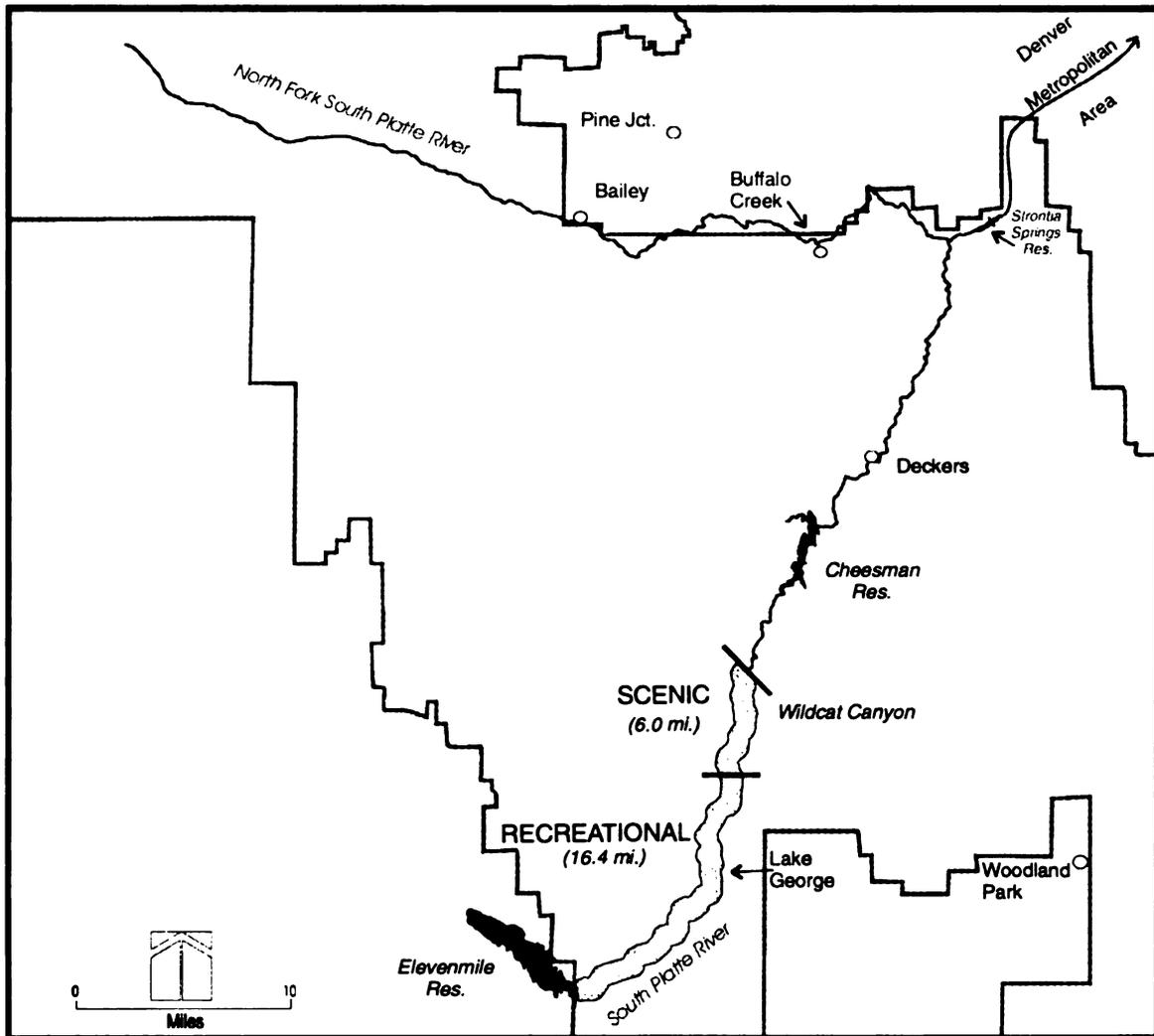
1. The current operations of the Roberts Tunnel might be affected by designation either on the North Fork or on the mainstem between the confluence and Strontia Springs Reservoir;
2. The influence of transbasin diversions is greater on the North Fork than on the South Platte; and
3. The ORVs identified in Segment E are not as prevalent in the section between the confluence with the North Fork and Strontia Springs Reservoir.

In this alternative, all eligible segments on the South Platte River, except from the confluence to Strontia Springs Reservoir, would be recommended for addition to the National Wild and Scenic Rivers System. Classification would be in accordance with potential classifications as listed in table 4-8 and would total 10.5 miles *wild*, 3.0 miles *scenic*, and 34.6 miles *recreational* (map 4-8).

The corridor boundaries would average one-quarter mile from each riverbank; the exact boundary location would be determined as part of the management planning process after the river was designated.

Table 4-7.—Alternative I – Segments Recommended for Designation

Segment	Length (miles)	Classification	Description
A and B - South Platte	16.4	Recreational	From Elevenmile Dam (downstream from fence on Denver Water's special-use area) downstream to Beaver Creek (northernmost boundary of private land).
C - South Platte	6.0	Scenic	From Beaver Creek downstream to Corral Creek.
Total	22.4		

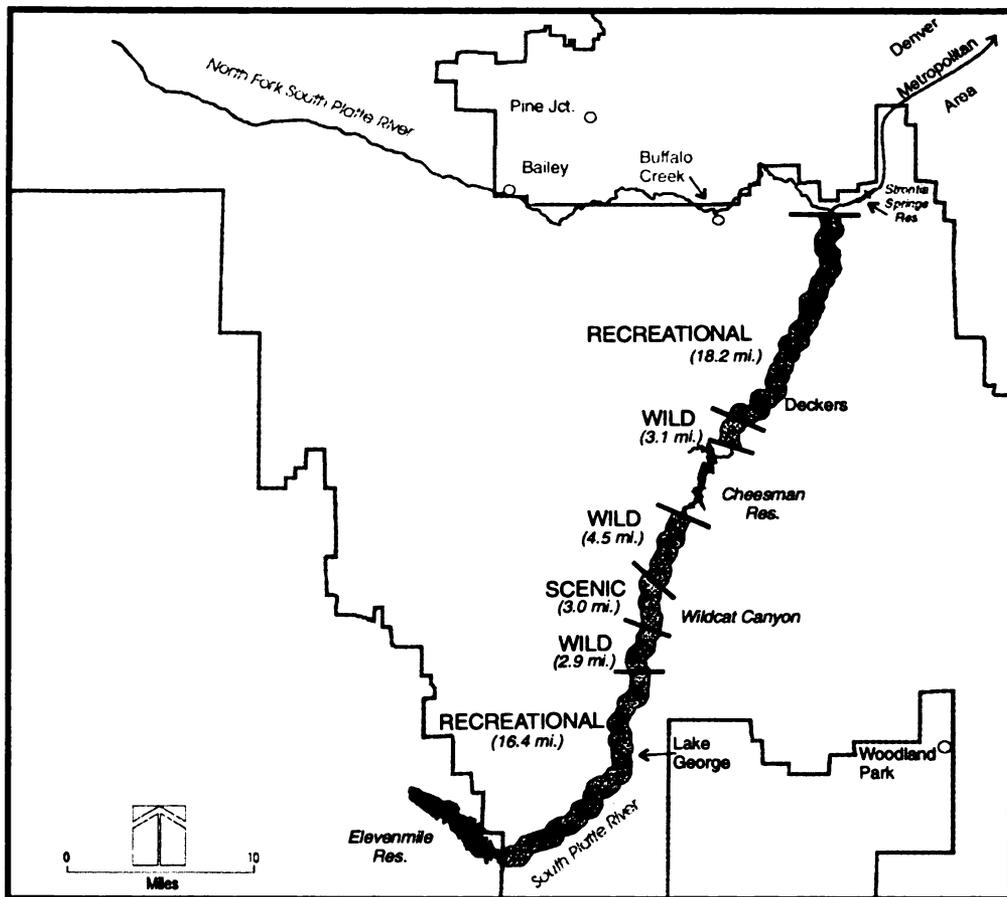


Map 4-7.—South Platte River and North Fork of the South Platte River Wild and Scenic River Study—Alternative I.

Protects and enhances ORVs on areas of the South Platte River upstream from potential expansion of Cheesman Reservoir, while allowing for off-highway vehicle use in Wildcat Canyon south of Cheesman Reservoir.

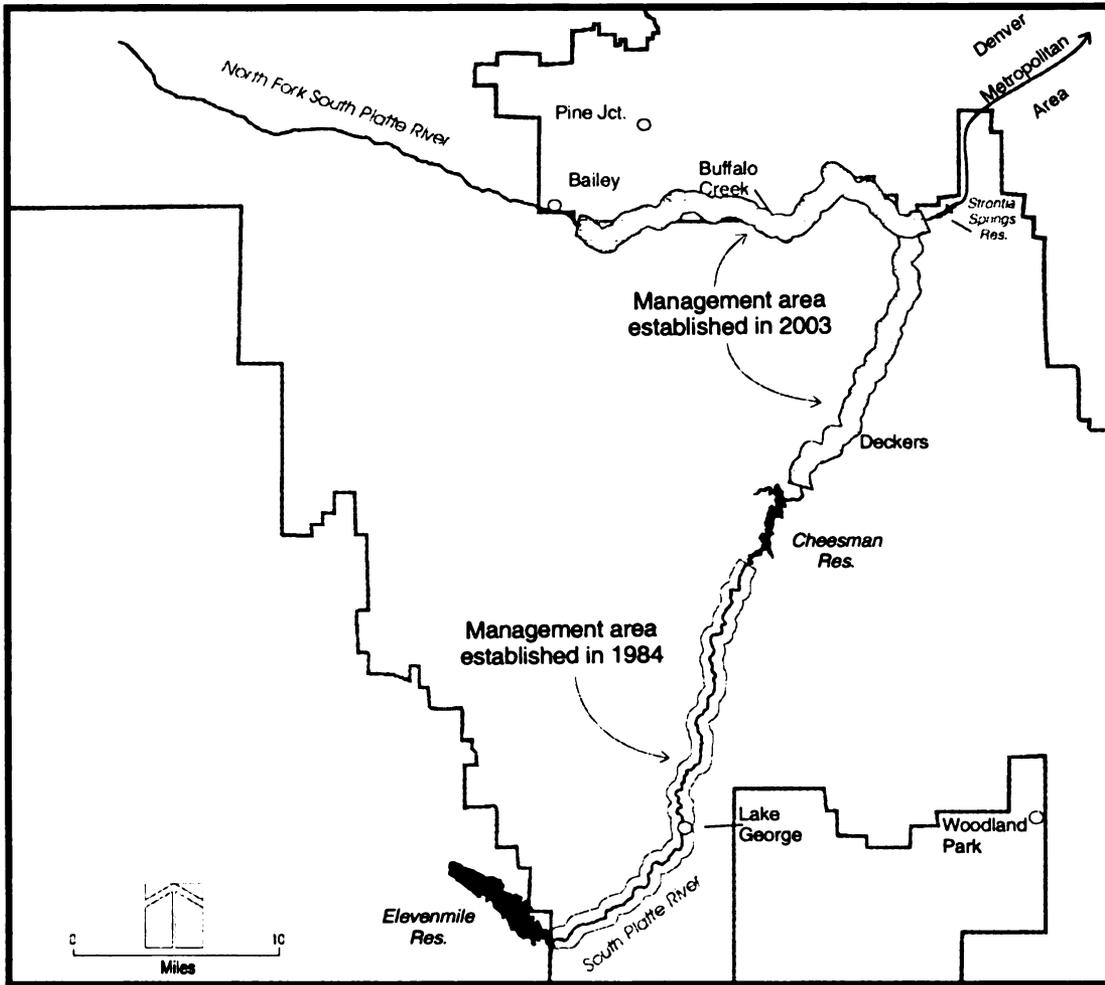
Table 4-6.—Alternative J – Segments Recommended for Designation

Segment	Length (miles)	Classification	Description
A and B - South Platte	16.4	Recreational	From Elevenmile Dam (downstream from fence on Denver Water's special-use area) downstream to Beaver Creek (northernmost boundary of private land).
C1 - South Platte	2.9	Wild	From Beaver Creek downstream to 1/4 mile upstream of Hackett Gulch.
C2 - South Platte	3.0	Scenic	From 1/4 mile upstream of Hackett Gulch downstream to 1/4 mile downstream of Corral Creek.
C3 - South Platte	4.5	Wild	From 1/4 mile downstream of Corral Creek to high-water line of Cheesman Reservoir (upstream of the stream gage).
D - South Platte	3.1	Wild	From Cheesman Dam (downstream of the stream gage weir) downstream to Wigwam property (southern end).
E - South Platte	18.2	Recreational	From the Wigwam property downstream to confluence with the North Fork (excludes section from confluence to high-water line of Strontia Springs Reservoir).
Total	48.1		



Map 4-8.—South Platte River and North Fork of the South Platte River Wild and Scenic River Study—Alternative J.

Provides for (1) protection and enhancement of ORVs and (2) water delivery by recommending the South Platte for designation while not recommending designation on the North Fork. Also, allows for current off-highway vehicle use in Wildcat Canyon south of Cheesman Reservoir.



Map 4-9.—South Platte River and North Fork of the South Platte River Wild and Scenic River Study—Preferred Alternative, Forest Plan Amendment.

Amends the Forest Plan to establish a new management area designated to protect river values in eligible segments identified by this study. The amendment's direction applies to both the new management area and the one established in 1984.

PREFERRED ALTERNATIVE

The Forest Service intends to protect the outstandingly remarkable values, free-flow and water quality of eligible segments of the South Platte River through the cooperative process described in Alternative A2 with Forest Service legal authorities added as described in Alternative A3. The river corridor's ORVs, free-flow, and water quality are to be managed under a Federal/State/local government partnership as outlined in the South Platte Protection Plan (Appendix A). See map 4-9.

The agency is not completing the Wild and Scenic River suitability study at this time to allow for a period of review of the adequacy of the SPPP. The Forest Service will, however, amend the Forest Plan (see below) to maintain the findings of eligibility and classification to the maximum extent possible under its existing authorities. Guidance for protection of an eligible river is found in *Forest Manual 1924.03* and *Forest Service Handbook 1909.12-92-1*, section 8.12 (see Appendix G of this document). River corridor management will be monitored and periodically reviewed to ensure continued protection of free-flow, ORVs, and water quality. The monitoring program will rely on current indicators and the standards and guidelines from the *Forest Plan*.

Both Alternatives A2 and A3 envision the development of agreements among participating interests as part of implementing the SPPP. However, under the Preferred Alternative such agreements are not considered mandatory, for these reasons: (1) As a matter of enforcement, the Forest Service is accountable to adhere to agency policy regarding protection of eligibility whether it enters into other agreements or not. (2) Such agreements are voluntary undertakings and signatories are able to withdraw if needed. (3) While the Forest Service needs early confirmation from entities contributing to the Endowment Fund that they intend to contribute to the Fund and support the SPPP, confirmation can be made in more ways than by

entering into an agreement, such as passing corporate resolutions to that effect.

The Preferred Alternative also considers criteria for determining whether the SPPP is actually being implemented and working properly. At a minimum these criteria are:

1. Within 6 months of the Forest Service decision, potential contributors certify to the Forest Service that they intend to contribute to the Fund and support the SPPP.
2. The various periodic coordination meetings identified in the SPPP are being held. An example is the meetings under the Streamflow Management Plan.
3. Within 3½ years of the Forest Service decision, the Endowment Fund is fully funded, as outlined in the SPPP. (This is the period prescribed by the SPPP for reaching full financing.)

If these criteria are met, the Forest Service could conclude that the SPPP has been implemented. If not, it may have to conclude that the SPPP has too little local support to be a viable alternative, in which case, the agency will consider reopening the river study process and making a determination regarding suitability. Further, if monitoring over time indicates that the ORV's, free-flow or water quality are being threatened, the Forest Service may similarly find it necessary to reopen the river study and suitability determination process.

BASIS FOR THE PREFERRED ALTERNATIVE

In the SDLEIS, the Forest Service analyzed the SPPP as a part of a Wild and Scenic River suitability determination. However, comments on the SDLEIS indicated it is not timely to conclude the Wild and Scenic River study, pending implementation and evaluation of the SPPP. Given that the South Platte Wild and Scenic River study was initiated by the Forest Service, there is no required timeframe for

completing the study. A decision on suitability is not being made at this time so that the SPPP can be given a chance to demonstrate whether it is a reasonable substitute to designation under the Wild and Scenic Rivers Act.

At this time, no activities are being proposed that might threaten ORVs, free-flow, or water quality (recognizing that unknowns exist as a result of the Hayman Fire). However, such a proposal remains a possibility; it or when one is submitted, it will provide a meaningful test of the SPPP's effectiveness. Following review of the proposal under the SPPP's auspices, a conclusion will emerge whether the proposal is consistent with the SPPP's goals. The Forest Service will then also need to review the proposal to determine whether it is consistent with the agency's policy (see above) of maintaining eligibility. If not, a decision regarding suitability may become necessary. In essence, that decision would establish the agency's position whether the merits of the proposal outweigh the values threatened by it or visa versa. If by that time this EIS has become stale, a new NEPA document may need to be developed and released. Until that time comes, a decision on suitability does not need to be made.

This approach was selected over the other alternatives because:

- ◆ It has the best prospect of success for protecting river values by striking a reasonable balance between strong proponents for finding all segments suitable and worthy of designation, and strong opponents of any designation at all. In this manner it maintains a broad base of support for cooperative management of the river corridor.
- ◆ To the extent of Forest Service authorities and cooperator participation, it ensures protection of the ORVs, free-flow, and water quality for which these segments were found eligible.

- ◆ The Forest Service can protect ORVs, free-flow and water quality under the auspices of the National Forest Management Act.
- ◆ It has very few conflicts with existing uses.
- ◆ Except as affected by the Hayman Fire, it ensures the protection of the South Platte's current fisheries population and habitat, and the current mix of dispersed and developed recreation use in the river corridor.
- ◆ By maintaining the finding of eligibility without making a finding on suitability at this time, all river interests are ensured involvement in the cooperative management and protection of the river corridor. Implementation of the Streamflow Protection Plan will further enhance fisheries habitat and the whitewater recreational experience. The additional costs of developing a comprehensive river management plan under designation would be avoided.

DRAFT FOREST PLAN AMENDMENT

MANAGEMENT REQUIREMENT: WILD AND SCENIC RIVER MANAGEMENT

The following replaces the direction in the current Forest Plan found on pages III-16 and III-17.

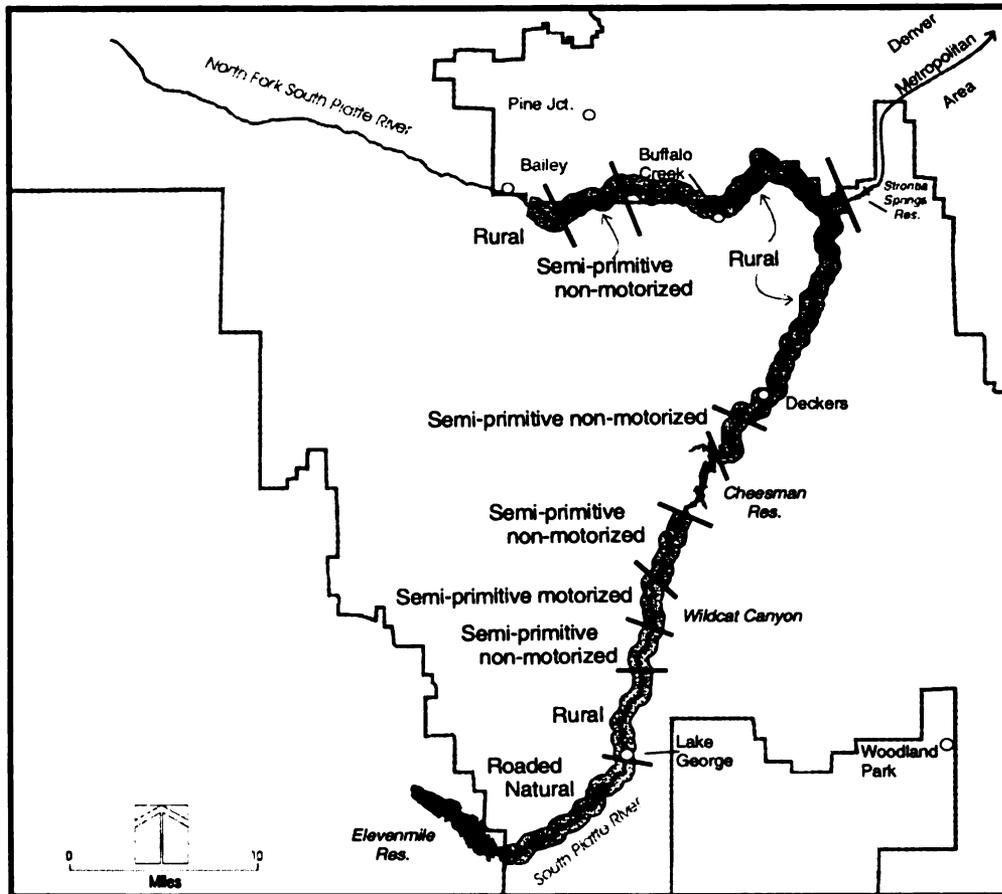
The following river segments have been determined eligible for a suitability evaluation for designation as a Wild and Scenic River:

- ◆ South Platte River from below Elevenmile Dam to the high water line of Cheesman Reservoir, and below Cheesman Dam to the high-water line of Strontia Springs Reservoir (49.4 total miles), and

- ◆ North Fork of the South Platte River from Insmont (upstream end of Berger property) to the confluence with the mainstem of the South Platte River (22.9 miles).

The boundaries extend one-fourth mile on each side of the river segments. Pending the suitability study and recommendation, the study area will be protected to preserve its characteristics, which make it eligible.

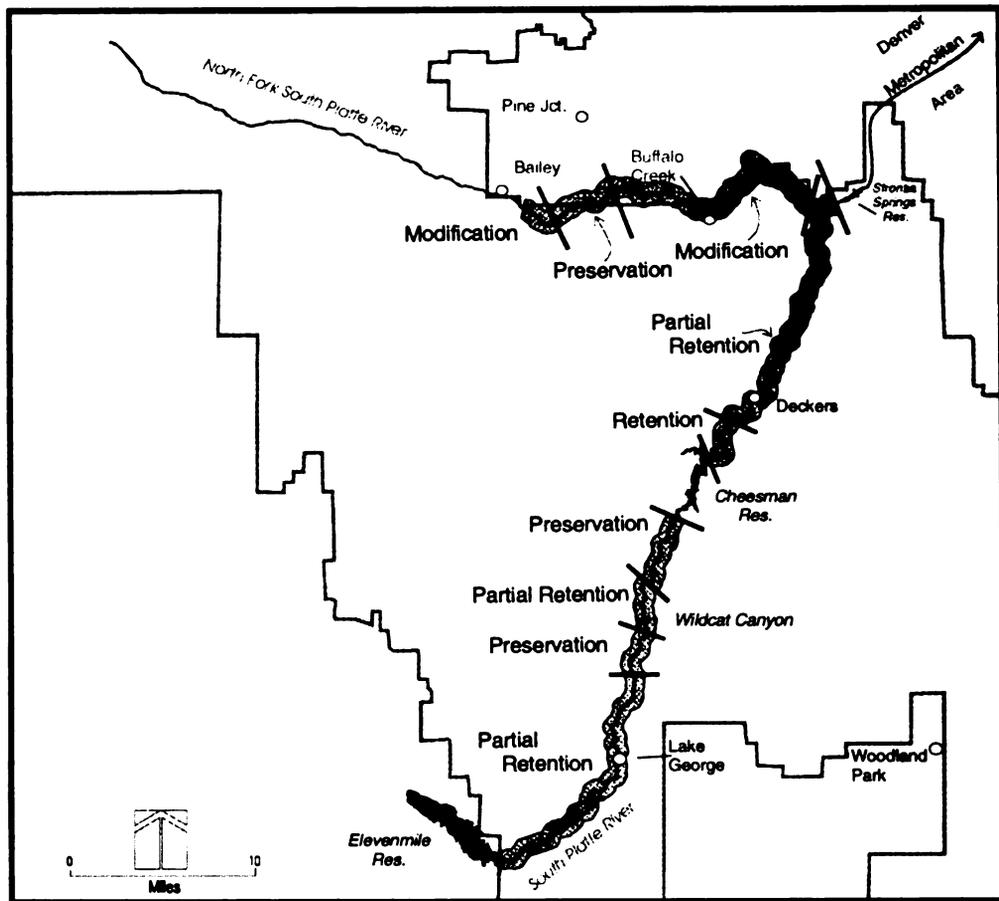
1. Protect river segments that have been determined eligible for potential addition to the National Wild and Scenic Rivers System from activities which could diminish or change the free-flowing character, water quality, or the scenic, recreational, fish and wildlife, and other values which make the river eligible for designation.
 - a. Request that Federal lands which constitute the bed or bank, or which are within one-quarter mile of either bank, be temporarily withdrawn from appropriation and entry under the mining laws. Withdrawal should continue until the river segment is a) found to be ineligible; b) not recommended for inclusion in the National System; or c) added to the system by Act of Congress.
 - b. Safeguard the values of the river area by appropriate conditions and stipulations in leases, permits, and licenses, including prospecting, issued under terms of the mineral leasing laws.
 - c. Extraction of salable, common-variety minerals from the river or the study area shall not be authorized until the study is complete and recommended actions are enacted.
 - d. Prohibit construction of roads within the river study area if it would have direct and adverse effects on the values which make the river eligible for potential inclusion into the National System.
 - e. Maintain current motorized access character and avoid any changes to the potential Wild and Scenic River classification.
 - f. Maintain free-flowing characteristics and water quality during the study and congressional review period.
 - g. Manage tree stands within the study area to maintain or enhance potential Wild and Scenic River values. Protect scenic values by sizing and shaping timber harvest units to achieve a natural appearance and to harmonize with the surrounding landscape.
 - h. Prohibit special uses or permitted land uses which degrade or have directly adverse effects on values which make the river segment eligible.
 - i. None of this direction shall abrogate any existing privileges or contracts affecting National Forest System lands held by any private party without consent of said party. Activities affecting the applicability of the United States mining and mineral leasing laws are subject to valid existing rights.
2. Activities and facilities will be consistent with the adopted Recreation Opportunity Spectrum (ROS) and with potential river classification in eligible segments. See map 4-10.



Map 4-10.—South Platte River and North Fork of the South Platte River Wild and Scenic River Study—ROS Objectives.

Shows ROS Objectives for various segments of the study area.

3. In high-use Semi-primitive Motorized and Semi-primitive Non-motorized areas, consider designating backcountry camping sites and restricting use to those sites.
4. Activities and facilities will meet designated Visual Quality Objectives (VQOs). See map 4-11.
5. Integrate trail systems with other government entities, partners and private landowners adjacent to the forest.
6. Preserve and protect significant historic, archaeological, and paleontological resources for their association with events or persons, their distinctive architectural and engineering characteristics, or their intrinsic scientific data.
7. Fire lines should not be constructed with heavy equipment unless necessary to save lives or property or to prevent resource damage.
8. If the free-flowing character, water quality, or the scenic, recreational, fisheries, wildlife, and geological outstandingly remarkable values (ORVs) that make the river eligible for designation are found to decline or when significant action may impact



Map 4-11.—South Platte River and North Fork of the South Platte River Wild and Scenic River Study—VQOs.

Shows VQOs for various segments of the study area.

eligibility or potential classification in any of the eligible segments, the Forest Service with participating parties should cooperate to address the threat to the values.

PROCESS AND PUBLIC REVIEW OF THE FEIS

After the public comment period for the SDLEIS, further analysis was incorporated into the document.

The finding by the Forest Supervisor for the Pike, San Isabel National Forests to protect the ORVs through a cooperative process will

require a change in management planning for the river, so proposed language for an amendment to the Forest Plan is being included with this FEIS. The current language in the Forest Plan includes the finding of eligibility for the river segments above Cheesman Reservoir. The amendment will incorporate the finding of eligibility for the sections of the river:

- ◆ 22.7 miles of the South Platte from below Cheesman Dam to the high line of Strontia Springs Reservoir; and
- ◆ 29 miles of the North Fork from Insmont to the confluence with the South Platte.

The amendment will also incorporate a change in classification for a section of river above Cheesman Reservoir.

After the 30-day comment period, this FEIS and Plan Amendment may be revised, and a Record of Decision will be released. The Plan Amendment will revise the Forest Plan to complement the SPPP on National Forest System lands. The Forest Plan will be the vehicle to implement the preferred alternative, including development of final boundaries for the river corridors and a monitoring plan to ensure that the ORVs are protected.

COMPARISON OF ALTERNATIVES

Appendix B offers a point-by-point comparison of the provisions of all the alternatives. This comparative format allows the reader to more easily identify the differences between the alternatives, including the key issues.

4.4 ALTERNATIVES NOT CONSIDERED IN DETAIL AND ELIMINATED FROM FURTHER STUDY

This section describes the alternatives that were identified during the study process but eliminated from further study.

DESIGNATION WITH LEGISLATIVE LANGUAGE TO ALLOW FOR FLEXIBILITY FOR LIMITED WATER DEVELOPMENT

This alternative was identified in the SDLEIS as the Preferred Alternative. It involved a designation scenario that embraced the flexibility of Alternative A3-*Not Suitable* where needed for water supply purposes. The key feature here was some yet-to-be-developed legislative language, which would establish limitations on development to protect river values while addressing future development

needs in the river corridor. This language, developed through public dialog, would have been included in a recommendation for designation under the WSRA. The intent of this alternative was to accomplish the following:

- ◆ Capture agreements that developed during the A2 process.
- ◆ Reduce uncertainty by resolving the suitability matter through legislation. Uncertainty would be reduced in these ways:
 - For Denver metropolitan area water providers, by defining where strict protection of ORVs would be applied and where greater flexibility would be available for limited development to meet water supply needs.
 - For environmental concerns, by providing for long-term protection of river values that can be enforced by all Federal agencies.
- ◆ Enable the Forest Service to implement the alternative much more efficiently than is possible under the A2, A3-*Suitable*, or A3-*Not Suitable* alternatives, because the authorities are clear and direct under the WSRA for cooperation with State and local government agencies.

This alternative received little or no support from the public and was found not to meet the intent of the WSRA.

DESIGNATION WITH STATE ADMINISTRATION

Since the State of Colorado does not have any State Scenic Waterway or State Protected River System legislation and the Forest Service manages the majority of the lands in the study corridors, this alternative was eliminated from further study. Private lands make up about one-third of the study corridor, and some segments of the study corridor contain little or no private land. Even less acreage is under county management. The State and the counties were

not interested, at this time, in serving as the lead agency for managing or administering the study corridor under the WSRA.

NATIONAL RECREATION AREA DESIGNATION

Designation of the study corridor and portions of adjacent lands as a National Recreation Area, instead of Wild and Scenic River designation, was considered but eliminated from further study. This concept received little or no support during public scoping. In addition, a National Recreation Area designation would impose even greater restrictions on private land usage than would a Wild and Scenic River designation.

SPECIAL LEGISLATION TO PREVENT FEDERALLY APPROVED OR ASSISTED DAMS

The concept of special legislation addressing only the issue of dam construction was considered but not carried forward in the analysis process because its impacts would be similar to those of the alternatives recommending designation. With little or no public support during the scoping process, special legislation was determined to be an uncertain process, at this time, to recommend and carry through to implementation.

SPECIAL MANAGEMENT AREA DESIGNATION ADMINISTERED BY THE FOREST SERVICE OR THE STATE OF COLORADO

Various alternatives seeking congressional approval for special area designation (National River, National Heritage River, etc.) or seeking State designation and administration of a special area (such as on the Arkansas River), in lieu of Wild and Scenic River designation, were considered but eliminated from detailed study because

1. All other action alternatives provided better resource protection,
2. No specific alternative was put forth by any government agency during scoping,
3. the general proposals that were presented received little public support,
4. State administration could result in extra costs and potential conflicts in an area that currently is managed mostly by the U.S. Forest Service, and
5. Some form of special area designation could be considered in more detail under Alternative A2.

DEVELOPMENT OF AN ADVISORY OR RIVER MANAGEMENT BOARD

An alternative based solely on the development of a formal advisory board to better manage and protect the river and the associated corridor by improving coordination of those involved in the use of the area was considered but eliminated from detailed study. Under this alternative, the study corridor would not be added to the National Wild and Scenic Rivers System but, instead, a formal advisory board or River Management Board would be established to better protect the area in addition to the existing mechanisms and management plans currently in place. The board would develop a management plan and provide an ongoing forum for coordination and oversight of river management activities.

Development of a river management board as the primary emphasis of an alternative was eliminated from further detailed study because:

1. The Board, by itself, would have little, if any, authority to implement its recommendations and, thus, could not ensure protection of the ORVs.
2. Additional advisory board or management direction, without other

agreements, would not prevent inundation by reservoirs.

3. A River Management Board, along with other protective measures, could be incorporated into Alternative A2 or other alternatives.

OTHER COMBINATIONS OF RIVER CLASSIFICATIONS

All river segments were considered at their most protective classifications in Alternative B and at less protective classifications in other alternatives, based on public scoping. Several other combinations of potential river classifications were also considered for designation but were eliminated from detailed study because:

1. Most of the potential classifications were already covered by Alternatives B, C, D, F, G, I, and J.
2. No comments or key issues identified the need to reduce the protection of other potential classifications.

Alternative E

This alternative recommended the addition of two segments of the South Platte River to the National Wild and Scenic Rivers System:

1. A segment from downstream Cheesman Dam to the Wigwam property, classified as *wild*, and
2. A segment between the Wigwam property and Scraggy View classified *recreational*. Its purpose was to recommend designation of the portions of the study rivers that contain the most outstanding trout populations.

This alternative was included in the preliminary alternatives that were mailed to the public in February 1996. It was eliminated from detailed study because it received few if any favorable responses during the public comment period.

Most people favored either designation or non-designation of the entire South Platte study corridor. Alternatives B, C, D, and J already include all of the area described in Alternative E, and there were no public concerns about the area between Strontia Springs Reservoir and Cheesman Dam that were not already addressed in other alternatives.

Alternative H

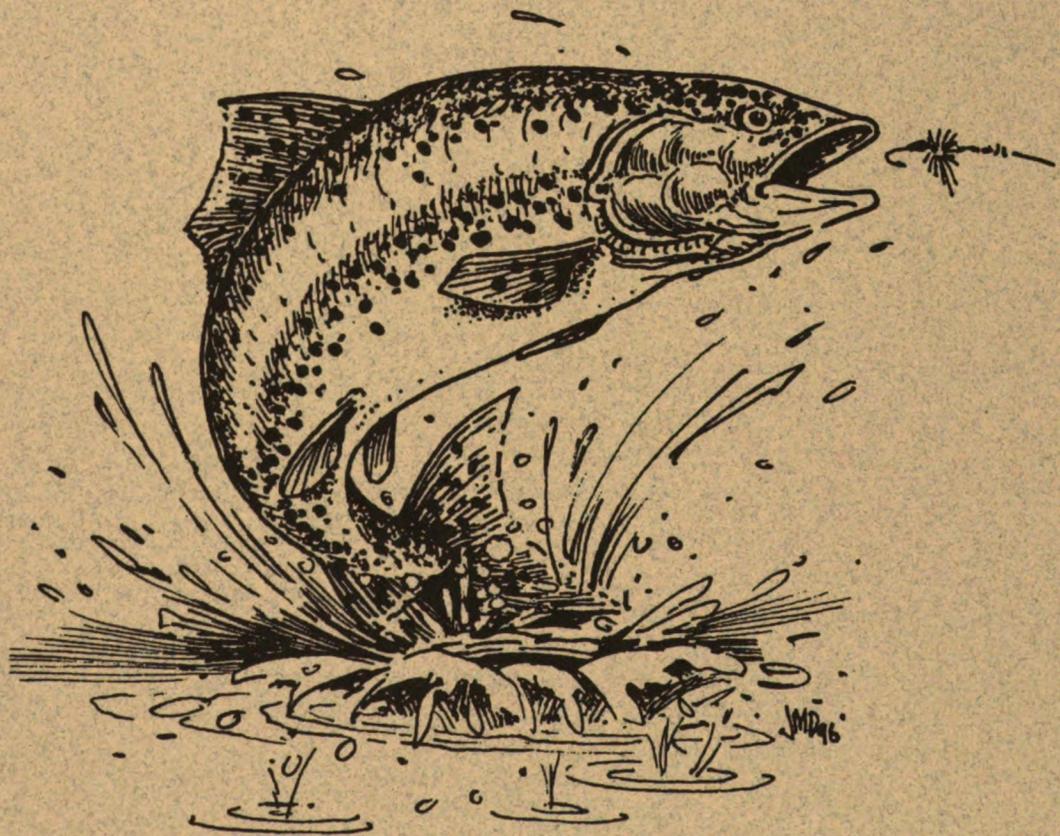
This "cooperative management" alternative was listed early in the analysis process. It arose in direct response to an instruction in the WSRA to consider measures to protect the area's ORVs without Wild and Scenic River designation. The Forest Service felt that Alternative H, as described, was insufficiently detailed to evaluate its ability to ensure the protection of the area's ORVs. The general concept of this alternative is embodied in Alternative A2.

THE SOUTH PLATTE PROTECTION PLAN'S VERSION OF THE FOREST PLAN AMENDMENT

The South Platte Protection Plan contains a proposed amendment to the Forest Plan (Attachment G to Appendix A). Most of the items in the amendment came from a menu being used by Forests in Region Two that are going through the Plan revision process. SPPP participants developed the proposed amendment independent of Forest Service review and comment.

After reviewing the amendment following its submission the Forest Service concluded that, while it addressed protection of values adequately, it did so at a greater level of detail than necessary. As a result, the agency elected to base the amendment primarily on language in the current Forest Plan, adding only selected items from the proposal. The result is less specific than the proposal but nonetheless clearly requires the protection of values. The Forest Service appreciates the effort put into the proposed amendment.

Environmental Consequences



CHAPTER 5

Environmental Consequences

5.1 PURPOSE OF THIS CHAPTER

This chapter describes the effects of each alternative on the environment, and how these effects relate to the key issues identified in section 4.2.

In each of the following sections, the impacts on issues and resources that would occur if no additional actions were taken are described under Alternative A1, the “no action” alternative. The impacts of all the other alternatives on issues and resources are estimated based upon further actions undertaken in each alternative.

The scope of this analysis includes three types of effects (see 40 Code of Federal Regulations (CFR) 1508.7 and 1508.8):

Direct effects. These effects are caused by the action and occur at the same time and place. Direct effects on resources were analyzed for all the alternatives and are described in this chapter.

Indirect effects. These effects are caused by the action and are later in time or farther in distance but are still reasonably foreseeable. Indirect effects on resources were analyzed for all the alternatives and are described in this chapter.

Cumulative effects. These effects result from incremental and collective impacts of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what person or agency (Federal or non-Federal)

undertakes those actions. Cumulative effects on resources were analyzed for all alternatives in this chapter.

The area of influence, or area of potential cumulative effect, is different for each resource. The effects of all past, present, and reasonably foreseeable actions occurring on all lands, regardless of ownership, in the corridor and, in some cases, near the corridor are considered in the effects analysis.

The effects analyzed in this chapter relate only to alternatives developed in analyzing the suitability of the study rivers for inclusion in the National Wild and Scenic River System (National System). Detailed effects of other proposals, such as construction of a reservoir, are beyond the scope of this final environmental impact statement (FEIS).

Effects described for the designation alternatives are based on a strict interpretation and implementation of the Wild and Scenic Rivers Act (WSRA). Rivers are added to the National System through amendments to the WSRA. Oftentimes, the legislative language of the final designation is negotiated so that a particular use of the river corridor can be accommodated under designation.

River segments not recommended for designation in any of the alternatives would be managed under the appropriate management directive contained in the *Forest Land and Resource Management Plan*.

The summary of environmental impacts of each alternative on key study issues can be found in

Appendix B, Comparison of Alternatives Including Key Study Issues. The table in section 5.20 lists the additional Federal costs for implementing each of the alternatives. Refer to Chapter 4 for a full description of the alternatives.

5.2 ENVIRONMENTAL COMPONENTS NOT AFFECTED UNDER ALL ALTERNATIVES

Analysis of the alternatives revealed no effects on the environment that would represent a significant change from the present situation for the following factors: air quality, chemical water quality, climate, upland geomorphology, geology, grazing, landforms, and soils.

5.3 MINERALS

Designation as a Wild and Scenic River could directly impact the potential development of locatable minerals (hardrock forms such as gold, silver, feldspar, and mica), leasable minerals (oil, gas, coal), and salable minerals (sand, gravel, stone) in the area. Under the *Land and Resource Management Plan for the Pike and San Isabel National Forests, Comanche and Cimarron National Grasslands* (Forest Plan) for the Pike National Forest, the South Platte has a discretionary "No Lease" status (i.e., the Forest Service has discretionary authority to remove sensitive resource lands from oil and gas leasing). That status would remain unchanged regardless of whether or not the river is designated. The North Fork is under a "No Surface Occupancy" stipulation (i.e., the surface cannot be occupied in order to drill for or extract minerals). Any access would have to be by subsurface directional drilling from an adjacent private property. This condition would remain the same with or without designation. However, designation would impact potential future

mineral entries in segments classified as wild. (See the following discussion.)

ALTERNATIVE A1 (NO ACTION) AND A2 (SOUTH PLATTE PROTECTION PLAN)

Neither of these alternatives would have any effect on current or potential mineral claims within the study corridors. Only the developed recreation areas are currently permanently withdrawn from future mineral entry.

ALTERNATIVE A3 AND PREFERRED ALTERNATIVE

Under the Preferred Alternative and Alternative A3, the Forest Service would process a mineral withdrawal of the river corridor for final approval by the Bureau of Land Management (BLM) under existing administrative processes and legal authorities. After the withdrawal is approved, no mining activity would be allowed except for any grandfathered rights to claimants, located prior to the date of the withdrawal, where discovery is proven.

ALTERNATIVES B, C, D, F, G, AND J

Under these alternatives, all *wild* portions of the eligible segments would be withdrawn from future mineral entry. Although the mineral potential of these segments is low, new discoveries are possible, and some currently uneconomic minerals could become commercially viable.

Existing claims in the *wild* segments would still be valid and could still be worked under approved operating plans. In all designated segments, existing mineral activity would be conducted in a manner that minimizes surface disturbance, sedimentation, pollution, and visual impairment, which could add additional protections to revised operating plans.

ALTERNATIVE I

Since none of the river segments would be classified as *wild* under this alternative, no areas would be withdrawn from mineral entry. In all designated segments, existing mineral activity would be conducted in a manner that minimizes surface disturbance, sedimentation, pollution, and visual impairment, which could add additional protections to revised operating plans.

5.4 LAND USE AND OWNERSHIP

Changes in how the rivers are managed may affect landowners' latitude in managing and/or developing their property. Some of the landowners' concerns are perceived rather than actual, since designation has little effect on private land. It could, however, have a definite effect on some water and storage rights.

EFFECTS COMMON TO ALL ALTERNATIVES

None of the alternatives affect the ability of a landowner to prevent trespass or reduce impacts from recreationists, and none of them alter a landowner's liability in the event a recreationist is hurt while on private land. Private landowners would not be required to allow members of the public to use their lands under any of the alternatives. Recreational use of National Forest System lands and, hence, potential trespassing on adjacent private lands are expected to increase with or without designation. It is possible that the increase could be slightly greater under designation, since rivers receive more publicity through designation. The USDA Forest Service (Forest Service) would monitor any increases in use and would take appropriate measures to mitigate any impacts to private lands and outstanding remarkable values (ORVs) as determined by the

management plan implemented after a decision on this study is made. If necessary, these effects could be mitigated by increasing partnerships, signage, and Federal funding in the designated area or by limiting dispersed camping sites, access, parking, or user numbers.

Effects to local zoning are the same for all alternatives but may vary among the counties. In Colorado, counties have a substantial degree of latitude in developing their land use planning programs but are subject to overall State zoning direction. Designation does not give the Federal Government any authority to change local zoning, but the Forest Service, under all alternatives except A1, may work with the counties to try to influence zoning in areas where the identified ORVs are threatened.

Because more than 50 percent of the lands in the corridor are publicly owned, there would be no possibility for condemnation of private lands for fee-title or for scenic easements under the designation alternatives. Under a designation alternative, the Forest Service would work with landowners willing to negotiate scenic easements or sell their land.

The Forest Plan encourages coordination of land use activities and cooperation in developing mutually needed road systems with landowners who have inholdings within the forest. There is no legal authority, however, for extending that cooperation to areas (such as approximately one-third of the North Fork corridor) that lie outside the Pike National Forest. The plan also stresses the importance of providing reasonable access across National Forest to private parcels surrounded by public land. The Forest Service has no authority to regulate construction, road building, economic activity, or zoning on private land.

The Forest Plan encourages land exchanges with willing landowners to acquire private parcels in areas where water quality, wildlife, fisheries, recreation, geologic, scenic, or cultural values are of high importance, as well as in those areas where resource values may benefit.

Under all alternatives, timber harvesting on private lands would continue to be regulated under State law. Under the Federal Land Management Policy Act, the Forest Service recognizes that the designated utility corridors identified in the Forest Plan (see “Land Use, Utilities” under “Affected Environment”) would be given first consideration for the location of future electric, gas, oil, and communication facilities, regardless of potential for Wild and Scenic River designation.

ALTERNATIVE A1 – NO ACTION

For those landowners who place a high value upon stability of land use, the continuance of current management maintains their sense of self-determination, whereas the other alternatives are perceived to add more regulation and bureaucracy. The likelihood that incompatible uses on adjacent lands would affect their own property is lowest under this alternative. It also creates no additional need for landowner contact with any additional local, State, or Federal agencies.

ALTERNATIVES A2, A3, AND THE PREFERRED ALTERNATIVE

Property rights for both private landowners and water rights holders under Alternatives A2, A3, and the Preferred Alternative are the same. Private landowner concerns about increased recreation use, firefighting, and road use would be incorporated into a management plan complemented by the Forest Plan completed after this study decision. Private landowners would be encouraged and recruited to participate in all of the public involvement opportunities these alternatives provide. County Commissioners would be involved in river corridor management and would represent the interests of private landowners. The Federal Government would gain no authority over private land under any of the alternatives considered. Landowners would continue to follow county zoning and other regulations.

Alternatives A2, A3, and the Preferred Alternative include voluntary provisions for water rights and storage rights to be managed to enhance the ORVs as much as possible within existing constraints. New development proposals for water resources facilities in the river corridor would be evaluated in a public planning process, and their potential effects to ORVs, free-flow, and water quality would be analyzed and documented. Under the Preferred Alternative and A3-*Suitable*, the Forest Service would not approve any project that threatened eligibility of the river on National Forest lands. Under A3-*Not Suitable*, the Forest Service would consider maintaining eligibility a goal rather than a requirement and, therefore, would consider limited or reasonable effects if the proposal was deemed critical enough in the public planning process.

These partnership alternatives are designed to be accomplished through voluntary alterations to water system operations and would require no further controls or oversight of operations by the Forest Service. The partnership agencies would work together to minimize future impacts and manage existing impacts of water system operations.

ALTERNATIVE B

This alternative adds all eligible study segments of the study rivers to the National Wild and Scenic Rivers System. The Federal lands in the corridors would be managed by the Forest Service to protect free-flow and to protect and enhance the ORVs of each river segment. The effects on private land would be identical to those of Alternatives A1, A2, A3, and the Preferred Alternative. The Forest Service would have no authority to determine zoning or set other restrictions on private lands.

Under any of the designation alternatives, the Forest Service would gain authority over private lands in only one situation—if a landowner wanted to construct something in the bed or bank of the designated river and needed Federal assistance or approval, the Forest Service could

invoke section 7(a) of the WSRA and review the project for effects on the ORVs, free-flow, and water quality. If a private landowner's project was found to have any direct or adverse effects, the Forest Service would work with the landowner to redesign the project to be consistent with designation. Under section 11 of the WSRA, the Forest Service can provide technical and financial assistance directly to private landowners for any needed projects in the bed or bank of a designated river.

Potential limitations on economically productive activities would remain the same as in Alternatives A1, A2, A3, and the Preferred Alternative, except to lands acquired by the Forest Service from willing sellers. Such purchases could potentially benefit landowners who wish to sell but cannot find other buyers. Willing sellers might also have the opportunity to be compensated through the sale of easements, yet retain ownership of their land. In addition, Federal administrators could assist willing landowners through cooperative projects and technical assistance.

Some landowners might feel a loss of self-determination under this alternative. This mostly would be perceived, since the Federal Government would have little, if any, authority over private lands. Nevertheless, because this alternative would be seen as increasing the presence of the Federal Government, it would be perceived negatively by many as an additional layer of bureaucracy and as an additional threat to the autonomy of the residents of the counties. Other landowners, however, would have a positive perception about the increased market that this alternative may generate for their property. To the extent that land use is stabilized and impoundments precluded, landowners also may find owning land within the river corridor more desirable.

Community members and corridor users would find their feelings of self-determination largely governed by whether they agree or disagree with the management strategy achieved by each individual easement or Federal purchase. Most

local landowners favor designation except in the portions of the North Fork upstream from Buffalo Creek.

For individual landowners, the actual impacts of dealing with the Forest Service should not change from Alternatives A1, A2, A3, and the Preferred Alternative except that landowners would be assured that no dams would be built. The Forest Service would work with landowners willing to negotiate conservation easements or sell their land, allowing the Forest Service to more effectively manage the river corridor.

ALTERNATIVE C

The effects of this alternative would be the same as those of Alternative B.

ALTERNATIVE D

The effects of this alternative are the same as those of Alternative B for the South Platte corridor and Alternative A1 for the North Fork corridor.

ALTERNATIVE F

The effects of the alternative would be the same as those of Alternative A1, since there are no private lands in the corridor recommended for designation.

ALTERNATIVE G

The effects of this alternative are the same as those of Alternative B on the South Platte corridor upstream from Cheesman Reservoir. They are the same as those of Alternative A1 for the South Platte corridor downstream from Cheesman Reservoir and for the entire North Fork corridor.

ALTERNATIVE I

The effects of this alternative are the same as those of Alternative B on the South Platte

corridor upstream from Corral Creek. They are the same as those of Alternative A1 for the South Platte corridor downstream from Corral Creek and for the entire North Fork corridor.

ALTERNATIVE J

The effects of the alternative would be the same as those of Alternative D except in a 1.3-mile section of the South Platte downstream from the confluence, where the effects would be the same as those of Alternative A1.

5.5 GRAZING

Grazing practices allowed inside the river corridor are dependent on the type of classification (*wild, scenic, or recreational*), the values for which the river was designated, and land use management objectives. The level of protection should be commensurate with the identified river values.

EFFECTS COMMON TO ALL ALTERNATIVES

None of the alternatives would effect current grazing allotments or practices, since grazing allotments are not expected to increase in the foreseeable future and the probability of vacant allotments being restocked is very low due to increasing urban growth close to the forest. As noted under "Affected Environment," there currently are four active allotments along the South Platte River corridor and no active allotments along the North Fork corridor. The Wigwam allotment is the only allotment where cattle actively use the South Platte River. Accessibility is limited by terrain and, to some extent, recreational use. Part of this allotment is in Segments C2 (most protective classification is *scenic*) and C3 (most protective classification is *wild*). A limited amount of domestic livestock grazing is acceptable in a wild corridor (see

table 3-3). There are no plans to increase the number of cattle on this or any allotment along the river corridor.

5.6 FOREST ECOLOGY

VEGETATION

Changes in river management could affect the vegetation and the ecosystem in the river corridors. The alternatives, ranked in order of the amount of protection they provide to vegetation (most protective to least), are B, C, D, J, F, G, I, A3 (as well as the Preferred Alternative), A2, and A1.

TIMBER

Changes in river management resulting from designation have the potential to limit timber management options and opportunities. Additionally, management actions taken in the corridor would have either a positive or a negative impact upon the health of adjoining timberlands.

There has been no commercial harvest on Federal lands in the corridors in the past 50 years. It is likely, though, that some timber would need to be removed from these corridors in the future to improve forest health by reducing forest susceptibility to insects, disease, and wildfire. Although the actual amount of timber harvested is relatively low, continued withdrawal of additional suitable acres from the timber base has a cumulative impact on the overall timber supply in the local market area.

A major watershed restoration project, the Upper South Platte Watershed Protection and Restoration Project, is currently underway in the Pike and San Isabel National Forests to address concerns of wildfire hazards and water quality degradation following the Buffalo Creek Fire of 1996 (Forest Service, 2000a). As part of the project, a landscape assessment was conducted

to identify high-risk fire and erosion areas. All treatments undertaken to correct these problems would be designed to be compatible with the river corridor protection goals. Further analysis and fuel treatments will be implemented as a result of the Hayman Fire that burned through the study area in 2002.

None of the alternatives would have any effect on private landowners' potential income from timber management on private lands. Under a designation, the Forest Service may encourage landowners to lessen timber harvest on private lands within designated Wild and Scenic River corridors. All current land use practices on private land—such as timber harvest, home construction, mining, grazing, and farming—would continue. In terms of their impact on the availability of timber resources (from lowest to highest) and the opportunity they provide to improve forest health (from best to poorest), the alternatives rank as follows: A1, A2, A3 (as well as the Preferred Alternative), I, C, G, J, D, F, and B.

ALTERNATIVE A1 – NO ACTION

The “no action” alternative would have no direct effects on forest health. The existing management direction under the Forest Plan provides for vegetative management to maintain and improve forest health. Where allowed by the Forest Plan, a full range of timber management practices would be available. Stands could be thinned to improve health of individual trees, which would provide resistance to various insects and pathogens. Defoliated trees could be removed through sanitation and salvage harvests. Stands could also be regenerated using clear-cut, seed tree, or shelterwood harvests.

Most of the corridor falls under the Forest Plan's Management Prescription 2B, in which roaded natural recreation opportunities are emphasized. In this prescription, vegetation management has to be compatible with the recreation emphasis, but some timber harvest could be allowed. Road construction and

recreational facilities construction within vegetated areas would be allowed. Smaller portions of Segments E, H2, and H3 are under Management Prescription 7A, in which timber production is the management emphasis.

Approximately 500 acres is scheduled to receive vegetation treatments as part of the Upper South Platte Watershed Protection and Restoration Project. These treatments consist of thinning and creating openings in order to reduce the risk of catastrophic wildfire and subsequent erosion and to improve habitat for the Pawnee montane skipper.

Segment H2 also contains some acreage under Management Prescription 5B, in which big game winter range is emphasized. Any vegetation management in that area has to be compatible with the needs of big game. The Forest Plan and regional policy would continue to provide protection for threatened, endangered, and sensitive plant species during any project action.

ALTERNATIVES A2, A3, AND THE PREFERRED ALTERNATIVE

Changes in river management under Alternative A2, A3 and the Preferred Alternative have the potential to limit timber management opportunities and options, thereby affecting management for forest health in the river corridors.

Under the A2 and A3-*Not Suitable* alternatives, some limited effect may occur in the future if a development project is approved that would have limited impact on the ORVs or free-flow. Effects under the A3-*Not Suitable* alternative would be similar to those under A1: any potential effects to vegetation for big game or to habitat for threatened, endangered, and sensitive species would be mitigated and approved through a public planning process. Vegetation treatment costs would be higher than under Alternative A1, but less than under the Proposed Alternative, Alternative A3-*Suitable*, or B.

The effects on vegetation and timber under Alternative A3-*Suitable* and the Preferred Alternative would be similar to those for Alternative B, because eligibility for designation would be maintained for the future. The river corridor segments classified *wild* would be removed from the suitable timber base, and so vegetation management activities to improve forest health could be done in these segments only on an emergency basis. Tree stands could not be thinned commercially to improve health of individual trees, nor could species diversity be treated. The stand health would be the result of natural events over the long term. Road construction would be precluded in *wild* segments, increasing the cost of managing forest health. The effects on forest health in the segments classified *recreational* or *scenic* would be generally similar to those of Alternative A1. There would, however, be some indirect adverse effect on forest health since new road construction and bridge crossings would be more limited than under A1, and increased ORV protection would place more limitations on harvest methods and amounts. Overall opportunities to protect forest health would be more costly under this alternative than all others except B.

Additional emphasis would be placed on the inventory and protection of diverse plant communities along the river corridors. Any vegetation treatment conducted would be compatible with the ORVs, protect water quality, and manage for overall forest and ecosystem health.

ALTERNATIVE B

The 3.1-mile *wild* section of Segment D in Cheesman Canyon and Sections C1 and C3 (totaling 7.4 miles) in Wildcat Canyon would be removed from the suitable timber base. This would reduce the suitable acres in the corridors by 616 acres to 4,279 acres. The corridors could produce approximately 49,634 cubic feet per year.

Timber management, road construction, and other ground-disturbing activities outside the designated river corridors could not diminish the ORVs within the corridors. This provision could pose some limitations on silvicultural techniques, which may result in higher cost or reduced volume of harvest in the drainage outside the corridors. Overall opportunities to protect forest health would be more costly under this alternative than under any of the others.

In those portions of the recommended eligible segments with a *wild* classification, opportunities for vegetative management to maintain and improve forest health would be allowed only under emergency conditions for insect and disease control, fire, natural catastrophe, or public safety. A *wild* classification would also preclude road construction and, thus, increase the cost of managing forest health. In these areas, tree stands could not be thinned commercially to improve the health of individual trees; and this restriction could lead to increased susceptibility to various insects and pathogens. Species diversity would not be encouraged, and stand health would depend on the course of natural events over the long term.

The effects on forest health in the segments classified *recreational* or *scenic* would be generally similar to those of Alternative A1. There would, however, be some indirect adverse effects on forest health since new road construction and bridge crossings would be more limited than under A1, and increased ORV protection would place more limitations on harvest methods and amounts. The amount of actively managed forest vegetation could be somewhat less, because timber sales conducted primarily for the purpose of maintaining forest health would likely have a lower economic value than a traditional timber sale.

Additional emphasis would be placed on the inventory and protection of diverse plant communities along all the recommended river corridors. In addition, the Federal dam prohibitions would ensure the protection of all

designated areas from inundation. The Forest Service would prepare a river management plan and administer the recommended rivers under the WSRA, which would protect and enhance the ORVs in the corridor, leading to more protection of the area's ecosystems.

The planned vegetation treatments under the guidelines of the Upper South Platte Watershed Protection and Restoration would be consistent with this and any other action alternative, since the objective of that project is not timber production.

ALTERNATIVE C

This alternative is similar to Alternative B, except for the classification of *scenic* rather than *wild* for Segments C1 and C3 in Wildcat Canyon. Effects in this section are the same as those described for *scenic* and *recreational* sections under Alternative B. Existing off-highway vehicle use (OHV) would continue, and the development of unofficial routes could impact both riparian and upland vegetation. This type of damage could be mitigated through partnerships, but previous experience has indicated that law enforcement would continue to be needed in the area. Mineral leasing could also occur, causing some impact on vegetation, but this use is very unlikely in the area.

The 3.1-mile *wild* section in Cheesman Canyon (Segment D) would be removed from the suitable timber base. This would reduce the suitable acres in the corridors by 25 acres to 4,870 acres. The corridors would produce approximately 56,492 cubic feet per year.

Constraints imposed by designation would slightly reduce potential timber production on suitable Federal land in the corridors, as compared to Alternative A1, but not as much as under Alternative B. Constraints include more restrictive road and bridge access, higher Visual Quality Objectives (VQOs), and additional measures to ensure the protection and enhancement of ORVs.

Overall opportunities to protect forest health would be less under this alternative than under Alternatives A1, A2, A3, the Preferred Alternative, and I.

ALTERNATIVE D

The effects of this alternative would be similar to those of Alternative B for the South Platte segments and Alternative A1 for the North Fork segments.

The 3.1-mile *wild* section of Segment D in Cheesman Canyon and Sections C1 and C3 (totaling 7.4 miles) in Wildcat Canyon would be removed from the suitable timber base. This would reduce the suitable acres in the corridors by 616 acres to 4,279 acres. The corridors could produce approximately 49,634 cubic feet per year.

Overall opportunities to protect forest health would be less under this alternative than with Alternatives A1, A2, A3, the Preferred Alternative, I, C, G, and J.

ALTERNATIVE F

The effects of this alternative would be similar to those of Alternative D except that an additional 2.6-mile area on the North Fork would be recommended for designation (Segment H2), a 19.5-mile segment of the South Platte downstream from the Wigwam Club property (Segment E) would not be designated, and two sections totaling 6.3 miles around Lake George would not be designated.

The 3.1-mile *wild* section of Segment D in Cheesman Canyon and Sections C1 and C3 (totaling 7.4 miles) in Wildcat Canyon would be removed from the suitable timber base. This would reduce the suitable acres in the corridors by 616 acres to 4,279 acres. The corridors could produce approximately 49,634 cubic feet per year.

The adverse effects of designation on the opportunity to manage forest health would be

similar to those of Alternative B for those segments designated. Overall opportunities to protect forest health would be less under this alternative than under all other alternatives except Alternative B.

ALTERNATIVE G

The effects under this alternative would be similar to those of Alternative B on the South Platte upstream from Cheesman Reservoir and similar to those of Alternative A1 on the North Fork and on the South Platte downstream from Cheesman Reservoir.

Sections C1 and C3 (totaling 7.4 miles) in Wildcat Canyon would be removed from the suitable timber base. This would reduce the suitable acres in the corridors by 591 acres to 4,304 acres. The corridors could produce approximately 49,659 cubic feet per year.

Adverse effects on the opportunity to manage forest health in the designated segments are similar to those of Alternative B. Overall opportunities to protect forest health would be greater under this alternative than under D, F, or J; but they would be less than under Alternatives A1, A2, A3, the Preferred Alternative, I, and C.

ALTERNATIVE I

The effects under this alternative would be similar to those of Alternative C upstream from Corral Creek and similar to those of Alternative A1 downstream from Corral Creek. Overall opportunities to protect forest health would be greater under this alternative than under all other alternatives except A1, A2, A3, and the Preferred Alternative.

Under this alternative, no acres would be removed from the suitable timber base. The study corridors would contain 4,895 suitable acres, which are capable of producing approximately 56,782 cubic feet of wood annually.

ALTERNATIVE J

The effects under this alternative would be similar to those of Alternative D, except for the 3.0-mile section of Segment C where the effects would be similar to those of Alternative C.

The 3.1-mile *wild* section of Segment D in Cheesman Canyon and Sections C1 and C3 (totaling 7.4 miles) in Wildcat Canyon would be removed from the suitable timber base. This would reduce the suitable acres in the corridors by 616 to 4,279 acres. The corridors could produce approximately 49,634 cubic feet per year.

Adverse effects on the opportunities to manage forest health would be similar to those of Alternative B. Overall opportunities to protect forest health under this alternative would be greater than under Alternatives D or F but less than under Alternatives A1, A2, A3, the Preferred Alternative, C, G, or I.

5.7 FISHERIES, WATER RESOURCES, AND WATER DEVELOPMENT

This section describes impacts to fisheries and water quality of each alternative in five topic areas: channel integrity and aquatic habitat, fishery management, angler use, water development and flow regime, and water quality. The topics of channel integrity and aquatic habitat, water development and flow regime, and water quality were added as a result of issues raised concerning Alternative A2, the South Platte Protection Plan (SPPP).

Maintenance of free-flow, the protection of water quality, and the protection and enhancement of the area's ORVs (section 1(b) of the WSRA) are of primary concern when considering streams for inclusion into the National System. The most serious potential

impacts to the natural resources of the study segments include:

1. Inundation of the area by the construction of dams and
2. Diversions that would deplete the flows.

It is important to recognize that many other activities within the drainage basin, outside of this river segment, have an impact on water quality and the ORVs, including dams, diversions, augmented flows, regulated flows, recreational activities, land management (road grading, prescribed fire, timber harvest), private land uses, and other off-site water developments.

Changes in river management could impact resident fish species, primarily their spawning and rearing areas. Clean, cool water and appropriate flows at the right season are required to support the habitat necessary for healthy fish populations. On the other hand, an increased water supply need for the Denver metropolitan area and other Front Range communities is forecast. Changes in how the rivers are managed would affect opportunities for water storage, diversions, and dam construction.

As the alternatives in this document deal with resource conservation rather than resource development activities, none of them would have any effect on Denver Board of Water Commissioners' (Denver Water's) approved right-of-way for a 345,000-acre-foot reservoir near the confluence of the North Fork and the South Platte.

BACKGROUND ON ASSUMPTIONS

Analyzing the consequences of this study's alternatives involves a number of assumptions described below. These assumptions are necessary to explain the relationship of the alternatives to actions of the Forest Service and other entities that are not bound by Forest Service policies and authorities.

Water Development on a Designated Wild and Scenic River

Designation prevents development of water resource projects that adversely impact free-flow or the values for which the river was designated. Projects certain to be precluded include water storage facilities and any lesser water developments, such as diversion structures or sediment traps that interfere with free-flow.

Designation of the South Platte as a National Wild and Scenic River

Just because an agency recommends designation does not mean that Congress will consider the proposal to add the river to the National System. The ensuing legislative process is the final determining factor. In the case of the South Platte River, the various interests involved hold strong differences of opinion regarding whether the river should be designated. Without a broad base of local support, prospects for designation of the river are doubtful. However, to allow meaningful comparison between alternatives, the analysis assumes the river has been added to the National System in designation alternatives.

Water Development on an Eligible River

Agency identified study rivers (rivers identified under section (5) (d) (1) of the WSR), are not protected by the WSR from the harmful effects of water resource projects. The Forest Service would, to the extent of other authorities, protect the river's free-flow and ORVs on National Forest lands, as outlined in the *Forest Service Handbook* 1909.12-92-1, section 8.12. (See Appendix G of this document.) Other entities, however, are not bound by this agency policy, which means that water resource projects could be constructed on non-National Forest lands; this means that an eligible river provides more opportunities for water development than does a designated river on non-National Forest land. A facility might be placed on private land, for example. However,

whether such a development would be proposed or approved is subject to the same uncertainties described in the following paragraph.

Water Development on a River Found Not Suitable for Inclusion in the National Wild and Scenic Rivers System

Alternative A3-*Not Suitable* covers this situation. In this alternative, the Forest Service would continue to protect the river's free-flow and other values through its statutory authorities. The Forest Plan could be amended to reflect this intent. However, in this situation, there is no assurance that a water development project would be either proposed or approved, for two reasons.

First, the Forest Plan Amendment being prepared will operate to prohibit water developments other than possibly minor ones for diversion or sediment-removal purposes. Even though these prohibitions could be removed by the Forest Service at some point in the future, at this time, there is no way to assess the likelihood of a revocation.

Second, setting the Forest Plan Amendment aside for the moment, it cannot be known whether anyone would even propose any water development within the study area, particularly for water storage. At this time no such proposals have been made, nor did any specific possibilities emerge during the development of the SPPP. While some water providers do not wish to foreclose any possibilities that might help with their water supply needs, others show little interest in the potential for additional storage within the study area. This is because the traditional water supply practice of onsite storage has been joined by alternate practices—such as conjunctive use, conservation, or off-channel storage—that appear to entail lower levels of public controversy. In addition, the past experience with the Two Forks project suggests that any future proposal for a storage facility in the study area could expect severe opposition, high cost, and no assurance of

success. Any such proposal would require approval from a large number of governmental and other entities, and there is no assurance today that all of the requisite approvals would be obtained. For all of these reasons, it is not possible to predict whether a water storage project would ever be proposed or built in the study area.

CUMULATIVE EFFECTS

Past land and water uses in the project area have caused long-term major modifications of the forest landscape, original stream channel, and riparian vegetation, thus altering channel characteristics and water quality in the affected study area. These modifications are a result of dams, water diversions, bridges, roads, trails, logging, grazing, fire suppression, and homesteading. Dams alter streamflows and temperatures, trap and reduce sediment transport, and block fish passage. Existing impacts from roads, trails, and other development include loss of riparian vegetation, accelerated erosion, and increased sedimentation. Riparian land use and associated sediment runoff have been shown to reduce stream production potential for aquatic organisms. Although past actions resulted in more river sediment, the reservoirs trap sediment reducing downstream concentrations.

Sedimentation from past and existing land uses has resulted in the listing of river Segments A, B, and C as impaired under section 303(d) of the Clean Water Act. The Clean Water Act requires all parties with responsibility for managing the resource, including managers of public lands and private landowners, to identify and treat sediment sources and to develop a "Total Maximum Daily Load" (TMDL) assessment for these segments. The Forest Service worked with the Colorado Department of Public Health and Environment (CDPHE) on the assessment, which was completed in the spring of 2002 (Colorado Department of Public Health and Environment [CDPHE], 2002).

The cumulative effects of past logging, grazing, and fire suppression have indirectly increased the risk of catastrophic fires, which result in severe erosion. The Buffalo Creek, Hi Meadow (Forest Service, 2000a), and Hayman Fires and subsequent storm events washed large quantities of sand and gravel from fire-exposed soils into the affected river corridor. Extreme sediment loading has caused channel instability and shifting, increased bank erosion, and increased bed deposition. Long after the occurrences of these fires, sediments from the burned areas will continue to erode into the river and are expected to adversely affect aquatic resources for many years. The action alternatives and other restoration efforts, such as the Upper South Platte Protection and Restoration Project, can help reduce the risk of large-scale fire and the potential for erosion and major sediment influx. These efforts would have long-term beneficial cumulative effects, with increased aquatic organism production and decreased sedimentation of downstream reservoirs.

The action alternatives were designed to protect the eligible river segments and mitigate impacts caused by other actions. Therefore, each action alternative would have positive cumulative impacts on fisheries and water resources and help meet Clean Water Act requirements.

The action alternatives reflect changes in how water supply planning takes place. For many decades, water supply needs were addressed primarily by constructing new reservoirs because, at the time, that appeared to be the most efficient method. Then, as societal values changed, more effort was devoted to finding alternative methods of meeting water supply demands, such as conservation and aquifer storage, for instance. The cumulative effect has been that building a new reservoir is no longer presumed to be the best method available, and other methods now play a much larger role in water supply than earlier (Nichols et al., 2001). This change in attitude was clearly evident in the denial of the Two Forks reservoir proposal, and it is also reflected in the action alternatives analyzed in this study.

EFFECTS COMMON TO ALL ALTERNATIVES

Segments found not suitable under any alternative would be managed under the Forest Plan. Protective standards under the plan would remain in effect, and there is no guarantee that water development projects would be proposed on these segments.

The Forest Service, the State, water providers, and other interested groups would cooperate in the development of a water quality restoration plan to treat sediment sources that impact the eligible segments. These sources would be identified in the Source Water Assessment required under the Safe Drinking Water Act. The Coalition for the Upper South Platte (CUSP, formerly known as the Upper South Platte Watershed Protection Association) would coordinate the restoration effort. This cooperative arrangement would not apply to private lands unless the landowners voluntarily agreed to participate.

As noted above under "Cumulative Effects," section 303(d) of the Clean Water Act requires all parties with responsibility for managing the resource, including managers of public lands and private landowners, to identify and treat sediment sources and develop a TMDL assessment for Segments A, B, and C. The results of this assessment (CDPHE (b), 2002) will likely heighten the priority for water quality protection and restoration by the Forest Service and the State, much as designation would.

ALTERNATIVE A1 – NO ACTION

Aquatic Habitat and Channel integrity

There is no Federal prohibition of major dams, diversions, or water development projects under this alternative. Any such projects undertaken within the corridors could have direct adverse effects on the flow regimes and existing habitat for wild trout populations. There would be greater potential in this alternative for

operational changes at existing water developments, which could result in a considerable change in habitat and a subsequent decrease in trout production. Although changes in flows at certain times of the year could be beneficial to trout habitat, they would most likely be detrimental to the populations. Any new diversion or other water developments could potentially affect the amount and timing of flows and, thus, aquatic habitat.

Sedimentation would continue to result from the development of visitor facilities, such as campgrounds, picnic grounds, parking areas, trails, and trailheads, and from increased private development. Human activity in the area could result in an increase in sedimentation which would have a direct effect on fisheries habitat. However, attempts are being made to manage use in a way that reduces the amount of sediment that reaches the stream channel. There is no requirement to mitigate erosion from adjacent roads under this alternative, so sedimentation into the stream channels would continue, restricting fish habitat. The Forest Service would continue to use current management practices and authorities to reduce road sedimentation. Compared to the other alternatives, this one offers less potential for funding activities to enhance fish habitat or reduce sedimentation, as well as less potential for Federal funding for easement and/or fee-title acquisition of fish habitat and riparian areas from willing sellers. The Forest Service would have full authority to perform channel restoration on Federal lands and could seek to work cooperatively with local landowners to restore channel integrity on non-Federal lands.

Fishery Management

Segments of the South Platte River are currently managed under a variety of regulations. Special management areas would continue, with stocking and normal regulations maintained in most areas. Stocking of catchable fish would continue in normal regulation areas, while a

variety of management options would be considered to produce quality fisheries in the special regulation areas.

Angler Use

Angler use is highly variable in the study area. With the population of the Front Range increasing dramatically, angler use would most likely increase in all segments. As the population in the State increases and subsequent development encroaches on the area, angler use would also increase. Access could also increase as roads and trails are improved and/or developed in sections of the study area that now have limited access.

Water Development and Flow Regime

Under this alternative, neither designation nor cooperative arrangement would be achieved to protect the free-flowing condition, ORVs, or water quality of eligible segments in concert with the goals of the WSRA or any other water protection strategy. On non-Federal lands, there would be no effect on the operation of existing water projects. On Federal lands, existing and new water developments, as well as flow regimes, would be subject to terms and conditions that protect public resource values under applicable Federal law and the existing Forest Plan. This alternative provides the most flexibility for the water providers to expand existing reservoirs, replace existing dams, construct diversions, and meet future water supply demands. Existing water rights and interstate compacts would be completely unaffected.

Natural resources, including some of the area's ORVs, would continue to be subject to the potential effects of inundation by reservoirs or to altered flow regimes resulting from the construction of dams or diversions to help meet the growing residential and industrial needs of the Denver metropolitan area, provide a more efficient water delivery system, provide additional reservoir-based recreation, provide additional flood control, provide ground water

recharge through the conjunctive use concept, and provide additional hydropower generation, which would contribute to local and regional power supplies. Inundation could also displace private landowners within the study corridors.

Because the river is not recommended as a Wild and Scenic River and no other protection strategy is afforded under this alternative, current and planned water developments, such as channel straightening, bank stabilization, diversions, and other modifications of the waterway, would not be subject to mitigation review beyond what is required in the existing Forest Plan on National Forest System lands and regulatory authorities of other agencies on other lands.

Current water operations, releases, flows, timing, storage, importation of water, exchanges, and the management of the current and future water delivery system would not be affected by the restrictions that would be imposed by Wild and Scenic River designation. Costs to water suppliers in the Denver metropolitan area would not increase as a result of restrictions imposed under the WSRA, and potential water development projects would be unaffected by any protection strategy. Current water quality standards and flow management practices would apply, and any changes to current standards would result from the recently completed assessment to determine TMDL under section 303(d) of the Clean Water Act and would not be imposed under the WSRA. Thus, the ability of water providers to operate, develop, and fully use existing and future water rights on the North Fork and the South Platte River would not be affected by the WSRA.

Opportunities to replace portions of communities' dependence on ground water with surface supplies or potentially recharging aquifers with excess surface water in the South Platte basin would not be foreclosed under this alternative as they might under the WSRA. The demand for conversion of existing agricultural water supplies to municipal and industrial use

may be reduced under the designation alternatives since new supplies could be diverted from the study corridors.

Existing and new water developments on non-federal lands could affect flow regimes unabated in the study corridor unless voluntary cooperative arrangements were made with water providers. There are numerous indirect effects which could result from significant change in flow regimes. Extended bank-full (1.5-year flood) or above-bank-full conditions, changes in timing of reservoir releases, or extreme changes in flow regimes can result in excessive bank erosion and sediment transport, degradation of aquatic and riparian habitat, and reduction of aquatic food sources. If the river does not receive normal flood flows, the channel capacity could be reduced. If the base flow is reduced, water temperatures could exceed water quality standards and degrade aquatic habitat. On federal lands, flow regimes would be protected by terms and conditions that protect public resource values under applicable federal law, as on any federal lands.

Water Quality

Water quality protection and restoration would be subject to Federal and State requirements, just as on all other lands. The heightened priority for water quality protection and restoration associated with designation would not exist under this alternative. However, efforts to reduce erosion and subsequent sedimentation in the river would continue utilizing the assessment of TMDL.

ALTERNATIVE A2 – SOUTH PLATTE PROTECTION PLAN

The South Platte Protection Plan was developed through negotiations among representatives from a broad range of interest groups, in an attempt to preserve flexibility for future water development but still protect the corridors without recommending Federal designation under the WSRA. Free-flow, water quality, and

ORVs on non-Federal lands would not be protected under the WSRA.

Aquatic Habitat and Channel Integrity

The section of the SPPP entitled "Streamflow Management Plan for the Upper South Platte River" (Attachment B to Appendix A of this report) addresses stream habitat concerns regarding river sedimentation and areas needing channel habitat improvement projects. The Forest Service, the State, water providers, and other interested groups would cooperate in channel reconstruction of the eligible segments to improve degraded conditions and to withstand increased high flows while protecting ORVs. The parties would also cooperate in habitat restoration of the eligible segments to improve existing conditions for aquatic life. To minimize sedimentation and bank erosion and to improve aquatic habitat conditions, the Forest Service, Colorado Division of Wildlife, water providers, and other participants would develop a stream habitat monitoring and improvement plan. The improvement plan would:

1. Identify degraded areas of stream channel habitat,
2. Identify stream bank erosion and river sedimentation sources,
3. Quantify changes in channel integrity and aquatic habitat associated with management actions, and
4. Develop instream channel habitat improvement projects to improve stream channel habitat, including bank stabilization and erosion control, which would not be allowed under the WSRA and may affect free-flow.

Improvements would be designed to produce long-term benefits for channel integrity and aquatic habitat, as well as indirectly improving water quality. One potential funding source for this improvement plan is the \$1-million

endowment fund established under the SPPP. (See Attachment D of Appendix A.) The arrangement would likely heighten the priority for water quality protection and restoration by the Forest Service and the State, much as designation would. Under a designation alternative, this fund would not be available for mitigation work; therefore, Alternative A2 provides the greatest potential for restoration.

Fishery Management and Angler Use

The effects of this alternative on fishery management and angler use would be similar to those of the A1 alternative. Implementation of the streamflow management plan may improve habitat for fish species residing in the river. Resultant benefits to the fish populations might lead to better catches and, hence, to greater angler use in those sections directly downstream from the Elevenmile and Cheesman impoundments.

Water Development and Flow Regimes

Under this alternative, existing Federal authorities would be used, together with local cooperative arrangements, to protect the river corridor from actions that could diminish the free-flowing condition, ORVs, or water quality in some of the eligible segments. Parties to this agreement would state that no new water developments projects would be built in Segments A or D, thus protecting 11.8 miles of the South Platte from impoundment. Water developments could be built in the other eligible segments subject to existing Federal, State, and local authorities. On Federal lands, existing and new water developments in these other segments would be subject to terms and conditions that protect public resource values under applicable Federal law, as on any Federal lands. Effects on existing or new water developments and their operations on non-Federal lands upstream from eligible segments would be under the auspices of the SPPP and subject to other Federal, State, and local regulations. This alternative does not protect

eligible segments from future water developments as effectively as designation. Administration of existing water rights and interstate compacts would be unaffected.

Denver Water and the Metropolitan Denver Water Authority would withdraw their applications for 780,000 acre-feet of conditional storage rights at the Two Forks reservoir site. Denver Water would also self-impose a 20-year voluntary moratorium on developing its right-of-way for a 345,000-acre-foot reservoir. (See Attachment F in Appendix A of this document.) This commitment would ensure that no substantial water development would invade Segments E or H for 20 years. Denver Water would invite environmental interests to cooperate to seek alternate projects that would allow permanent relinquishment of the right-of-way at some later date. The long-term effect of this proposal is unknown. If no alternate projects were identified, the right-of-way could be developed after the 20-year moratorium expires. Such a project would invade portions of Segments E and H, which would impair their free-flowing condition and ORVs.

In coming decades, water system improvements and future importation of water to the Upper South Platte Basin could alter the hydrologic basis of the SPPP. This plan is not intended to promote or restrict new water from future projects but to provide goals for protection of the existing trout fishery values present in the South Platte River. Additional water or prolonged high-flow periods due to new project water would be subject to the requirements of the Streamflow Management Plan. Even under these requirements, future flow regime changes caused by importation may require a larger stream channel to adequately protect water quality, fisheries habitat and populations, channel stability, and maintenance of the ecosystem. Future water projects, especially those that would significantly prolong bank-full stream conditions, would require the project proponent to prepare an analysis of channel capacity related to these issues. The new project proponent would be responsible for any

necessary analysis and channel reconstruction. Under the guidance of the SPPP, in order to maintain ORVs in the river corridor, any necessary alterations to channel capacity should be achieved by means other than flow manipulation, such as physically reconstructing the channel. Any proposals for flow and channel modification for new projects would be reviewed by participants at an annual operations meeting established under the SPPP. (See Appendix A, Attachment B, p. B-5.) This mitigation measure voluntarily addresses some of the protections that designation would impose on new upstream, downstream, or tributary projects under section 7(a) of the WSRA. However, potential protection for ORVs and free-flow would be guided by the tenets of the SPPP and not the WSRA.

Under the Streamflow Management Plan, the reservoirs would be operated to benefit aquatic life and habitats. The first goal of the A2 alternative related to the fisheries ORV is to maintain minimum streamflows downstream of reservoirs. Denver Water would self-impose minimum flow releases of 32 cubic feet per second (cfs) from Elevenmile Reservoir and 35-40 cfs from Cheesman Reservoir. Aurora would self-impose minimum flow releases of 32 cfs from Spinney Mountain Reservoir. These flows would provide relatively stable habitat conditions during the fall, winter, and early spring months. A provision is included for exceptions during drought. The second goal of the A2 plan is to provide transition flows that would reduce environmental stress as discharge levels vary. Reservoir outflow changes would be "ramped"—or changed gradually—in order to reduce stress on fish. Particular emphasis would be placed on limiting fluctuations that could adversely affect the various life stages of brown and rainbow trout. The proposed flow regime can also have the indirect beneficial effects of maintaining riparian/wetland vegetation and maintaining the aquatic food web. The Streamflow Management Plan section of the SPPP offers advantages over designation by addressing minimum streamflows, ramping, and channel maintenance flows.

Another goal of the Streamflow Management Plan is peak-flow management. Although high flows occur naturally, they may impede the recruitment of young fish into the population if flows increase greatly in a short amount of time. However, high streamflows are also periodically necessary in order to maintain channel stability and capacity and to transport sediment through the channel. Due to limited storage capacity, water rights and other constraints, managing peak flows is the least attainable of the fishery management goals in Alternative A2. The plan provides a mechanism for monitoring fish recruitment and channel conditions and for deciding whether the balance between these conflicting purposes needs to be adjusted. As part of the annual operating plan, the participants would determine whether to attempt to provide a channel maintenance flow during spring runoff or to attenuate peak flows to enhance fishery recruitment. The goal would be to maintain successful "year-class recruitment" for brown and rainbow trout populations at least once every 3 years. This would mean that fish born within a certain year would survive their first winter and become part of the population the next year. A successful recruitment would replace all older fish, 2 or more years old, that have left the population as a result of natural or human-related causes.

Water Quality

Currently, water released from Elevenmile Reservoir is drawn from the surface. The surface water exhibits the greatest degree of temperature fluctuation, as it is exposed to the warming effects of the sun and the surrounding air. Water released from the surface of reservoirs such as Elevenmile is commonly warmer than is desirable for the aquatic species downstream. Within 5 years of selecting this alternative as the final decision, new outlet valves would be installed at Elevenmile Dam. Denver Water and the city of Aurora would decide the precise operations of reservoir releases following annual operations meetings conducted with the public and any interested

parties. These proposed reservoir operations would be targeted to benefit aquatic life and habitats and could not be realized in any designation alternative unless voluntary cooperative arrangements were made. The installation of the new outlet valve would allow the dam operators to withdraw water at various depths in order to maintain the optimal temperature for sustaining and enhancing the rainbow and brown trout fishery and to meet State water quality temperature standards.

Denver Water would self-impose a mixing of top and bottom releases from Elevenmile Reservoir and Cheesman Reservoir from July through September to achieve water temperatures that benefit aquatic life. Changes in water temperature would be held to less than 10 degrees Fahrenheit (°F) per day when possible. When Denver Water has filled the surcharge pool at Elevenmile Reservoir, which typically occurs in July, bottom releases would be made to meet target temperatures through September. Starting no later than October 1, bottom releases would be discontinued to allow the surcharge pool to fill. In the future, bottom releases for moderating wintertime stream temperatures would be considered. At Cheesman, Denver Water would install temperature gages in the spillway, the valve manifold, and the streamflow gage downstream of the dam to monitor downstream water temperature. When possible, Denver Water would adjust the proportion of spillway discharge and bottom releases to:

1. Keep the downstream temperature below 60 °F during spilling and
2. Provide a temperature gradient of less than 10 °F per day while making the transition into and out of spilling.

Resources made available through implementation of the SPPP may be used for habitat restoration projects.

ALTERNATIVE A3 AND THE PREFERRED ALTERNATIVE

Alternative A3 and the Preferred Alternative were prepared by the Forest Service as modifications of Alternative A2 in order to address certain administrative and other requirements of the Forest Service, including an amendment to the Forest Plan. The *Suitable* and *Not Suitable* options of A3 differ based on how the issue of suitability is handled. *A3-Suitable* requires adherence to Forest Service policy that requires protection of the values for which the river was eligible and suitable, within the limits of Forest Service legal authorities, until Congress either enacts or rejects legislation to designate all or portions of the river. *A3-Not Suitable* allows evaluation and consideration of proposed development projects that might adversely affect the values that have been identified. Stated differently, *A3-Suitable* protects eligibility as a hard requirement, whereas *A3-Not Suitable* seeks to protect identified values as a management goal. The Preferred Alternative is silent on suitability but necessarily protects eligibility as a hard requirement, similar to *A3-Suitable*.

For each of the following, the effects of Alternative *A3-Not Suitable* would be similar to Alternative A2 unless otherwise noted. The effects of Alternative *A3-Suitable* would be similar to Alternative A2 subject to review for effects on eligibility and suitability. The effects of the Preferred Alternative would be similar to Alternative A2 subject to review for effects on eligibility.

Aquatic Habitat and Channel Integrity

The Forest Service, the State, water providers, and other interested groups would cooperate in channel reconstruction and habitat restoration of the eligible segments, just as in Alternative A2, with the same benefits to channel and habitat integrity, riparian vegetation, wetlands, and water quality. These benefits could not be realized in any designation

alternative except through subsequent voluntary cooperative arrangements.

Fishery Management and Angler Use

Fishery management and angler use under this alternative would be similar to those of the A2 alternative.

Water Development and Flow Regime

Under either the Preferred Alternative, Alternative *A3-Suitable*, or Alternative *A3-Not Suitable*, existing Federal authorities would be used, together with local cooperative arrangements, to protect the river corridor from actions that could diminish the free-flowing condition, ORVs, or water quality. To the extent of Forest Service authority, no new dams or impoundments would be allowed on National Forest lands. On non-Federal lands upstream from eligible segments, effects of existing or new water developments and their operations would be reviewed under the auspices of the SPPP and would be subject to other Federal, State, and local regulations. Under the Preferred Alternative and Alternative *A3-Suitable*, proposed water development projects would be reviewed for effects on eligible segments. Alternative *A3-Not Suitable* would not protect eligible segments from future water developments as effectively as the Preferred Alternative, *A3-Suitable*, or designation. Administration of existing water rights and interstate compacts would be unaffected under either the A3 alternative or the Preferred Alternative.

As in Alternative A2, Denver Water and the Metropolitan Denver Water Authority would withdraw their applications for 780,000 acre-feet of conditional storage rights at the Two Forks reservoir site. Denver Water would also adopt a 20-year voluntary moratorium on developing its right-of-way for 345,000 acre-feet. This commitment would ensure that no substantial water development would invade Segments E and H for 20 years. Denver Water would invite environmental interests

to cooperate to seek alternate projects that would allow permanent relinquishment of the right-of-way at some later date. Effects of this action under the Preferred Alternative or either A3 alternative would be similar to Alternative A2.

As in Alternative A2, flow regimes would be subject to the tenets of the Streamflow Management Plan for both A3 alternatives and the Preferred Alternative.

Under *A3-Suitable*, the Forest Service would use existing authorities to protect the rivers' ORVs, free-flow, or water quality until Congress determines whether to add any or all segments found suitable to the National System and authority under the WSRA, particularly section 7(a), begins. As a result, no appreciable change in these resources would occur on National Forest lands in the interim. If Congress were to designate any or all of the segments at a later date, then all lands in the designated corridor would be subject to the guidelines of the WSRA. Similarly, under the Preferred Alternative, the Forest Service would use existing authorities to protect the rivers' ORVs, free-flow, and water quality for which they were found eligible, until such time as the agency finds it necessary to make a final decision on suitability. As with *A3-Suitable*, no appreciable change in these resources would occur on National Forest lands in the interim. Under *A3-Not Suitable*, however, the Forest Service could approve projects that have some effects on these resources, such as structures for diversion or sediment removal. Over time, depending upon the nature and extent of development allowed, the cumulative effects of such projects could degrade, somewhat, the ORVs, free-flow, or water quality. However, the magnitude of individual projects that might be approved would be limited because, even under Alternative *A3-Not Suitable*, the Forest Service would not approve any water storage structures within segments of the river corridors that had been identified as eligible during the present study. Therefore, there would be no inundation of large areas beyond ordinary high

water lines. Nor, for lesser projects such as structures for diversion or sediment removal, would a complete disruption of free-flow be expected.

Water Quality

The effects to water quality would be similar to those under Alternative A2. Effects on water quality would be subject to review under Alternative *A3-Suitable* to ensure no degradation to level of quality from the time the segments were found suitable. Similarly, effects on water quality would be subject to review under the Preferred Alternative to ensure no degradation to level of quality from the time the segments were found eligible.

ALTERNATIVE B

This alternative would recommend designation of 72.3 miles of river at their inventoried classifications. It would provide substantial potential to protect and enhance fish populations and their respective habitats within the designated corridors for enjoyment by future generations. This result is due primarily to three factors:

1. Designation would prohibit authorized water projects which could adversely affect free-flow, water quality, or the ORVs;
2. Designation would confer a recommendation of additional monitoring and the protection and enhancement of both water quality and fisheries ORVs in all eligible segments although funding for such an activity is not guaranteed under the WSRA; and
3. Designation creates a greater potential for additional Federal funding for easement and/or fee-title acquisition of fish habitat and riparian areas from willing sellers.

This alternative provides additional Wild and Scenic River direction to the Forest Service to

manage other river-related resources such as recreation and transportation to protect and enhance the fishery. Protection of water quality, flows, and riparian would be similar to that afforded under the Streamflow Management Plan under Alternatives A2, A3, and the Preferred Alternative. Alternative B would include the development of a management plan, increased emphasis on partnerships to improve fisheries, and fisheries habitat and monitoring of water quality and flows as under Alternatives A2, A3, and the Preferred Alternative. It would also include Federal financial and technical assistance not provided under Alternatives A2, A3 or the Preferred Alternative which instead offer local financial assistance through an endowment fund.

Development of a comprehensive river management plan would identify direction and possible management actions to protect and enhance river values. Monitoring of water quality and flows would provide information needed to measure progress toward attaining goals to protect fisheries. The construction of minor structures for improvement of fish habitat would be considered compatible in all segments, provided they protect or enhance ORVs and do not affect free-flow. Limited Federal financial and technical assistance, both inside and outside the corridor, would be available for projects such as fencing and riparian restoration that could result in water quality improvements.

Channel Integrity and Aquatic Habitat

This alternative would provide protection for all eligible segments in the study area, similar to that afforded by the Streamflow Management Plan under Alternatives A2, A3, and the Preferred Alternative, without the guarantee of funding. Although the potential would exist for increased Federal funding for habitat restoration and enhancement, appropriation or allocation of such funding would not be guaranteed. Under this alternative, the Forest Service would pursue voluntary cooperative arrangements with

water providers to adjust outflows from existing facilities in order to benefit ORVs. Through an amendment to the Forest Plan, road maintenance and associated impacts would be more restrictive in this alternative than in Alternative A1; and this could help reduce sedimentation in most segments. However, because of the designation, attraction to a National System river could increase use in more accessible segments.

Designation would protect the existing channel integrity and aquatic habitat of each designated river segment. Designation could not force improvement of existing channel integrity, but voluntary cooperative arrangements could be made with landowners to perform such restoration.

No new water development or other action that might have a direct and adverse effect on channel integrity or aquatic habitat could occur in any designated river segment, because of the accompanying impact to free-flow, water quality, or the ORVs. Moreover, actions that occur upstream or on a tributary of a designated river segment, if they require Federal assistance and/or permit, would need to incorporate mitigation measures to bring any adverse effects within acceptable limits (section 7(a) of the WSRA). Any actions upstream that do not meet this requirement would not be allowed. Mitigation measures resulting from these upstream actions might include adjusted outflows from the facility, channel reconstruction to sustain channel integrity and protect ORVs, or some combination of the two. However, there would be a consistent process to analyze whether these measures meet the limits of section 7(a) of the WSRA. These limits are defined by the processes in *Forest Manual* 2345.7 (Appendix G) on the amount and type of reconstruction that would be allowable on a designated river. If those limits were exceeded by some proposed future project, then an alternate method of delivery of water to the metropolitan area would have to be developed. Such a scenario was envisioned in a letter to the city of Aurora in which a

\$425-million pipeline would be constructed from Antero Reservoir to Chatfield Reservoir following U.S. 285 (Mulhern, 1996).

Various measures, such as closing or improving roads in poor condition, revegetating disturbed areas, and restricting access to sensitive areas would be carried out to meet the intent of designation. These measures could also be implemented under Alternatives A2, A3, or the Preferred Alternative as part of habitat restoration projects funded through the endowment fund. These measures would help reduce sedimentation in the designated segments. At a minimum, these measures would prevent any degradation of habitat conditions throughout the South Platte study area, though they might be less effective in the North Fork study area.

Fishery Management

Special management areas would continue, with stocking and normal regulations maintained in most areas. Stocking of catchable fish would continue in normal regulation areas, while a variety of management options would be considered to produce quality fisheries in the special regulation areas. The designation of some segments to more restrictive use, and possibly improved habitat conditions, may warrant a change in regulation to reflect the increased fishery potential.

Management practices that reduce erosion and subsequent sedimentation in the river would probably be adopted. Habitat improvement techniques may be used to improve riparian and stream channel conditions.

Angler Use

Angler use is already high in this area, and any increase would result from addition to the National System and increased public awareness of the area. Additionally, angler use may increase in the entire study area as the population of Colorado increases. Access is restricted currently to foot traffic in the sections

classified as *wild* by lack of roads. This condition would not change under this alternative. (See section 5.9, "Recreation.") However, improvements in habitat conditions could result in a higher quality fishing experience.

Water Development and Flow Regime

The inclusion of all eligible segments into the National System would prevent the Federal Energy Regulatory Commission from licensing the construction of any dam, water conduit, reservoir, powerhouse, transmission line, or other project works under the Federal Power Act. In addition, no department or agency of the United States could assist by loan, grant, license, or otherwise in the construction of any water resources project within the river corridor that would have a direct and adverse effect on the values for which the river was designated. The most significant effect of designation under the WSRA would be to prohibit future impoundment of these rivers (subject to prior existing rights). Other water resource projects, such as structures for water diversion or sediment removal, would require review under the WSRA and may not be approved.

Designation would also require that any activities undertaken on areas or tributaries above or below designated reaches be evaluated to determine if they ". . .invade the area or unreasonably diminish the scenic, recreational, and fish and wildlife values present. . .as of the date of designation. . . ." (section 7, WSRA). If a determination is made that the area will be invaded or values will be unreasonably diminished, then the Forest Service would work with the project proponent to identify recommendations to reduce adverse effects to within acceptable levels (Diedrich, 1997).

Designation would not affect the operation of existing water development projects or existing flow regimes on the South Platte or North Fork. Designation would not affect any modified operation of existing water developments as long as there is not a

direct and adverse effect on the values for which the river was designated. However, the Forest Service would pursue voluntary cooperative arrangements with water providers to adjust outflows from existing facilities in order to benefit ORVs similar to those outlined for the Streamflow Management Plan in Alternatives A2, A3, or the Preferred Alternative.

For example, while natural ranges of flows, including high flows, are needed to maintain stream channels, increasing the duration of high flows (at or near bank-full discharge) well beyond natural ranges has been shown to damage streambanks in some cases. However, under the WSRA, (see Appendix F, sections 10(e) and 11(b) (1)), the Forest Service would pursue cooperative agreements with operators of water resource facilities to limit the artificially extended durations of high flows. These agreements would seek to provide better protection to the streambanks and aquatic resources but could limit timing and flow options for water delivery and storage.

Conversely, low flows within the study corridors have, for the most part, been favorably affected by releases from upstream impoundments, because the resulting flows are above the historic low-flow levels. These higher-than-normal low flows are beneficial to the aquatic resources of the river. However, if the volume of releases were to drop below historic low-flow levels, there could be an adverse impact to aquatic resources. If such operational changes were to occur on a designated Wild and Scenic River, then the Forest Service would, again, seek cooperative agreements that would ensure aquatic resource protection. These agreements could also affect timing and quantity of flow options available for water delivery and storage.

Designation might affect future flow regimes tied to a *new* water development structure; and any efforts to implement ongoing and planned water delivery improvements, such as channel modification, bank stabilization, diversions, and

other modifications of the waterway, would have to be evaluated for their effects on the river's free-flowing condition, water quality, and ORVs. New water resource projects could not be implemented if judged to have an adverse effect on the river's free-flow, water quality, and ORVs. On the North Fork, this could lead to impacts on the management of any planned delivery system for the future, increased costs, and additional Federal agency review of maintenance projects. On the South Platte, since there are few, if any, current or planned water delivery improvements necessary to maintain the system, there would be little or no impact to the system's operations.

Alternative B would have no effect on Denver Water's approved right-of-way for a 345,000-acre-foot reservoir near the confluence of the North Fork and the South Platte, because the Wild and Scenic River designation would be subject to that reservation. However, if additional discretionary Federal approvals were required to permit a resources project, Denver Water would not be able to obtain these approvals if the project were determined to have "direct and adverse" effects on the values for which the segment was designated.

Water suppliers in the Denver metropolitan area would have to plan for any new water storage, diversion and transmission facilities to be located outside the designated corridor. Communities now dependent on ground water would be precluded from constructing new reservoirs in designated corridors in order to develop surface supplies or to recharge their aquifers with surface water. The impetus to convert agricultural water supplies to municipal and industrial use may be greater under this alternative than under the others because no new dams could be built in the designated corridor to increase water storage. The greatest pressure on alternative sources of water supply would arise under this alternative. Disagreement exists whether implementation of this alternative would cause future water shortages in the Denver metropolitan area. Based on the SPPP's contemplation of a

possible future wherein no new reservoirs are constructed, it can be reasonably concluded that other sources of water might be sufficient to meet future demand. Others, however, remain unconvinced that those alternatives will prove sufficient and, instead, argue that no options should be foregone at this time (Douglas County Commissioners and Douglas County Water Resource Authority, 2000).

The effect on land values and private development in the study corridors is highly speculative. If Denver Water determined it was not able to construct a reservoir, then its extensive land holdings in the corridors might be considered excess and sold or exchanged with another entity. If these lands did go into private ownership, it is likely that the resulting development of additional homes, private recreation businesses, and commercial enterprises on what is now vacant land would change the current recreation and visual characteristics of the river corridor. If the lands were exchanged into Federal ownership, future development would be limited. Part of the corridor lies in Douglas County, one of the fastest growing counties in the United States. The value of private lands might increase under designation if potential purchasers and developers were less concerned about future inundation.

Generally speaking, existing water rights are not affected by designation. The WSRA states that designation shall not be construed as a reservation of the waters of such streams for purposes other than those specified in the WSRA or in quantities greater than necessary to accomplish these purposes. The Forest Service would be able to acquire water rights under State law. However, these would be junior to existing rights. The Forest Service would likely ask the Colorado Water Conservation Board to file for an instream flow water right on unappropriated flows to protect the ORVs from diversions by other parties. This action would not impact existing uses of water rights but would prohibit future water development. However, there is debate on whether

unappropriated flows exist except perhaps in years of high runoff.

One difference between all of the designation alternatives (B, C, D, F, G, I, and J) and those alternatives that include the SPPP (A2, A3, and the Preferred Alternative) is longevity. The SPPP alternatives offer protections for a 20-year time period. The SPPP would be evaluated for its overall effectiveness each time a water resources project was proposed. On the other hand, designation would provide permanent protection, with each proposed water resources project evaluated under section 7(a) of the WSRA.

Water Quality

One overall purpose of designation under the WSRA is to protect water quality (section 1(b)). The WSRA directs the Forest Service to cooperate with the Environmental Protection Agency and the State to protect and maintain water quality in designated river segments (section 12(c)) as well as reduce or eliminate sources of contamination. Designation by itself does not mandate higher water quality requirements but would likely heighten the priority for water quality protection and restoration by the Forest Service and the State, especially those sections conferred 303(d) status, due to the recognition of significant river resources.

The Clean Water Act provides authority for States to classify streams as to beneficial use and describe the water quality parameters that will be tested to monitor that classification quality. It is State of Colorado policy to classify waters in designated *wild* rivers as constituting an outstanding natural resource and, therefore, subject to anti-degradation rules CDPHE, 2001, section 31.8 (2) (a) (ii)). However, such an action is extremely unlikely given the problems with erosion control, especially in those segments with 303(d) status, and other impacts that exist in each eligible segment. (See "Channel Characteristics" under Chapter 2, "Affected Environment," section 2.12.)

If the waters within the designated reach classified as *scenic* or *recreational* do not meet State standards for the beneficial use classification of the stream, corrective action would be required (segments classified as *wild* must meet Federal and State standards to meet classification requirements). This would be the case for those segments conferred 303(d) status. This would lead to definite water quality improvements but would mean additional costs for the owners of any lands found to be sources of sedimentation. If the quality of imported water is below current standards, some additional treatment could be required before importation, which could also limit management options and increase costs.

Corridor designation would not affect land uses on non-Federal lands, where State and local land use regulations would prevail. However, voluntary cooperative arrangements could be made with landowners to emphasize water quality restoration. As in Alternatives A2, A3, and the Preferred Alternative, designation would heighten Forest Service priority for water quality protection and restoration measures on Federal lands.

ALTERNATIVE C

Designation under this alternative would be similar to Alternative B, except that the entire 10.4 miles of Segment C (Wildcat Canyon) would be designated as *scenic* instead of Segment C2 only.

Channel Integrity and Aquatic Environment

The effects of Alternative C would be similar to Alternative B for all sections except Segments C1 and C3 (10.4 miles), which would have a lower degree of protection because of the slightly higher potential for shoreline development and roads under a *scenic* classification. (See table 3-3, the classification matrix.)

This alternative would provide the highest level of protection for all eligible segments in the study area other than Segment C (Wildcat

Canyon). In that segment, the amount of protection would be slightly less than that provided by Alternatives B, D, F, G, and J but much more than that of Alternatives A1, A2, I, and possibly A3 or the Preferred Alternative. The construction of additional roads and trails in the Wildcat Canyon area is possible under this alternative but less probable than under Alternative A1 or I. Segments designated as *wild* would be managed for little or no evidence of human activity. Therefore, various measures would be implemented in these segments to reduce or restore existing disturbed areas, resulting in decreased sedimentation. The increased possibility of additional access into the Wildcat Canyon area, as compared to Alternatives B, D, F, G, and J, could result in increased sedimentation. Any existing or new access would be managed so as not to affect the *scenic* classification. Therefore, at a minimum, habitat conditions would remain constant throughout the study area.

Fishery Management

Fishery management would be similar to Alternative B.

Management practices that reduce erosion, and subsequent sedimentation in the river would probably be adopted. The potential to adopt management practices that reduce erosion and subsequent sedimentation in the river would be high, but not as high as in Alternative B in Segment C.

Water Development and Flow Regime

The effects of Alternative C would be the same as those of Alternative B.

Water Quality

The effects of Alternative C would be similar to those of Alternative B. Although the 1982 guidelines (U.S. Department of the Interior (DOI) and U.S. Department of Agriculture (USDA), 1982) for the WSRA state that water quality in *wild* waters must "meet or exceed

Federal criteria . . . ,” *scenic* and *recreational* waters would still be subject to the criteria of the Federal Pollution Control Act of 1972, under which a water quality improvement plan must exist or be developed for any waters considered to be of poor quality. Therefore, the *scenic* classification assigned to the entire length of Segment C in this alternative does not necessarily mean protection of water quality would be any less than under the Alternative B *wild* classification for Sections C2 and C3.

ALTERNATIVE D

This alternative would designate none of the segments on the North Fork but would designate all segments on the mainstem at their most protective classifications (49.4 miles). Effects of designation on the mainstem would be similar to Alternative B and on the North Fork, similar to Alternative A1.

Channel Integrity and Aquatic Environment

Like Alternative B, this alternative would provide the best protection for all eligible segments on the mainstem of the South Platte River in the study area. Management of the North Fork corridor would be the same as under Alternative A1. This alternative would provide more area of habitat protection than Alternative A1, F, G, I, or J but less than Alternative B or C. The potential exists for more area protection on the North Fork under Alternatives A2, A3, and the Preferred Alternative. However, comparison between Alternatives A2, A3, the Preferred Alternative, and Alternative D is difficult with the information currently in hand. The potential for water development projects being proposed and approved under Alternatives A2, A3, and the Preferred Alternative may decrease protection in some segments of the study area. There is no Federal prohibition of dams or diversions for the eligible segments on the North Fork under Alternative D. Management of the eligible South Platte corridors would be the same as under Alternative B.

Fishery Management

Fishery management on the South Platte, Segments A, B, C, D, and E, would be similar to Alternative B.

Effects on the North Fork, Segment H, would be similar to Alternative A1 with higher potential for water development projects that could significantly affect fish populations. This includes reduced potential for changes in management practices to reduce erosion and subsequent sedimentation in the North Fork.

Angler Use

The effects of angler use on the mainstem of the South Platte would be similar to Alternative B. Effects on the North Fork would be similar to Alternative A1.

Water Development and Flow Regime; Water Quality

The effects of this alternative on water development, flow regime, and water quality would be the same as those of Alternative B for the South Platte. For the North Fork, they would be the same as Alternative A1, with the following exceptions. Since the extreme lowest quarter-mile of the North Fork would lie within the designated corridor, it would be subject to the same potential restrictions on water quality, timing, and flows as under Alternative B. These restrictions could indirectly impact the operation of the Roberts Tunnel and of the entire river, just as if the entire North Fork corridor were designated. Under this alternative, the Forest Service would pursue voluntary cooperative arrangements with water providers to adjust outflows from existing facilities in order to benefit ORVs.

ALTERNATIVE F

This alternative would designate four segments on the South Platte River and one segment on the North Fork that fall entirely on National Forest land (total of 26.2 miles). Effects of

designation on these segments would be similar to Alternative B. Effects on the other segments would be similar to Alternative A1.

Channel Integrity and Aquatic Environment

Designating five segments of National Forest System lands within the study areas would have effects similar to those of Alternative B, but only on those lands. One of the most important areas in the study corridors for fish habitat and fish populations, from above Deckers to Scraggy View on the South Platte, would not be protected under this alternative.

This alternative would prohibit major dams and diversions in most of the aquatic habitats administered by the Forest Service in the study area. This would provide more area of habitat protection than Alternative A1, G, or I but less than any of the other alternatives. Under this alternative, habitats influenced by flow levels would be maintained to meet the appropriate designations. This alternative includes no Federal prohibition of dams or diversions for eligible North Fork Segments H1 and H3, nor for the areas of the South Platte in Segment E and the private lands around Lake George.

Management of the designated corridors would be identical to that described for Alternative B. In these areas, habitats influenced by flow levels would be maintained to meet the intent of the WSRA. This may result in protection of free-flows similar to that of Alternative B since both study rivers include segments recommended for designation. Various remedial measures—such as closing or improving roads in poor condition, revegetating disturbed areas, and restricting access to areas sensitive to surface-disturbing activities—would be carried out to meet the intent of designation. These measures would help reduce river sedimentation on federally administered lands. However, no such remediation would be required on non-Federal lands, even where they are intermingled with the Federal lands. Recreational impacts would have to be mitigated in Wildcat Canyon in order to meet the *wild* designation in Sections C1 and C3.

This would shift off-road-vehicle use outside the designated areas. As a result, habitat conditions would, at a minimum, remain constant throughout the designated portions of Federal lands in the study area, but could possibly degrade on the areas not recommended for designation.

Fishery Management

Fishery management under this alternative would be similar to that of Alternative B for the five segments of National Forest Land in the study area. The designation of some segments to more restrictive use, and possibly improved habitat conditions, may warrant a change in regulation to reflect the increased fishery potential. The fragmented nature of the designated segments may make regulation more difficult.

Attempts would continue to reduce erosion and subsequent sedimentation in the river. Habitat improvement techniques may be used to improve riparian and stream channel conditions on the designated areas to provide a higher quality habitat.

Angler Use

The effects on angler use for the five segments of National Forest Land in the study area would be similar to Alternative B. Angler use may increase in all segments as the population of Colorado increases. However, the increased desirability of the designated segments to visitors that are interested in experiencing a higher quality and more pristine fishery would probably draw more people to the area.

Water Development and Flow Regime

Designating five segments of National Forest System lands within the study corridors would have effects on water development and flow regime similar to those of Alternative B but only on those lands. No non-Federal lands would be involved, so many of Denver Water's current operations in the North Fork would not be

subject to review for compliance with the WSRA unless they inundated or unreasonably diminished the values for which the upstream or downstream *wild* and *scenic* river segments were designated. Potential water storage opportunities in the undesignated segments are not foreclosed.

Water Quality

The effects on water quality would be similar to those of Alternative B.

ALTERNATIVE G

This alternative would designate the 30.8 miles of the South Platte River in the study area that are upstream from Cheesman Reservoir. Effects in the designated area would be similar to Alternative B. Effects in the non-designated segments would be similar to Alternative A1.

Channel Integrity and Aquatic Environment

This alternative would provide the same protection for the aquatic habitats in the study area upstream of Cheesman Reservoir as in Alternative B. The most important area in the study corridors for fish habitat and fish populations, from Cheesman Dam to Scraggy View on the South Platte, would not be protected.

This alternative would provide more area of habitat protection than Alternative A1 or I but less than any of the other alternatives. It includes no Federal prohibition of major dams, diversions, or water developments for the eligible North Fork segments or for the eligible South Platte segments downstream from Cheesman Dam. Management of the South Platte corridor upstream from Cheesman Reservoir would be identical to that described for Alternative B. In that area, habitats influenced by flow levels would be maintained to meet the appropriate designations. Road maintenance and construction near the mainstem from Cheesman Reservoir up through Elevenmile Canyon would be more

restricted than under Alternative A1, in order to reduce their associated impacts. Various remedial measures—such as closing or improving roads in poor condition, revegetating disturbed areas, and restricting access to areas sensitive to surface-disturbing activities—would be carried out to meet the intent of designation. These measures would help reduce sedimentation in the designated segments. Recreational impacts would have to be mitigated in Wildcat Canyon in order to meet the *wild* designation. This would shift off-road-vehicle use outside the designated areas. Habitat conditions, at a minimum, would remain constant along the South Platte above Cheesman Reservoir. Effects on habitat conditions along segments found not suitable would be similar to those described under Alternative A1.

Fishery Management

Effects on fishery management would be similar to Alternative B for segments A, B, and C. Effects for all other segments would be similar to Alternative A1.

Angler Use

Effects on angler use would be similar to Alternative B for segments A, B, and C. Effects for all other segments would be similar to Alternative A1.

Water Development and Flow Regime; Water Quality

On the South Platte above Cheesman Reservoir, this alternative would have the same effects as Alternative B. Potential water storage opportunities in the undesignated segments are not foreclosed. Below Cheesman Reservoir and on the North Fork, effects would be similar to those of Alternative A1.

ALTERNATIVE I

This alternative would designate the 22.4 miles of the South Platte within the study corridor

upstream from Corral Creek. Effects on Segment C1 would be similar to Alternative C, and effects on the other designated segments would be similar to Alternatives B or C. Effects on the non-designated segments would be similar to Alternative A1.

Channel Integrity and Aquatic Environment

On the South Platte above Beaver Creek, this alternative would have the same effects as Alternative B. The effects between Beaver Creek and Corral Creek would be the same as those of Alternative C. For the remaining segments, the effects would be the same as those of Alternative A1. This alternative would provide slightly more area of habitat protection than Alternative A1 but less than the other alternatives provide. The most important part of the study corridors for fish habitat and fish populations, from Cheesman Dam to Scraggy View on the South Platte, would not be protected under this alternative, and it provides no Federal prohibition of major dams, diversions, or water developments on the eligible North Fork segments, nor on the eligible South Platte segments downstream from Corral Creek. On the eligible segments upstream from Corral Creek, habitats influenced by flow levels would be maintained to meet the appropriate designations. Sedimentation would be reduced throughout the designated segments. There would be some potential for construction of additional roads and trails in the Wildcat Canyon area above Corral Creek. Construction of additional roads and trails in Wildcat Canyon below Corral Creek would be subject to current Forest Plan standards and guidelines. At a minimum, habitat conditions would remain constant in the designated areas upstream from Corral Creek; however, major habitat changes could occur in all the remaining segments.

Fishery Management

Effects on fishery management would be similar to Alternatives B and C for segments A, B, and C2. Effects on C1 would be similar to Alternative C. Effects for all other segments would be similar to Alternative A1.

Angler Use

Effects on angler use would be similar to Alternatives B and C for segments A, B, and C2. Effects on C1 would be similar to Alternative C. Effects for all other segments would be similar to Alternative A1.

Water Development and Flow Regime; Water Quality

On the South Platte above Beaver Creek, this alternative would have the same effects on water development, flow regime, and water quality as Alternative B. Between Beaver Creek and Corral Creek, it would have the same effects as Alternative C. Potential water storage sites in the undesignated segments are not foreclosed. Below Corral Creek and on the North Fork, the effects would be the same as those of Alternative A1.

ALTERNATIVE J

The effects on the 48.1 miles of eligible segments along the South Platte above the North Fork confluence under Alternative J are described below. The effects on the entire North Fork and on the 1.4 miles of the South Platte below the North Fork confluence would be the same as those of Alternative A1.

Channel integrity and Aquatic Habitat

Like Alternative D, this alternative would provide the best protection for all eligible segments on the South Platte in the study area, except that no protection would be provided for the 1.3-mile section of the South Platte River from the North Fork confluence to Strontia Springs Reservoir and for the entire

North Fork study corridor. Management of the North Fork corridor and the 1.3-mile non-designated South Platte segment would be the same as under Alternative A1.

On the South Platte, habitats influenced by flow levels would be maintained to meet the intent of the WSRA. This may result in protected flow levels on that river similar to those of Alternative B. Road maintenance and its associated impacts would be more restrictive in this alternative than they are at present. Sedimentation could be reduced along the South Platte but could increase along the North Fork. The same potential exists for construction of additional roads and trails in Segment C2 in Wildcat Canyon as under Alternative B, D, F, or G, which could lead to more sedimentation in this area. Also, recreational use of that segment could increase if access is improved into the area.

Fishery Management

Effects on fishery management would be similar to Alternative C except for the 1.3-mile section of the South Platte River from the North Fork confluence to Strontia Springs Reservoir and for the entire North Fork study corridor. Effects on these sections would be similar to Alternative A1.

Angler Use

Effects on angler use would be similar to Alternative C except for the 1.3-mile section of the South Platte River from the North Fork confluence to Strontia Springs Reservoir and for the entire North Fork study corridor. Effects on these sections would be similar to Alternative A1.

Water Development and Flow Regime

On the South Platte above the North Fork confluence, this alternative would have the same effects as Alternative D. On the North Fork and on the South Platte below the North Fork confluence, it would have the same effects as

Alternative A1. Potential water storage sites in the undesignated segments are not foreclosed.

Water Quality

For the designated segments, this alternative would have the same effects as Alternative C. For the remaining segments, it would have the same effects as Alternative A1.

5.8 WILDLIFE

As described in the "Affected Environment" section (Chapter 2), the study area contains a diverse mix of vegetation from wetlands to upland forests. This mix of vegetation creates diverse habitat for wildlife that helps meet their feeding, cover, and breeding requirements. All of the acres within the study corridors are considered wildlife habitat except for the areas occupied by roads and facilities. Segments C, D, E, and H have been determined to possess ORVs for wildlife.

Designation of the study area, or lack of designation, would provide varying amounts of protection for wildlife habitat and would affect the management of the corridor for wildlife in the future.

A ranking of the alternatives based on the amount of protection they provide for wildlife habitat, from most protective to least protective, is as follows: Alternative B, C, D, J, F, G, I, A3-*Suitable*, Preferred Alternative, A3-*Not Suitable*, A2, and A1. This is based on the number of river miles that are protected, the significance of the protected habitat, the permanence of protection, and the activities allowed in each classification (*wild, scenic, or recreational*).

During scoping, the public raised the issue of the effects of designation on downstream threatened and endangered species such as the whooping crane, piping plover, and least tern and on associated habitat of the sandhill crane.

If the study area or segments of the study area were designated, the construction of a dam and reservoir on those segments would be precluded. Currently, the eligible segments are free-flowing. With designation, they would continue to be free-flowing. Wild and Scenic designation would not alter existing downstream water allocations or determine the quantity of water that eventually reaches habitats of downstream threatened and endangered species (Denver Water, 2002). Without Wild and Scenic designation, future dam and reservoir proposals could be considered. If one is proposed that would "cause a new depletion or facilitate the continued depletion" of the South Platte River, consultation with the U.S. Fish and Wildlife Service would be required under section 7 of the Endangered Species Act. The Fish and Wildlife Service would determine the effects of the proposed project on downstream species at that time.

ALTERNATIVE A1 – NO ACTION

In this alternative, the current management activities that affect wildlife and its habitat would not change. The Forest Plan would continue to be the primary document guiding management of the study area, and recreation would continue to be the major management emphasis in the corridor. Fuel wood removal, prescribed fires, the treatment of noxious weeds, and cattle grazing are some of the management activities that would continue as they have in the past. The Forest Service, Colorado Division of Wildlife, and Denver Water would continue to work cooperatively to manage lands and enforce wildlife regulations. Any proposed project that may affect threatened, endangered, or proposed species would still be subject to the Endangered Species Act; and the project's effects on sensitive species and management indicator species would also be considered.

Water Development

Alternative A1 would allow the potential for dam and reservoir development in the study area. While specific impacts would be addressed in detail at the time of such a proposal, the analysis of past inundation proposals in the study area (U.S. Army Corps of Engineers [USACE], 1988a) determined that there would have been habitat losses for wildlife which would have required costly replacement mitigation.

Direct, Indirect, and Cumulative Effects

Given the expected population increase within Colorado, it is likely that incremental habitat losses would occur in the study area from the development of private lands and the development of visitor facilities on public lands. Increased human activity in the area could also reduce the effectiveness of the habitat. Secondary negative effects include the increased risk of wildfire and the introduction of non-native species, particularly noxious weeds. These effects are common to all alternatives and are considered to be part of the baseline conditions.

Based on the biological report (Appendix E), this alternative would not affect federally listed species, sensitive species, or management indicator species.

ORV Protection

This alternative would not identify or provide additional protection for any ORVs in the study area.

ALTERNATIVE A2

In the A2 proposal one of the stated goals is to "Provide resource and ecological protection or restoration for wildlife and plant species." (See Appendix A, Attachment C, p. C-2.) The details of how this would be accomplished are not stated but would be addressed in the future in a more detailed Recreation Management

Plan. Based on this stated goal, wildlife, and plant species may receive more emphasis on Denver Water and private lands in the future. Since this proposal extends from Elevenmile Reservoir to Chatfield State Park, this alternative provides an opportunity to cooperatively manage more acres for the benefit of wildlife than do any of the designation alternatives. Habitat improvement projects, such as prescribed burning, would be more effective with the coordinated effort of all land managers. Funding for wildlife habitat improvement projects may be available through the Endowment Fund. (See Appendix A, Attachment D.) Overall, wildlife habitat management under this alternative would not vary substantially from the existing condition. The Forest Plan would continue to be the primary document guiding wildlife habitat management on National Forest System lands. Recreation would continue to be the major management emphasis in the corridor. The Forest Service, Colorado Division of Wildlife, and Denver Water would continue to work cooperatively to manage lands and enforce regulations for wildlife. Any proposed project that may affect threatened, endangered, or proposed species would still be subject to the Endangered Species Act. Any proposed actions on National Forest System lands would also be evaluated for their effects on sensitive species and management indicator species.

The A2 proposal also specifically mentions developing Bailey Canyon as a special recreation area with emphasis on whitewater recreation (Appendix A, Attachment A). This area is currently managed as big game winter range, and developing it with a recreation emphasis would diminish its value for wildlife.

Water Development

Alternative A2 would allow water-supply-related improvements in Segments B, C, E, and H but would not impact the corridor's ORVs significantly during the 20-year moratorium on development of Denver Water's right-of-way. The A2 proposal commits to not build any

waterworks facilities in Cheesman Canyon or Elevenmile Canyon and to withdraw the application for 780,000 acre-feet of additional storage at the Two Forks site.

Direct, Indirect, and Cumulative Effects

This alternative would protect 11.8 miles of the river corridor in Cheesman and Elevenmile Canyons from impoundment. The biological report determined that this alternative would benefit all federally listed, sensitive, and management indicator species in the study area for at least 20 years. Because of the complex implementation of the management plans and the 20-year time limit for protection, this alternative provides less protection than the designation alternatives and Alternative A3 or the Preferred Alternative, but more than the no action alternative (A1). Under Alternative A2, long-term protection of the ORVs is not a certainty, and more complex implementation measures may be required. After 20 years, wildlife habitat in the river corridor could be at risk of inundation.

ORV Protection

The Pawnee montane skipper population and habitat was determined to be an outstandingly remarkable wildlife value in Segments C, D, E, and H. The A2 alternative would protect this value primarily through its use of the Endangered Species Act. As stated in the A2 proposal (Attachment A of Appendix A), any lease of lands owned by Denver Water in Segments C, D, E, and H would specify that areas of skipper habitat be managed in a manner to protect the species. This commitment is subject to future critical habitat mapping, delisting of the species, or changes to the Endangered Species Act. The skipper was identified as an ORV based on its unique occurrence in the river corridor, not on its status as a listed species. Should the species be delisted or any other stated change take place, it is not clear how the A2 alternative would provide protective measures for this ORV.

Peregrine falcon habitat was determined to be an ORV in Segment H. The known nesting site is currently closed to human activity each nesting season. Alternative A2 would recommend additional road and trail construction restrictions for this site. These measures would provide full protection for this ORV for at least 20 years. Protective measures beyond 20 years were not identified.

ALTERNATIVE A3 AND THE PREFERRED ALTERNATIVE

Alternatives A3-*Suitable*, A3-*Not Suitable*, and the Preferred Alternative would protect all ORVs for at least 20 years but would not recommend designation. These alternatives are not substantially different from A2 in terms of their effects on wildlife. One difference is that the Bailey Canyon area would continue to be managed as big game winter range, with low levels of recreation use, rather than as a special-emphasis whitewater recreation area. This would protect the winter range and riparian wildlife habitat of the canyon. The Wildcat Canyon area, Segment C, would have a focused planning effort to determine compatible and appropriate uses for the area. Wildlife is one of the issues of concern in this area.

Water Development

In addition to the A2 commitments, the Preferred Alternative and Alternative A3-*Suitable* would protect eligibility on National Forest System lands, and A3-*Not Suitable* would allow critical development projects to have limited or reasonable effects on ORVs or free-flow.

Direct, Indirect, and Cumulative Effects

The A3 alternatives and the Preferred Alternative would protect 11.8 miles of the river corridor in Cheesman and Elevenmile Canyons from impoundment. The biological report determined that this alternative would benefit all federally listed, sensitive, and management

indicator species in the study area for at least 20 years. Because of the management changes stated above, the A3 alternatives and the Preferred Alternative would protect wildlife habitat more than Alternatives A1 or A2 but less than the designation alternatives. Additionally, under the Preferred Alternative and Alternative A3-*Suitable*, the ORVs on National Forest System lands would be protected; and as a consequence, wildlife habitat on those lands would also be protected. Since Alternative A3-*Not Suitable* would allow limited or reasonable effects on ORVs, it would not provide as much wildlife habitat protection as Alternative A3-*Suitable* or the Preferred Alternative.

ORV Protection

The Pawnee montane skipper population and habitat was determined to be an ORV in Segments C, D, E, and H. The A3 alternatives and the Preferred Alternative would protect this value primarily through use of the Endangered Species Act and by committing to not build waterworks facilities in Segment D. Since Alternative A3-*Not Suitable* would allow limited or reasonable effects to this ORV, it would not provide as much protection as the Preferred Alternative or Alternative A3-*Suitable*. Should the skipper be delisted or any other stated change take place, this ORV would continue to be protected on National Forest System lands under the Preferred Alternative and Alternative A3-*Suitable* and, to a lesser extent, under A3-*Not Suitable*.

Peregrine falcon habitat was determined to be an ORV in Segment H. The known nesting site is currently closed to human activity each nesting season. The A3 alternatives and the Preferred Alternative would recommend additional road and trail construction restrictions for this site. These measures would provide full protection for this ORV for at least 20 years. Protection measures extending beyond 20 years were not identified. Additionally, under Alternative A3-*Suitable* and the Preferred Alternative, a small portion of the

site that is on National Forest System lands would be protected as an ORV. Since Alternative A3-*Not Suitable* would allow limited or reasonable effects to this ORV, it would not provide as much protection as the Preferred Alternative or A3-*Suitable*.

ALTERNATIVE B

This alternative would protect 72.3 miles of the rivers at their most protective classifications.

Water Development

Designation under the WSRA would prohibit future impoundments of the designated rivers by any major water resource project requiring Federal approvals, subject to prior existing rights. Any proposed improvements to the water delivery system—such as channel modification, bank stabilization, diversions, and other modifications of the waterway—would have to be evaluated for their effects on the river's free-flowing condition and ORVs.

Direct, Indirect, and Cumulative Effects

This alternative could provide additional protection for wildlife and its habitat primarily due to the prohibition of future impoundments. Designation would also prohibit new roads and motorized use in *wild* segments and limit new construction and new river crossings in scenic segments, which would reduce disturbances to wildlife and riparian habitat. This alternative would allow less recreation development and road construction than any of the other alternatives. This restriction on development could result in favorable cumulative effects by providing habitat linkages and connectivity with other undeveloped drainages, particularly in Segment C, Wildcat Canyon. On the other hand, accessibility for future wildlife habitat improvements projects could be limited, especially in Segment C. Because this alternative protects the most river miles in the most protective classifications, the biological report determined that this alternative would

benefit all federally listed, sensitive, and management indicator species in the study area more than any other alternative.

ORV Protection

Under this alternative, wildlife ORVs would be protected under the guidance of the Wild and Scenic Rivers Act in all areas where they have been identified (Segments C, D, E, and H). All skipper habitat and peregrine falcon habitat in the study area would be protected.

ALTERNATIVE C

Water Development

The effects of water development on wildlife would be the same as under Alternative B.

Direct, Indirect, and Cumulative Effects

The effects on wildlife under this alternative would be the same as those of Alternative B, except that the 10.4-mile section of Segment C would be managed as scenic and not wild. This would allow some roads and motorized use in Segment C that would not be allowed under Alternative B. In the past, motorized use of portions of Segment C has impacted riparian, wetland, and upland habitat. This alternative would create favorable cumulative effects by providing habitat linkages and connectivity with other undeveloped drainages, but it may not be as effective in this respect as Alternative B. The biological report determined that Alternative C would benefit all federally listed, sensitive, and management indicator species in the study area but would provide less benefit than Alternative B.

ORV Protection

Under this alternative, wildlife ORVs would be protected under the guidance of the Wild and Scenic Rivers Act in all areas where they have been identified (Segments C, D, E, and H). All skipper habitat and peregrine falcon habitat in the study area would be protected.

ALTERNATIVE D

Water Development

The effects of water development on wildlife would be the same as under Alternative B for Segments A, B, C, D, and E and the same as Alternative A1 for Segment H.

Direct, Indirect, and Cumulative Effects

The effects on wildlife under this alternative would be the same as those of Alternative B, except that Segment H of the North Fork would not be recommended for designation. This segment is 22.9 miles long. About 700 acres of riparian habitat, 140 acres of grassland habitat, and 5,400 acres of forested habitat in this segment would not be protected through designation. The biological report determined that this alternative would benefit most federally listed, sensitive, and management indicator species in the segments considered but would provide less benefit than Alternative C. Even though Segment H1 would not be protected, Alternative D would not impact the boreal toad. The effects on Segment H would be the same as Alternative A1.

ORV Protection

Under this alternative, the wildlife ORVs would be protected under the guidance of the Wild and Scenic Rivers Act on Segments C, D, and E but not on Segment H. Approximately 60 percent of the skipper habitat in the study area would be protected.

ALTERNATIVE F

Water Development

The effects of water development on wildlife would be the same as under Alternative B on all National Forest System lands and the same as under Alternative A1 on other lands.

Direct, Indirect, and Cumulative Effects

The effects on wildlife under this alternative would be similar to those of Alternative D, except that an additional 2.6-mile segment on the North Fork would be recommended for designation (Segment H2), a 19.5-mile segment of the South Platte downstream from the Wigwam Club property (Segment E) would not be designated, and two small sections totaling 6.3 miles around Lake George would not be designated. The effects would be the same as in Alternative B for the designated segments and the same as in Alternative A1 for the non-designated segments. The biological report determined that this alternative would benefit most federally listed, sensitive, and management indicator species in the segments considered but would provide less benefit than Alternative J. Even though Segments E and H3 would not be protected, Alternative F would not impact the Ute ladies tresses' orchid.

ORV Protection

Under this alternative, the wildlife ORVs would be protected under the guidance of the Wild and Scenic Rivers Act on Segments C and D but not on Segments E and H. Approximately 5 percent of the skipper habitat in the study area would be protected.

ALTERNATIVE G

Water Development

The effects of water development on wildlife would be the same as under Alternative B for Segments A, B, and C. The effects for Segments D, E, and H would be similar to those of Alternative A1.

Direct, Indirect, and Cumulative Effects

The effects on wildlife under this alternative would be the same as those of Alternative B on the South Platte upstream from Cheesman Reservoir, and the same as those of Alternative A1 on the North Fork and the

South Platte downstream from Cheesman Reservoir. The biological report determined that this alternative would benefit most federally listed, sensitive, and management indicator species in the segments considered but would provide less benefit than Alternative F. Even though Segments E, H1, and H3 would not be protected, Alternative G would not impact the Ute ladies tresses' orchid or the boreal toad.

ORV Protection

Under this alternative, the wildlife ORVs would be protected under the guidance of the Wild and Scenic River Act on Segment C but not on Segments D, E, or H. Approximately 1 percent of the skipper habitat in the study area would be protected.

ALTERNATIVE I

Water Development

The effects of water development on wildlife would be the same as under Alternative C for Segments A and B and for the part of Segment C from Beaver Creek to Corral Creek. The effects for Segments D, E, and H and for Segment C downstream from Corral Creek would be similar to those of Alternative A1.

Direct, Indirect, and Cumulative Effects

The effects on wildlife under this alternative would be the same as those of Alternative C upstream from Corral Creek, and the same as Alternative A1 downstream from Corral Creek. The biological report determined that this alternative would benefit most federally listed, sensitive, and management indicator species in the segments considered but would provide less benefit than Alternative G. Even though Segments E, H1, and H3 would not be protected, this alternative would not impact the Ute ladies tresses' orchid or the boreal toad.

ORV Protection

Under this alternative, the wildlife ORVs would be protected under the guidance of the WSRA on Segment C upstream from Corral Creek but not on Segment C downstream from Corral Creek or on Segments D, E, or H. Less than 1 percent of the skipper habitat in the study area would be protected.

ALTERNATIVE J

Water Development

The effects of water development on wildlife would be the same as under Alternative B for Segments A, B, C, D, and E above the confluence with the North Fork. The effects on Segment E downstream from the confluence with the North Fork and Segment H would be similar to those of Alternative A1.

Direct, Indirect, and Cumulative Effects

The effects on wildlife under this alternative would be the same as those of Alternative B, except that Segment H of the North Fork and a 1.3-mile section of Segment E would not be recommended for designation. About 700 acres of riparian habitat, 140 acres of grassland habitat, and 60 acres of shrubland, and 5,700 acres of forested habitat would not be protected through designation. The biological report determined that this alternative would benefit most federally listed, sensitive, and management indicator species in the segments considered but would provide less benefit than Alternative D. Even though Segments H1, would not be protected, this alternative would not impact the boreal toad.

ORV Protection

Under this alternative, the wildlife ORVs would be protected under the guidance of the WSRA on Segments C, D, and E but not on Segment H or 1.3 miles of Segment E. Approximately 60 percent of the skipper habitat in the study area would be protected.

5.9 RECREATION

This section discusses the effects of each alternative on recreation in terms of recreation use, recreation experience, facilities development, management, recreation partnerships, and protection of ORVs. Recreation use of the area has an economic and social influence on the local counties. It also affects their natural resources. The principal differences between the alternatives relate to the potential implementation of water resource development and on river protection scenarios.

EFFECTS COMMON TO ALL ALTERNATIVES

In all alternatives, the State's authority over boating safety is unaffected. Laws and regulations regarding boating on rivers, including passage of watercraft through reaches bounded by private land, would be applicable in all alternatives. For Alternatives A2, A3, and the Preferred Alternative, the increase in total recreation use and visitation would be most similar to that of Alternative B, based on the geographic area included. However, Alternatives A2, A3, and the Preferred Alternative offer better opportunities for management partnerships, funding, and enforcement than any of the designation alternatives, which would likely have to rely more on Federal funding and personnel for implementation. In addition, some of the river flow and bank rehabilitation agreements in A2, A3, and the Preferred Alternative could enhance many recreation values by reducing the appearance of unnatural impacts, by improving fisheries, or by extending periods when flow is sufficient for boating.

The types of recreation experiences available under Alternatives A2, A3, and the Preferred Alternative would parallel those of Alternative B, since the SPPP would use the same guidelines as those used under

WSRA designation for establishing and maintaining river classifications and Recreation Opportunity Spectrum (ROS) classes. In these alternatives, the potential for cooperative management and funding of recreation facilities is high, with a commitment by Denver Water to allow another agency to manage recreation use and development on its lands. In many parts of the corridor, Denver Water's lands offer better recreational opportunities than the National Forest System lands. Alternatives A2, A3, and the Preferred Alternative also provide a source of funding for projects that could include recreation facilities. The opportunity for management partnerships is very high in these alternatives, with several agencies and organizations committed in writing to providing funds or other resources.

Alternatives A2, A3, and the Preferred Alternative do not protect outstandingly remarkable recreation values as well as the designation alternatives, in that the SPPP does not prohibit dam construction. However, long-term protection is greater than in no action Alternative A1, because under the SPPP Denver Water voluntarily commits to not proposing a dam in their right-of-way at the confluence for an extended time period, and all water providers commit to constructing no new water works in Elevenmile and Cheesman Canyons.

Alternatives A2, A3, and the Preferred Alternative include a larger river corridor area than any of the other alternatives since the management area would extend downstream to include Strontia Springs Reservoir and Waterton Canyon to Chatfield State Park. This larger river management area and the cooperative commitments provide an opportunity for greater consistency in management and, therefore, a higher quality recreation experience and protection of ORVs, free-flow, and water quality. Alternatives A2, A3, and the Preferred Alternative probably provide a greater service to the recreating public than the other alternatives considered in this study.

ALTERNATIVE A1 – NO ACTION

This alternative accommodates the current recreation use patterns as directed by the Forest Plan but allows for more recreation developments in the area. New recreational facilities would be analyzed on a case-by-case basis for consistency with the Forest Plan. Commercial outfitting and guiding would continue to be administered by special use permit. Additional operations may be permitted if consistent with the Forest Plan.

Recreation use is expected to continue to increase annually but would likely increase somewhat less rapidly than with the Wild and Scenic River designation proposed in Alternatives B through J. Designation may inherently attract more visitors to the river corridor. Road construction and timber harvest under the Forest Plan could reduce the opportunities for solitude and primitive recreation experiences in the potential *wild* and *scenic* segments of the study corridors. The ROS classes for the study corridors would remain *rural* for Segments A, B, E, and H; *semi-primitive motorized* for Segment C from Corral Creek to Vermillion Creek; and *semi-primitive nonmotorized* on Segment C from Corral Creek to Cheesman Reservoir and on Segment D

Motorized off-highway-vehicle recreation opportunities would continue to be available in the potential *wild* segments, especially in the areas of current OHV use such as Wildcat Canyon. Any new road construction in the study corridors would provide additional opportunities for motorized recreation, including sightseeing.

This alternative leaves open the potential for major dams, diversions, and water developments in the study corridors. If this should occur, those recreation opportunities, based on the free-flowing river as currently exists, could be irretrievably lost. Different types of recreation opportunities could become available, though, if a new reservoir were built.

If no additional water resource projects are built, recreation uses are expected to increase by 3-4 percent annually on National Forest System lands. Extensive partnership efforts with Denver Water, Colorado Division of Wildlife, four-wheel drive clubs, and other organizations would continue to provide quality recreation opportunities and additional resource protection in the area. Opportunities to provide additional recreation facilities along the study corridors would not be affected.

ALTERNATIVE A2

Alternative A2 would allow water-supply-related improvements in Segments B, C, E, and H, although Denver Water has committed itself to not cause significant impacts to the recreation ORVs considering the river corridor as a whole. This ORV protection standard is greater than that provided in A1 but less than that provided in A3, the Preferred Alternative, or any of the designation alternatives.

ALTERNATIVE A3 AND THE PREFERRED ALTERNATIVE

Alternatives A3-*Suitable* and A3-*Not Suitable* and the Preferred Alternative provide two development standards: A3-*Suitable* and the Preferred Alternative absolutely protect the eligibility of river segments on National Forest lands, whereas A3-*Not Suitable* has eligibility as a goal but allows some critical development projects that could have limited or reasonable effects to ORVs or free-flow. The Preferred Alternative and A3-*Suitable* protections of ORVs and free-flow are greater than those of Alternatives A1, A2, or A3-*Not Suitable* but are less than those of any of the designation alternatives. For example, under A3-*Not Suitable*, if a proposed diversion structure would create a small impoundment that would affect the kayaking, canoeing, or tubing experience, it nevertheless could be approved if a need for additional water supplies was determined to be critical enough to warrant limited or reasonable effects to the recreation ORV.

ALTERNATIVE B

Annual recreation use on National Forest System lands would be expected to be slightly higher under this alternative than under A1, as rivers receive more publicity through designation. If designation does attract more users to the river corridor and no mitigation measures are taken, it could cause cumulative impacts such as habitat degradation and visible impacts such as vegetation loss at campsites and along foot trails, bank erosion, and increased litter.

A river management plan would be developed, which would include mitigating measures to protect the natural resources in the corridor from increasing recreation use. Any increases in use would be monitored, and measures would be taken to mitigate any impacts on private lands and ORVs as determined by the management plan. If necessary, these measures could include limiting dispersed camping sites, access, parking, or user numbers, or providing appropriate facilities compatible with the classification.

This alternative is likely to maintain the current recreation use patterns, except that motorized OHV use would not be allowed in Segments C1 and C3. This would not change current use appreciably since most motorized use in Wildcat Canyon is confined to Segment C2. Additional measures to protect current recreation values would be specified in a river management plan, which would include special measures to protect and enhance the recreation ORVs in Segments A, D, E, and H. This alternative generally limits developed recreation construction in the river corridors. It precludes the construction of major public use areas such as large developed campgrounds, administrative sites, and interpretive centers in the *wild* segments of the river corridors. Recreational development could occur in *scenic* segments if such structures were screened from the river. Recreational development in the *recreational* segments would allow major public use areas and campgrounds in close proximity to the river

as long as the ORVs were protected. However, this classification does not require extensive recreation development. Disabled access would be increased as recreation sites are improved in the *recreational* and *scenic* segments.

The opportunities for solitude in the *wild* sections in Segments C and D would be enhanced and maximized under this alternative. The ROS would change from semi-primitive motorized to semi-primitive nonmotorized in Segments C1, C2, and D. Motorized recreation opportunities in these areas would be prohibited. This would ensure the protection of the high-quality nonmotorized dispersed recreation opportunities in these areas. The current OHV use would be allowed to continue in Segment C2. New roads and recreation development in this segment would be discouraged but not prohibited. The ROS would change from roaded natural to semi-primitive nonmotorized in Segment H2. This would lead to the protection of the area's backcountry nature. The ROS class would remain roaded natural for Segments A, B, E, H1, and H3.

Even more extensive partnership efforts with Denver Water, Colorado Division of Wildlife, four-wheel drive clubs, and other organizations would be pursued; and some additional Federal funding could be available to provide additional protection to the recreational ORV in the area.

This alternative provides no potential for approved dams, diversions, and water development projects in the river corridors. Recreation opportunities and activities dependent on the free-flowing river would be preserved.

ALTERNATIVE C

The effects of Alternative C would be similar to those of Alternative B except that all of Segment C would remain *semi-primitive motorized*. This would allow the continuation of the area's current OHV use and backcountry nature and would discourage, but not prohibit, new roads

and recreation development in this segment. The opportunities for solitude in the *wild* section in Segment D would be enhanced and maximized under this alternative. The ROS would change from *semi-primitive motorized* to *semi-primitive nonmotorized* in this section, and motorized recreation would be prohibited. This would ensure the protection of high-quality nonmotorized dispersed recreation opportunities in Segment D. The ROS classifications for Segments A, B, E, H1, H2, and H3 would be the same as under Alternative B.

ALTERNATIVE D

The effects of this alternative are the same as those of Alternative B on the South Platte corridor and those of Alternative A1 on the North Fork corridor.

ALTERNATIVE F

The effects of the alternative would be similar to those of Alternative B for National Forest System lands, except that it would provide no protections from major dams, diversions, and water developments and no protections for recreation ORVs downstream from the Wigwam Club property on the South Platte and in Segments H3 and H1 on the North Fork.

ALTERNATIVE G

The effects of this alternative are the same as those of Alternative B for the South Platte corridor upstream from Cheesman Reservoir, and the same as those of Alternative A1 for the South Platte corridor downstream from Cheesman Reservoir and for the entire North Fork corridor. This alternative would provide no protections from major dams, diversions, and water developments and no protections for recreation ORVs downstream from Cheesman Dam neither on the South Platte nor on the North Fork.

ALTERNATIVE I

The effects of this alternative are the same as those of Alternative C for the South Platte corridor upstream from Corral Creek and the same as those of Alternative A1 for the South Platte corridor downstream from Corral Creek and for the entire North Fork corridor. This alternative would provide no protections from major dams, diversions, and water developments and no protections for recreation ORVs downstream from Corral Creek on the South Platte nor on the North Fork.

ALTERNATIVE J

The effects of this alternative would be the same as those of Alternative D except in the following places:

1. The effects to a 1.3-mile section of the South Platte downstream from the confluence would be the same as Alternative A1.
2. Segment C2 would remain *semi-primitive motorized*.

This classification would allow the continuation of the area's current OHV use and backcountry nature and would discourage, but not prohibit, new roads and recreation development in these segments.

5.10 TRANSPORTATION

EFFECTS COMMON TO ALL ALTERNATIVES

All roads in Segment C, Wildcat Canyon, are closed currently subsequent to the June 2002 Hayman Fire and pending a roads analysis. The following discussion addresses road status for all alternatives prior to the fire, and reference to keeping roads open is based on pre-fire conditions. The conclusions of this EIS transportation analysis may change

subsequent to the findings of the Hayman roads analysis. The analysis currently is underway, and a report should be available by the fall of 2003.

ALTERNATIVE A1 – NO ACTION

This alternative does not affect existing transportation uses and systems within the study corridors. It is the current situation as specified in the Forest Plan and serves as the baseline to which other alternatives may be compared. Roads could be constructed into any portions of the river corridor but would require the preparation of a separate environmental analysis or environmental impact statement.

In most areas, the likelihood of new roads, except for access roads to housing developments, is considered low. Existing roads in Segment C (Wildcat Canyon) would remain open; and this includes, for instance, the OHV road that crosses the South Platte from Corral Creek (National Forest Service Road [NSFR] 540), turns south and parallels the west bank for a mile, then fords the South Platte, and climbs out of the canyon to the east near Longwater Gulch (NFSR 221). The Hackett Gulch Road (NFSR 220), which goes down to the river, would remain open, although the ford has been closed. Roads that are currently closed and would remain closed in all alternatives include the four-wheel-drive Northrup Gulch Road (NFSR 206), which was closed several years ago about a quarter-mile from the river to mitigate erosion and protect resource values, and the Metberry Creek Road (NFSR 205), which has been closed below Custer Cabins to reduce erosion on a quarter-mile steep section. The remaining open roads are very valuable to the motorized community as they represent a level of challenge in four-wheeling that is not abundant near the Front Range. Four-wheel-drive and OHV clubs would continue to work with the Forest Service to ensure the protection of resource values in this area. Additional

routes in the area might be opened as long as resource values could be protected under the Forest Plan.

The Hayman Fire, started in June of 2002, resulted in a temporary closure of these roads pending a roads analysis to assess resource damage and develop recommendations for future use.

ALTERNATIVES A2, A3, AND THE PREFERRED ALTERNATIVE

Changes in river management could have an impact on transportation use, road maintenance, and travel opportunities. The potential effects of Alternatives A2 and A3-*Not Suitable* are the same since, under both alternatives, limited or reasonable detractions from the Wild and Scenic River eligibility could be approved. The Preferred Alternative and Alternative A3-*Suitable* maintain full eligibility, thereby allowing only development projects that would not change or diminish the ORVs, free-flow, or water quality.

In most areas, the likelihood of new roads being constructed, except for access roads to housing, is considered low. Existing roads in the Wildcat Canyon area are closed currently pending a roads analysis subsequent to the Hayman Fire in June of 2002. Results of the roads analysis and comprehensive public planning effort might be to close some of the OHV roads due to the high risk of sedimentation and unacceptable resource damage and an inability to mitigate the damages. Four-wheel-drive and OHV clubs would be specifically included in the planning process to assure a full understanding of the recreational use of the area. Additional issues to be considered are impacts to wildlife travel corridors and habitat needs, private landowner concerns when developing solutions for resource, and water quality protection. The Forest Service would continue to work with four-wheel drive and OHV groups to address resource issues, user education, and enforcement. No roads would be constructed

in the *wild* classification area. To do so would negate the classification definition for *wild*.

Sediment loads from road maintenance and road use would be addressed to reduce impacts to the river water quality. Road maintenance activities of all agencies would be reviewed and revised to meet water quality "best management practices" and reduce the sediment loads. New practices for all agencies may be developed and implemented by all parties that participate in the memorandum of understanding that would be required to establish either of these alternatives. Road paving may occur in the *recreational* classification areas. Under the Elevenmile Ecosystem Management Project approved in 1995, the upper 2.7 miles of Elevenmile Canyon road would have been closed to public use, and the remainder of the road would have been paved to reduce sediment from road maintenance activities. However, this project will not be implemented due to the high cost and lack of available resources.

No new roads would be constructed on National Forest land along the North Fork in Bailey Canyon to manage for big game winter range and summer dispersed recreation activities. No roads would be constructed in Cheesman Canyon to maintain its *wild* classification. Road construction limitations in these areas would constrain access for future natural resource management to existing roads.

ALTERNATIVE B

Under Alternative B, all 10.5 miles of *wild* segments would be closed to motorized vehicles, and no road construction would be allowed. Protection of the area's primitive characteristics would be ensured. Future access for natural resource management in these areas would be severely limited. This alternative would have little effect on current access in Cheesman Canyon (Segment D), but it would eliminate any OHV use in Segments C1 and C3 in Wildcat Canyon. OHV use in Segment C2

(Hackett Gulch to Corral Creek), primary recreation activity in this area, would be unaffected by this alternative. The Forest Service would work with four-wheel-drive and OHV clubs to develop partnerships and ensure the protection of resource values in Wildcat Canyon. Additional mitigation measures would be added to protect ORVs in the *recreational* segments upstream from Wildcat Canyon. A management plan would be written that would minimize river crossings in all designated segments and add additional protections to limit impacts of roads on the ORVs. These road construction mitigation measures might reduce some future road construction in the *scenic* and *recreational* segments.

ALTERNATIVE C

The effects of this alternative would be the same as those of Alternative B, except that no motorized vehicle roads or OHV areas would be closed in Wildcat Canyon (Segment C). River crossings in designated segments would be minimized, and additional constraints on road building would limit its impacts on the ORVs. These road construction mitigation measures might reduce some future road construction in the *scenic* and *recreational* segments. The Forest Service would continue working with four-wheel-drive and OHV clubs to develop partnerships and ensure the protection of resource values in Wildcat Canyon. Additional routes in the area might be opened as long as the ORVs were protected and enhanced.

ALTERNATIVE D

The effects of this alternative would be the same as those of Alternative B on the South Platte corridor. The effects on the North Fork would be the same as under Alternative A1. No additional road construction mitigation measures to minimize effects of roads on ORVs would occur on the North Fork.

ALTERNATIVE F

The effects of this alternative on National Forest System lands in Segments A, B, C, D, and H2 would be the same as those of Alternative B. The effects would be similar to those of Alternative A1 in Segment E on the South Platte and in Segments H1 and H3 on the North Fork, as no additional mitigation measures on road construction would occur in those segments.

ALTERNATIVE G

The effects of this alternative upstream from Cheesman Reservoir would be similar to those of Alternative B. Effects in Segments D and E on the South Platte and in Segment H2 on the North Fork would be similar to those of Alternative A1, as no additional road construction mitigation measures would be imposed on National Forest System lands in those segments.

ALTERNATIVE I

The effects of this alternative would be the same as those of Alternative C on the South Platte upstream from Corral Creek and the same as those of Alternative A1 on the North Fork and on the South Platte downstream from Corral Creek.

ALTERNATIVE J

The effects of this alternative would be similar to those of Alternative B on the South Platte, except for the 1.3 miles from the confluence with the North Fork to Strontia Springs Reservoir. The effects on the North Fork and on that 1.3-mile section of the main stem would be the same as Alternative A1.

5.11 SCENERY

While all of the alternatives afford scenery protection, the level of protection differs between Alternative A1, Alternatives A2 and A3, the Preferred Alternative, and designation. Changes in river management could affect the scenic qualities of the river corridor.

ALTERNATIVE A1 – NO ACTION

Under Alternative A1, the scenic quality of National Forest System lands along the river would be protected through the Forest Plan standards and guidelines. Scenic quality on private lands is protected through application of the counties' comprehensive plans or zoning guidelines.

The Existing Visual Condition categories under Alternative A1 would maintain the current conditions in the study corridors as specified in the Forest Plan. (See section 2.14, "Scenery," in Chapter 2.) The Existing Visual Conditions for the area along the river in the study corridors range from II to V, with Type II predominating. In Type II areas, changes in the landscape are not visually evident to the average person unless pointed out. Type IV represents areas in which the average forest visitor easily notices changes in the landscape (as defined in Chapter 2). The area along the river in Elevenmile Canyon (Segment A), the South Platte downstream from the Wigwam Club (Segment E), and the North Fork downstream from Ferndale to the confluence (most of Segment H3) fall in this category. Type V represents areas in which changes in the landscape are strong and would be obvious to the average visitor. The South Platte around Lake George (Segment B) and the North Fork upstream from Ferndale (Segments H1 and H2) generally qualify for this category.

What this means is that the visual qualities of the National Forest System lands already are high. In addition, Denver Water manages most of its lands in the area to protect the water

quality in its water delivery system, to provide recreation, and to protect other natural resources in the area; and this approach also results in protection of the area's scenic qualities. Current county zoning has also been effective in limiting development in most segments. The potential for future water resource developments would not be foreclosed under this alternative. In the event a dam was constructed, the resulting reservoir would result in an irretrievable loss of the free-flowing nature and the existing scenic character of the rivers.

The Visual Quality Objectives for the study corridors, as described in section 2.16, would not change under this alternative. These are described in Chapter 2, "Affected Environment." All segments would remain at Foreground Retention or Middleground Partial Retention in parts of Segment H.

This no action alternative provides no additional funding to manage scenery in the corridors and no Federal technical assistance to landowners. Federal easement and/or land exchange from willing sellers to protect scenery would be unlikely.

ALTERNATIVES A2, A3, AND THE PREFERRED ALTERNATIVE

The Preferred Alternative, Alternatives A2, and A3 also protect National Forest System lands through the Forest Plan's standards and guidelines. Protection under these alternatives, however, would be greater than it is under A1 as a result of the greater emphasis placed on scenery protection to comply with the SPPP or to maintain Wild and Scenic River designation eligibility, either as a requirement or as a goal. VQOs might be more restrictive. Any changes to further restrict VQOs would be made during the management planning process.

The Jefferson, Park, and Douglas County comprehensive plans would still protect private lands and other non-Federal lands. In these cases also, the protection may be higher as a result of these counties being party to the

cooperative management of the river corridor. Most notably, the Front Range Mountain Backdrop Project—an ongoing joint effort by the Colorado counties of El Paso, Douglas, Jefferson, Boulder, and Larimer—has

demonstrated the willingness and ability of Front Range counties to cooperate for the sake of protecting scenic resources.

ALTERNATIVE B

Under this alternative, the Forest Service would prepare a management plan, which would review and modify the current Existing Visual Conditions, both inside and outside the study corridors, to ensure the protection and enhancement of ORVs. Special attention would be given to scenery on the South Platte in Segments A and C where it is an ORV. Federal funding and technical assistance may be earmarked for the corridor, in addition to funding already available under existing National Forest programs.

VQOs could be more restrictive than they would be under Alternative A1 and could move toward *preservation* in the *wild* areas, remain as *retention* in the foreground of the *scenic* segments, and change from partial retention to retention in the middleground of the *scenic* segments. ("Middleground" indicates areas outside the study corridors that are visible from within the corridor.) VQOs of the *recreational* segments would remain the same as they are under Alternative A1.

These changes would have an effect on the amount and type of potential timber harvest and type of facilities and recreational developments allowed both in the corridors and in the middleground areas outside the corridors. Under these more restrictive VQOs, vegetation management treatments, including timber removal, both within and adjacent to the corridors, would not be visible from roads and recreation areas within the corridors. No scheduled timber harvest would be allowed within the *wild* segments, and vegetation

treatments, including timber removal, within the other segments and in areas visible from the corridors would be limited by the VQO. Since future mining claims would be prohibited in *wild* segments and additional restrictions would be placed on timber harvest, roads, and recreational developments, this alternative would provide better protection of scenery over a greater area than any of the other alternatives.

Alternative B offers a greater likelihood of additional funding to improve scenery in the recommended river corridors and a greater likelihood of Federal technical assistance. It also could lead to Federal easements and/or land exchanges with willing sellers to protect scenery under the WSRA.

No approved dams could be constructed in the corridors, thus preventing the resultant irretrievable loss of the existing scenic character of the rivers.

ALTERNATIVE C

The effects of this alternative would be similar to those of Alternative B, except that all Segments C1 and C3 (totaling 7.4 miles) would be classified as *scenic* rather than *wild*. This alternative still provides greater protection of scenery than any of the other alternatives except Alternative B.

ALTERNATIVE D

The effects of this alternative would be similar to those of Alternative B for the South Platte and similar to those of Alternative A1 for the North Fork. This alternative provides greater protection of scenery than Alternatives A1, F, G, I, and J.

ALTERNATIVE F

The effects of this alternative would be similar to those of Alternative B upstream from the Wigwam Club property and similar to those of Alternative A1 for the North Fork and the South Platte downstream from the Wigwam

Club property. This alternative provides greater protection of scenery than Alternatives A1, G, and I.

ALTERNATIVE G

The effects of this alternative would be similar to those of Alternative B upstream from Cheesman Reservoir and similar to those of Alternative A1 for the North Fork and the South Platte downstream from Cheesman Dam. This alternative provides greater protection of scenery than Alternatives A1 and I.

ALTERNATIVE I

The effects of this alternative would be similar to those of Alternative B upstream from the Wigwam Club property and similar to those of Alternative A1 for the North Fork and the South Platte downstream from the Wigwam Club property. This alternative provides less protection of scenery than any of the other alternatives except Alternative A1.

ALTERNATIVE J

The effects of this alternative would be similar to those of Alternative D, except that a 0.3-mile portion of the South Platte below the confluence would not be included in the designation. This alternative provides greater protection of scenery than Alternatives A1, F, G, and I.

5.12 CULTURAL RESOURCES

Cultural resources have been identified within or adjacent to all segments and corridors of the North Fork and the mainstem of the South Platte considered during this analysis. The North Fork corridor (Segment H) contains the North Fork and Estabrook Historic Districts, which are identified as possessing ORVs. There are other important historic and prehistoric cultural properties within the study area, notably

the remains of two pioneering railroads. The grade, related features, and archeological deposits of the Midland Railroad are contained in Eleven Mile Canyon; similar remnants of the Denver, South Park, and Pacific Railroad are preserved on the lower portion of the North Fork between the confluence with the South Platte and Bailey. These railroad-related resources are not considered outstandingly remarkable in this analysis; however, the historic remains of both railroads are eligible to the *National Register of Historic Places* (National Register). None of the alternatives in this analysis include proposed actions that would affect any known historic or prehistoric cultural property. Implementation of some of the considered alternatives may lead to future actions that would provide additional protection for significant cultural sites. However, implementation of some other alternatives would not protect the known and potential significant cultural sites from inundation or other damage resulting from the construction and operation of water impoundments on either the mainstem or the North Fork.

ALTERNATIVE A1 – NO ACTION

Alternative A1 would maintain the current conditions and management strategies without the protections afforded by Wild and Scenic designation. Implementation of this alternative would have no direct impacts on cultural resources. Significant cultural resources (National Register or State Register eligible cultural properties or “sites”) would be protected on Federal or State lands, and sites on private lands would be unprotected. There would be no mandate for enhancement of significant sites (i.e., for site interpretation or other public use). However, government agencies and other interested parties could still form partnerships to ensure the interpretation and protection of cultural resources.

Implementation of this alternative could allow approved dam construction, diversions, or other water developments within the study corridors

that, if constructed, could potentially affect significant cultural sites.

ALTERNATIVE A2 – SOUTH PLATTE PROTECTION PLAN

Given appropriate planning and scheduling, implementation of Alternative A2 would have no direct effects on cultural properties. The withdrawal of the 1986 applications for water storage and the 20-year moratorium on right-of-way development would provide some protection for potentially threatened cultural sites. Cultural resource inventories for riverbank stabilization and restoration projects would be sufficient to identify potentially affected cultural sites; and protection measures, if appropriate, can be developed from survey results. Because the historical remains of the Denver, South Park, and Pacific Railroad and the Midland Railroad are near the river channel, it may be necessary to build in specific protection measures for these resources during the planning for riverbank stabilization and restoration. Implementation of partnerships to manage the river corridor and its significant resources would result in opportunities for protection, interpretation, and public use (if appropriate) of cultural sites. Also, the Endowment Fund proposed in this alternative could be used to repair and interpret significant historic sites. Thus, implementation of this alternative may result in increased protection and enhancement for cultural resources.

In terms of cultural resource protection, implementation of Alternative A2 may have advantages when considering cultural properties, such as historic railroads, that traverse the land holdings of multiple owners. A joint agency partnership could be effective in consolidating management and care of these properties under one entity.

Implementation of Alternative A2 may have beneficial indirect effects on significant cultural sites. If the proposed bank stabilization and restoration projects are implemented, they could be designed to retard or stop the loss to

archeological and historical sites resulting from current soil and bank erosion. Many parts of the Midland, Denver, South Park, and Pacific Railroad grades and related features are very close to the river channel and are currently vulnerable to damage from this source.

No cumulative effects are envisioned if Alternative A2 is implemented.

ALTERNATIVE A3 AND THE PREFERRED ALTERNATIVE

The Preferred Alternative and Alternative A3 should have more beneficial effects than A2 for cultural resources. The stipulation regarding development of a cooperative management plan with a major cultural resources component should enhance cultural sites in general. No direct effects on cultural sites resulting from the implementation of A3 or the Preferred Alternative are forecast, assuming that the proposed channel work is preceded by appropriate cultural resources investigation and evaluation. The withdrawal of the 1986 Denver Water and Metropolitan Denver Water Authority application for conditional storage rights and the proposed 20-year moratorium on development of Denver Water's right-of-way would result in interim protection for significant cultural sites.

Under Alternative A3-*Not Suitable*, a project with potential effects to cultural resources could be evaluated, but any potential effects would be mitigated and approved through a public planning process.

Indirect effects seen from the implementation of the Preferred Alternative and Alternative A3 should be beneficial, given the development of a cooperative management plan by the non-Federal signatories to the Memorandum of Understanding (MOU) with a major cultural resources component. The cultural component would include provisions for condition monitoring, protection, interpretation, and appropriate public use of cultural sites. The plan should accommodate linear sites (primarily

the Denver, South Park, and Pacific Railroad, the Midland Railroad, and the North Fork and Estabrook Historic Districts) with portions owned by multiple parties. Implementation of river channel restoration projects would have beneficial effects on cultural sites currently threatened by river flows and bank erosion.

No cumulative effects are forecast if the Preferred Alternative or Alternative A3 are implemented.

ALTERNATIVE B

Alternative B would designate the eligible and suitable portions of the study corridors at their most protective inventoried classifications. Management plans would be developed for each river corridor; the plans would include provisions for the protection and enhancement of outstandingly remarkable resources, including cultural properties. Implementation of Alternative B would have no direct effects on cultural resources. Indirect effects would be beneficial. Implementation of the management plans would mean more protection for cultural sites and could encourage interpretation of the outstandingly remarkable sites, such as the North Fork Historic District and the Estabrook Historic District. Cultural surveys implemented through the provisions of the corridor management plans would lead to the identification, protection, and interpretation, if warranted, of currently unknown significant sites. The prohibition of dams and additional limitations on roads, timber harvest, scenery intrusions, motorized use, and mining entry would further protect cultural sites.

ALTERNATIVE C

Designation would be essentially the same as Alternative B, although the segment from Beaver Creek to Cheesman Reservoir would be classified as *scenic* rather than *wild*. The effects on cultural resources should be very similar to those described for Alternative B.

ALTERNATIVE D

This alternative provides no additional protection for significant sites on the North Fork. All sites on the North Fork, whether on government or private lands, would be vulnerable to the effects of dam construction and inundation. In this eventuality, some cultural resource values could be preserved through mitigation. As none of the North Fork corridor is designated in this alternative, cultural sites there would not receive the added protection and interpretation that is provided under the WSRA. Indirect effects on cultural sites located within the South Platte mainstream corridor would be the same as described for Alternative B.

ALTERNATIVE F

Selection of Alternative F would designate four segments on the South Platte and one segment on the North Fork; private lands and the stretch of the river contained in the Denver Water's 1931 right-of-way would not be designated. Selection of this alternative would create no direct effects to cultural resources. The potential for indirect effects would be increased because of the greater likelihood of dam construction and the resulting destruction and inundation of cultural sites. Fewer cultural sites would be protected, interpreted, or otherwise enhanced than under Alternatives B, C, D, or J. The cultural sites in the segments of the South Platte corridor upstream from Cheesman Reservoir, including the Midland Railroad grade, would be afforded the additional protection and enhancements inherent in designation.

ALTERNATIVE G

Alternative G would designate the South Platte corridor upstream from Cheesman Reservoir. The effects of this alternative would be very similar to those projected for Alternative F. The only difference is that the cultural resources within the single segment on the North Fork designated in Alternative F,

including the grade of the Denver, South Park, and Pacific Railroad and the Estabrook Historic District, would receive additional protection under Alternative F but not under this alternative.

ALTERNATIVE I

Alternative I is very similar to Alternative G. The effects are the same as for that alternative, except that cultural properties in 4.4 additional miles of Wildcat Canyon (Segment C) would not benefit from the added protection afforded by Wild and Scenic River designation.

ALTERNATIVE J

Alternative J is very similar to Alternative D. The effects are the same as for that alternative, except that the North Fork and 0.3 miles of the combined South Platte downstream from the North Fork confluence would not be protected. Thus, the entire North Fork, including the South Platte Hotel and other components of the outstandingly remarkable North Fork Historic District, would not be afforded additional protections under this alternative. On the South Fork, the prohibition of projects affecting flows within the designated corridors and the limitations on road construction, timber harvest, scenery intrusions, motorized use, and mining entry would further the protection of cultural sites. River management plans would be prepared for each designated corridor; the plans would include provisions for the protection and enhancement of outstandingly remarkable resources, including cultural sites. Implementation of this alternative would have no direct effects on historic or prehistoric sites because no ground-disturbing projects or other activities potentially affecting these resources are planned.

Indirect effects of this alternative would be beneficial for those cultural sites on the South Fork. Implementation of river management plans would result in added protection for them.

Resource inventories implemented through the provisions of the management plans would lead to the identification, protection, and interpretation (if appropriate) of currently unidentified significant resources. However, the significant resources of the North Fork, including the outstandingly remarkable North Fork and Estabrook Historic Districts, would not be additionally protected through implementation of this alternative, and indirect effects are possible. When compared to Alternatives A2, A3, and the Preferred Alternative, the indirect effects of this alternative may be less beneficial because designation would not necessarily lead to channel restoration work or the formation of an endowment fund.

No cumulative effects are forecast if this alternative is implemented.

5.13 SOCIOECONOMIC CONSIDERATIONS

The following discussion is based on a qualitative analysis of broad forces that might affect future social and economic matters. Generic terms such as 'higher' and 'lower' are used to depict relative differences between alternatives regarding economic and social outcomes. A qualitative analysis of this nature is appropriate given the uncertainties discussed under "Fisheries, Water Resources, and Water Development" in this chapter. For example, to calculate the costs and other impacts of precluding water developments under the various action alternatives would require speculation on the details of projects being precluded. Since no applications have been submitted, such details are not available. During development of the South Platte Protection Plan, the participating water provider representatives were asked if they would identify the types and locations of water developments that they might wish to construct

one day. Due to the uncertainties of the future, they were unable to provide such information. Because the Forest Service is not required to speculate on the kind of water development that might be proposed—particularly to a degree of detail that would lend itself to a quantitative analysis of costs, revenues, and associated economic and social impacts—the analysis that follows is appropriately qualitative in nature.

In qualitative terms, the economic efficiencies of the alternatives are presumed to follow an inverse relationship with costs. That is, an alternative with relatively low costs would have a relatively high economic efficiency, and vice versa. As this is a programmatic undertaking rather than a discrete project, known Forest Service and other Federal costs are limited largely to document preparation and general analysis and planning, with no resultant revenues that can be clearly identified.

The ORVs and other natural resource-based activities (water development, timber, minerals, land use, etc.) were discussed in Chapter 2. The Two Forks EIS (U.S. Army Corps of Engineers, 1988, vol. I, pp. 5-1 to 5-236) used a quantitative approach to some values, such as fisheries and recreational activities, based on usage figures. Maguire and Alden (1994) also measured recreational use in the study corridors. Their study did not measure the impact of that use on the local economies. Similarly, the National Forest Recreation Survey, conducted every 4 years, (USDA, 2002), focuses on use and not on economic benefit to the region. Additionally, the survey was designed to be statistically significant at the forest level, and sample sizes in the river corridor are not large enough to be statistically significant at the local level. Information exists on the value of fisheries statewide (DOI and U.S. Department of Commerce, 2001) but not at the local level. Too many unknowns and uncertainties are attached to this study to warrant quantitative analysis at this stage. Some future proposal for more tangible actions could create the need for a quantified analysis of economic efficiency and

the relative economic value of scenic, geologic, recreational, wildlife, fisheries, and cultural resources.

The relationship between water development and local economic growth was reviewed in section 2.18 under the heading 'Projecting Future Population Growth for the Area of Influence.' That discussion pointed out that any causal relationship between the two appears difficult to establish. That is, the absence of a new reservoir in the study corridors would not necessarily prevent, or even impede, growth in the Front Range. Nor, from the reverse viewpoint, would the presence of a new reservoir in that area necessarily stimulate growth. The mechanisms of growth are far too complex to support compelling conclusions of that nature. In large part, this is because of the increasingly important role being played by alternative sources for water, such as conservation and others. (See "Future Demands for Water" in section 2.12.) Disagreement on this matter is largely due to the wide range of viewpoints and associated reasonable assumptions that can be made and to the complex nature of the analyses involved. One viewpoint argues that the absence of a reservoir obviously constrains growth because all of the other possibilities involve greater costs. In contrast, another viewpoint argues that plenty of agricultural water is already available that could be converted to growth-supporting uses—if only efficient pricing mechanisms were allowed to operate free of political policies driven by social issues. A third viewpoint argues that, if the full social and economic cost of a reservoir is taken into account, then non-reservoir scenarios are clearly preferable. As this debate has been going on for many years, it appears that no amount of study will be able to produce a single answer that reconciles the issue to the satisfaction of all interests.

EFFECTS COMMON TO ALL ALTERNATIVES

Local communities would continue to see a 3- to 4-percent growth in recreation and associated expenditures at local businesses. Production of timber and minerals from the study area and the number of jobs resulting from such production would be negligible. For these reasons, local communities near the study corridors should expect the same changes in business employment and income regardless of the alternative selected.

Because recreation use is not expected to change dramatically with any level of designation, counties should not expect significant differences between the alternatives in road or law enforcement costs associated with each alternative. Counties may decide that some zoning changes would be necessary with designation; the costs to make and maintain these changes were not estimated but are not expected to be significant.

Forest Service receipts from sales of timber or recreation use fees over the foreseeable future are expected to be very small. Consequently, counties that share in Forest Service receipts, receive payments in lieu of taxes (PILT), or receive sales tax receipts from concession-operated Forest Service recreation sites should expect the same negligible changes regardless of the alternative selected.

Many amenity values contribute to the real social and economic values of the alternatives. However, they are difficult to quantify and must be inferred from other resource effects discussed in this document. Examples of these effects include projected changes to wildlife habitat, the range of recreation opportunities, the quality of the river for fisheries, and the scenic beauty of the river corridor. Demands on the river for downstream uses (such as maintenance of whooping crane habitat in Nebraska) would not change under any of the alternatives and would not have an appreciable effect on costs to the water users.

ALTERNATIVE A1 – NO ACTION

The Colorado Department of Local Affairs (2001) has incorporated reasonably foreseeable actions in their projections of population growth in the area of influence. For this reason, cumulative socio-economic effects have been incorporated into this alternative. Projected population changes to 2025 of about 1.5 percent annually and associated effects (e.g., water supply needs) are expected. This determination is made when considering very high growth rates of the late 1970s or early 1990s and their associated effects. Effects described under other alternatives are incremental changes.

This alternative would not preclude any opportunities for developing and managing additional surface water supplies to meet the projected increased demand through the construction of dams and reservoirs. With all opportunities retained, costs to water providers (which are passed on to metropolitan area residents and businesses) would be the lowest possible. Even though the South Platte is highly regulated, community uses of water in the South Platte would be most readily accommodated under this alternative.

The no action alternative in the Two Forks EIS bears certain similarities to Alternative A1 in this EIS. While analyzing distinctly different proposals (i.e., reservoir construction versus protection under the WSRA), in both cases the no action alternative attempts to describe the effects of going forward without implementation of the proposal being analyzed. Because the Two Forks proposal involved a large investment of capital, its EIS delved deeply into the costs likely to be incurred by various water providers and their customers and communities under its various alternatives, including no action (U.S. Army Corps of Engineers, vol. VIII, pp. 5-175; Technical Appendix 4C, vol. 9). The Two Forks EIS also made water demand and supply projections based on a variety of detailed assumptions. In contrast, because of the uncertainties involved,

this EIS does not go to the same lengths to describe the future under No Action. Various organizations, however, are regularly assessing the situation regarding water supply, demand, and cost. For example, see Hydrosphere Resource Consultants, Inc. (1999 and 2001). The assumptions and analyses underlying such publications sufficiently reflect the no action future.

ALTERNATIVE A2

This alternative allows less flexibility than Alternative A1 to consider water development projects that may affect the ORVs.

Opportunities for developing and managing additional large surface water projects such as federally authorized dams and reservoirs in the study corridors would be voluntarily forgone in Cheesman and Elevenmile Canyons and in the Two Forks right-of-way for 20 years.

Consequently, future costs to water providers and their customers would likely be slightly higher than under Alternative A1 but lower than in the Preferred Alternative or Alternative A3. New sources would have to be realized, or a greater emphasis on conservation would be needed to meet the projected increases in demand.

ALTERNATIVE A3 AND THE PREFERRED ALTERNATIVE

Under the Preferred Alternative and A3-*Suitable*, opportunities for developing and managing new surface water supplies through Forest Service authorized facilities in the study corridors would be limited to facilities that would not threaten eligibility. With such opportunities limited, future costs to water providers and their customers may be among the highest of the alternatives analyzed, along with Alternatives B and C. Because the South Platte is highly regulated, community and other uses of water in the South Platte would likely be limited.

Alternative A3-*Not Suitable* would provide some flexibility in considering water development

projects that may affect the ORVs. Future costs to water providers and their customers would likely be lower than under the Preferred Alternative or Alternative A3-*Suitable* but higher than in Alternative A2.

ALTERNATIVES B AND C

Designation of river segments under the WSRA could affect the metropolitan areas of Denver and Colorado Springs and local communities near the corridors. These effects could include the cost and availability of water supplies, recreation-generated jobs and income, production of forest commodities such as timber and minerals, revenues to local governments, and the cost of providing government services.

These alternatives would preclude opportunities for developing and managing additional surface water supplies through federally authorized dams, reservoirs, and other water development projects in the study corridors. As a result, future costs to water providers and their customers may be the highest of the alternatives analyzed, given the projected increase in demand for new water supplies. Because the South Platte is highly regulated, community and other uses of water in the South Platte would likely be more limited than under Alternative A. Cumulatively, these effects may be significant. Designation could affect how future water obligations can be met. For example, as mentioned above under "Channel Integrity and Aquatic Habitat," a scenario of alternate water delivery from South Park was prepared for the city of Aurora. Although the \$425-million cost for this project was not verified, it is an indication of the type of additional cost that could result from a designation scenario.

ALTERNATIVES D AND F

Opportunities for developing and managing additional surface water supplies through dams and reservoirs in the study corridors would be limited but not precluded in all segments. Flow

management in the North Fork could be affected. With some opportunities precluded and projected demand for water supplies expected to increase, costs to water providers and their customers would be higher than under Alternatives A1, A2, A3, or the Preferred Alternative but lower than in Alternatives B or C.

ALTERNATIVES G AND J

Opportunities for developing and managing additional surface water supplies through dams and reservoirs in the study corridors would be limited but not precluded in all segments. Flow management in the North Fork would not be affected. With some opportunities precluded, costs to water providers and their customers would be higher than under Alternatives A1, A2, A3, and the Preferred Alternative but lower than costs under Alternatives B through F.

Because the South Platte is one of the most regulated rivers in the county, community and other uses of water in the South Platte may be limited. Additional costs to water users in the Denver metropolitan area would not be likely because of these obligations.

ALTERNATIVE I

Nearly all opportunities for developing and managing additional surface water supplies through dams and reservoirs would remain available. Impacts are similar to those of Alternative A1 except from Corral Creek through Elevenmile Canyon, where minimal attention has been given to development of future water supplies. With nearly all opportunities retained, future costs to water providers and their customers would be the lowest of all the alternatives except for Alternatives A1, A2, and A3, and the Preferred Alternative. Even though the South Platte is highly regulated, community uses of water in the South Platte would be feasible. Additional costs to water users in the metro area would not be likely because of these obligations.

5.14 IMPLEMENTATION AND ENFORCEMENT

Environmental and recreational user groups raised implementation and enforcement issues for the A2 Alternative, the SPPP. The SPPP was developed through a public planning process that involved interested local government agencies and interest groups. The Forest Service participated only as an observer and provided information about the resources and related Forest Service policy and regulations. Many questions about SPPP implementation and enforcement could not be answered until the Forest Service, as the administering Federal agency, was made a full participant, along with the local government agencies, in the new management structure for the river corridor established by the SPPP. Alternative A3 and the Preferred Alternative add the Forest Service to the management scheme, responding to issues raised concerning A2. In general, if Alternative A2 were selected for the decision in this study, it would be implemented through the mechanisms identified in Alternative A3.

FUTURE RECOMMENDATION FOR DESIGNATION

The Forest Service can reconsider or reopen a decision made in a National Environmental Policy Act (NEPA) analysis whenever circumstances change significantly. In order to reconsider a decision, another NEPA review and analysis would be required to evaluate the changed conditions. Under current NEPA planning processes in the Forest Service, decisions are generally considered effective until the resource and social conditions have significantly changed. The non-binding "rule of thumb" is 5 years. Generally, after 5 years'

time, resource and social conditions change enough to warrant new review and analysis.

The bi-level decision statement of Alternative A3 or the Preferred Alternative (whereby the Forest Service may revisit the question of designation if a selected local alternative is determined to have failed) is new and has not been tested in court. Therefore, it is unclear how long this NEPA analysis would remain usable without requiring renewed analysis and study. If the determination that a local alternative has failed comes after sufficient time for resource and social conditions to have significantly changed, then a new review and analysis may have to be conducted to determine the suitability of the river corridor for designation.

Alternative A3-*Not Suitable* would (1) find the river corridor not suitable for designation, (2) release the corridor from further consideration for designation to the Wild and Scenic River System, and (3) manage the river corridor under the partnership of Federal, State, and local government agencies. This alternative is comparatively flexible regarding development projects in the river corridor for water resources, roads, recreation facilities, or some other purpose. If this alternative were to fail, the Forest Service could consider a new NEPA process and suitability determination. A finding that a selected alternative had failed would create a changed condition for the river corridor and warrant reconsideration of the original decision.

Under A3-*Suitable* and the Preferred Alternative, Forest Service policy, rather than the WSRA, would legally bind the Forest Service to protect the eligibility of the river corridor for designation. The development standard for maintaining eligibility under these alternatives is comparatively strict.

LIKELIHOOD OF SUCCESSFUL DESIGNATION RECOMMENDATION

Since 1992 (when 27 river segments were designated in Michigan, Arkansas, Pennsylvania, and California), only 15 new river designations and 3 additional river segments on previously designated rivers have been added to the National System. Five of the most recent river or river segment designations were done by the Secretary of the Interior at the request of a State Governor.

One of the most recent congressional designations was the Sudbury-Assabet-Concord (SuAsCo) River in Massachusetts in April 1999. The SuAsCo River is a 29-mile segment having *scenic* and *recreational* classifications. The National Park Service conducted the eligibility and suitability determinations at the request of a coalition of local government agencies and groups. The coalition prepared a river management plan, took it to the State's congressional delegation, and, after 5 years, succeeded in getting the river designated by Congress to the National System.

The Forest Service currently has about 15 to 20 designation recommendations from across the country awaiting action by the Administration or Congress. Current Forest Service policy is to forward recommendations for designation to the President and Congress only if those recommendations have full local support, including support from interest groups, State and local government agencies, and the State's congressional delegation. If a designation alternative were the selected alternative in this study, section 5(d) (1) of the WSRRA would require the Forest Service to manage the river corridor as a "study river" using existing forest management legal authorities. Authorities provided in the WSRRA would not be applicable to this study area until such time as the river is actually designated by Congress or the Secretary of the Interior to the National System. Congress can designate a river without Federal agency action; however it is

highly unlikely that the South Platte would be designated without the unified support of local governments, agencies and groups.

The current political climate in Colorado most likely would not support designation because of concerns about securing adequate water supplies for the rapidly expanding metropolitan population in the State. It is possible to develop a management plan for a river tailored to meet the specific needs in a river corridor and get a designation by Congress, as was done for the SuAsCo River in Massachusetts. However, that designation effort took 5 years and had the full support of all agencies and groups. A designation recommendation could be prepared to meet the specific needs of the South Platte River corridor, as is typically done for other river designations. This approach was recommended as the Preferred Alternative in the Supplemental DLEIS. It did not receive the public support needed for legislation and was not pursued further. It is described further in Chapter 4 under Alternatives Not Considered in Detail and Eliminated from Further Study

PERMANENT PROTECTION FROM NEW DAMS

Potential for New Dams

During the A2 process, there was occasional discussion of the potential for new dams on the South Platte River system within the study area, particularly on the mainstem of the South Platte. Potential dam sites on both rivers were included in alternatives analyzed during the Two Forks study. It is uncertain whether any of those sites are feasible today.

One view is that, because the Two Forks dam failed to gain approval, it is unlikely that any other storage projects in the study area would be approved (or even proposed). Any other waters that might be obtainable today for use along the Front Range would have to be imported from other basins. Water would be stored in these other basins, not in the South Platte basin, and the only storage needed on the

east slope might be for regulation of delivery. But since regulatory facilities already exist, there may be no need for additional storage. Under this view, then, the potential for a new dam in the study area is relatively low.

An alternate view holds that, because current water supplies for the Denver metropolitan area are not adequate for projected growth, no options for future supplies should be foregone under any circumstance. Even waters generated in the South Platte basin should not be entirely discounted. According to this viewpoint, the thinking expressed in the preceding paragraph is based on too many assumptions that are too tenuous, given the critical nature of future water needs.

Permanence of Protection

Concern was raised about the level of protection provided to the river corridor from new dams by the various mechanisms being considered in the alternatives. The WSRA clearly prohibits approval of any new impoundment structure in a designated river, or above or below a designated river, if it invades or unreasonably diminishes the recreation, scenic, or fish and wildlife ORVs or free-flow. However, once a river is designated to the National System by Congress or the Secretary of the Interior, a new dam in the river can be approved by congressional action regardless of designation protections.

A designation recommendation by a Federal agency under section 5(d)(1) does not invoke a section 7 analysis process and the prohibition of projects as is the case with congressional study rivers; other Federal agencies are required to deny Federal assistance or permits for any projects on congressional study rivers but not on agency study rivers. If a dam project were proposed under any of the alternatives considered in this Wild and Scenic River study, the Forest Service would request the approving Federal agency to allow a project review for potential impacts to ORVs, free-flow, and water quality; but the Federal agencies would not be

legally bound to comply with the Forest Service request to withhold their approval.

The decision mechanism for Alternative A3 and the Preferred Alternative is the Forest Plan, which prohibits any new dams or other developments that would threaten free-flow, ORVs, and water quality on forest lands. This mechanism has limitations because the Forest Plan can be amended. Alternative A2 provides a lower level of protection from new dams. The SPPP includes a 20-year moratorium on construction in Denver Water's right-of-way at the Two Forks site and a commitment for no water works in Cheesman and Elevenmile Canyons. But dams are not excluded from other portions of the river or after 20 years in the right-of-way. A dam could be proposed off National Forest lands and be approved by whatever government authorities have jurisdiction. However, any project proposed in this particular river corridor is highly likely to affect National Forest lands due to the land ownership configuration.

MOUs are authorized under several existing forest management legal authorities. MOUs are legally limited to a 10-year period. Forest Service policy (*Forest Service Manual* 1586) recommends review and renewal of MOUs every 5 years and reissuance every 10 years. Changes in personnel, resources, or social and economic conditions could lead to a need to revise an MOU.

Designation to the National System would provide the strongest protection of the mainstem and North Fork of the South Platte River from any future dam development. A designation recommendation for an agency study river would provide protection under legal authorities until such time that the river were included into the National System through congressional legislation. Local Alternative A3 and the Preferred Alternative would utilize the same legal authorities to protect the river corridor from water development on National Forest System lands as well as retain eligibility.

NEEDS FOR PUBLIC INVOLVEMENT IN RIVER MANAGEMENT

Alternatives A2, A3, and the Preferred Alternative are built on the concept of local management with extensive public involvement. See the summary list of public involvement provisions under "Summary of Public Involvement Features in Alternatives A2 and A3" in Chapter 4, section 4.3.

Alternative A2 provides public interest groups with representation on the Enhancement Board and on the Denver Water water development task force. Public interest groups and the general public are involved at several points:

1. In any significant changes in the implementing management agreements;
2. During the Recreation Management Plan development process;
3. Through the Coalition for the Upper South Platte; and
4. At the Denver Water/city of Aurora water systems' annual operating plan review meetings.

For the Forest Service, a legal enforcement mechanism is provided through the Administrative Procedures Act, a Federal law that prohibits "arbitrary and capricious" actions by Federal officials. To successfully file under the Administrative Procedures Act, a group or individual must have legal standing, which is granted only to parties of agreements with Federal agencies. In addition, the Act sets a high standard of proof, making it difficult for plaintiffs to prove and win judgment.

Alternative A3 and the Preferred Alternative provide for public and interest group involvement in several additional ways:

1. In developing an MOU among the implementing agencies;
2. During periodic review of all agencies' implementation; and

3. During any future consideration of forwarding a designation recommendation.

In addition, Alternative A3 considers a provision for "citizen suits" or some kind of mechanism for more direct enforcement action by citizens when dealing with implementing agencies other than the Forest Service. Those agencies, however, have raised several concerns about this provision. Such a provision could increase the agencies' legal liability for lawsuits, including the possibility of frivolous lawsuits that would take agency budgets and focus away from managing the river corridor. As a result, the "citizen suit" mechanism does not appear to be feasible.

Alternative A3 contemplates the option of establishing a Citizens Advisory Group under the Federal Advisory Committee Act (FACA) in order to give the public a formal mechanism by which to participate in river corridor management. The Secretary of Agriculture or Congress appoints a FACA Advisory Group, to be administered by the Forest Service. Establishing a FACA Advisory Group is a lengthy process, and the establishment of such a group requires the administering agency to follow specific guidelines. However, President Clinton issued a policy during his tenure to limit the number of citizen advisory groups for each Federal agency due to concerns about unnecessary agency expense to administer the groups. In light of this, the approach is unlikely to be adopted despite its merits.

5.15 ADVERSE ENVIRONMENTAL EFFECTS THAT CANNOT BE AVOIDED

None of the alternatives include management direction that would directly create unavoidable adverse environmental effects. It is conceivable that the lack of additional action under Alternative A1 could lead to adverse effects on

river corridor resources at some time in the future, but this would depend on the nature of the threat and the ability of existing resource protection mechanisms to address it. For example, a major or minor dam or water diversion project in the study area could adversely affect all the natural resources mentioned in this report, as well as create a decisive level of conflict. Alternatives A2 and A3-*Not Suitable* allow for limited water development projects and possible effects to ORVs and free-flow.

5.16 LOCAL SHORT-TERM USES OF THE ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

All of the alternatives except A1 contain measures designed to preclude, or at least delay, new dam construction, hydropower development, and other development projects that could adversely affect the ORVs. While the relative level of protection afforded against such dams and water projects varies between the alternatives and is subject to debate, the intent of each is consistent. None of the alternatives contains specific actions that require a substantial loss of short-term use in order to achieve long-term protection.

5.17 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

This section is meant to articulate any resources that would be lost either temporarily (such as

logging of a forest that will grow back) or permanently as a result of taking action. Since the alternatives in this document deal with resource conservation rather than resource development activities, no alternative calls for any irreversible or irretrievable commitments of resources. Alternative A1 and Alternative A3-*Not Suitable* do recognize the potential for decisions outside the scope of this document to make irreversible and irretrievable commitments of resources. Such potential effects would be evaluated on a case-by-case basis at the time a project is proposed.

5.18 CUMULATIVE EFFECTS

Cumulative effects have been previously addressed in this chapter under the specific resource headings such as fisheries, wildlife, recreation, and water development. The A1, A2, and A3-*Not Suitable* alternatives could allow for limited water developments that have some adverse effects to ORVs, free-flow, or water quality; and these effects could cumulatively erode eligibility depending on the exact nature and extent of the developments. Such potential effects would be evaluated on a case-by-case basis at the time a project is proposed.

The cooperative watershed, water quality improvement, and channel improvement projects identified in Alternatives A2, A3, and the Preferred Alternative combined with the Source Water Protection Plan, the TMDL determinations, and the Upper South Platte Watershed Restoration Project (Forest Service initiative) could cumulatively improve water quality, aquatic and riparian habitat, wetlands, and channel stability within the project areas and could reduce sedimentation at downstream water storage facilities. There are no other known cumulative effects.

5.19 NATIONAL FOREST MANAGEMENT ACT AND OTHER FINDINGS

FOREST PLAN IMPLICATIONS

The Forest Plan would be amended under all alternatives. Based on the information presented here, the amendment's geographic scope and effect on overall production of goods and services from the land governed by the Forest Plan appears to be non-significant, as defined under the National Forest Management Act. Therefore, a non-significant amendment is appropriate.

Amendment details will vary between alternatives. Under alternatives recommending designation under the WSRA, a new management area would be placed over river segments recommended as suitable for designation. This new management area would embrace the study corridors, which extend one-quarter mile from the river. Management direction and standards and guidelines affecting these areas would resemble those that already apply to the eligible corridor on the South Platte River between Cheesman Reservoir and Elevenmile Reservoir (Forest Plan, pages III-16 to III-17). Their purpose would be to protect eligibility until Congress resolves the issue of designation.

Alternative A1 would involve an amendment that would remove the special management area corridor between Elevenmile Reservoir and the Cheesman property. The corridor was established when the current Forest Plan was approved in 1984. Management area direction for lands currently within that corridor would be modified and made similar to that of adjoining lands.

Alternatives A2, A3, and the Preferred Alternative would also involve a Forest Plan amendment, the purpose of which would be to implement the alternative's intentions to the extent that Forest Service authorities allow. A

new management corridor would be established along all segments identified for protection, with management direction and standards and guidelines established consistent with the selected alternative.

BIODIVERSITY

The issue of biodiversity was addressed by considering its major components such as wildlife, fisheries, and scenery (vegetation) as well as issues such as maintaining the free-flowing condition of the river and levels of naturalness within the river corridor.

CONSUMERS, CIVIL RIGHTS, MINORITY GROUPS, AND WOMEN

None of the alternatives would have a significant impact upon these issues. Information on associated impacts is located in the discussions on socioeconomic impacts.

PRIME FARMLANDS

There are no prime farmlands within the study corridors.

THREATENED AND ENDANGERED SPECIES

The anticipated effects to these species have previously been discussed in the "Vegetation," "Wildlife," and "Fisheries" sections of this chapter.

WETLANDS AND FLOODPLAINS

Wetlands and floodplains are protected under the Clean Water Act. On Federal lands, wetlands and floodplains are also protected under Executive Order 11990 and Executive Order 11988, which allow for no net loss, regardless of the alternative selected. Under Alternative A2, it is possible that dam construction, diversions, hydropower development, or water diversion projects could occur after 20 years, which could have a definite

impact on wetlands and floodplains. Under Alternatives A1 and A3-*Not Suitable*, the effects of dam construction, diversions, hydropower development, and water diversion projects would be addressed in the public planning process for a specific project if the project received the necessary permits, licenses, and approval by the appropriate Federal agencies. The Streamflow Management Plan and the SPPP of Alternatives A2, A3, and the Preferred Alternative could provide an opportunity to enhance or protect existing wetlands and floodplains. Alternatives B, C, D, F, G, I, and J consider and protect wetlands and floodplains.

5.20 SUMMARY OF THE ENVIRONMENTAL IMPACTS OF EACH ALTERNATIVE ON THE KEY STUDY ISSUES

The summary of environmental impacts of each alternative on key study issues can be found in Appendix B, Comparison of Alternatives Including Key Study Issues.

5.21 ADDITIONAL FEDERAL IMPLEMENTATION COSTS FOR EACH ALTERNATIVE

Table 5-1 summarizes the additional cost to the Federal Government, above the current level, for implementing each alternative.

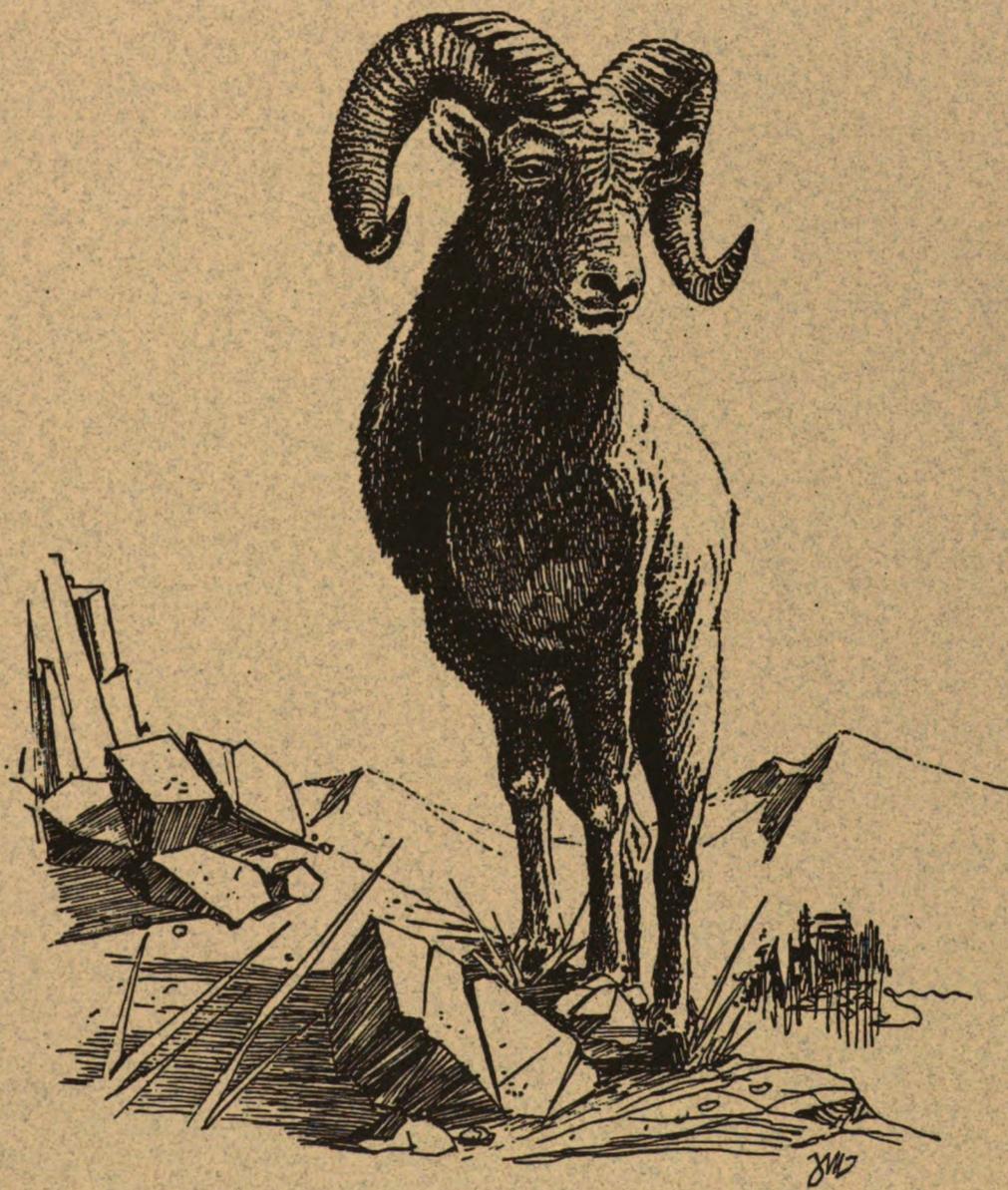
These costs are based on fiscal year 2002 dollar values and have been separated into three categories for each alternative. The three categories include costs associated with the management plan, land and easement acquisition, and administration

Annual administrative costs for Alternatives A2, A3 and the Preferred Alternative reflect the efforts needed to manage an area with multiple partners. Administrative costs may reduce in future years after the partnerships are well established. Administrative costs would also be driven up because of increased non-Federal capital investment in the river corridor. Projects funded through the Endowment Fund or through State or Federal grants would require Forest Service review and participation.

Table 5-1.—Federal Implementation Costs
(2002 dollar values in thousands of dollars rounded to the nearest thousandth)

	Alternatives											
	A1	A2	A3- <i>Suitable</i>	A3- <i>Not Suitable</i>	PREFERRED ALTERNATIVE	B	C	D	F	G	I	J
Management Plan (one-time cost)	N/A	N/A	N/A	N/A	N/A	211	201	159	127	110	112	169
Land and Easement Acquisition	No change	None	None	None	None	Costs may be incurred for potential exchanges and future easements, but are too speculative to be estimated at this time.						
Administration (annual cost)	No change	50	50	50	50	85	79	60	42	42	32	58

List of Preparers



CHAPTER 6

List of Preparers

Final Environmental Impact Statement and Draft Plan Amendment

6.1 INTERDISCIPLINARY TEAM

The following members from USDA Forest Service comprise the Interdisciplinary Team for the study report.

Name	Responsibility/Discipline
Connie Young	Team Leader, Natural Resource Planner, Pike and San Isabel National Forests, Cimarron and Comanche National Grasslands (PSICC)
Denise Bohon	District Wildlife Biologist, South Platte Ranger District, PSICC
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Al Kane	Forest Archaeologist, PSICC
Tim Garcia	Former District Recreation and Lands Staff Officer, South Park Ranger District, PSICC
Steve Priest	District Recreation and Lands Staff Officer, South Platte Ranger District, PSICC
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Lance Tyler	Forest Recreation Staff, PSICC
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6.2 OTHER CONTRIBUTORS

Name	Responsibility/Discipline
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OTHER CONTRIBUTORS (CONTINUED)

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Barb Timock	Public Affairs, PSICC
Teresa Wagner	Fishery Biologist, PSICC
Dave Winters	Regional Aquatic Ecologist, Rocky Mountain Region

Distribution of Documents



CHAPTER 7

Distribution of DLEIS, SDLEIS, and FEIS

7.1 LIST OF AGENCIES, ORGANIZATIONS, AND PERSONS TO WHOM THE DRAFT LEGISLATIVE ENVIRONMENTAL IMPACT STATEMENT (DLEIS) WAS SENT

Copies of the Wild and Scenic River Study Report and DLEIS were distributed or made available to the following Federal, State, and local government agencies, elected officials, organizations, and those individuals who provided comments during scoping or who indicated a desire to remain on the mailing list. In addition, copies were made available at many USDA Forest Service (Forest Service) offices and libraries in the affected communities.

ELECTED OFFICIALS

U.S. Congress Colorado

Congresswoman Diana DeGette
Congressman Joel Hefley
Congressman Scott McInnis
Congressman Dan Schaefer
Congressman Robert Schaffer
Congressman David Skaggs

Senator Wayne Allard

Senator Ben Nighthorse Campbell

U.S. Congress Nebraska

Representative Doug Bereuter
Representative Jon Christensen
Representative Bill Barrett

Senator Chuck Hagel
Senator Bob Kerrey

State of Colorado

State Representative Maryanne Keller
State Representative Martha Kreutz
State Representative Doug Lamborn
State Representative Ron May
State Representative Andy McElhany
State Representative Gary McPherson
State Representative Carl Miller
State Representative Marcy Morrison
State Representative Phil Pankey
State Representative Mary Paschall
State Representative Penn Pfiffner
State Representative Paul Schauer
State Representative Larry Schwarz
State Representative William Sinclair
State Representative Bryan Sullivant
State Representative Shirleen Tucker
State Representative Jennifer Veiga
State Representative Suzanne Williams
State Representative Brad Young

State Senator Tom Blickensderfer
State Senator Ken Chlouber
State Senator Mike Coffman
State Senator Jim Congrave
State Senator Charles Duke
State Senator Michael Feeley
State Senator Sally Hopper
State Senator Elsie Lacy
State Senator Richard Mutzenbaugh
State Senator Ed Perlmutter
State Senator Ray Powers
State Senator Bill Schroeder
State Senator MaryAnne Tebedo
State Senator Frank Weddig

State Senator Jeffrey Wells
State Senator Dottie Wham

State of Nebraska

Governor Ben Nelson
Governor Roy Romer
State Representative Jeanne Adkins
State Representative Vickie Agler
State Representative Debbie Allen
State Representative Norma Anderson
State Representative Barry Arrington
State Representative Chuck Berry
State Representative Doug Dean
State Representative Mary Ellen Epps
State Representative Jeanne Faatz
State Representative Russell George
State Representative Ken Gordon
State Representative Dorothy Gotlieb
State Representative Tony Grampas
State Representative Daniel Grossman

Colorado County Government

Arapahoe County Commissioners
Chaffee County Commissioners
City and County of Denver
Clear Creek County Commissioners
Custer County Board of Commissioners
Douglas County Commissioners
El Paso County Commissioners
Fremont County Board of Commissioners
Jefferson County Commissioners
Lake County Commissioners
Park County Board of Commissioners
Pueblo County Board of Commissioners
Teller County Commissioners

Colorado Local Agencies

Chaffee County Planning Commission
Chaffee County Administration
Douglas County Planning Commission
Douglas County Planning Department
El Paso County Attorney
Jefferson County Planning and Zoning
Department
Jefferson County Attorneys
Jefferson County Intergovernmental Relations

Jefferson County Open Space
Park County Planning Department
Pikes Peak Area Council of Governments
Teller County Economic Development Council

Colorado Municipal Government

City of Cherry Hills Village
City of Colorado Springs
City of Denver
Cities of Pine and Bailey
Denver Water
Town of Leadville

Tribal Governments

Cheyenne-Arapaho Tribes of Oklahoma
George Sutton
Comanche Tribal Council
Wallace Coffey
Kiowa Tribe, Kiowa Business Council
Joseph Goombi
Southern Ute Tribal Council
Alden Naranjo

FEDERAL AGENCIES

U.S. Department of Agriculture

Animal and Plant Health Inspection Service
Forest Service,
Arapaho/Roosevelt National Forests
Bighorn National Forest
Black Hills National Forest
Cimarron National Grassland
Comanche National Grassland
GMUG National Forests
Leadville District
Medicine Bow National Forest
Nebraska National Forest
Pikes Peak District
Rio Grande National Forest
RMFRES
Rocky Mountain Region
Routt National Forest
Salida District
San Carlos District
San Juan National Forest
Shoshone National Forest

South Park District
South Platte District
White River National Forest
Natural Resource Conservation Service
OPA Publications Stockroom
Rural Electrification Administration
National Agricultural Library

U.S. Department of Commerce

NOAA Ecology and Conservation Division

U.S. Department of Defense

U.S. Air Force

Deputy Assistant Secretary of the Air Force
for the Environment, Safety and
Occupational Health

U.S. Army

Deputy Assistant Secretary of the Army
U.S. Army Corps of Engineers
Omaha District
Tn Lakes Project
Washington, DC

U.S. Navy

Naval Observatory, Naval Oceanographic
Division
Office of Chief of Navy Operations

U.S. Department of Energy

Federal Energy Regulatory Commission
Office of Environmental Compliance

U.S. Department of Health and Human Services

Office of General Counsel
Office of the Secretary

**U.S. Department of Housing and Urban
Development**

Office of the Secretary

U.S. Department of Justice

General Litigation Section

U.S. Department of Labor

Office of the Secretary

U.S. Department of the Interior

Bureau of Mines

Bureau of Land Management,
Canon City District
Casper District
Colorado State Office
Minerals
Washington Office

Bureau of Reclamation

U.S. Fish and Wildlife Service

Geological Survey

Water Resource Division
Minerals Management Service
National Park Service

Air Quality Division

Rocky Mountain Region

Office of Environmental Affairs

Office of Environmental Project Review

Office of Equal Opportunity

Office of Secretary of the Department of
the Interior

U.S. Department of Transportation

Federal Aviation Administration

Federal Highway Administration

Federal Railroad Administration

Office of the Secretary

U.S. Coast Guard

U.S. Government Independent Agencies

Advisory Council on Historic Preservation

Environmental Protection Agency

Administrator

Region VII

Region VIII

General Services Administration

Equal Employment Opportunity Commission

Federal Power Commission, Chairman

Interstate Commerce Commission

Office of Architectural/Environmental
Preservation

STATE AND LOCAL AGENCIES

Colorado State and Local Agencies

Colorado Air Pollution Control Division
Colorado Department of Natural Resources
Colorado Department of Parks and Recreation
Colorado Department of Transportation
Colorado Division of Wildlife
Colorado Geological Survey
Colorado Historical Society
Colorado Joint Review Process
Colorado Oil and Gas Commission
Colorado Public Utilities Commission
Colorado State Forest Service – CSU
Colorado State Forester
Colorado Water Conservation Board
Southeastern Colorado Water Conservancy
District

Nebraska State and Local Agencies

Nebraska Department of Agriculture
Nebraska Department of Economic
Development, Division of Travel and
Tourism
Nebraska Department of Environmental
Quality
Nebraska Department of Water Resources
Nebraska Game and Parks Commission
Nebraska Natural Resources Commission

Colorado Libraries

Baca County Library
Canon City Library
Denver Public Library
Douglas County Library
Jefferson County Library
Lake County Public Library
Lakewood Library
McClelland Library
Park County Library
Penrose Public Library
Pikes Peak Library District
Salida Regional Library
Teller County Library
Woodruff Library

Universities and Educational Organizations

Baker University
Colorado History Museum
Colorado Mountain College
Colorado Outward Bound School
Colorado State University
Community College of Denver
CSU Extension Office
University of Colorado
University of Colorado, Environmental Center
University of Colorado, Environmental Law
Society
University of Colorado, Wilderness Study
Group
University of Southern Colorado
Wildlife Management Institute

ORGANIZATIONS, INTEREST GROUPS, AND BUSINESSES

4-Wheeling America
11 Mile Ranch Association
Aiken Audubon Society
ACZ
Aguerre Ranch, Inc.
Allright Mining and Development, Inc.
Alpine Property Owners Association
American Forest and Paper Association
American Mountain Foundation
American Rivers, Inc.
American White Water Affiliation
American Wilderness Alliance
Amoco Production Company
Anadarko Petroleum Corporation
Ancient Forest Rescue
Antra Resources Corporation
Arco
Argyle Properties, Inc.
Aspen Acres Campground
Audubon Society
Arkansas Valley
Denver
Evergreen Naturalists
Foothills
Heart of the Rockies
National
Balltown Lounge
Bear Creek Farms Water and Sanitation District

Bear Creek Water and Sanitation District
 Bear Trap Ranch
 Beard Oil Company
 Big Horn 4X4 Club
 Bioersity Legal Foundation
 Brady Family Trust
 Buena Vista Snowmobile Club
 Buffalo Park Chapel Association
 Business and Professional Women
 C.A. 4-WD., C.I. Northern District
 Carlson, Hammond and Paddock
 Campo Grazing Association
 Chaffee County Farm Bureau
 CHEC-Forest Watch
 Cherry Creek Village Water District
 Chevron USA, Inc.
 Cimarron Sportsman's Club
 Cities Service Company
 Coastal Oil and Gas Corporation
 Cob. Association of 4-Wheel Drive Clubs, Inc.
 Colorado Cattlemans Association
 Colorado Environmental Center
 Colorado Environmental Coalition
 Colorado Farm Bureau
 Colorado Forestry Association
 Colorado G04's 4WD Club
 Colorado Interstate Gas Company
 Colorado Motorized Trail Riders
 Colorado Mountain Club
 El Pueblo Group
 Pikes Peak Chapter
 Colorado Mountain Trail Riders Association
 Colorado National Bank of Denver Trust
 Colorado Native Plant Society
 Colorado Open Lands
 Colorado Ski Country USA
 Colorado Snowmobile Association
 Colorado Snowmobile Club
 Colorado Trail Foundation
 Colorado Trout Unlimited
 Colorado University Wilderness Study Group
 Colorado Welcome Center
 Colorado Wildlife Federation
 Colorado Woolgrowers Association
 Consolidated Gas Company
 Croterie Club
 Crystal Lake Resort Properties, Ltd.
 Cuchara Valley Ranch
 Custer County Action Association
 Custer County Stock Growers Association
 Dames and Moore
 De Luca Ranches, Inc.
 Dilley Cattle Company
 Ducks Unlimited
 Efl Wolf Action Network
 Elk Creek Crux
 ENSR Consulting and Engineering
 Environmental Defense Fund
 Environmental Strategies, Inc.
 Everett Land and Cattle Company, Inc.
 Exxon Company USA
 Exxon Exploration Company
 Fairfield and Woods P.C.
 Fairplay Snowmobile Club
 Ford County Sportsman Club
 Friends of Gold Camp Road
 Friends of the Bow/Biodiversity Associates
 Frum Family Trust
 Glen Isle Resort
 Granite Store
 Grant County Ducks Unlimited
 Greens/Green Party USA, Wildlands and
 Forests
 Greenwood Metropolitan District
 Greenwood South Metropolitan District
 Hawkins Oil and Gas, Inc.
 H.C. Mills Land and Cattle Company
 Heart of the Rockies Snowmobile Club
 High Country River Rafters
 High Plains Gun Club
 High Riders Snowmobile Club
 Hiner Cattle Corporation
 Hoover Brothers Ranch
 Horse Creek Campground and Saloon
 H T C Escrow Company
 Huerfano Valley Citizens Alliance
 Humane Society of the United States
 International Order of Rocky Mountain Goats
 Intermountain Forest Industry Association
 Izaak Walton League of America
 Karl Bell Associates, Architects/Planners
 Karney Cattle Kompany
 Kenosha Trout Club
 Kim Grazing Association
 Ladd Petroleum
 Lake George Fire Protection District

Land and Water Fund
Land and Water Fund of the Rockies
Latimer and Associates
Leadville Medical Center
Leadville Research and Development Corporation
Lincoln Park Metropolitan District
Locke Farm
London Mine Venture
Luthern Valley Retreat
Marathon Oil Company
Martin Marietta Denver Aerospace
Max Dercum Consulting Services
Mcmurry Land and Livestock Company
Meridian Metropolitan District
Metropolitan Denver Water Authority
Metropolitan Water Providers
Midwest 4 Wheel Drive Association
Mile Hi Jeep Club
Mile-Hi Snowmobile Club
Minerals Exploration Coalition
Mobil Oil Corporation
Monarch Ski Resort
Montgomery Enterprises
Mooredale Ranch Resort, Inc.
Mountain Community Church
Mountain States Forestry
Mountain States Legal Foundation
Mountain View Village No. 62
Mule Creek Outfitters
Mvp Trust Phase One
NADP
National Wildlife Federation
Native American Rights Fund
Natural Resources Conservation Services
Natural Resources Defense Council
Nature Conservancy
New Discovery Ventures, Ltd.
North Fork Library Association
North Fork Volunteer Fire Department
North Range Ridge Runners
Northern Natural Gas Company
NPCA-Conservation Information
Oil and Gas Conservation Commission
Orcutt Ranches, Inc.
Outdoor And Travel Photography
Oxy USA, Inc.
Pan Ark Lodge

Panhandle Eastern Pipeline Company
Park County Mining Association
Park Nations
Parker Water and Sanitation District
People for the West
Phillips Petroleum Company
Phyllis A. Jensen Company
Pic Technologies
Pikes Peak Enduro Club
Pine Community Church
Pine Ranch Associates, Ltd.
Pinery Water and Wastewater District
Plain Vanilla Graphics
Platte Canyon Outdoor Resource Committee
Platte Canyon Water and Sanitation District
Pleasant View Water and Sanitation District
Point Rock Riders
Poulson Odell and Peterson
Powers Elevation Company, Inc.
Pritchett Grazing Association
Public Safety and Operations
Public Service Company of Colorado
Pueblo County Farm Bureau
Pueblo Snowmobile Club
Pueblo West Sportsmen's Association
Quail Mountain Citizens Alliance
Quail Mountain Citizens Association
Reclamation Planners Group
Red Rock 4 Wheelers
Reis Ranches
Resolution Enterprises
Ridge Runners 4-Wheel Drive Club
Rivercliffe Ranch
Rocky Mountain 4-Wheel Drive Club
Rocky Mountain Canoe Club
Rocky Mountain Ecosystem Defense
Rocky Mountain Memorials
Rocky Mountain Recreation Company
Rocky Mountain Oil and Gas Association
Rolla Lions Club
Rolla Royal Rangers
Rolling Om Ranch
Roth Family Partnership
Roxborough Park Foundation
RRMMC
Sammons Ranch
Sandhill Sportsman Club
Sangre De Cristo Mountain Council

Sangre De Cristo RC&D
Sangre Snow Runners
Santa Cruz Technologies
Santa Fe Trail Riders
Save Park County
Scientific Software-Intercomp
Senior Citizen's Club
SHB Agra
Sierra Club
 Boulder Group
 Legal Defense Fund, Inc.
 Mt. Evans Group
 Pikes Peak Group
 Rachel Carson Group
 Rocky Mountain Chapter
 Sangre De Cristo Group
Silver Tip Lodge
Sinapu
Ski Cooper
Southern Rockies Ecosystem Project
Southgate Water District
Southwest Kansas Groundwater
Spearpoint Mountain Resources, Inc.
Sportsmen Paradise, Inc.
St. Mary Minerals
St. Vincent General Hospital
Stella C. White Trust
Stone Forest Industries, Inc.
Suburban Water Suppliers W&SR Task Force
Summemar West
Sun Dog Automotive
Swan Hereford Ranch
Swayback Ranch Fishing Club, Inc.
Tametic Committee
Teller County Alliance Property Owners
Texaco Exploration and Production, Inc.
The Consolidated Mutual Water Company
The Evergreen Naturalists Audubon
 Society, Inc.
The Irland Group
The Nature Place
The Scanga Ranch
Thomas and Thomas
Timpas Grazing District
Trail West Lodge
Trailhead Ventures
Trailridge Runners, Inc.
Trapper Lake Sierra Club

Trout Unlimited
 American River
 Cheyenne Mountain Chapter
 Cutthroat Chapter
 Pueblo Chapter
 West Denver Chapter
Trumbull Community Volunteer Fire
 Department
Trust Company of Oklahoma
Twin Lakes Associates, Inc.
Twin Lakes Nordic Inn
United Sportsmen's Council of Colorado
Upper Arkansas Watershed Forum
Valley Timber Company
Vranesh and Raisch
Watkins Ranches
Western Colorado Congress
Wigwam Club, Inc.
Wigwam Investment Company
Wilderness Society
Wildhorn Realty and Development, Inc.
Winston Associates, Inc.
Woodward Clyde Consultant
Wright Engineering
Wyoming Outdoor Council
Yates Petroleum Corporation

INTERESTED INDIVIDUALS

Copies of the DLEIS were sent to individuals who submitted comments during scoping and/or who requested a copy.

7.2 DISTRIBUTION OF THE SUPPLEMENTAL DRAFT LEGISLATIVE ENVIRONMENTAL IMPACT STATEMENT (SDLEIS)

Copies of the Wild and Scenic River Study Report and SDLEIS were distributed or made available to the following elected officials, Federal, State, and local government agencies, organizations, tribal governments, educational organizations, and those individuals who

provided comments during scoping or who indicated a desire to remain on the mailing list. In addition, copies were made available at many Forest Service offices and libraries in the affected communities.

ELECTED OFFICIALS

U.S. Congress Colorado

U.S. Representative DeGette
U.S. Representative Hefley
U.S. Representative Schaffer
U.S. Representative Tancredo
U.S. Representative Udall
U.S. Senator Allard
U.S. Senator Campbell

State of Colorado

State Representative Fran Coleman
State Representative Gagliardi
State Representative Gary McPherson
State Representative Joe Stengal
State Representative John Witwer
State Representative Lola Spradley
State Representative McElhany
State Representative R. D. Decker
State Senator Ed Perlmutter

Colorado County Government

Arapahoe County Commissioners
Chaffee County Administrator
Douglas County Commissioners
Douglas County Open Space
El Paso County Commissioners
Jefferson County
Jefferson County Open Space
Jefferson County Sheriff's Department
Lake County Commissioners
NWCOG
Park County
Park County Preservation
Pikes Peak Area Council of Governments
Teller County Commissioners

Colorado Municipal Government

City of Arvada
City of Aurora
City of Colorado Springs
City of Thornton
Denver Regional Council of Governments

Tribal Governments

Arapahoe Representative for Cultural Protection
Cheyenne and Arapaho Tribes of Oklahoma
Eastern Shoshone Tribe
Jicarilla Apache Tribe
Northern Arapahoe Tribe
Northern Cheyenne Tribe
Pawnee Tribal Business Council
Sioux Tribe, Oglala and Lakota Nations
Southern Ute Tribe
Ute Indian Tribe
Ute Mountain Ute Tribe of Indians
Winnebago Tribal Council

FEDERAL AGENCIES

U.S. Department of Agriculture

Animal and Plant Health Inspection Service
Natural Resources Conservation Service
National Agricultural Library
Forest Service
 Bighorn National Forest
 Medicine Bow National Forest
Portland, Oregon
Paonia, Colorado
Washington, DC

U.S. Department of Commerce

NOAA Office of Policy and Strategic Planning
National Marine Fisheries Service

U.S. Department of Defense

Deputy Assistant Secretary of Defense
U.S. Air Force

U.S. Army

U.S. Army Corps of Engineers
Northwestern Division
Omaha District

U.S. Navy

Naval Oceanography Division

U.S. Department of Energy

Director, Office of Environmental Compliance

U.S. Department of Housing and Urban Development

Environmental Review Division
Colorado – HUD Senior Environmental
Officer

U.S. Department of the Interior

Director, Office of Environmental Policy and
Compliance
U.S. Fish and Wildlife, Denver
Bureau of Land Management
Colorado State Office
Canon City, Colorado Office
National Park Service
Intermountain Region
Denver Office

U.S. Department of Transportation

Assistant Secretary for Policy
Federal Aviation Administration
Northwest Mountain Region
Federal Highway Administration
Western Region, Regional Administrator
Federal Railroad Administration
Office of Transportation and Regulatory
Affairs

U.S. Government Independent Agencies

Advisory Council on Historic Preservation
Director, Planning and Review
Environmental Protection Agency
Region VIII Environmental Protection
Agency

STATE AND LOCAL AGENCIES

Colorado State and Local Agencies

Alameda Water & Sanitation District
Arkansas River Office
Bear Creek Farms Water & Sanitation District
Bear Creek Water & Sanitation District
Centennial Water & Sanitation District
Cherry Creek Valley Water & Sanitation District
Cherry Creek Village Water District
Colorado Commission of Indian Affairs
Colorado Department of Natural Resources
Colorado Department of Transportation
Colorado Division of Wildlife
Colorado Forestry Association
Colorado Health Department
Colorado Public Lands for Multiple Uses
Colorado State Forest Service
Colorado State Parks
Colorado Water Conservation Board
Consolidated Mutual Water Company
Denver Water
Greenwood South Metropolitan District
Ken Caryl Ranch Water & Sanitation District
Lakehurst Water & Sanitation District
Lincoln Park Metropolitan District
Meridian Metropolitan District
Metropolitan Water Providers
Park County Extension Office
Park County Preservation Coalition
South Park Conjunctive Use Project
Southeastern Colorado Water Conservancy
District
Southern Rockies Ecosystem Project
Southgate Water District

Nebraska State and Local Agencies

Nebraska Department of Economic
Development
Nebraska Department of Environmental
Quality
Nebraska Department of Water Resource
Nebraska Natural Resources Commission

Colorado Libraries

Denver Public Library
Douglas County Public Libraries
Jefferson County Libraries
Park County Libraries
Teller County Public Libraries

Universities and Educational Organizations

Colorado Historical Society
Colorado History Museum
Denver Zoological Foundation
Penrose Public Library
Salida Regional Library
University of Colorado

ORGANIZATIONS, INTEREST GROUPS, AND BUSINESSES

A.R. Wilfley and Sons,, Inc.
American Rivers
American Whitewater Colorado
Anglers Covey, Inc.
Argyle Properties, Inc.
Audubon Society of Greater Denver
Big Horn 4WD Club
Blue Mountain Ranch
Brogden Associates, Inc.
Brown & Caldwell
CA4WDCI
Chadwick Ecological
Cheryl Signs Engineering
Citizens Advisory Committee
Collins & Cockrel, PC
Colorado 4-Wheelers
Colorado Association of 4-Wheel Drive Clubs
Colorado Cattleman's Association
Colorado Farm Bureau
Colorado Mountain Club
Colorado Mountain Trail Riders Association
Colorado Oil and Gas Conservation
Commission
Colorado Rivers Alliance
Colorado Trail Foundation
Colorado Wildlife Federation
Elevenmile Motel
Environmental Defense Fund
Evergreen Naturalists Audubon Society

Exponent
Frum Family Trust
Geneva Park Outfitter
High Country Citizens Alliance
Karl E. Bell, Karl Bell Architect
Krassa, Madsen, & Miller, LLC
Lazy Gulch Summer Home Group
Lefler & Mullen
Lutheran Valley Retreat
Mile High Jeep Club
Natural Resources Conservation Service
New Discovery Ventures, Ltd.
Nighthawk Summer Home Group
North Fork Volunteer Fire Department
PCEHD
Petros & White, LLC
Pikes Peak Group Sierra Club
Rivercliffe Ranch
Rocky Mountain Canoe Club
Rocky Mountain Elk Foundation
Roth Family Partnership
Shea Homes
Sportsman's Paradise
Spronk Water Engineers
Swayback Ranch Fishing Club, Inc.
TDS Consulting, Inc.
The Nature Place
Trail Conservation Services
Treece, Alfrey, Musat & Bosworth
Trout Unlimited
 Cheyenne Mountain Chapter
 Cutthroat Chapter
 Pueblo Chapter
University of the Wilderness
Upper South Platte Watershed Protection
 Association
Valley Voice
White Water Association
Wigwam Club

INTERESTED INDIVIDUALS

Copies of the SDLEIS were sent to individuals who submitted comments during the comment period for the DLEIS and/or who requested a copy.

7.3 DISTRIBUTION OF THE FINAL ENVIRONMENTAL IMPACT STATEMENT (FEIS)

Copies of the Wild and Scenic River Study Report and FEIS were distributed or made available to the following elected officials, Federal, State, and local government agencies, organizations, tribal governments, educational organizations, and those individuals who provided comments during scoping or who indicated a desire to remain on the mailing list. In addition, copies were made available at many Forest Service offices and libraries in the affected communities.

ELECTED OFFICIALS

U.S. Congress Colorado

U.S. Representative Beauprez
U.S. Representative DeGette
U.S. Representative Hefley
U.S. Representative McInnis
U.S. Representative Musgrave
U.S. Representative Tancredo
U.S. Representative Udall
U.S. Senator Allard
U.S. Senator Campbell

State of Colorado

State Representative Betty Boyd
State Representative Bill Crane
State Representative Bob Briggs
State Representative Rob Fairbank
State Representative Cheri Jahn
State Representative Don Lee
State Representative Fran Coleman
State Representative Joe Stengel
State Representative John Witwer
State Representative Lola Spradley
State Representative Mike May
State Representative Ramey Johnson
State Representative Ted Harvey
State Representative Tom Wiens

State Senator Dan Grossman
State Senator Deanna Hanna
State Senator Jim Dyer
State Senator Joan Fitz-Gerald
State Senator John Evans
State Senator Ken Chlouber
State Senator Maryanne Keller
State Senator Norma Anderson
State Senator Sue Windels

Colorado County Government

Arapahoe County Commissioners
Chaffee County
Douglas County Open Space
El Paso County Commissioners
Jefferson County Archives and Records Management
Jefferson County Historical Commission
Jefferson County Open Space
Jefferson County Planning and Zoning
Jefferson County Sheriff's Department
Lake County Commissioners
Park County
Park County Commissioners
Park County Environmental Health Department
Park County Extension Office
Park County Planning Department
Teller County
Teller County Commissioners

Colorado Municipal Government

City of Arvada
City of Aurora
Utilities Department
City of Colorado Springs
City of Denver
City of Littleton
City of Thornton

Tribal Governments

Arapahoe Representative for Cultural Protection
Cheyenne and Arapaho Tribes of Oklahoma
Eastern Shoshone Tribe
Jicarilla Apache Tribe

Northern Arapahoe Tribe
Northern Cheyenne Tribe
Pawnee Tribal Business Council
Sioux Tribe, Oglala and Lakota Nations
Southern Ute Tribe
Ute Indian Tribe
Ute Mountain Ute Tribe of Indians
Winnebago Tribal Council

FEDERAL AGENCIES

U.S. Department of Agriculture

Animal and Plant Health Inspection Service
Commissioner of Agriculture, Don Ament
Natural Resources Conservation Service
National Agricultural Library
Forest Service, Bighorn National Forest
Forest Service, Medicine Bow National Forest
Forest Service, Portland, Oregon
Forest Service, Paonia, Colorado
Forest Service, Pikes Peak District
Forest Service, Rocky Mountain Region
Forest Service, South Park District
Forest Service, Washington, DC

U.S. Department of Commerce

NOAA Office of Policy and Strategic Planning
National Marine Fisheries Service

U.S. Department of Defense

Deputy Assistant Secretary of Defense
U.S. Air Force
U.S. Army
 U.S. Army Corps of Engineers
 Northwestern Division
 Omaha District
U.S. Navy
 Naval Oceanography Division

U.S. Department of Energy

Director, Office of Environmental Compliance

U.S. Department of Housing and Urban Development

Environmental Review Division
Colorado – HUD Senior Environmental Officer

U.S. Department of the Interior

Director, Office of Environmental Policy and Compliance
U.S. Fish and Wildlife Service
 Denver
Bureau of Reclamation
Bureau of Land Management
 BLM Colorado State Office
 Canon City, Colorado Office
National Park Service
 Intermountain Region
 Denver Office

U.S. Department of Transportation

Assistant Secretary for Policy
Federal Aviation Administration
 Northwest Mountain Region
Federal Highway Administration
 Western Region, Regional Administrator

U.S. Government Independent Agencies

Advisory Council on Historic Preservation
 Director, Planning and Review
Environmental Protection Agency
 Region VIII Environmental Protection Agency

STATE AND LOCAL AGENCIES

Colorado State and Local Agencies

Alameda Water & Sanitation District
Arkansas Headwaters Recreation Area
Bear Creek Water and Sanitation District
Centennial Water and Sanitation District
Cherry Creek Valley Water and Sanitation District
Colorado Commission on Indian Affairs
Colorado Department of Natural Resources

Colorado Department of Public Health and Environment
 Colorado Department of Transportation
 Colorado Division of Wildlife
 Colorado Public Lands for Multiple Uses
 Colorado State Forest Service
 Colorado State Parks
 Colorado Water Conservation Board
 Denver Regional Council of Governments
 Denver Water
 Greenwood South Metropolitan District
 Ken-Caryl Ranch Water and Sanitation District
 Lakehurst Water and Sanitation District
 Lincoln Park Metropolitan District
 Meridian Metropolitan District
 Metropolitan Water Providers
 Northern Colorado Water Conservation District
 Pikes Peak Area Council of Governments
 Southeastern Colorado Water Conservancy District
 The Consolidated Mutual Water Company

Nebraska State Agencies

Nebraska Department of Economic Development
 Nebraska Department of Environmental Quality
 Nebraska Department of Natural Resources

Colorado Libraries

Colorado State Universities Libraries
 Denver Public Library
 Douglas Public Library
 Franklin Ferguson Memorial Library
 Jefferson County Libraries
 Park County Libraries
 Penrose Public Library
 Salida Regional Library
 Woodruff Memorial Library

Universities and Educational Organizations

Colorado Historical Society
 Colorado History Museum
 Colorado Water Workshop – Western State College

Denver Zoological Foundation
 Department of Earth Resources
 Natural Resources Law Center, CU School of Law
 University of Colorado

ORGANIZATIONS, INTEREST GROUPS, AND BUSINESSES

American Rivers
 American Whitewater Colorado
 Anglers Covey, Inc.
 Arkansas Valley Audubon Society
 Audubon Society of Greater Denver
 Bishop-Brogden Associates, Inc.
 Chadwick Ecological
 Cheryl Signs Engineering
 Citizens Advisory Committee
 Coalition for the Upper South Platte
 Collins & Cockrel & Cole, PC
 Colorado Association of 4-Wheel Drive Clubs
 Colorado Cattleman's Association
 Colorado Environmental Coalition
 Colorado Farm Bureau
 Colorado Forestry Association
 Colorado Mountain Club
 Colorado Rivers Alliance
 Colorado Trail Foundation
 Colorado Watershed Network
 Colorado Whitewater Association
 Colorado Wild
 Colorado Wildlife Federation
 Conoco, Inc.
 Denver Post
 Douglas County News Press
 Environmental Defense Fund
 Evergreen Naturalists Audubon Society
 Foster Wheeler
 Friends of the Poudre
 Geneva Park Outfitters
 High Country Citizens Alliance
 Holder & Ciliberto, P.C.
 Kentucky Wolf Information Center
 Krassa, Madsen, & Miller, LLC
 Land & Water Fund of the Rockies
 Lazy Gulch Summer Home Group
 Lefler & Mullen
 Lutheran Valley Retreat

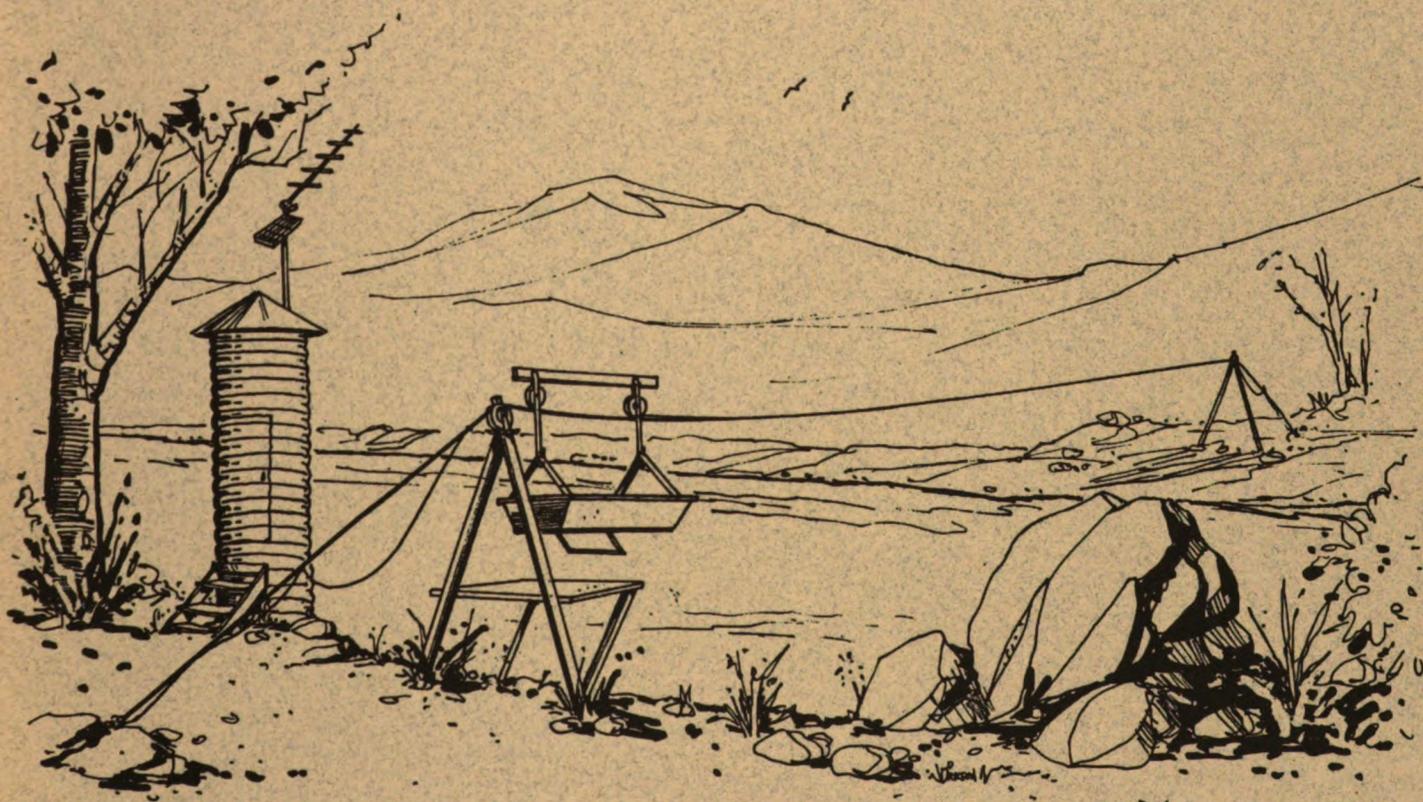
Mile High Jeep Club
Montgomery Watson Harza
Natural Resources Conservation Service
NCI
Nighthawk Summer Home Group
North Fork Volunteer Fire Department
Park County Water Preservation Coalition
Board
Parsons ES
Petros & White, LLC
Pikes Peak Group Sierra Club
Predator 4-WD, LLC
Rampart Range Motorcycle Management
Committee
Rivercliffe Ranch
Rocky Mountain Ecosystem Defense
Rocky Mountain Elk Foundation
Rocky Mountain News
Rocky Mountain Outdoor Center
Roth Family Partnership
Sanborn Western Camps
Spronk Water Engineers
Swayback Ranch Fishing Club, Inc.
TDS Consulting, Inc.
The Flume
The Nature Place

Trail Conservation Services
Treece, Alfrey, Musat & Bosworth
Trout Unlimited
Cheyenne Mountain Chapter
Cutthroat Chapter
Pueblo Chapter
Trout, Witwer & Freeman, P.C.
University of the Wilderness
Upper Arkansas & South Platte Project
URS
Valley Voice
White & Jankowski
Wigwam Club

INTERESTED INDIVIDUALS

Copies of the FEIS were sent to individuals who submitted comments during the comment period for the SDLEIS and/or who requested a copy.

Glossary



CHAPTER 8

Glossary, Acronyms, and Terms – Final EIS

Alternative – A comprehensive management strategy; when a Federal agency is considering an action, the National Environmental Policy Act (NEPA) requires the agency to develop and analyze a range of reasonable alternatives, including a “no action” or “no change” alternative. The alternatives must respond to the issues and must show a reasonable range of actions.

Alternative A2 – Represents the South Platte Protection Plan.

Alternative A3 – Represents the Modified South Platte Protection Plan.

Alternative A3 not suitable – A variation of Alternative A3 in which eligible segments are considered not suitable for inclusion in the Wild and Scenic Rivers System.

Alternative A3 suitable – A variation of Alternative A3 in which eligible segments are considered suitable for inclusion in the Wild and Scenic Rivers System.

Background – A term used in visual management to describe the portions of a view extending from beyond the Middleground Zone (more than 3 to 5 miles) from the observer.

Biodiversity – The relative abundance and variety of species, both plant and animal, in a given area.

Biological evaluation – A specific process required as part of an environmental assessment that evaluates the potential

effects of a proposed project on Proposed, endangered, threatened, and sensitive species and their habitats.

Classification – The initial step in a Wild and Scenic Rivers Study, in which a river’s segments are classified according to their highest inventoried classification; categories include *wild*, *scenic*, and *recreational*.

Clearcutting – The cutting method that describes the silviculture system in which the old crop is cleared over a considerable area at one time. Regeneration then occurs from (a) natural seeding from adjacent stands, (b) seed contained in the slash or logging debris, (c) advance growth, or (d) planting or direct seeding. An even-aged forest usually results.

Code of Federal Regulations (CFR) – A codification of the general and permanent rules published in the *Federal Register* by the executive departments and agencies of the Federal Government.

Corridor – See “river corridor.”

Council on Environmental Quality (CEQ) – An advisory council to the President established by the National Environmental Policy Act of 1969. It reviews Federal programs for their effect on the environment, conducts environmental studies, and advises the President on environmental matters (abstracted from the National Environmental Policy Act of 1969, as Amended).

Cultural resource – The remains of sites, structures, or objects used by humans in the past historic or prehistoric.

Cumulative effects or impacts – Cumulative effect or impact is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. (See 40 CFR 1508.7; these regulations use effects and impacts synonymously.)

Decision notice – The written record of the decision made after a Federal agency completes an environmental assessment. The decision notice chooses one of the alternatives, or a blend of the alternatives, and may be appealed by the public. The USDA Forest Service (Forest Service) combines the decision notice with the Finding of No Significant Impact (FONSI) required by NEPA.

Designated corridor – A wild and scenic corridor that has been added to the Wild and Scenic Rivers System.

Developed recreation – Recreation that requires facilities that, in turn, result in concentrated use of an area. Examples of developed recreation areas are campgrounds and ski areas; facilities in these areas might include roads, parking lots, picnic tables, toilets, drinking water, ski lifts, and buildings.

Dispersed recreation – A general term referring to recreation use outside developed recreation sites; this includes activities such as scenic driving, hiking, backpacking, hunting, fishing,

snowmobiling, horseback riding, cross-country skiing, and recreation in primitive environments.

Diversity – The distribution and abundance of different plant and animal communities and species within the area covered by a land and resource management plan.

DLEIS – See “draft legislative environmental impact statement.”

Draft legislative environmental impact statement (DLEIS) – The draft of a legislative environmental impact statement.

Easements – An interest in real property that conveys use, but not ownership, of a portion of an owner's property.

Eligibility Study – The process of determining what river segments are eligible for potential addition to the Wild and Scenic Rivers System.

Eligible river or river segment – To be eligible for addition to the Wild and Scenic River System, a river segment must meet both of the following criteria: (1) it must be free-flowing, and (2) it must possess one or more outstandingly remarkable values.

Endangered species – Any species of animal or plant that is in danger of extinction throughout all or a significant portion of its range. Plant or animal species identified by the Secretary of the Interior as endangered in accordance with the 1973 Endangered Species Act.

Endowment Fund – A \$1-million fund to be established under Alternative A2 to be used as supplemental funding to support the values in the South Platte River area.

Enhancement – Improving river corridor values above what they are today or a type of Visual Quality Objective (VQO). See “Visual Quality Objective.”

Enhancement Board – See “Friends of the South Platte River, Inc.”

Environmental analysis – A comprehensive evaluation of alternative actions and their predictable short- and long-term environmental effects, which include physical, biological, economic, social, and environmental design factors and their interactions.

Environmental assessment (EA) – The concise public document required by the regulations for implementing the procedural requirements of the National Environmental Policy Act (40 CFR 1508.9.2).

Environmental impact statement (EIS) – A detailed written statement disclosing the environmental effects of a major Federal action significantly affecting the human environment; required by section 102(2) (c) of the National Environmental Policy Act.

Floodplain – Relatively flat surfaces adjacent to active stream or river channels, formed by deposition of sediments during major floods; may be covered by water during floods.

100-year floodplain – That area that would be covered by water during the 100-year flood event.

Foreground – A term used in visual management to describe the portions of a view between the observer and up to ¼ to ½ mile distant.

Forest Land and Resource Management Plan (FLRMP, Forest LRMP, Forest Plan, Forest Management Plan) – Provides a management program reflecting a mix of management activities that allows use and protection of the forest's resources, fulfills legislative requirements, and addresses local, regional, and national issues. The study area lies within the Pike and San Isabel National Forests and the Cimarron and Comanche National Grasslands, the FLRMP that was approved in 1984.

Forest Management Plan – See “Forest Land and Resource Management Plan.”

Forest Plan – See “Forest Land and Resource Management Plan.”

Forest Service Handbook (FSH) – For Forest Service use, directives that provide detailed instructions on how to proceed with a specialized phase of a program or activity.

Forest Service Manual (FSM) – A system of manuals which provides direction for Forest Service activities.

Free-flow – “As applied to any river or section of a river” under the Wild and Scenic Rivers Act, “means existing or flowing in natural condition without impoundment, diversion, straightening, riprapping, or other modification of the waterway. The existence, however, of low dams, diversion works, and other minor structures at the time any river is proposed for inclusion in the National Wild and Scenic Rivers System shall not automatically bar its consideration for such inclusion: *Provided* that this shall not be construed to authorize, intend, or encourage future construction of such structures within components of the National Wild and Scenic Rivers System.”

Friends of the South Platte River, Inc. – A non-profit coordinating forum, the Friends of the South Platte River, Inc., would provide comments and responses on activities such as land use or land management planning decisions, as well as deciding expenditures from the endowment fund.

Habitat – The area where a plant or animal lives and grows under natural conditions. Habitat consists of living and non-living attributes and provides all requirements for food and shelter.

Historic sites – Site associated with the history, tradition, or cultural heritage of national,

State, or local interest and of enough significance to merit preservation or restoration.

Interdisciplinary Team (ID Team) – A group of individuals with different training assembled to solve a problem or perform a task. The team is assembled out of recognition that no one scientific discipline is sufficiently broad to adequately solve the problem.

Irretrievable – Applies to losses of production, harvest, or commitment of renewable natural resources. For example, some or all of the timber production from an area is irretrievably lost during the time an area is used as a winter sports site. If the use is changed, timber production can be resumed. The production lost is irretrievable, but the action is not irreversible.

Irreversible – Applies primarily to the use of non-renewable resources, such as minerals or cultural resources, or to those factors that are renewable only over long timespans, such as soil productivity. Irreversible also includes loss of future options.

Key issues – The ID Team identifies and eliminates from detailed study the issues which are not significant or which have been covered by prior environmental review. The remaining issues are covered through the analysis. These issues are the key issues.

Land and Resource Management Plan – The *Land and Resource Management Plan for the Pike and San Isabel National Forests, Comanche and Cimarron National Grasslands* was implemented in 1984 to provide site-specific management direction for all areas administered by the unit. The plan provides a management program reflecting a mix of management activities that allows use and protection of the forest's resources, fulfills legislative requirements, and addresses local, regional, and national issues. Included in the plan are: management direction and

long-term goals, standards and guidelines and the timing necessary to achieve those goals, monitoring and evaluation needed to ensure plan direction is carried out, assessment of the suitability of wilderness, and recommended management direction for oil and gas leasing. The 1984 plan is currently in force but will be revised in the next several years.

Legislative environmental impact statement (LEIS) – Prepared if a recommendation is made to Congress for designation of at least one river study segment.

LEIS – See “legislative environmental impact statement.”

LRMP – See “Forest Land and Resource Management Plan.”

Management Plan – A plan guiding overall management of an area administered by a Federal or state agency; plan usually includes objectives, goals, standards and guidelines, management actions, and monitoring plans (see Land and Resource Management Plan).

Maximum Modification – See “Visual Quality Objective.”

Memorandum of Understanding (MOU) – An agreement between the agencies signing onto the South Platte Protection Plan. The agreement will outline commitments made by each of the signatories.

Middleground – A term used in visual management to describe the portions of a view extending from the foreground zone out to 3 to 5 miles from the observer.

Mitigation – Mitigation includes: (a) avoiding the impact altogether by not taking a certain action or parts of an action; (b) minimizing impacts by limiting the degree or magnitude of the action and its implementation; (c) rectifying the impact by repairing, rehabilitating, or restoring the affected environment; (d) reducing or eliminating the impact over time by preservation and

maintenance operations during the life of the action; and (e) compensating for the impact by replacing or providing substitute resources or environments (40 CFR Part 1508.20).

Modification – See “Visual Quality Objective.”

Modified South Platte Protection Plan (Modified SPPP and Alternative A3) – Developed to address issues and concerns raised regarding the South Platte Protection Plan.

National Environmental Policy Act (NEPA) – An act to declare a national policy which will encourage productive and enjoyable harmony between humankind and the environment, to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of humanity, to enrich the understanding of the ecological systems and natural resources important to the Nation, and to establish a Council on Environmental Quality (“The Principal Laws Relating to Forest Service Activities,” *Agriculture Handbook* No. 453, USDA Forest Service, 359 pp.) (40 CFR Part 1500-1508).

National Forest Management Act (NFMA) – A law passed in 1976 as an amendment to the Forest and Rangeland Renewable Resources Planning Act, requiring the preparation of Regional Guides and Forest Plans and the preparation of regulations to guide that development.

Notice of Intent – Article published in the *Federal Register* announcing that (in this case) a Wild and Scenic River Study Report and EIS is to be prepared.

ORV – See “Outstandingly remarkable values.”

Outstandingly remarkable values (ORV) – Term used in the National Wild and Scenic Rivers Act of 1968; to qualify as outstandingly remarkable, a resource value

must be a unique, rare, or exemplary feature that is significant at a regional or national level.

Partial retention – See “Visual Quality Objective.”

PETS – Proposed, endangered, threatened, or sensitive species.

Preferred Alternative – This is an alternative chosen over all others through the NEPA process after analyzing a series of alternatives.

Prehistoric site – An area that contains important evidence and remains of the life and activities of early societies that did not record their history.

Preservation – See “Visual Quality Objective.”

Primitive – Area is characterized by an essentially unmodified natural environment of fairly large size. Interaction between users is very low, and evidence of other users is minimal. The area is managed to be essentially free from evidence of human-induced restrictions and controls. Motorized use within the area is not permitted. The area has no facilities and no site disturbance for facilities.

Proposed action – The original concept, plan, or idea that triggered the NEPA process.

Protection Plan – See “South Platte Protection Plan.”

Public involvement – A Forest Service process designed to broaden the information base upon which agency decisions are made by (1) informing the public about Forest Service activities, plan, and decisions and (2) encouraging public understanding about and participation in the planning processes which lead to final decisionmaking.

Record of Decision – The decision document associated with an environmental impact statement; signed by the official authorized to make the decision.

Recreation Management Plan – To meet current recreationists' needs as well as those needs that may evolve in the future.

Recreation Opportunity Spectrum (ROS) – A framework for stratifying and defining classes of outdoor recreation environments, activities, and experience opportunities. The settings, activities, and opportunities for obtaining experiences have been arranged along a continuum of spectrum divided into six classes: Primitive, Semi-primitive Non-motorized, Semi-primitive Motorized, Roded Natural, Rural, and Urban.

Recreational river area – Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

Regulated harvest – Harvest on forest lands in Forest Plan management areas that include scheduled timber harvest on a regular sustainable basis. Regulated acres are the areas or acres from which this can occur; also referred to as suitable acres.

Rehabilitation – Action taken to restore, protect, or enhance site productivity, water quality, or other resource values over a period of time.

Resident fish – Fish species that complete their entire life cycle in freshwater; non-anadromous fish; an example is rainbow trout.

Resource assessment – An evaluation of the resources and values associated with a wild and scenic river and the river corridor; the evaluation determined the level of significance of river-related values.

Retention – See “Visual Quality Objective.”

Riparian – Pertaining to areas of land directly influenced by water or influencing water. Riparian areas usually have visible vegetative

or physical characteristics reflecting this water influence. Stream sides, lake borders, or marshes are typical riparian areas.

River – A flowing body of water or estuary or a section, portion, or tributary thereof, including rivers, streams, creeks, runs, kills, rills, and small lakes.

River corridor – (1) Land adjacent to a Wild and Scenic River, managed along with the river to maintain and/or enhance the outstandingly remarkable values of the river; corridor boundaries are delineated by the geography and the ORVs encompassing not more than 320 acres per river mile. (2) Land adjacent to a study river; in this case, the corridor extends ¼-mile from the average high water mark on both sides of the river.

River Management Plan.– A plan yet to be developed that addresses all river resources in an ecosystem management framework; to be developed following completion of this Wild and Scenic Rivers Study, with major components for recreation, wildlife, fisheries, scenery, cultural resources, and other values.

River values – Identified during the Wild and Scenic River Study; South Platte values include historic, cultural resources, fisheries, geologic, recreational, scenic and wildlife. Also recognized is that the Colorado Front Range communities rely heavily upon the South Platte for drinking water supply and other municipal and industrial uses and that agriculture throughout northeastern Colorado depends heavily on South Platte flows.

Roded natural – Area is characterized by predominately natural-appearing environments with moderate evidence of the sights and sounds of man. Such evidence usually harmonizes with the natural environment. Interaction between users may be moderate to high, with evidence of other users prevalent. Vegetative alterations are done to maintain

desired visual and recreation characteristics. The area is managed with some obvious onsite controls and restrictions. Resource modification and utilization practices are evident but harmonize with the natural environment. Conventional motorized use is allowed and incorporated into construction standards and design of facilities. The area has a moderate amount and complexity of facilities for comfort and convenience of the user; native materials are used but with more refinement in design.

Roadless Area – Acres studied during the Roadless Area Review and Evaluation process (RARE II) that are roadless and at least 5,000 acres in size.

Rural – Area is characterized by a natural environment that is culturally modified, yet attractive (i.e., pastoral farmlands). Backdrop may range from alternations not obvious to dominant. Interaction between users may be high as is evidence of other users. The area is managed with obvious and prevalent onsite controls. Access and travel facilities are for individual intensified motorized use. The area has highly complex and numerous facilities with some synthetic but harmonious materials. Design is more refined. There are many convenience facilities such as flush toilets, lighting, piped in water, etc.

Salvage cuttings – Intermediate cuttings made to remove trees that are dead or in imminent danger of being killed by injurious agents.

Scenic easements – The right to control the use of land (including the air space above such land) within the authorized boundaries of a component of the Wild and Scenic River System, for the purpose of protecting the natural qualities of a designated *wild, scenic or recreational* river area; but such control shall not affect, without the owner's consent, any regular use exercised prior to the acquisition of the easement. For any designated Wild and Scenic River, the

appropriate Secretary shall treat the acquisition of fee title with the reservation of regular existing uses to the owner as a scenic easement for the purposes of this Act. Such an acquisition shall not constitute fee title ownership for purposes of section 6(b).

Scenic River Areas – Those rivers or sections of rivers that are free of impoundments, with watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

Scoping process – A part of the National Environmental Policy Act process; early and open activities used to determine the scope and significance of the issues, and the range of actions, alternatives, and impacts to be considered in an environmental impact statement (40 CFR 1501.7).

Section 7 analysis – A documented procedure, specified in the *Forest Service Handbook*, to evaluate water resource projects in designated Wild and Scenic River corridors. Evaluation is limited to Federal lands in the corridor and to private land in the corridor where a Federal permit or Federal funding are used. Only those projects that ensure the protection of free-flow, outstandingly remarkable values, management objectives of the river, and other resource values for which the area is designated are permitted. Also implied by Forest Service policy to all study rivers.

Sedimentation – A process where material carried in suspension by water flows into streams and rivers, increasing turbidity, and eventually settling to the bottom.

Semi-primitive non-motorized – Area is characterized by a predominately natural or natural-appearing environment of moderate to large size. Interaction between users is low, but there is often evidence of other users. Resource modification and utilization practices are to enhance specific recreation activities and to maintain vegetative cover

and soil. The area is managed in such a way that minimum onsite controls and restrictions may be present but would be subtle. Motorized recreation use is not permitted, but local roads used for other resource management activities may be present on a limited basis. Use of such roads is restricted to minimize impacts on recreation experience opportunities. The area has no facilities except limited signing, sanitary, and safety needs in native-like rustic materials.

Semi-primitive motorized – Area is characterized by a predominately natural or natural-appearing environment of moderate to large size. Concentration of users is low, but there is often evidence of other users. The area is managed in such a way with minimum onsite controls and restrictions. Use of local primitive or collector roads with predominately natural surfaces and trails suitable for motor bikes is permitted. The area has limited facilities for signing, sanitary, and safety needs in native-like rustic materials.

Sensitivity level – A measure of people's concern for the scenic quality of the national forests. Three sensitivity levels are employed, each identifying a different level of user concern for the visual environment.

Level 1 - Highest sensitivity

Level 2 - Average sensitivity

Level 3 - Lowest sensitivity

Sensitive species – Plant or animal species that are susceptible or vulnerable to activity impacts or habitat alternations. Those species that have appeared in the *Federal Register* as proposed for classification or are under consideration for official listing as endangered or threatened species, that are on an official State list, or that are recognized by the Regional Forester as needing special management to prevent placement on Federal or State lists.

Snag – A standing dead tree.

South Platte Enhancement Board – A nonprofit coordinating forum established to decide expenditures from the Endowment Fund.

South Platte Protection Plan (SPPP and Alternative A2) – Developed by a group of parties interested in the South Platte River; purpose of SPPP is to protect the river-related values identified by the Forest Service and preserve water supply functions without designating the river under the Wild and Scenic Rivers Act.

SPPP – See “South Platte Protection Plan.”

Standards and guidelines – Bounds or constraints within which all practices in a given area will be carried out, in achieving the goals and objectives for that area. Standards and guidelines provide environmental safeguards and also state constraints prescribed by law.

Streamflow Management Plan – A series of commitments and goals established during the A2 process to alter current water facility operations to protect and enhance fisheries.

Study corridor – The river segment(s) that have been found eligible and are under study for potential Wild and Scenic River designation. This includes all land within ¼ mile of the high water mark of that segment.

Suitability study – The process of evaluating the eligible segments of a river for their suitability for potential addition to the Wild and Scenic Rivers System.

Suitable acres – See “regulated harvest.” Section 5(d)(1) of the Wild and Scenic Rivers Act – Section of the Act that requires all Federal agencies to consider potential national *wild*, *scenic*, and *recreational* river areas in all planning for the use and development of water and related land resources. This study is a 5(d)(1) study, which means it is

agency-initiated rather than congressionally initiated and has slightly different procedural aspects than the latter.

Suitable river or river segment – Rivers or river segments found suitable for addition to the Wild and Scenic Rivers System.

Supplemental draft legislative environmental impact statement (SDLEIS, supplemental draft LEIS) – A document that supplements a draft legislative environmental impact statement.

Terminus – The beginning or ending point of congressionally designated Wild and Scenic River corridor or, as in this case, of an eligible study corridor.

Threatened species – Those plant or animal species likely to become endangered species throughout all or a significant portion of their range within the foreseeable future. (See also “endangered species.”)

Unregulated Harvest – Harvest on lands in Forest Plan management areas that do not include scheduled timber harvest on a regular sustainable basis. Also referred to as unregulated or unsuitable acres.

Unsuitable – See “unregulated harvest.”

Upper South Platte Watershed Protection Association – Newly formed body coordinating development of a Source Water Protection Plan as required under the Safe Drinking Water Act.

Urban – Area is characterized by an urbanized environment with dominant structures, traffic lights, and paved streets. The area may have a natural appearing backdrop. Recreation sites may be city parks and large resorts. Interaction between large numbers of users is high. The area is managed with numerous intensive onsite controls. Access and travel facilities are highly intense, motorized, and often with mass transient supplements. The area has numerous very highly complex and dominant facilities,

mostly with synthetic materials and very refined design. Convenience facilities are dominant.

Viewshed – Portion of the forest that is seen from a major travel route or high use location.

Visual Quality Objective (VQO) – Categories of acceptable landscape alteration measured in degrees of deviation from the natural-appearing landscape.

Preservation (P) - Ecological changes only.

Retention (R) - Management activities should not be evident to the casual forest visitor.

Partial Retention (PR) - Management activities remain visually subordinate to the characteristic landscape.

Modification (M) - Management activities may dominate the characteristic landscape but must, at the same time, follow naturally established form, line, color, and texture. It should appear as a natural occurrence when viewed in foreground or middle ground.

Maximum Modification (MM) - Human activity may dominate the characteristic landscape but should appear as a natural occurrence when viewed as background.

Enhancement - A short-term management alternative that is done with the express purpose of increasing positive visual variety where little variety now exists.

Visual resource – The composite of basic terrain, geologic features, water features, vegetative patterns, and land use effects that typify a land unit and influence the visual appeal the unit may have for visitors.

Watershed – The entire land area that contributes water to a drainage system or stream. Also used to describe the watersheds used for forest level planning and analysis.

Wetlands – Areas that are inundated by surface or ground water; often enough to support, and usually do support, primarily plants and animals that require saturated or seasonally saturated soil conditions for growth and reproduction.

Wild and Scenic River – Those rivers or sections of rivers designated as such by congressional action under the 1968 Wild and Scenic Rivers Act, as supplemented and amended, or those sections of rivers designated as *wild*, *scenic*, or *recreational* by an act of the legislature of the State or States through which they flow. Wild and Scenic Rivers may be classified and administered under one or more of the following categories:

Recreational River Area – Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

Scenic River Areas – Those rivers or sections of rivers that are free of impoundments, with watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

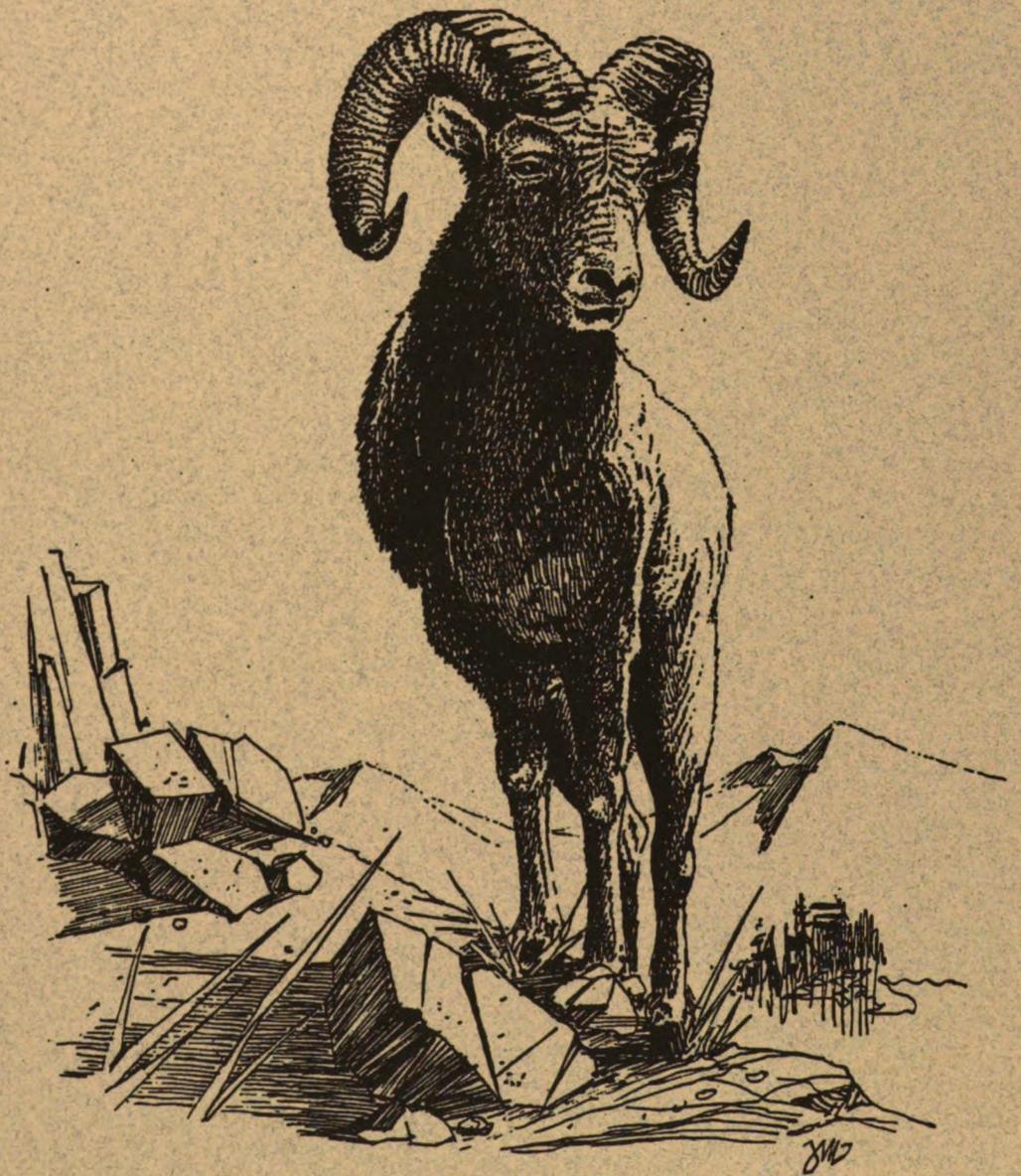
Wild River Areas – Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted.

Wild and Scenic River Study Report – A report documenting a study to determine whether a river is suitable for inclusion in the National Wild and Scenic Rivers System. Combined with a NEPA analysis, these documents become part of the proposed legislative package if the final report recommends designation of all or part of a study river.

Wild and Scenic Rivers Act – Public Law 90-542 et seq.; passed in 1968 to balance river development with river protection.

Wild fish – Fish species that reproduce without stocking; may include native (i.e., cutthroat trout) and non-native species (i.e., brown and rainbow trout).

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CHAPTER 9

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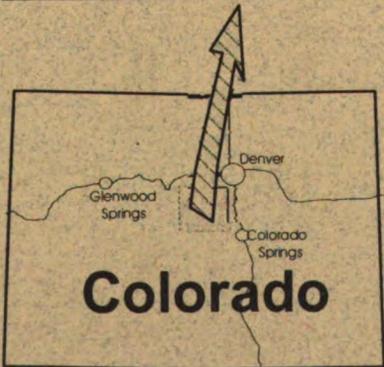
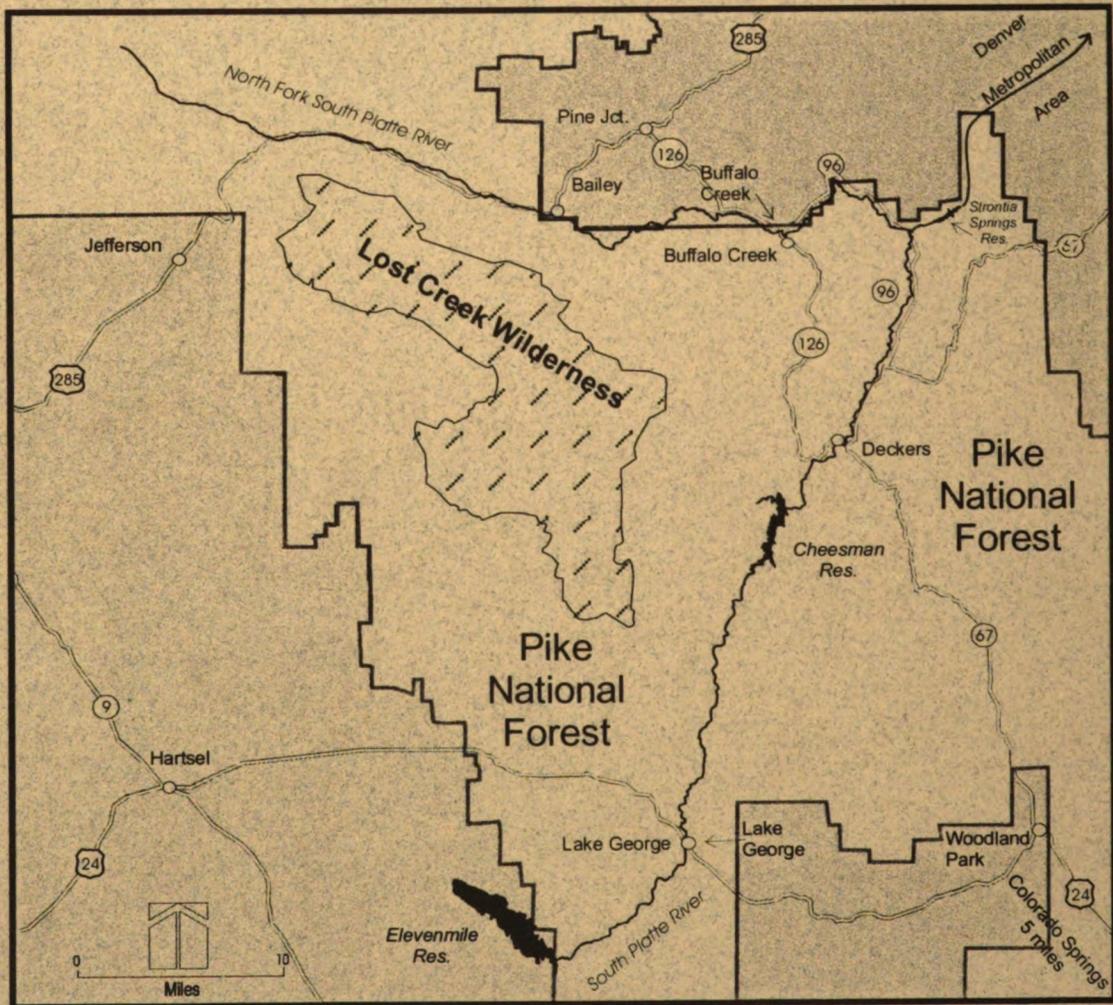
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South Platte River and North Fork of the South Platte River
Wild and Scenic River Study

Vicinity Map



Land Ownership

-  Within National Forest Boundary
-  Outside National Forest Boundary

Roads and Highways

-  State Highways
-  U. S. Highways

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