A Citizen's Coalition Comment Letter

Tonto National Forest Draft Forest Plan and

Draft Environmental Impact Statement

March 12, 2020

CENTER for BIOLOGICAL DIVERSITY

WildEarth GUARDIANS

SIERRA CLUB GRAND CANYON

ARIZONA RIPARIAN COUNCIL

DEFENDERS OF WILDLIFE

MARICOPA AUDUBON SOCIETY

Arizona Mining Reform Coalition

AMERICAN WHITEWATER

WILD ARIZONA

WMCL

THE WILDERNESS SOCIETY

Rewilding Institute

March 12, 2020

Tonto National Forest
Attn: Forest Planner
2324 E McDowell Rd.
Phoenix, AZ 85006

Submitted online at: https://cara.ecosystem-management.org/Public//CommentInput?Project=51592

RE: Tonto National Forest Draft Forest Plan and Draft Environmental Impact Statement

The following letter is submitted on behalf of the Center for Biological Diversity, Wild Arizona, WildEarth Guardians, Defenders of Wildlife, Sierra Club, American Whitewater, Arizona Riparian Council, Arizona Mining Reform Coalition, The Rewilding Institute, The Wilderness Society, Maricopa Audubon Society, and White Mountain Conservation League.

This coalition of organizations came together to provide input during the Tonto National Forest's Plan Revision process with the goal of ensuring the best available science was used in the creation of the new Forest Plan and to advocate for greater protections for wild species and habitat and environmentally-responsible natural resource management.

To summarizing our comments, we are asking for substantial revisions of major elements of the EIS and Plan. Primarily, we feel that the Wilderness Recommendation and Wild and Scenic River Eligibility evaluations have made major, systemic errors, leading to far fewer protections than these keystone landscapes deserve. Also, the Draft Plan provides few constraints on livestock grazing, which has degraded significant areas of the Tonto, and ignores a trove of science supporting the need for drastic reductions in grazing. Likewise, the plan does not provide the needed measures to protect resources from the ever growing impacts of off-road vehicles, and fails to provide needed protections for our most imperiled wildlife from mining, grazing, OHVs, climate change, old-growth logging, and habitat fragmentation.

These aspects, and others, need major revision. In fact, we feel strongly that a supplemental DEIS is needed to address these key concerns prior to moving on to the Final EIS.

This letter contains a tremendous amount of detailed information. We encourage you to reach out to us and seek clarification as needed. We are partners in land management, and we fully understand the pressure that the plan revision team was under to make things happen in a tight time frame. This is not easy work, but we have identified ways to make this plan really work for people, wildlife, and ecosystems.

Thank you for you work, and we appreciate your consideration of our comments.

For the Forests, Deserts, Waters, and Wildlife,

The Tonto Coalition

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The **Center for Biological Diversity** is a national, nonprofit conservation organization with more than 1.7 million members and online activists dedicated to the protection of endangered species and wild places. The members and activists of the Center are concerned with the management of our federal public lands, including our national forests, especially as that management relates to the recovery and viability of native species and their habitats. The Center has fought for protection of wilderness, wild and scenic rivers, and wildlife on the Tonto for decades. We will continue to use science, media, and legal strategies to advance the preservation and restoration of this incredible National Forest.

Wild Arizona is a statewide conservation organization working to protect, link together, and restore wild lands and waters across Arizona and beyond. We pursue this mission for the enrichment and health of all generations, and to ensure Arizona's native plants and animals a lasting home in wild nature. Wild Arizona has a long history of advocacy, wilderness inventory, wild and scenic assessment, planning engagement, and stewardship partnership with the Tonto National Forest, especially for the Tonto's trails, Wilderness Areas and Fossil Creek through our award-winning volunteer program called Wild Stew. Wild Arizona's 2,000 members, supporters, and volunteers have contributed many thousands of hours to maintain, protect, and restore the character of Wilderness Areas on the Tonto. We are dedicated to preserving and enhancing the Tonto's diverse ecosystems, its natural waters including streams and springs, its wilderness quality opportunities for solitude and quiet recreation, and the important landscape connectivity that the Tonto affords Arizona's iconic wildlife, across a remarkable range of elevations and biomes.

The **Sierra Club** is America's largest and most influential grassroots environmental organization, with more than 3.8 million members and supporters. In addition to protecting every person's right to get outdoors and access the healing power of nature, the Sierra Club works to promote clean energy, safeguard the health of our communities, protect wildlife, and preserve our remaining wild places through grassroots activism, public education, lobbying, and legal action. Sierra Club members enjoy and explore the Tonto National Forest via hiking, backpacking, camping, kayaking, canoeing, rafting, wildlife viewing, and other activities. Our members act to protect the forest too, including advocating for protection of Wilderness, doing the on-the-ground assessments, and promoting the bills that established many of the Tonto's Wilderness Areas; helping to assess and establish Wild & Scenic Rivers processes and designations, including protection of Fossil Creek as a Wild & Scenic River; opposition to harmful mining projects, including the Carlota Mine and the proposed Resolution Copper Mine; and much more. Our members regularly help with clean-ups, trail maintenance, monitoring of riparian areas, and water quality monitoring on the Tonto National Forest.

WildEarth Guardians (Guardians) is a nonprofit conservation organization whose mission is to protect and restore wildlife, wild places, wild rivers, and the health of the American West. Guardians has offices in six states, including Arizona, and has more than 278,000 members and supporting activists across the United States and the world. Guardians has an organizational interest in ensuring the Forest Service complies with all environmental laws during the Tonto Forest Plan revision process. Guardians has a demonstrated history of advocating for an ecologically and economically sustainable transportation system on the Tonto National Forest, and protecting at-risk species. Guardians continues to engage in the Tonto travel management planning process, and works to ensure the Forest Service conducts proper monitoring of Mexican spotted owl.

Defenders of Wildlife is a national, non-profit membership organization dedicated to the protection of all native animals and plants in their natural communities. Defenders has a Southwest Office, located in Santa Fe, New Mexico, with staff also in Tucson, Arizona. Defenders has over a million members and supporters nationwide, including over 12,200 members and supporters in Arizona and New Mexico.

American Whitewater is a national 501(c)(3) non-profit organization with a mission "to conserve and restore our nation's whitewater resources and enhance opportunities to enjoy them safely". With 6,000 individual and 100 affiliate club members, American Whitewater represents the interests of over 80,000 river enthusiasts. As conservation-minded whitewater recreationists, we place a high value on protecting naturally functioning river ecosystems, including their fish and wildlife, geomorphic processes, and potential to provide clean and safe drinking water. Our membership and the general public highly value our nation's river systems and associated riparian zones, and we have a direct interest in maintaining healthy rivers for everyone to enjoy. There are numerous creeks and rivers within the Tonto National Forest boundary that attract our members from across the region and the country, and we support management actions that protect and preserve healthy riparian systems and provide unique recreational opportunities.

The **Arizona Riparian Council** was founded in 1986 as a result of the increasing concern over the rate of loss of Arizona's riparian areas. With less than 10% of Arizona's original riparian acreage remaining in its natural form, these habitats are considered Arizona's rarest natural communities. Council members include scientists; regulators involved in streamside activities, management, and studies; and citizens. The Council's mission is to provide for the exchange of information on the status, protection, and management of riparian systems in Arizona.

Arizona Mining Reform Coalition works in Arizona to improve state and federal laws, rules, and regulations governing hard rock mining to protect communities and the environment. AMRC works to hold mining operations to the highest environmental and social standards to provide for the long term environmental, cultural, and economic health of Arizona. Members of the Coalition include: Apache – Stronghold, Center for Biological Diversity, Concerned Citizens and Retired Miners Coalition, Concerned Climbers of Arizona, Dragoon Conservation Alliance, EARTHWORKS, Empire Fagan Coalition, Environment Arizona, Groundwater Awareness League, Maricopa Audubon Society, Save the Scenic Santa Ritas, Grand Canyon Chapter of the Sierra Club, Sky Island Alliance, Spirit of the Mountain Runners, Tucson Audubon Society, and the Valley Unitarian Universalist Congregation.

The Rewilding Institute works to develop and promote ideas and strategies to advance continental-scale conservation in North America and beyond, particularly the need for large carnivores and a permeable landscape for their movement, and to offer a bold, scientifically-credible, practically achievable, and hopeful vision for the future of wild Nature and human civilization.

The Wilderness Society is the leading conservation organization working to protect wilderness and inspire Americans to care for our wild places. Founded in 1935, and now with more than one million members and supporters, The Wilderness Society has led the effort to permanently protect 109 million acres of wilderness and to ensure sound management of our shared national lands.

The **White Mountain Conservation League** represents over 225 local and regional members that work together to conserve our natural resources, promote a sustainable economy while protecting the White Mountains of Arizona for future generations.

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I. Citizen Comments: A vision of sustainability.

Our Coalition has been deeply engaged in the Plan Revision for years, and we have been making the same arguments for years. The list below represents many of the comments we have submitted to the Forest Service. Key themes include: concerns about grazing, especially in riparian areas; concerns over Forest Service unwillingness to enforce grazing permits and hold permittees accountable; lack of monitoring of riparian areas; concerns over off-road vehicles, especially route closure enforcement in deserts and riparian areas; the overlap of the travel management process and the Forest Plan revision; protection of recommended wilderness and eligible wild and scenic rivers; enforceable and firm standards and guidelines for grazing, species of conservation concern, and mining; protection of old growth forests and habitats for Mexican spotted owl; management of fire adapted ecosystems for fire based restoration, and minimal, strategic use of mechanical treatments; and identification and protection of culturally important areas. These key concerns have largely been minimized and swept under the rug in the Draft Plan and DEIS. Standards are weak or lacking, grazing is given priority, wilderness recommendations are minimal, deserving rivers have been removed from the eligibility list, and aggressive goals for process-based ecosystem restoration (especially riparian areas) have not been offered. Therefore, we enter into the record, again, the comments previously submitted, which are largely consistent with the positions stated in this letter. These files were submitted: [1]

2014.07.10 - Tonto Plan Comments - Pre-Assessment [CBD et al)

2014.09.01 - Tonto TMP Comments - DEIS [Sierra Club]

2016.11.04 - Tonto Plan Comments - Draft Assessment [CBD et al]

2017.05.23 - Tonto Plan Comments - Scoping [CBD et al]

2017.06.02 - Tonto Plan Comments - Wild and Scenic [FAR]

2017.06.30 - Tonto Plan Comments - Wilderness Inventory and Evaluation Criteria [AWC et al]

2017.09.28 - Tonto Plan Comments - Draft Eval Criteria [TWS]

2017.10.02 - Tonto Plan Comments - Wilderness Process [Sierra Club]

2017.10.10 - Tonto Plan Comments - Draft Map and Expanded Evaluation Criteria [AWC et al]

2017.11.06 - Tonto Plan Comments - Wilderness Evaluation Criteria and WS Rivers [AWC et al]

2018.01.12 - Tonto Plan Comments - Prelim Proposed Plan [CBD]

2018.02.11 - Tonto Plan Comments - Draft Wilderness Evaluation [AWC+SC]

2018.02.12 - Tonto Plan Comments - Draft Wilderness Area Evaluation [AWC et al]

2018.03.30 - Tonto Plan Comments - CAZCA Connectivity Proposal [Sonoran Institute]

[1] Submitted as Appendix V by email to the planning team on 3/11/2020.

II. Water: Lifeblood of the Desert.

Riparian areas are defined in the Draft Plan as "*habitats that border streams, springs, ponds, lakes or occupy other wet areas, such as wetlands, cienegas, fens, and bogs*."[2] The 2012 Planning Rule defines riparian areas from a hydrological perspective as "[t]*hree-dimensional ecotones of interaction that include terrestrial and aquatic ecosystems that extend down into the groundwater, up above the canopy, outward across the floodplain, up the near-slopes that drain to the water, laterally into the terrestrial ecosystem, and along the water course at variable widths*."[3] Already, we see that the Tonto is not defining a crucial ecological system in comport with the Planning Rule.

Riparian areas are structurally and environmentally complex because they are ecotones that "*encompass sharp gradients of environmental factors, ecological processes, and plant communities*."[4] Moreover, southwestern riparian zones provide unique aquatic environments in otherwise largely arid landscapes. Because of this complexity, riparian areas are "*ecological hotspots*,"[5] that "*support some of the greatest plant and animal diversity and are essential habitat for much of the native flora and fauna and migratory avian species*."[6] Springs expert Dr. Larry Stevens, Senior Ecologist with Wild Arizona, has found a 100% correlation between springs and river/stream origination on the Tonto NF, proving the interconnectedness of these systems.

The Tonto is the Nation's fifth largest National Forest, often celebrated for containing 76% of all desert vegetation on all National Forests in the southwest combined. But the Tonto is also renowned for its riparian areas. It contains 41% of all cottonwood-willow forest, 23% of all mixed broad-leaf deciduous riparian forest, and 20% of all montane willow riparian forest on all eleven National Forests in the southwest. Seventy percent of all surface water on all National Forests in the southwest is on the Tonto, which supports 12 native fish species residing in some of the 560 miles of perennial streams, accounting for 39% of all stream reaches in Arizona with 5 or more native fish.[7]

Because of pervasive degradation of riparian habitats throughout the Southwest, many riparian species are in jeopardy, especially on the Tonto. At least fifteen species protected under the Endangered Species Act that occur on the Tonto National Forest are reliant on riparian ecosystems. Plus, another sixteen riparian-obligate species on the Tonto National Forest are considered US Forest Service Southwestern Region Sensitive Species. Without making a bold and firm commitment to recovering these species in their native habitats, the Tonto is on a course for protracted legal and administrative complications in the years to come. Thus far, the Draft Plan fails to make that commitment.

Appendix C of the Draft Plan lists at-risk riparian species on the Tonto NF, including loach minnow, Gila trout, Chiricahua leopard frog, southwestern willow flycatcher, and others. On a regional and national level, the Tonto NF provides critical refugia needed for survival of these at-risk species. The Final Assessment Report assesses riparian ecosystems to determine whether they are "*functioning normally and are uncompromised*,"[8] including assessment of "*characteristics needed to provide*

[2] Draft Plan, p. 110.
[3] 36 C.F.R. § 219.9.
[4] Tonto National Forest Final Assessment Report, Vol 1, p. 143.
[5] Tonto National Forest Final Assessment Report, Vol 1, p. 150.
[6] DEIS Vol. 1, p. 379.
[7] Lee et al., 2005, Ecological & Biological Diversity of the Tonto National Forest, The Nature Conservancy.
[8] Tonto National Forest Final Assessment Report, Vol 1, p. 10.

ecological conditions necessary to maintain or restore the ecological integrity of terrestrial, aquatic, and riparian ecosystems in the plan area."[9]

Two sections of the Draft Plan focus directly on riparian resources with desired conditions, objectives, standards and guidelines:

a. Riparian Ecological Response Units (RERUs) "*are mapped riparian areas that describe dominant riparian plant communities*."[10]
b. Riparian Areas, Seeps, Springs, Wetlands, and Riparian Management Zones (RMZs). "*The Forest Plan establishes riparian management zones around all lakes, stream ecosystems (perennial and intermittent), springs, seeps, and wetlands. Riparian management zones will be identified for land and vegetation within approximately 100 feet from the edges of these features*."[11]

Other sections of the Draft Plan that discuss effects of forest activities on RERUs include Watersheds and Water Resources, Forestry and Forest Products, all Upland Ecological Response Units, Fire and Fuels, Management Zones, Invasive and Noxious Species, Lakes and Rivers Management Area, and to a minor extent Rangelands, Forage, and Grazing. Astonishingly, the RERU section contains no objectives or standards, only desired conditions, guidelines, and management approaches. The RMZ section has more specificity, adding two numerical objectives and two non-numerical standards, but this is still surprisingly deficient in meaningful plan direction.

Although the DEIS concludes that most ERUs on the Tonto NF only "*show low to moderate departures from reference*" conditions,[12] the condition of riparian ecosystems on the Tonto NF is poor. The DEIS states that "[m]*ost riparian ecological response units have low similarity to the potential reference plant community*."[13] The DEIS identifies 84,776 mapped acres of riparian vegetation in 4 RERUs, categorized as stable, impaired and unstable.[14] Of these 84,776 acres, only 19% are considered stable, i.e. approximately 81% are either impaired or unstable. A majority of soils in riparian RERUs are "*impaired*" or "*unsatisfactory*,"[15] "*indicating a need for change in current management*."[16] Livestock grazing is one of the most significant contributors to these conditions.

Improvement in riparian resources across the forest is essential if the forest is to substantially contribute to recovery of ESA-listed species, prevent Species of Conservation Concern from sliding toward endangerment, improve hydrological function of waterways, provide quality recreation experiences, and support the communities which rely on functioning watersheds and water supplies. The amount of stable riparian habitat must be substantially increased in order for the Forest Service to meet the National Forest Management Act requirement to "*provide for the diversity of plant and animal communities based on the suitability and capability of the specific land area*"[17] and to contribute to the recovery of ESA-listed species.

[9] 36 C.F.R. § 219.8.
[10] Draft Plan, p. 97.
[11] Draft Plan, p. 111.
[12] DEIS Vol 1, p. 30.
[13] DEIS Vol 1, p. 381.
[14] DEIS Vol 1, p. 379.
[15] DEIS Vol 1, Table 82, p. 380.
[16] Tonto National Forest Final Assessment Report, Vol 1, Fig. 22, p. 141.
[17] 16 U.S.C. § 1604(g)(3)(B) (2012).

II.A. Concerns with Riparian Plan Components.

This section provides comments on plan components specific to Riparian ERUs, Riparian Areas, Seeps, Springs, Wetlands, and Riparian Management Zones.

CONCERN - RIP 1: The Draft Plan fails to create a framework for integrated management of riparian resources that would ensure well-targeted management activities.

RATIONALE - RIP 1: To ensure significant improvement and movement towards desired conditions, the Draft Plan must provide a planning framework that will substantially decrease risk from stressors on riparian ecosystems and promote recovery via active and/or passive restoration of large expanses of riparian habitat.

The Draft Plan fails to provide a framework for systematically and comprehensibly decreasing risks because a) it fails to provide numerical targets to be reached by deadlines and b) it fails to plan for riparian recovery in the context of other stressors, such a grazing, recreation, mining, logging, and other vegetation management activities. This is most evident in that sections of the Draft Plan on major stressors, e.g. Rangelands, Forage, and Grazing, make little reference to the effects of these stressors on riparian habitat, and they lack meaningful outcomes, standards or guidelines targeted at improving riparian habitat.

RECOMMENDATIONS - RIP 1: In addition to setting forth measurable targets for riparian condition, the Draft Plan should prescribe a framework for integrated management of stressors so as to improve overall riparian health. A model can be found in the Forest Service's Watershed Condition Framework which proposes "*integrated suites of activities in those watersheds that have been identified as priorities for restoration*."[18] This framework calls for planning of "*essential projects*," which are "*conservation actions and treatments that are implemented as an integrated suite of on-the-ground management activities* (emphasis added) *focused primarily on restoring watershed health…*"[19] They may include practices such as "*soil and water improvement, fisheries and aquatic resource habitat improvement, aquatic organism passage improvement, road decommissioning, road maintenance, upslope surface erosion control, reforestation, hazardous fuel reduction, restoring fire-adapted ecosystems, obtaining instream flows, negotiating flow regime changes below reservoirs, or other activities that when implemented, sustain or improve a watershed's condition class*."[20] Examples of specific hypothetical projects include "*decommission 5 roads, upgrade 15 culverts, change a grazing system, remove 3 check dams, remove hazardous fuels from 30 acres of riparian area, and restore native riparian vegetation*."[21]

Likewise, the Forest Plan should provide the direction needed to create such an integrated approach to diminish stressors on RERUs so as to reach desired outcomes. A critical preliminary requirement of such guidance is to establish measurable objectives, now largely lacking from the Draft Plan, as described in detail below. For example, a hypothetical forest-wide objective for riparian habitat might be to 'move 1,056 acres of the desert-willow RERU from unstable to stable status within 10 years.'

[18] Watershed Condition Framework: A Framework for Assessing and Tracking Changes to Watershed Condition. US Forest Service. 2011.
[19] *Ibid*, p. 15.
[20] *Ibid*.
[21] *Ibid*.

The Forest Plan should guide managers in creating a portfolio of actions analogous to the "*integrated suites of activities*" prescribed by the Watershed Condition Framework. If well planned, monitored and adjusted with adaptive management, these integrated actions should result in reaching the desired objectives within the prescribed time periods. Such a portfolio of actions for riparian habitat would likely include a mix of passive and active restoration activities. For example, the hypothetical 10-year plan to improve the 1,056 acres of desert-willow RERU might include removing cattle from 600 acres (passive restoration) and removing tamarisk from 456 acres (active restoration). The plan lacks objectives even as simple as this.

The plan should specify that progress toward such desired outcomes should be measured with a *riparian condition accounting system* that explicitly tracks riparian condition and increased and decreased risk from stressors from year to year, allowing adjustments of the activity portfolio as needed to reach outcomes. In planning such a system, it may be helpful to use the analogy of budgeting. A budget includes a financial target, e.g. $1 million (analogous to a numerical outcome in riparian planning, such as 1,056 acres of stable desert-willow RERU), debits (analogous to measurable decreases in riparian condition as the result of stressors), and credits (analogous to measurable improvements in riparian condition as the result of actions taken to reduce stressors, e.g. limiting grazing so as to improve 600 acres from unstable to stable). The Forest Plan will fail at maintaining the required "*diversity of plant and animal communities on the forest and the persistence of native species in the plan area*"[22] unless it creates such a framework for setting objectives, prescribing a portfolio of activities to reach the objectives, and uses such an explicit cause-and-effect accounting to set objectives and inform adaptive management.

CONCERN - RIP 2: The Draft Plan lacks measurable desired conditions.

RATIONALE - RIP 2: The Forest Plan "*must include plan components including standards or guidelines, to maintain or restore the ecological integrity of riparian areas in the plan area, including plan components to maintain or restore structure, function…*"[23] In order to ensure this obligation is attained, "*its dominant ecological characteristics*" must "*occur within the natural range of variation and can withstand and recover from most perturbations imposed by natural environmental dynamics or human influence*."[24] Desired conditions based on these requirements must be "*described in terms that are specific enough to allow progress toward their achievement to be determined.*"[25]

In both the RERU and RMZ sections, desired conditions are primarily qualitative or directional, the latter including directions without numerical benchmarks, such as "*move toward reference condition*." Exceptions are RERU-DC-02 (percent similarity of vegetation to site potential), RERU-DC-14 (percent soils rated as satisfactory), and RMZ-DC-09 (percent fines in streambeds). An example of a directional desired condition in RERU-DC-07: "*Riparian areas provide functional soil and water resources, consistent with their flood regime and flood potential, and provide diverse habitats for native species. Riparian areas are in or trending toward proper functioning condition or other suitable scientific protocol or method.*" Because this desired condition is so general, different managers could

[22] 36 C.F.R. § 219.9.
[23] 36 C.F.R. § 219.8(3)(i).
[24] 36 C.F.R. § 219.19.
[25] 36 C.F.R. § 219.7(e)(1)(i).

make very different decisions about what "trending toward proper functioning condition" means. There is no way for a manager to know when sufficient "trending" has occurred.

Quantitative metrics are the best way to measure "*progress toward … achievement."* Although two of the 16 desired conditions for RERUs provide quantitative metrics, most are so general that it would be hard for the Forest Service to measure progress. For example, RERU-DC-07 states in part, "*Riparian areas provide functional soil and water resources, consistent with their flood regime and flood potential, and provide diverse habitats for native species*."[26] Because there is no reference point given that could be used to measure progress toward the reference condition, even highly degraded riparian areas could be considered to meet this desired condition, given that collectively they provide some functionality and some habitat. This is a recipe for failure.

RECOMMENDATIONS - RIP 2: To meet the requirement for specificity, either desired conditions should be specified with respect to reference conditions, e.g. number of acres meeting a certain level of ecological integrity, or such measurable specificity should be detailed in subordinate standards or guidelines. The less specific and ascertainable the desired conditions are, the more mandatory standards are needed to provide certainty that the Planning Rule's requirements are being met.

CONCERN - RIP 3: The Draft Plan is missing forest-wide riparian objectives.

RATIONALE - RIP 3: The plan is missing what should be arguably the most important class of riparian objective, namely numerical objectives for improving degraded riparian habitat over the forest so that a substantial amount moves from unstable to impaired, and from impaired to stable. Establishing such numerical objectives will be essential for integrating management of activities and projects on the forest so that they contribute to or at least do not harm recovery of riparian vegetation. Moreover, such objectives will guide monitoring protocols and will provide a meaningful context within which to interpret monitoring—monitoring in a vacuum without desired endpoints is relatively useless.

RECOMMENDATIONS - RIP 3: Numerical objectives should be written that specify improvements for riparian habitat condition and extent across the forest. An example objective would be to upgrade 20% (5,426 acres) of unstable riparian habitat to impaired and 20% (8,308 acres) of impaired to stable within ten years, as measured with consistent methodology. Similar objectives could also be written for each of the individual riparian RERUs, for example, upgrade 20% (1,056 acres) of the unstable desert-willow group to stable within 10 years. See the Santa Fe National Forest Draft Forest Management Plan for additional examples, for example:

• "Riparian ecosystems move toward desired conditions (less than a 33 percent departure from DC) for vegetation functional diversity, vegetation seral state, riparian corridor connectivity, and flood regime (frequency, duration, and magnitude) by implementing 15 miles of stream restoration every 10 years."[27]

[26] Draft Plan, p. 98.
[27] Santa Fe National Forest Draft Forest Plan, 2019, p. 296.

• "Complete aquatic restoration on priority projects that restore 30 miles of aquatic habitat (e.g., increase pool quantity, provide stream cover, remove or install fish barriers, restore beaver populations, or treat invasive aquatic species) every 10 years to benefit aquatic species."[28]

• "Every 10 years, restore native fish species to 20 miles of streams where nonnative fish are absent and where natural or human-made fish barriers exist."[29]

CONCERN - RIP 4: The acre target of Objective RMZ-O-01 is inadequate to substantially improve riparian habitat across the forest.

RATIONALE - RIP 4: Objective RMZ-O-01 aims to "[c]*omplete restoration projects on 200 – 500 acres of riparian areas rated as nonfunctioning and functioning-at-risk (Proper Functioning Condition or similar protocol) during each 10-year period, with emphasis on priority 6th code watersheds*." Depending on what type of restoration projects are envisioned, we recognize that such work can be intensive and expensive. Nonetheless, this is a small target, amounting to only between 0.3 and 0.7 percent of the 67,000 acres identified as either impaired or unstable. Compared to the plan components from the Santa Fe NF listed above, this is a truly discouraging and pitiful commitment. On its own, such a minimal objective, even if reached, would do little to meet the requirement that Forest Service planning should "*guide management of NFS lands so that they are ecologically sustainable*"[30] or to promote recovery of ESA-listed species.

The DEIS[31] description of Groundwater-dependent Ecosystems accurately notes several important functions of healthy riparian waters and vegetation: supports fish and wildlife habitat, filters sediment from upland runoff and flood flows, moderates stream temperatures, provides bank stability for stream channels, and helps to recharge shallow alluvial aquifers. We want to emphasize that these function are possible only when the riparian systems are healthy. The direction offered in the Draft Plan and DEIS, which refuses to end grazing and off road vehicle destruction of riparian areas, does not ensure that any of these aspects will function properly.

RECOMMENDATIONS - RIP 4: Intensive restoration efforts, such as presumably planned here, can make an important contribution to overall health of riparian systems, but they must be accompanied by additional efforts using other methods, e.g. passive restoration through cattle or OHV exclusion, to restore substantial percentages of currently degraded habitat. The plan should specify numerical targets for such other objectives.

The plan and/or DEIS should explain why the number of acres (200-500) to be restored in this objective is so small and should consider a larger alternative that would make a more significant contribution to riparian health. This objective should be explained in the context of a forest-wide plan to restore riparian health, explaining how this objective would complement other riparian restoration efforts over the entire forest, including methods leading to passive restoration, such as excluding cattle from riparian areas. Objective RMZ-O-01 should be presented and justified as part of an comprehensive plan to restore a substantial percentage of riparian habitat during a reasonable time, such as a 10-year period.

[28] Santa Fe National Forest Draft Forest Plan, 2019, p. 296.
[29] Santa Fe National Forest Draft Forest Plan, 2019, p. 296.
[30] 36 C.F.R. § 219.1(c).
[31] DEIS Vol 3, p. 420.

When federal agencies prepare an EIS, NEPA requires that they take a "*hard look*" at the project's environmental impacts and the information relevant to its decision.[32] In taking the required "*hard look*," an EIS must "*study, develop, and describe*" reasonable alternatives to the proposed action.[33] The alternatives analysis "*is the heart of the environmental impact statement*."[34] As a result, agencies must "[r]*igorously explore and objectively evaluate all reasonable alternatives*."[35] "*To comply with the National Environmental Policy Act and its implementing regulations,* [agencies] *are required to rigorously explore all reasonable alternatives ... and give each alternative substantial treatment in the environmental impact statement*."[36] "*Without substantive, comparative environmental impact information regarding other possible courses of action, the ability of an EIS to inform agency deliberation and facilitate public involvement would be greatly degraded*."[37] The currently offered alternatives fail to provide an option for analysis that makes any real attempts to restore the degraded riparian systems that are one of the highlights of the Tonto NF. Any subsequent NEPA document prepared for the plan revision process, which could include a supplemental DEIS, should analyze an alternative that provides meaningful plan components for riparian restoration and management.

CONCERN - RIP 5: Objective RMZ-O-02 lacks adequate explanation and justification.

RATIONALE - RIP 5: Objective RMZ-O-02 is to "*Improve or maintain 10-15 individual springs during each 10-year period.*" This is problematic for several reasons. First, it isn't clear whether "*improve*" means to move the condition of the RERU at a spring toward reference conditions, or whether, as is often the case in Forest Service parlance, "*improve*" means to engineer the spring so as to make water more accessible to livestock.

Second, if the meaning of "*improve*" is to restore the riparian vegetation, then using the phrase "*improve or maintain*" weakens the objective of improving the condition of the habitat because "*maintain*" implies the status quo.

Third, there is no justification or explanation for the number 10-15. The Springs Stewardship Institute lists 1,308 springs in its database, but most have not been inventoried/assessed, and the list is not comprehensive of what exists on the ground. Regardless, 10-15 springs is a trivial amount compared to what's out there.

RECOMMENDATIONS - RIP 5: The terms "*improve*" and "*maintain*" should be defined. If improve means to undertake activities that move the riparian vegetation toward reference conditions, then the term "*restore*" should be used instead, as defined in the 2012 Planning Rule § 219.19, as this would improve ecological integrity, another planning rule requirement. The term "*maintain*" should be removed so as to make this objective focused on improving the condition of the riparian vegetation, rather than maintaining the status quo. In the event that "*improve*" means engineering the springs for livestock, then a) this should be specified clearly; b) this objective should be moved to the

[32] *Wyoming v. U.S. Dep't of Agriculture*, 661 F.3d 1209, 1237 (10th Cir. 2011).
[33] 42 U.S.C. §§ 4332(2)(E); 4332(2)(C)(iii).
[34] 40 C.F.R. § 1502.14; *see also All Indian Pueblo Council v. United States*, 975 F.2d 1437, 1444 (10th Cir. 1992).
[35] 40 C.F.R. § 1502.14.
[36] *Custer County Action Ass'n v. Garvey*, 256 F.3d 1024, 1039 (10th Cir. 2001) (emphasis added). *See also New Mexico ex rel. Richardson v. Bureau of Land Management*, 565 F.3d 683, 703 (10th Cir. 2009) ("[A]n EIS must rigorously explore and objectively evaluate all reasonable alternatives to a proposed action, in order to compare the environmental impacts of all available courses of action."); *Colo. Envtl. Coalition v. Dombeck*, 185 F.3d 1162, 1174 (10th Cir. 1999) (explaining reasonable alternatives).
[37] *New Mexico ex rel. Richardson*, 565 F.3d at 708.

Rangelands, Forage, and Grazing section; or c) do away with this as there should be no more spring development for livestock permitted on our public lands.[38]

Justification should be given for the number of springs to receive action during the ten-year period. Is 10-15 a substantial fraction of the total number of springs on the Tonto National Forest? Is it a substantial proportion of the total number of springs that need restoration? The analysis does not provide any justification, and with the goal set so abysmally low, we don't see how the analysis could have determined that the proposed action would lead to substantial, meaningful, or adequate improvement at a forest wide level. The Forest Service needs to inventory springs, so we request that an Objective is added that directs the agency to conduct a forest-wide spring inventory and assessment.

CONCERN - RIP 6: the plan is ambiguous as to whether ephemeral streams determine Riparian Management Zones.

RATIONALE - RIP 6: According to the Draft Plan, "*stream ecosystems*" include ephemeral, intermittent and perennial streams.[39] "*Ephemeral streams flow for short duration in response to storm events. Intermittent streams flow seasonally, usually in response to winter precipitation but typically maintain shallow water tables throughout the year, and may contain perennial pools. Perennial streams flow year-round*."[40] Ephemeral streams, by far the most abundant type of stream on the Tonto National Forest, are important contributors to the forest's biodiversity, supporting, for example, areas of Desert Willow ERU.[41] In the Tonto National Forest alone there are 1,100 miles of intermittent streams and 11,000 miles of ephemeral streams. A 2008 EPA Study reported that 81% of streams in the southwest (AZ, NM, CO, UT, NV, and CA) are either intermittent or ephemeral and Arizona has the greatest percentage of any other state with 94%.[42]

Nonetheless, ephemeral streams are not in the list of stream types included in the definition of Riparian Management Zones. The Draft Plan states, "*All plan components in this section apply to all riparian management zones (RMZ) and associated riparian vegetation (refer to Riparian Ecological Response Units). The Forest Plan establishes riparian management zones around all lakes, stream ecosystems (perennial and intermittent), springs, seeps, and wetlands*."[43] The language "*stream ecosystems (perennial and intermittent)*" appears to exclude the 11,000 miles of ephemeral streams on the Tonto National Forest. This is a serious concern if the RMZ desired conditions, objectives, standards and guidelines do not apply to ephemeral streams.

Ephemeral streams are much more sensitive to climate or anthropogenic disturbances than perennial streams and therefore they should be afforded stronger protections, rather than weaker ones. In addition, because there is a lack of data on these types of streams, monitoring efforts within the Tonto NF should focus heavily on ephemeral and intermittent streams and the ecosystems they support. Currently, only one plan component explicitly affords specific protections for ephemeral streams (FF-G08), which is not sufficient.

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[38] Option C is our preferred choice!
[39] Draft Plan, p. 110.
[40] Draft Plan, p. 110.
[41] DEIS Vol. 1, p. 379.
[42] Environmental Protection Agency. 2008. The Ecological and Hydrological Significance of Ephemeral and Intermittent Streams in the Arid and Semi-arid American Southwest.
[43] Draft Plan, p. 111.

RECOMMENDATIONS - RIP 6: Ephemeral and intermittent streams need to be explicitly protected in all relevant Forest-wide Plan Direction areas and Management areas. Both ephemeral and intermittent streams account for a significant amount of the waterways in the Tonto National Forest and in Arizona. Ephemeral streams must be added to the list of stream types included in Riparian Management Zones. If not, the plan should a) explicitly explain reasons why ephemeral streams were excluded from the RMZs, b) justify this decision, and c) explain where and how the Forest Plan provides for adequate protection of ephemeral streams.

CONCERN - RIP 7: There is inadequate analysis and planning direction for decreasing harmful effects of grazing.

RIPARIAN - RIP 7: Grazing is one of the greatest threats to riparian species generally and on the Tonto NF, with at least a dozen ESA-listed species on the Tonto NF documented to be negatively impacted by grazing.[44]

Recognition that grazing must be managed to prevent serious harm to riparian resources is addressed in the Forest Service's Grazing Guidance Criteria that apply to all 962 grazing allotments in USFS Region 3. For ESA-listed species, the "Master Framework for Streamlining Consultation on Livestock Grazing Activities" (December 2015) memorializes US Fish and Wildlife Service concurrence that effects of grazing would be insignificant in the region, provided that cattle would be excluded from riparian habitat of ESA-listed species.[45] The Draft Plan recognized the importance of controlling grazing to ensure riparian health, as in Guideline RERU-G-02, which states that "*Livestock and wildlife management practices should allow riparian vegetation to recover.*" But these aspirations are only as good as their implementation, and on other forests in the Region 3 there has been a widespread failure to ensure that cattle are in fact excluded.[46]

RECOMMENDATIONS - RIP 7: The Final Assessment states that "[a] *risk can be mitigated if the departure is due to ongoing activities, the characteristic is within agency authority and control, and the trend and condition can be improved (reversible*)."[47] Because global warming and some other stressors, such as water withdrawal, exotic species, and to a lesser extend mining, are largely outside the control of the Forest Service, it is essential that the Final Forest Plan provide the direction necessary to decrease those stressors over which they have substantial control, notably grazing. In assessing grazing in terms of the Final Assessment's statement above, we can conclude that grazing is ongoing; it is within the control of the Forest Service, and in most cases the "*trend and condition can be improved*" by prohibiting or reducing grazing in riparian areas.

[44] Described at length elsewhere in this letter.

[45] The Forest Plan should include a standard consistent with this regional direction and state squarely that 1) livestock shall be prohibited from all riparian habitats designated or proposed as critical habitat for endangered species, and 2) livestock shall be prohibited from all riparian and aquatic areas that are occupied by federally protected species that lack critical habitat, and 3) livestock shall be prohibited from all riparian and aquatic areas that provide primary constituent elements for ESA-listed species.

[46] For example, refer to recent litigation by the Center for Biological Diversity.

[47] Tonto National Forest Final Assessment Report, Vol 1, Fig. 2, p. 13.

The DEIS projects higher levels of future stress on riparian systems from unavoidable effects of global warming, such as higher evaporation and transpiration rates. For riparian systems, effective mitigation will require decreasing other significant stressors that degrade habitat and decrease water availability. Because grazing pressure on riparian zones would act synergistically with global warming to decrease water availability and degrade vegetation, the Draft Plan must clearly specify ways in which grazing pressure can be reduced so as to meet, in the context of global warming, desired condition RMZ-DC-04, "*Herbivory does not impact the long-term health of riparian vegetation*".[48] Forest Service ecologists have cautioned against analyses that ignore synergistic and additive effects. Poff and colleagues concluded, in GTR 269, that "[i]*n most cases, it is difficult to deal with isolated threats as most occur in combination with other threats. Land managers need to be aware of the multiple threats and their interactions in order to successfully manage riparian ecosystems in the western United States*."[49]

CONCERN - RIP 8: There is lack of cross-reference and coordination between sections on riparian systems and grazing.

RATIONALE - RIP 8: Guidelines for RERUs state that livestock should be managed so as to "*allow riparian vegetation to recover*," which will be essential if the forest is to contribute to recovering ESA-listed species, protect Species of Conservation Concern, and increase acreage of "stable" RMZs. However, the Draft Plan lacks complementary standards or guidelines for grazing that would ensure, for example, RERU-DC-03, "*Ground cover (includes herbaceous and woody plants) is present in adequate abundance to promote and maintain ecological integrity*" or RMZ-DC-04, "*Herbivory does not impact the long-term health of riparian vegetation.*"

GRZ-DC-03 states an admirable vision: "*Livestock grazing allows for healthy, diverse plant communities, satisfactory soil conditions, and sustains the quality of wildlife habitat*."[50] However, this vision is almost certainly unattainable because livestock grazing is incompatible with arid lands riparian ecosystems. Aside from that, subordinate objectives, guidelines and management approaches give no direction as to how this desired condition would be reached. There are no standards or guidelines that would dictate protection of riparian areas. The only specific reference to riparian conservation is Management Approach 05, "*Encourage the development of water sources in uplands (including wells) where possible to improve or restore riparian areas*." Under this direction, combined with an aforementioned Objective RMZ-O-02, to "*Improve or maintain 10-15 individual springs during each 10-year period,*" the Forest Service could dewater a natural spring by piping the water to a livestock drinker, while still claiming that they had protected the riparian area.

RECOMMENDATIONS - RIP 8: Enforceable and firm grazing standards[51] should specify protections for riparian vegetation, which should include exclusion of cattle from riparian zones, preferably always, or under specified conditions. Any plan components in the riparian sections which may be affected by grazing should be reiterated in the Rangelands section, because during plan implementation, range managers who are only concerned with expedient processing of

[48] Draft Plan, p. 112.
[49] Poff et al. 2012 at 11, cited in full elsewhere in this letter.
[50] Draft Plan, p. 39.
[51] Or other plan components.

permittee paperwork are highly unlikely to read plan direction form any section other than the Rangelands section.

The Forest Service should develop standards based on recommendations for grazing management or exclusion in a) relevant recovery plans for riparian Threatened and Endangered species on the forest and/or b) other Forest Service guidance, for example the "Master Framework for Streamlining Consultation on Livestock Grazing Activities" (December 2015).

Examples of information that could be used to develop standards or guidelines include:

- The recovery plan for the western willow flycatcher stipulates no grazing during any season in 3-4 meter shrubby willow habitat designated as "*restorable or regenerating*" and states that exclusion should be complete in critical habitat.[52] This stipulation should be incorporated as a standard or guideline in the Tonto Forest Plan.

- The recovery plan for the Chiricahua leopard frog recommends that "*livestock grazing in and around stock tanks supporting leopard frogs should be managed so as to avoid destruction or excessive deterioration of leopard frog habitat*," and managed to avoid excessive trampling, "*especially during frog breeding periods when egg masses are easily destroyed*." There should be "*appropriate management of the numbers and seasonality of livestock use to avoid excessive sedimentation, erosion, or degradation of water quality.*"[53] The Forest Plan could elaborate specific standards or guidelines to meet these needs, for example, requiring construction of "*partial fencing of tanks or other habitats, and construction of trick tanks or double tanks, one of which could be fenced, while the other is left open for access by livestock*," as suggested in the recovery plan.[54]

- The critical habitat designation for the western yellow-billed cuckoo identifies grazing as a stressor and specifies for some units winter-only grazing or "*application of the same management measures as in the western willow flycatcher recovery plan*."[55]

CONCERN - RIP 9: Guideline RMZ-G-01 is inadequate to protect water flows needed to maintain riparian habitat.

RATIONALE- RIP 9: RMZ-G-01 states that "[n]*ew spring developments and redeveloped springs (not including maintenance) should leave some water behind to support riparian obligate vegetation and wildlife species.*" Although neither the Draft Plan nor the DEIS appears to define "spring development," the term in Guideline RMZ-G-01 likely means diverting water from a spring for use by people, stock or agriculture, as in the case of the Fuenta de Agua (Bobtail Spring) Pipeline, which would authorize further spring development and moving water off-site.[56] The project does make provision for wildlife and riparian vegetation, but the

[52] Final Recovery Plan, Southwestern Willow Flycatcher. 2002, p. 115.
[53] Chiricahua Leopard Frog Final Recovery Plan. 2007, p. A-9.
[54] Chiricahua Leopard Frog Final Recovery Plan, 2007, p. I-2.
[55] Fed. Reg. 85(39), p. 11505.
[56] USFS, Globe Ranger District, Tonto National Forest. 2011. "Environmental Assessment, Fuenta de Agua (Bobtail Spring) Pipeline."

environmental assessment also notes that "[r]*emoving water from spring may impact riparian vegetation and ability of spring to support more vegetation. Adverse impacts will occur if improved development causes spring to dry up*." [57]

This guideline is inadequate for protecting riparian resources from degradation due to spring development, which typically causes water withdrawal and use offsite. The guideline places no constraint on total amount of water withdrawal as a percentage of pre-development flow, nor does it require that enough water be left behind to maintain the pre-development quantity and quality of riparian vegetation. It merely recommends that "*some water be left behind to support riparian obligate vegetation and wildlife species*." "*Some*" could be interpreted by the Forest Service to mean any measurable amount, i.e. as little as one gallon of flow per hour or less. Given that this is a guideline and not a standard, even the requirement to leave "*some water behind*" is not obligatory. This is a prescription for further impairment of riparian ecosystems and increasing stressors on the diversity and at-risk species the Forest Service is required to protect.

RECOMMENDATIONS - RIP 9: This guideline, which ideally would be a standard instead of a guideline, should specify a) allowable withdrawal in terms of a measure like percentage of pre-development flow, and/or b) allowable decreases in quality or quantity of pre-development riparian vegetation. The guideline should specify that mitigation should occur such that any spring development would not contribute to net loss of area or quality of the pertinent RERUs across the forest, and would not contribute additional stressors to at-risk species. Alternatively, and what we most emphatically support, would be the Forest Plan prohibiting any new spring development from diverting any amount of water from any spring.

CONCERN - RIP 10: RMZ-G-05 is retrogressive and will likely contribute to further degradation of riparian ecosystems.

RATIONALE - RIP 10: Guideline RMZ-G-05 states that "*Annual operating instructions should schedule pasture use to achieve 50 percent utilization of current year's growth on riparian woody/browse species and 50 percent utilization of herbaceous vegetation within the riparian management zone.*" It is ironic that this objective is in the section on Riparian Management Zones because it promotes livestock use, will likely harm riparian recovery, and seriously undercuts the Forest Service's ability to "*provide for the diversity of plant and animal communities based on the suitability and capability of the specific land area*"[58] and to contribute to the recovery of ESA-listed species, many of which depend for survival on good-condition riparian habitat.

This objective is a huge step backward from the 1985 Tonto National Forest Plan, which specified "*utilization in the riparian areas that will not exceed 20% of the current annual growth by volume of woody species*," and set a goal of rehabilitating "*at least 80% of the potential shrub cover in riparian areas through the use of appropriate grazing systems and methods*."[59] The 1985 plan further specified that "[m]*anagement emphasis in riparian areas will feature wildlife needs over recreation and*

[57] USFS, Globe Ranger District, Tonto National Forest. 2011. "Environmental Assessment, Fuenta de Agua (Bobtail Spring) Pipeline."
[58] 16 U.S.C. § 1604(g)(3)(B) (2012).
[59] 1985 Tonto Forest Plan, p. 41.

grazing,"[60] and that "[d]*amage to riparian vegetation, stream banks, and channels should be prevented*,"[61] which is certain when cattle are grazing in riparian areas. Far from featuring wildlife needs over recreation and grazing, the new 50% utilization objective appears to shift the balance substantially in favor of cattle production. In addition, anyone who has been out on the Tonto's streams and rivers knows first-hand that the Forest Service has failed to accomplish any of those objectives under the 1985 Forest Plan.

The objective of RMZ-G-05 appears to be a prescription for grazing every year in a given RMZ, something the DEIS for the Draft Plan recognizes is harmful to riparian vegetation. The DEIS states, "*The number of livestock, length of grazing period, and the length of time the riparian area is allowed to rest between grazing periods are significant factors on how long a riparian area can sustain grazing without deteriorating (Briggs 1996). Negative impacts to riparian conditions generally occur when areas are grazed repeatedly without adequate rest periods*."[62] We point out the complete contradiction between that quote and the intention of RMZ-G-05.

The DEIS fails to analyze and/or justify the potentially harmful new prescription devoting 50% of annual growth to cattle production. Indeed, the DEIS states that "[s]*tocking decisions regarding the amount of livestock grazing authorized for each grazing allotment are considered as part of the project-level analysis (NEPA) and is beyond the scope of this programmatic analysis for the Forest Plan.*"[63] Forest-wide objectives like 50% utilization will drive decisions on stocking rates on allotments throughout the forest, and analysis of the effects of this objective and other forest-wide objectives cannot be deferred to project-level analysis.

RECOMMENDATIONS - RIP 10: At a minimum, the Forest Service should return to the more protective 20% offtake standard for woody vegetation in the 1985 plan, and promulgate a similar percentage for herbaceous vegetation. However, a more ecologically appropriate objective, which we emphatically support, would be to remove all cattle from all riparian areas, as per Alternative C. Alternative C "*would exclude all uses and activities in riparian areas that are non-functioning. This standard would only apply to riparian areas that have the ability to reach their potential extent and where major stressors are within forest service jurisdiction,*"[64] notably grazing. This would promote recovery of RERUs toward reference conditions.

Furthermore, it will not provide sufficient guidance if the Forest Plan simply removes the 50% objective and replaces it with ambiguous wording allowing the Forest Service limitless discretion, particularly given the Forest Service's bad record at meeting previous grazing commitments to keep cattle out of riparian habitat.[65] An explicit numerical objective, preferably zero grazing, is essential so that compliance can be monitored and changes made as necessary.

By putting the 50% objective language in the Draft Plan, the Forest Service has given strong indication that it intends to more than double the riparian grazing objective in the 1985 plan—which is ecologically unacceptable—and cloaking this intent by omitting a numerical target or by using

[60] 1985 Tonto Forest Plan, p. 12.
[61] 1985 Tonto Forest Plan, Amendment 22, 1996, p. 40-6.
[62] DEIS, p. 385.
[63] DIES, p. 48.
[64] DEIS, Vol. 1, p. 398.
[65] For example, refer to the Center for Biological Diversity's report on livestock grazing impacts in the Verde Watershed, which will be submitted at a later date, and is summarized elsewhere in this letter.

ambiguous language in the objective will give no confidence that the Forest Service's future management of riparian areas will be adequate to raise substantial acreage from the impaired and unstable categories. There must be language that guides Forest Service actions to reduce (or eliminate) cattle grazing sufficiently that the reduction contributes to the bottom line in the riparian condition accounting system described above, i.e. that it improves the condition of riparian habitat throughout the forest.

In the EIS, the Forest Service should analyze in detail the effects of the proposed objective of 50% utilization, providing an explanation of why 50% was chosen, and analyzing the likely response of different RERUs, and how this level of utilization would increase or decrease RERU stability. The EIS should review pertinent scientific literature, summarizing evidence for how this utilization level would affect RERU stability. Moreover, the EIS should analyze a range of alternatives from zero grazing to the preferred alternative's 50% level. The DEIS in its current form does none of this.

Each riparian area will be affected differently by grazing, depending on physical and biological characteristics,[66] meaning that whatever grazing level is initially permitted for a particular grazing allotment must be monitored and the grazing intensity decreased if riparian condition worsens and/or does not move toward reference conditions expeditiously so as to improve riparian health across the forest. The Forest Plan should explicitly describe how such adaptive management would occur. The DEIS states that "*grazing management in all alternatives would balance grazing with protection of the rangeland resource using an adaptive management approach to deal with fluctuations in available forage due to weather and other resource drivers and stressors*."[67] However, it is not clear that such monitoring and adaptation would be successful without reference to numerical objectives, which for woody vegetation should be 20% utilization or below, preferably zero, as there should be NO livestock grazing in ANY riparian areas.

Illegal livestock grazing in Red Creek, which is closed to livestock use to protect endangered fish. Note the eartags, indicating these are not feral cows. On each of five visits to this site in 2019 and 2020, livestock were observed in this purportedly protected riparian exclosure.

[66] Lucas et al. 2004. "Riparian vegetation response to different intensities and seasons of grazing." J. Range Manage. 57:466 -474.

[67] DEIS Vol 1, p. 128.

CONCERN - RIP 11: The Draft Plan's coarse-filter approach to riparian diversity is inadequate.

RATIONALE - RIP 11: The Draft Plan takes a coarse-filter approach to managing riparian resources, using ten broadly defined RERUs as the units of analysis. Such a coarse-filter approach is an essential but not sufficient element of the Forest Plan. What is lacking is a fine-filter approach aimed at identifying, analyzing and managing for particular structural or biological elements of the riparian environment, for example, particular areas of riparian habitat (e.g. particular stream reaches or springs) or sub-categories of vegetation communities within the RERUs.

RECOMMENDATIONS - RIP 11: To meet its obligations under NFMA and the ESA to maintain a diversity of species and contribute to the recovery of ESA-listed species, the Draft Plan should include a process for focusing management attention on riparian elements below the level of the RERUs, so that these elements do not slip unnoticed through the coarse filter.

The Forest Plan should develop a list of riparian categories to be evaluated using a fine-filter process, categories which could include "particular stream reaches, springs and other types of riparian habitat," "finer divisions of vegetation types within the existing ten RERUs," and "individual at-risk riparian species." The next step in such a planning process should be to develop criteria for each category by which to identify elements of special concern, for how to identify stream reaches of particular concern.

The planning process developed could be analogous to the fine-filter approach described for at-risk species in the Final Assessment Report,[68] which developed a "*list of potential species of conservation concern*," sorted by ERU in Table 116.[69] The Final Assessment Report describes the use of such a list: "*it will be used at later stages of the plan revision process to inform and ensure that specific plan components are developed to provide species diversity in the plan area*…"

We note that at-risk riparian species are evaluated as part of a fine-filter planning process in the Final Assessment report, but recommend that they also be explicitly treated in the riparian section of the Draft Plan.

CONCERN - RIP 12: The Draft Plan fails to establish widths for Riparian Management Zones (RMZ's), making plan components aimed at protecting and restoring riparian areas difficult, if not impossible, to implement and enforce.

RATIONALE - RIP 12: Adequate tools exist (LiDAR, aerial photos, remote sensing, and other data) to map RMZ's with relatively good accuracy. The Forest Plan must establish actual widths, and should establish default widths for areas where information is limited. We recommend a default width of 300 feet.

The 2012 Planning Rule declares that "*Plans must establish width(s) for riparian management zones around all lakes, perennial and intermittent streams, and open water wetlands, within which the plan*

[68] USFS. 2017. "Final Assessment Report of Ecological Conditions, Trends, and Risks to Sustainability, Vol. I, Tonto National Forest, Arizona." p. 324.

[69] USFS. 2017. "Final Assessment Report of Ecological Conditions, Trends, and Risks to Sustainability, Vol. I, Tonto National Forest, Arizona." p. 365-366.

components required by paragraph (a)(3)(i) of this section will apply, giving special attention to land and vegetation for approximately 100 feet from the edges of all perennial streams and lakes."[70]

The Forest Service Handbook confirms this requirement, stating that Forest Plans "*must establish widths for riparian management zones for all lakes, perennial and intermittent streams, and open water wetlands (36 CFR 219.8(a)(3)(ii)) so employees know where the plan components for ecological integrity of riparian areas apply*. "[71]

Mapping all riparian areas would be difficult and time consuming, so the Forest Service Handbook states that "*in areas where available information on the distribution of riparian dependent resources within the plan area is too limited to determine appropriate riparian management zone dimensions, the Interdisciplinary Team should consider*:"

- Establishing a default distance from the edges of riparian areas.
- Giving special attention to the first 100 feet from the edges of riparian areas
- Giving attention to dry washes or channels with downstream riparian communities.[72]

Despite this, the Draft Plan states that "*Riparian management zones will be identified for land and vegetation* ***within approximately*** *100 feet from the edges of these features. Other areas of identified riparian vegetation will also be included within riparian management zones. Riparian management zone* ***width may vary*** *based on ecological or geomorphic factors or by type of water body. Riparian* ***management zone widths may be replaced*** *by site-specific delineations during project planning and implementation*." The terms ***may*** and ***approximately*** don't really meet the intent of the planning rule, as stated above.

The inadequacy of the "*within approximately 100 feet from the edges of these features*" is underscored by the fact that, in evaluating upland condition surrounding riparian areas, the Forest Service uses a one-quarter mile buffer around "riparian map units." This buffer is functionally tied to the riparian zone itself and its condition will affect the riparian zone through, for example, water runoff and increased sedimentation caused by fire, grazing, or vehicles.[73]

The Draft Plan includes plan components for how livestock grazing, roads, infrastructure, and wildlife habitats are managed within RMZ's, or specify what is allowed within of RMZ's, but the Draft Plan fails to specify the extent of the RMZ itself. Without establishing distances or dimensions in measurable units, the guidance has virtually no utility.

RECOMMENDATIONS - RIP 12: Any subsequent NEPA document must meet planning rule requirements and define the width of RMZs. We suggest 300 feet. This additional guidance must also take into account dry washes or channels with downstream riparian communities. Given that the functional unit of a stream or other water body, including interacting upland areas, may extend as much as one-quarter mile beyond the edge of a "riparian map units," it can be argued that the RMZ should be extended even beyond 300 feet to include upland areas that directly affect the riparian vegetation.

[70] 36 C.F.R. 219.8(a)(3)(ii).
[71] FSH. 1909.12 Chapter 20, p. 68.
[72] FSH 1909.12 Chapter 20, p. 69.
[73] USFS. 2017. "Final Assessment Report of Ecological Conditions, Trends, and Risks to Sustainability, Vol. I, Tonto National Forest, Arizona." p. 147.

II.B. Concerns with Plan Direction for Watersheds and Water Resources.

CONCERN - WATER 1: Priority watersheds not disclosed.

RATIONALE - WATER 1: Every plan must identify watersheds that are impaired or at risk for priority maintenance or restoration. The 2012 Planning Rule explicitly states that the Forest Service must "*Identify watershed(s) that are a priority for maintenance or restoration*." On page 105 of the Draft Plan, there is a hyperlink to the list of priority watersheds. However, we could not reach the link to the document because of firewall and downloading issues. Linking to an obscure app that requires the public to download new software does not pass muster for public disclosure.

RECOMMENDATION - WATER 1: Any subsequent NEPA document prepared for the Forest Plan revision must list the priority watersheds and provide justification for their identification as such. Also, the online information should be made readily available immediately.

CONCERN - WATER 2: Alternative B fails to protect and restore watersheds.

RATIONALE - WATER 2: Management direction proposed under Alternative C will result in the greatest positive impacts to riparian areas and watersheds on the forest, compared to other alternatives. The Tonto NF should choose these Alt-C management actions over Alt-B because the Alt-C actions:

1. Are most compatible with the original purpose for which the Tonto National Forest was originally established, that is, watershed protection purposes (see page 404);

2. Result in healthier watershed;

3. Reduce the negative impacts from roads, mining, and soils;

4. Improve water quality;

5. Will more quickly and sustainably address the problems noted in Figures 31 and 32 in selected sub-watersheds shown in Figure 31. In the final formulation of an action alternative to Watersheds and Water management we urge the Forest Service to identify the sub-watersheds where application of the actions of Alt-C would make the most sense. Can the Forest Service identify the key differences between the higher and lower elevation watersheds where this approach can be applied?

6. We favor the management approaches specified on pages 431-432 for riparian areas, rangeland, recreation, and minerals because the approaches offers more certainty for restoration and at less cost than other alternatives.

7.. There is a cascade of beneficial effects of Alt-C compared to the other alternatives. The positive impacts of improved riparian vegetation, soil retention, and reduced potential for uncharacteristically severe wildfire are significant reasons for selecting sub-watershed-specific components of Alt-C here. DEIS, Vol 3, P 430.

RECOMMENDATION - WATER 2: For these reasons, and those described elsewhere, please implement protective plan components from Alternative C into Alternative B.

CONCERN - WATER 3: Alternative B does not protect the Forest Service's investments in attaining instream flow rights.

RATIONALE - WATER 3: The Draft EIS discusses water rights, water yield, groundwater, base flows and the effects that the different alternatives will provide on water related issues (Volume 1, pp 416 – 438). The Tonto National Forest over the years has obviously worked hard to obtain water rights (over 3,000 applications and claims) along with 12 perfected instream flow rights with another 10 being applied for. There is a good discussion about groundwater and how much of it is located in shallow alluvial aquifers along streams. The DEIS clearly points out that the 700 miles of perennial streams and some 1,000 springs are highly dependent on groundwater discharge to maintain their base flows and that almost half the total flows on the forest are due to base flows (p. 421). This is a rather remarkable statistic in that dramatic storm related high flows are what most observers tend to remember.

The document cautions that some problems with groundwater exists (it actually mentions climate change, p. 424), but argues that the proposed Alternative B will improve the watershed and consequently will improve groundwater supplies. It is difficult to see how this scenario would play out.

One of Alternative B's main proposals is to reduce the likelihood of high severity fire by mechanically treating and implementing prescribed burns over large areas of the Tonto –up to 650,000 acres over 10 years. Reducing high severity fire and subsequent erosion and excessive runoff is expected to protect and improve stream channels which in turn will help with groundwater recharge. There is merit to this argument, although mechanical thinning comes with its own set of problems and challenges.

Alternative B also proposes to address vacant grazing allotments by converting them into forage reserves or granting them to a willing permittee. It is argued that this added forage will reduce grazing pressure on other allotments and in turn help to improve watersheds. While this outcome could occur in select cases, the end result will likely be more cows and little overall improvement.

Similarly, the Proposed Alternative B argues that increased maintenance of roads and the policy of decommissioning 10 miles of roads every 5 years should help improve the watershed (it admits this depends on the number of new routes constructed). It is also argued that the 43,000 acres of proposed wilderness should improve the watershed, as would added restrictions on removing sand and gravel from riparian areas. Additionally, 2 research natural areas and 4 botanical areas are expected to help improve watershed conditions.

In reality, there are serious problems related to water rights and groundwater on the Forest. Most of the water rights, while held by the Forest Service, are devoted primarily to livestock use – most wildlife species don't go near trampled and dung-littered stock tanks or springs given the choice. Even on ranches that have their own private water rights, federal water rights still are used to benefit livestock (Cartwright Allotment Water Project, 2019). Federal water rights rarely end up being dedicated to stream flows.

Instream water rights perfected at the state level fare about the same. These rights are junior to previously perfected water rights and can require legal action to defend. It is not clear if the Tonto National Forest will be able to defend its instream flow right on Pinto Creek (the first instream flow right obtained from ADWR in the early 1980's) in the matter of over pumping groundwater by the

Pinto Valley Mine and dewatering parts of the creek. The mine has already lowered the groundwater level in the area, and modeling shows a vast area that will be affected by the time the mine closes in 2039).

Other massive dewatering scenarios are evolving on the Forest. The Pinto Valley Mine pit when mining ceases is expected to draw groundwater from the surrounding area where it fill and evaporate. Modeling shows Pinto Creek flows at less than half historic baseline flows for hundreds of years in the future (Pinto Valley Mine DEIS, 2019).

About 10 miles away, the surface at Oak Flat is predicted to subside and partially fill the underground workings of Resolution Copper Mine. Water will likely report to the 1000 foot deep crater and evaporate into perpetuity, dewatering the surrounding area.

The Plan Revision DEIS says that a small number of wells have been developed for livestock use (Volume 1, p. 424), but recent NEPA studies suggest that development of wells is increasing. While water use for cattle might be small compared to mines, for example, any reduction in alluvial groundwater levels can impact surface flows.

As described in the DEIS, the towns of Payson, Globe-Miami, Strawberry, Pine, Star Valley Christopher Creek Young, Gisela, and Tonto Basin are in or near the Tonto National Forest, some using ground water from the Forest. The town of Payson seems a success story in that it is obtaining surface water supplies from CC Cragin Reservoir. Use of groundwater for most of these towns, however, will increase as the towns grow.

The Draft Land Management Plan itself offers many Desired Conditions, Objectives, Standards, Guidelines, and Management Approaches (pp. 105 -109) and all seem appropriate and have value. Most are quite lofty and unrealistic under the current circumstances and in reality make a good argument for the Forest Service to adopt parts or all of Alternative C.

Alternative C, for example, calls for prescribed fire alone instead of mechanical thinning to help prevent large uncontrolled forest fires. This reduces the problem of soil compaction from heavy machinery and reduces the risk of invasive species which in turn should promote healthier watersheds. Alternative C also removes all permitted and allowed uses from a riparian area when it is rated as non-functioning until the area has recovered (this should have been done long ago). As the only real option offered in the DEIS regarding grazing, vacant allotments would be evaluated and closed if they were determined to be in poor condition. None of the alternatives, we note, offered any real choices regarding grazing management, a serious shortcoming in the DEIS. Included in Alternative C should have been an option to fence and close riparian areas using EQUIP or HPC or other funding rather than expand water infrastructure projects. Also, the DEIS and Alternative C should have included a discussion and option to participate in and foster a voluntary grazing buyout program to assist financially troubled ranchers and allotments that are determined to be in poor condition. Such an expanded alternative could result in greatly improved watershed and groundwater conditions and offered the Forest Service a better opportunity to showcase some of our premier riparian areas.

RECOMMENDATION - WATER 3: Consistent with other sections of this letter, we strongly feel that the most protective management direction will yield the most movement towards functional watersheds and robust wildlife and ecosystems. To that end we urge the Forest Service to combine elements of Alternative C into the preferred alternative B, including any and all plan components we

have identified elsewhere here that increase forest ecosystem protection form stressors such as grazing, logging, mining, and off road vehicles.

CONCERN - WATER 4: The Draft Plan and DEIS fail to disclose the effects of groundwater withdrawals that will occur as a result of plan components directing increased well drilling for livestock waters.

RATIONALE - WATER 4: Knowing the relationship between groundwater and surface water, we are deeply dismayed that the DEIS dismisses the need for disclosing the effects of groundwater withdrawals on the environment. Forest Service Manual FSM 2560 Groundwater Resource Management instructs the Forest Service as follows:

"*Prior to implementation or approval, assess the potential for proposed Forest Service projects, approvals, and authorizations to affect the groundwater resources of NFS lands. If there is a high probability for substantial impact to NFS groundwater resources, including its quality, quantity, and timing, evaluate those potential impacts in a manner appropriate to the scope and scale of the proposal and consistent with this chapter*."

The Manual further states that the Forest Service shall "*Manage surface water and groundwater resources as hydraulically interconnected, and consider them interconnected in all planning and evaluation activities, unless it can be demonstrated otherwise using site-specific information*." (FSM 2560.03)

The decision to avoid discussion of groundwater withdrawal effects ignores the dramatic increase in well-drilling and pumping that is likely to occur under the direction of the revised plan. Furthermore, the 2012 planning rule requires the Forest Service to "…*include plan components, including standards or guidelines, to maintain or restore the ecological integrity of riparian areas in the plan area*,"[74] and the rule defines riparian areas (consistent with the DEIS glossary) as "[t]*hree-dimensional ecotones of interaction that include terrestrial and aquatic ecosystems that extend down into the groundwater…*"[75]

RECOMMENDATION - WATER 4: A supplemental EIS, or a complete revamp of it, must address the environmental effects groundwater withdrawals that will occur as a result of Forest Plan direction, such as plan components that encourage development of upland water facilities to relieve riparian areas.

[74] 36 C.F.R. § 219.8 (a)(3)(i).
[75] 36 C.F.R. § 219.19.

ADDITIONAL WATER-RELATED COMMENTS:

WAT, DC: An additional Desired Condition should be added stating that "Watersheds have sufficient instream flows to support aquatic life, riparian habitat, and river based recreation."

WAT, O-6: Add river-based recreation as a 'highly valued resource' to Objective 06.

WAT-G- 04: An addition to this guideline is needed. It should state that upon discovery of adverse impacts to groundwater-dependent ecosystems, the new water supply will be immediately shut down.

WAT-G-07: The phrasing is confusing. Recommend simply deleting the words "preserve minimum levels of water flow that".

WAT-G-12: The Forest Service needs to periodically re-evaluate the water withdrawals they have approved. If adverse effects are occurring on the forest then the Forest Service should have a mechanism to cancel the withdrawals.

The sections on pages 110-111 that describe the functions of riparian areas and springs are succinct and exceptionally well written. They capture the essence of why riparian areas and springs are so biologically important, and why the public is concerned about their long term health.

Specific to Facilities: The Rose Creek and Sawmill Campgrounds on the Pleasant Valley Ranger District currently have no rest rooms. The Rose Creek Campground used to have a rest room but it was removed for some reason. We would like to see that all official Forest Service camp grounds have rest rooms. This is a public health and water issue.

III. Wildlife.

III.A. Legal Foundation for Conserving Wildlife on National Forest Lands.

Endangered Species Act Requirements

Federal land management agencies have an obligation, and not just the discretion, to manage and conserve fish and wildlife on federal lands.[76,77] Congress passed the Endangered Species Act[78] in 1973 "*to provide a program for the conservation of … endangered species and threatened species*" and "*to provide a means whereby the ecosystems upon which endangered...and threatened species depend may be conserved*."[79] A primary goal of the ESA in seeking to protect threatened and endangered species—as well as the ecosystems on which these species depend—is to recover these species to the point at which they are self- sustaining in their natural habitat.[80] Section 7(a)(1) of the Endangered Species Act requires all Federal agencies to "*utilize their authorities in furtherance of the purposes of this Act by carrying out programs for the conservation of endangered species...in consultation with and with the assistance of the Secretary"* [of the Interior].

The ESA stablishes an affirmative obligation for the federal government to use "*all methods and procedures which are necessary to bring any* [listed] *species to the point at which the measures provided in this [act] are no longer necessary,*"[81] and states that "*all federal departments and agencies shall seek to conserve endangered … and threatened species*."[82] "*Conserve*" and "*conservation*" are defined by the statute as using "*all methods and procedures which are necessary to bring any endangered …or threatened species to the point at which the measures provided*" by the statute are no longer necessary.[83]

The ESA carves out a role for the states to assist in achieving the ESA's protective purposes by providing that, in carrying out the statute, the USFWS should cooperate "*to the maximum extent practicable with the States*."[84] Through this provision, Congress recognized the expertise of state agencies (such as Arizona Game and Fish Department) and required the Fish and Wildlife Service to solicit and *consider* relevant information from them, but it does not authorize the agency to abdicate federal responsibility for recovery.[85] Nowhere does the statute in question *require* the federal government to follow state preferences.[86] In any event, the statutes do not *permit* the federal agency to relinquish its statutory obligations.[87]

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[76] Nie, M., C. Barns, J. Haber, J. Joly, K. Pitt, and S. Zellmer. 2017. Fish and Wildlife Management on Federal Lands: Debunking State Supremacy. *Environmental Law* 47(4).
[77] Greaves, N. 2009. Unlucky Number 13: The Endangered Species Act, Subdelegation, and How Standard Operating Procedure 13 Jeopardized Mexican Wolf Reintroduction. *Arizona State Law Journal* 41: 905-931.
[78] ESA; 16 U.S.C. §§ 1531–1543.
[79] ESA; 16 U.S.C. §§ 1531(b).
[80] U.S.C. § 1531(2)(b).
[81] 16 U.S.C. §1532(3). The goal of the statute is not to "list" species but to recover their populations so that they can be "delisted".
[82] 16 U.S.C. § 1531(c).
[83] 16 U.S.C. § 1532(3).
[84] 16 U.S.C. § 1535(a).
[85] Nie et al. 2017, p. 40.
[86] *Ibid*, p. 124.
[87] *Ibid*, p. 124.

Congress required federal land management agencies to manage wildlife on federal lands as well as to provide wildlife habitat.[88] As discussed above, this responsibility lies with the federal agencies and cannot be delegated to the states.[89]

While Congress directed all four federal land management agencies to manage wildlife on federal lands and to not just provide wildlife habitat,[90] the ESA and its regulations clearly intertwine the fate of species and ecosystems.[91] Species and ecosystems are linked together under the law and the statute mandates that all federal land agencies utilize their authorities to effectuate the purposes of the Act. And the purpose of the Act, after all, is "*to provide a means whereby the ecosystems upon which endangered and threatened species depend may be conserved*."[92]

Requirements of the 1976 National Forest Management Act (NFMA)

One of NFMA's most powerful provisions is its wildlife diversity mandate.[93] It requires that forest plans to "*provide for a diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet overall multiple-use objectives*."[94] According to Wilkinson and Anderson's authoritative history of NFMA's development, the diversity provision was meant to require "*Forest Service planners to treat the wildlife resource as a controlling, co-equal factor in forest management and, in particular, as a substantive limitation on timber production*."[95] Regulations implementing NFMA address requirements for diversity in greater detail. If state wildlife management actions occur on national forest lands they must be considered in this statutory and regulatory context, and may be subject to preemption based on the USFS's authority and obligations for wildlife diversity.[96]

The land use planning process provides the Federal agencies the opportunity to clearly articulate and implement their affirmative, non-discretionary obligation under the ESA to use *"all methods and procedures which are necessary to bring any* [listed] *species to the point at which the measures provided in this [act] are no longer necessary*."[97]

When forest plans are amended or revised, they are also subject to the substantive requirements of the ESA for listed species.[98] This means that they cannot jeopardize the continued existence of listed species,[99] or destroy or adversely modify any critical habitat that has been designated,[100] or result in

[88] *Ibid*, p. 96.
[89] *Ibid*, p. 124.
[90] *Ibid*, p. 96.
[91] *Ibid*, p. 96.
[92] 16 U.S.C. § 1531(b).
[93] *See generally* Courtney A. Schultz et al., 2013. Wildlife Conservation Planning Under the United States Forest Service's 2012 Planning Rule. *J. Wildlife Mgmt.* 71: 428-444.
[94] 16 U.S.C. 1604(g)(3)(B).
[95] Wilkinson, C.F., and H.M. Anderson. 1985. Land and Resource Planning In the National Forests. *Oregon Law Review* 64(1 & 2).
[96] Nie et al. 2017, p. 60.
[97] 16 U.S.C. § 1531(c) and 16 U.S.C. §1532(3). The goal of the statute is not to "list" species but to recover their populations so that they can be "delisted."
[98] Nie et al. 2017, p. 62.
[99] *See e.g. Resources Limited, Inc. v. Robertson,* 35 F. 3d 1300 (9th Circuit 1993) (FWS conditioned its "no jeopardy" conclusion on the Forest Service's continued adherence to grizzly bear guidelines).
[100] *See* Cottonwood Env. Law Center v. US Forest Serv., 789 F. 3d 1075 - 9th Cir. 2015 (reinitiation of consultation on forest plans required after designation of critical habitat for Canada lynx).

prohibited incidental take.[101] Forest plans may also be viewed as the primary means by which the agency is *"carrying out programs for the conservation of"* listed species, in accordance with Section 7(a)(1) of ESA.[102]

In April 2012, the Forest Service finalized regulations implementing the National Forest Management Act (NFMA). These regulations, commonly referred to as the "2012 Planning Rule" established a process for developing and updating forest plans and set conservation requirements that forest plans must meet to sustain and restore the diversity of ecosystems, plant and animal communities and at-risk species found on these public lands.[103]

Existing forest plans *revised and amended* under new NFMA implementing procedures codified in the 2012 Planning Rule include a distinct set of substantive requirements for management of wildlife.[104] For ESA-listed species, forest plan components (e.g., desired future conditions, objectives, standards, and guidelines) must provide the "ecological conditions necessary to contribute to" their recovery.[105]

CONCERN: The Forest Service's plan for a coarse-filter/ fine-filter framework lacks specificity and elements needs to contribute to restoring ESA-listed species and conserving species of conservation concern.

RATIONALE: The Forest Service proposes to use a coarse-filter/fine-filter approach, or "*ecosystem plan components*" (coarse) and "*species-specific plan components*" (fine) as defined in the 2012 Planning Rule (§ 219.9). According to the DEIS, the "*premise behind the coarse-filter/fine-filter approach is that native species evolved and adapted within the limits established by natural landforms, vegetation, and disturbance patterns prior to extensive human alteration. In addition, habitat loss and degradation are primary threats to many at-risk species. Consequently, species conservation is accomplished largely by restoring and maintaining the array of ecosystems across the planning area*." In practice, this means that the Forest Service attempts to manage so that a particular ecosystem and its associated habitats are healthy and diverse, the assumption being that all the species found in that ecosystem will maintain stable populations with a high probability of long-term persistence.

However, for some species, frequently those judged by the Forest Service to be at-risk, coarse-filter "*habitat related plan direction is insufficient to provide necessary ecological conditions*."[106] In this case, "*additional, species-specific (or fine-filter) plan components, including standards or guidelines*," will be necessary. Habitat-related direction may be insufficient for many reasons, including the Forest Service's failure to maintain habitat in suitable condition over large enough areas, and other stressors like global warming and exotic species that may be largely outside the Forest Service's control. For

[101] Litigation involving the Superior National Forest Plan claims that the Forest Service is responsible for take of Canada lynx resulting from hunting and trapping on the national forest. *Center for Biological Diversity v. Tidwell*, D. D.C., Case 1:16-cv-01049-TSC, June 6, 2016, Complaint for Declaratory and Injunctive Relief, at 15.

[102] *See e.g. Resources Limited, Inc. v. Robertson,* 35 F. 3d 1300, 9th Cir. 1993 (FWS conditioned its "no jeopardy" conclusion on the Forest Service's continued adherence to grizzly bear guidelines).

[103] 36 C.F.R. §219.

[104] 36 C.F.R. Part 219.

[105] 36 C.F.R. §219.9(b)(1).

[106] DEIS, Vol 3, p. 46.

ESA-listed species, historical factors like persecution of predators, in the case of the Mexican gray wolf, have reduced their population to precarious levels.

As regards the coarse-filter approach, the draft plan fails to elaborate adequate desired conditions, objectives, standards and guidelines necessary to reverse or stop historic declines in the condition of ERUs. This is detailed elsewhere in our comments, for example in the section "Plan Components for Riparian ERU's and Riparian Areas." Particularly damaging to hopes for recovery of damaged ERUs is the failure of the plan to set out clear numerical objectives, standards and guidelines that would lead to improvement of ecological conditions. Indeed, in some cases the Draft Plan's provisions are significantly worse than in the 1985 forest plan, for example riparian objective RMZ-G-05 which would allow grazing to consume 50% of annual biomass production of woody plants, compared with 20% in the 1985 plan. Such a change would be hard to justify even were riparian habitat in good condition across the forest, but it is not—81% of riparian acres are either impaired or unstable.[107]

Given this increasing prioritization of cattle production over biological diversity, it is not believable that the Forests Service's coarse-filter approach will work for ESA-listed species, like the southwestern willow flycatcher, that are dependent on riparian habitat. Likewise, it is likely this coarse-filter approach will not work for some Species of Conservation Concern, and may not even sustain current abundances of species that aren't currently in the Forest Service's Species of Conservation Concern category. The general decline of habitat throughout the Tonto compared to reference conditions is part of a nation-wide problem that is reflected in, for example, the loss of nearly 3 billion birds in the U.S. and Canada since 1970.[108]

In conclusion, the coarse-filter approach, as laid out in the Draft Plan, will be insufficient for many species either because a) the Forest Plan has a general failure to develop objectives, standards and guidelines sufficient to protect, let alone restore, many of the ERUs and b) some species are imperiled to the degree that they need individualized planning.

Immediately below, we focus on three imperiled species in depth: the Mexican spotted owl, Mexican gray wolf, and Sonoran desert tortoise. These three case studies demonstrate the failure of the Draft Plan to provide the fine-filter planning needed to sustain these species on the forest and/or contribute to their recovery. In the case of the Mexican gray wolf, for example, the Draft Plan needs to be revised to redress the lack of plan components to adequately address wolf recovery and provide management direction for when wolves populate the Tonto National Forest.

RECOMMENDATION: The implications for needed revisions to the Draft Plan derived from these three case studies should be applied to all species of conservation concern, which would require revision of the Analysis of At-Risk Species, so as to use best available science, and elaboration of relevant plan components.

[107] DEIS Vol I, p. 379.

[108] Kenneth V. Rosenberg, Adriaan M. Dokter, Peter J. Blancher, John R. Sauer, Adam C. Smith, Paul A. Smith, Jessica C. Stanton, Arvind Panjabi, Laura Helft, Michael Parr, Peter P. Marra. Science 04 Oct 2019 : 120-124.

III.B. Case Study: Mexican Spotted Owl.

CONCERN - MSO 1: The effects of mechanical thinning and high-severity on the Mexican spotted owl have not been extensively studied and are not well understood, but the Draft Plan and DEIS assume mechanical thinning is beneficial and high-severity fire is consistently harmful.

RATIONALE - MSO 1: Prominent owl scientists have recently stated that "*Existing studies on the effects of fuels reduction treatments on spotted owls universally suggest negative effects from these treatments*"[109] and that "*forest restoration and thinning activities also may threaten owls and their existing habitat*."[110] Unfortunately the DEIS assumes that treatments will yield desired results despite the stark fact that "*No empirical studies have evaluated these management activities* [restoration thinning or logging] *on the Mexican spotted owl.*"[111]

We are deeply concerned that the current iteration of the monitoring plan does not provide adequate assurances that real science-based learning will be achieved as the Forest Service's increases mechanical treatment pace, scale, and intensity in spotted owl habitat.

Some relevant studies from dry, frequent fire-adapted forests of southern California have published findings indicating deleterious effects of thinning on spotted owls. Stephens and colleagues[112] reported that, in the Plumas National Forest of California, spotted owl territorial sites declined 43% within 3-4 years of landscape-scale thinning treatments, and following treatment owls redistributed across the landscape. A study by Lee and colleagues[113] reported that in the San Bernardino and San Jacinto of southern California, post-fire salvage logging further reduced California spotted owl occupancy rates beyond the initial impacts of wildfire, leading the authors to recommend that burned stands be monitored for occupancy prior to salvage logging. Elsewhere in the Sierra Nevada, Tempel and colleagues[114] found that, as expected, canopy cover and demographic rates were strongly positively related, and that medium intensity fuels reduction harvest were negatively related to owl reproduction. Other researchers have concluded that thinning effects would be less impactful than severe wildfire,[115] leading to uncertainty of the true impacts of thinning on spotted owls.

The Forest Service also has information—based on recent monitoring of Mexican spotted owls in the area of the Nuttall-Gibson Fire of 2004 in the Coronado National Forest—that Mexican spotted owls

[109] Page 11 in Ganey, J.L., H.Yi Wan, S.A. Cushman, And C.D. Vojta. 2017. Conflicting Perspectives on Spotted Owls, Wildfire, and Forest Restoration. *Fire Ecology* 13(3) doi: 10.4996/fireecology.130318020.

[110] Page 8 in Yi Wan, H., J.L. Ganey, C.D. Vojta, and S.A. Cushman. 2018. Managing emerging threats to spotted owls. *The Journal of Wildlife Management.* DOI: 10.1002/jwmg.21423.

[111] Id at 8.

[112] Stephens, S.L., S.W. Bigelow, R.D. Burnett, B.M. Collins, C.V. Gallagher, J. Keane, D.A. Kelt, M.P. North, L.J. Roberts, P.A. Stine, and D.H. Van Vuren. 2014. California Spotted Owl, Songbird, and Small Mammal Responses to Landscape Fuel Treatments. *BioScience* 64(10): 893-906.

[113] Lee, D.E., M.L. Bond, M. I. Borchert, and R. Turner. 2012. Influence of fire and salvage logging on site occupancy of spotted owls in the San Bernardino and San Jacinto Mountains of southern California. *The Journal of Wildlife Management* 77(7):1327-1341.

[114] Tempel, D.J., R.J. Gutierrez, S.A. Whitmore, M.J. Reetz, R.E. Stoelting, W.J. Berigan, M.E. Seamans, and Z. Peery. 2014. Effects of forest management on California spotted owls: implications for reducing wildfire in fire-probe forests. *Ecological Applications* 24(8):2089-2106.

[115] Lee, D.C., and L.L. Irwin. 2005. Assessing risks to spotted owls from forest thinning in fire-adapted forests of the western United States. *Forest Ecology and Management* 211:191-209.

appear to survive and thrive in a post-fire environment.[116] This information directly undercuts the 2012 Mexican spotted owl revised Recovery Plan's assumptions with respect to Mexican spotted owl responses to fire and, more importantly, the conclusion that the risk to Mexican spotted owl habitat posed by the threat of fire justifies large-scale restoration projects which is itself associated with significant negative effects to the Mexican spotted owl and its habitat. Indeed, the evidence suggests that wildfire may actually promote the recovery of the Mexican spotted owl despite the 2012 Revised Recovery Plan's suggestion to the contrary.

A recent paper published by owl experts asserts that the 'debate' over the impacts of fire or logging to spotted owls is not settled:

"*Here, we argue that the existing literature is not sufficient to unambiguously quantify the response of spotted owls to high-severity wildfire, and that high-severity fire is pervasive enough within the range of the spotted owl to constitute a potential threat to owl habitat. We also provide evidence that forest restoration and fuels reduction treatments can mitigate fire behavior, but acknowledge that these treatments also can degrade spotted owl habitat. Based on these findings, we argue for cautious implementation of restoration treatments in or near spotted owl habitat, with the goal of identifying treatment types that successfully reduce fire risk while maintaining suitable habitat conditions for spotted owls*."[117]

A similar meta-analysis concluded that "*mixed-severity fire does not appear to be a serious threat to owl populations; rather, wildfire has arguably more benefits than costs for Spotted Owls*."[118] In another recent paper, scientists reiterate our concern that: "*Commercial timber harvesting remains a potential threat for all 3 spotted owl subspecies, but effects from forest thinning may be increasing because of the heightened emphasis on fuels reduction and forest restoration treatments on public lands. Owl response to mechanical tree removal, especially forest thinning, remains understudied.*"[119]

Notably, these researchers identified that threats to Mexican spotted owl are comparatively less studied than for other spotted owl subspecies: "*Mexican spotted owl papers represented a small fraction of manuscripts among major research topics, except for habitat selection … Because the Mexican spotted owl was listed as Threatened primarily because of concerns over habitat loss, it is understandable that a relatively high proportion of Mexican spotted owl studies have focused on characterizing habitat. The general lack of population dynamics studies for the Mexican spotted owl, however, is notable, and severely limits our understanding of factors causing population fluctuations in this owl and how it might respond to emerging threats*."[120]

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[116] See "Occupancy and Reproductive Success of Mexican Spotted Owls in the Pinaleno Mountains, Safford Ranger District, Arizona: 2011" ("the owl population in the Pinaleno Mountains has demonstrated the capability of reproducing well, despite of or even with the aid of effects promulgated by the large, and in some areas, severely burning Nuttall-Gibson fire of 2004").

[117] Page 4 in Ganey, J.L., H. Yi Wan, S.A. Cushman, and C.D. Vojta. 2017. Conflicting Perspectives on Spotted Owls, Wildfire, and Forest Restoration. *Fire Ecology* 13(3) doi: 10.4996/fireecology.130318020.

[118] Page 1 in Lee, D.E. 2018. Spotted Owls and forest fire: a systematic review and meta-analysis of the evidence. *Ecosphere* 9(7):e02354. 10.1002/ecs2.2354.

[119] Page 1 in Yi Wan, H., J.L. Ganey, C.D. Vojta, and S.A. Cushman. 2018. Managing emerging threats to spotted owls. *The Journal of Wildlife Management.* DOI: 10.1002/jwmg.21423.

[120] Id at 7.

Clearly, there is much to be learned about fire and logging effects on the MSO, but one thing is sure: owls evolved with fire, but logging is new to them.

RECOMMENDATIONS - MSO 1:

In any subsequent NEPA document prepared for the Tonto Plan Revision the Forest service must:

• Incorporate the best available science referenced here into the analysis of the effects of plan approval and/or proposed or possible actions on the Mexican spotted owl.

• Add standards and guidelines that protect the large and old trees and old growth structure needed by spotted owls and northern goshawk to the plan sections on forested ERUs and the Forestry and Forest Products, and specify that large trees are those over 18" dbh and old trees are those 150 years old and older.

• Guideline WFP-G-01[121] should be upgraded to standard to read as: "*Activities occurring within federally-listed species habitat shall apply habitat management objectives and species protection measures from approved recovery plans.*"

CONCERN - MSO 2: The Draft Plan fails to address monitoring requirements for Mexican Spotted Owl abundance and habitat quantity and distribution, as required by the 2012 Recovery Plan for the species.

RATIONALE - MSO 2: Recovery of the Mexican spotted owl (MSO) is only possible if the Forest Service fully commits to implementing and complying with the 2012 Recovery Plan.[122] The 2012 Recovery Plan lists specific criteria that must be met before the MSO can be delisted and acknowledges that "[m]*eeting two of those criteria will require large-scale monitoring of trends in owl abundance and habitat quantity and distribution*."[123] Revising the Tonto Forest Plan offers the Forest Service an opportunity to employ such commitment by providing one or more Wildlife, Fish, and Plants Standards (WFP-S) that require range-wide monitoring for the MSO. The revised Forest Plan's current draft fails to include any such standards and therefore fails to provide for the MSO's recovery. Similarly, the monitoring questions that address key ecosystem services, found in Tables 21-27 of the draft revised Forest Plan, do not identify the need to monitor MSO abundance. The only monitoring question that address MSO at all, "*Are snags, downed logs and large old trees at desired conditions at the midscale (100-1000 acre average) level*?" This addresses a single element of preferred habitat but wholly neglects the need to monitor the abundance and distribution of MSO on the Tonto National Forest as part of the larger effort to monitor range-wide trends in owl abundance and distribution.

The DEIS's three volumes contain no references to any biological opinion, so it appears the Forest Service neglected to consult with U.S. Fish & Wildlife Service (FWS) about whether the MSO may be affected by the revised Forest Plan. At the least, the DEIS failed to evaluate how the revised Forest

[121] Draft Plan, p. 115.
[122] *See* U.S. Fish and Wildlife Service, Mexican Spotted Owl Recovery Team. 2012. Mexican Spotted Owl Recovery Plan, First Revision (*Strix occidentalis lucida*). Albuquerque, NM: U.S. Fish and Wildlife Service, Southwest Region.
[123] *Ibid*, p. 93.

Plan would comply with the 2012 Recovery Plan. The standards, objectives and guidelines of the draft revised Forest Plan will result in direct impacts to the MSO and are likely to adversely affect the MSO and its preferred habitat. FWS consultation is therefore required and a biological opinion, based on best scientific and commercial data available, must be prepared prior to publication of the Final EIS and Draft Record of Decision. If FWS's biological opinion concludes that the revised Forest Plan will not jeopardize the survival and recovery of the MSO but may incidentally "take" individual MSO, an incidental take statement must be prepared as part of the biological opinion.

RECOMMENDATIONS - MSO 2:

In any subsequent NEPA document prepared for the Tonto Plan Revision the Forest service must:

• Identify, map, and manage for MSO recovery habitat as defined in the 2012 Recovery Plan.

• Provide clear plans for monitoring abundance and distribution.

• Delineate required pre- and post-project monitoring consistent with the 2012 Recovery Plan for all activities, including, but not limited to, forest management activities (thinning, logging, prescribed burns...), livestock grazing, oil and gas development, mining, and recreation (in particular, motorized recreation). This is especially relevant to the agency's unsupported claim that timber management will benefit MSO and its habitat. Such scientific experiments remain unproven, as described above.

• Use the best available science and information, and share that science and information with the public as part of the required processes under the National Environmental Policy Act (NEPA).

• Analyze the cumulative impacts of all management activities on MSO, and include the results of any and all monitoring data collected as part of those activities, as required by the existing Forest Plan and MSO Biological Opinions. This includes pre- and post- project monitoring and population and habitat monitoring.

• Add a Wildlife, Fish, and Plants Standard (WFP-S) that requires contribution to range-wide monitoring per the Recovery Plan.

III.C. Case Study: Mexican Gray Wolf.

CONCERN: The Draft Plan and DEIS fail to provide plan direction to fulfil the agencies duty to conserve and recover the Mexican gray wolf.

RATIONALE: The US Fish and Wildlife Service's Mexican Wolf Recovery Team includes a Science and Planning Subgroup (SPS) that is composed of scientists appointed by the Fish and Wildlife Service's Regional Director. These scientists, recognized for their expertise in scientific disciplines relevant to Mexican gray wolf recovery, have emphasized that "*only three major core areas of suitable* [wolf] *habitat*" are capable of supporting Mexican wolf populations of sufficient size to contribute to recovery.[124] Those three core areas are:

1) The current Mexican Wolf Experimental Population Area (MWEPA).

2) The Grand Canyon and adjacent public lands in northern Arizona and southern Utah (as bounded on the west by I-15 and on the north by I-70).

3) Two linked areas of public lands and private lands with conservation management in northern New Mexico and southern Colorado (bounded on the north by I-70 and on the east by I-25).[125]

The SPS also recommended that a minimum of three, naturally connected subpopulations of at least 200 individuals each comprising a metapopulation of at least 750 wolves in the U.S. are essential to the survival and recovery of Mexican gray wolves in the wild.[126] This recommendation comported with earlier credible science but was omitted from the 2017 Mexican wolf recovery plan.

The 2015 Final Rule expanded the MWEPA by moving the southern boundary from Interstate Highway 10 to the United States–Mexico international border across Arizona and New Mexico.[127]

Ten National Forests (approximately 19 million acres)[128] including the Tonto NF, lie within the expanded MWEPA region designated for Mexican wolf recovery, for now restricted to regions south of Interstate 40. Wolves have been observed on the at least five of the forests and are predicted to continue dispersing into and, if population losses are kept sufficiently low, eventually recolonizing all the Forests within the current MWEPA.

These Forests provide significant habitat and connectivity value that can contribute to the conservation and recovery of Mexican gray wolves;[129] however there are no plan components in the Draft Plan or

[124] USFWS. 2012. Draft Mexican Wolf Revised Recovery Plan. 05-07-2012. USFWS Southwest Region (Region 2). Albuquerque, New Mexico, p. 49.
[125] USFWS 2012:49, Table 1 (page 51).
[126] USFWS 2012.
[127] USFWS. 2015. [Final Rule] Revision to the Regulations for the Nonessential Experimental Population of the Mexican Wolf. Federal Register 80(11):2512-2567. January 16, 2015.
[128] Apache-Sitgreaves (2 million acres); Coconino (1.8 million acres); Lincoln (1.1 million acres); Carson (1.5 million acres); Coronado (1.7 million acres); Kaibab (1.6 million acres); Prescott (1.25 million acres); Tonto (2.9 million acres); Cibola (1.6 million acres); and Gila (3.3 million acres).
[129] Carroll, C., M. K. Phillips, C. A. Lopez-Gonzalez, and N.A. Schumaker. 2006. Defining Recovery Goals and Strategies for Endangered Species: The Wolf as a Case Study. *BioScience* 56: 25-37, and Carroll, Carlos, Richard J. Fredrickson, and Robert C. Lacy. 2014. Developing Metapopulation Connectivity Criteria from Genetic and Habitat Data to Recover the Endangered Mexican Wolf. *Conservation Biology* DOI:10.1111/cobi.12156.

DEIS that adequately address wolf recovery or provide management direction for when wolves populate the Tonto NF.

The MWEPA is relevant to Tonto Forest planning effort, but is virtually ignored. This, despite that the DEIS identifies that the Mexican gray wolf is an at-risk species associated with many of the Tonto's ERUs.

RECOMMENDATION: Because the DEIS and Draft Plan should be revised to adequately address the fine-filter needs of the Mexican wolf, using best available science, as per the issues raised in this concern.

CONCERN: Our evaluation of plan components specific to livestock impacts on Mexican wolves suggests that the entire at-risk species analysis is meaningless.

RATIONALE: The DEIS[130] claims that a number of plan components address the wolf, but this claim is laughable. A quick review of the listed plan components quickly shows that the analysis fails to provide any plan components tailored for this species. Below, we list the plan components that the DEIS claims (Vol. 3, p. 425) will negate impacts from livestock grazing on the Mexican wolf. Clearly, these have no direct bearing on the wolf or how grazing practices impacts it:

GRZ-DC-02 - Rangelands are resilient to disturbances, fluctuations, and extremes in the natural environment (e.g., fire, flooding, drought, climate variability).

> *Coarse filter habitat desired conditions are too vague to have direct relevance on the specific threats posed by grazing to wolves.*

GRZ-DC-03 - Livestock grazing allows for healthy, diverse plant communities, satisfactory soil conditions, and sustains the quality of wildlife habitat.

> *Coarse filter habitat desired conditions are too vague to have direct relevance on the specific threats posed by grazing to wolves.*

GRZ-O-01 - At least 2 water troughs or open storage tanks per ranger district will be fitted with wildlife escape ramps each year until all troughs and tanks have ramps.

> *How often do wolves drown in livestock troughs?*

GRZ-G-02 - At least one vacant allotment will be evaluated for one of the following options every two years, until there are no vacant allotments.

> *How does evaluating allotments mitigate for grazing impacts on wolves?*

GRZ-G-04 - Livestock rotations should avoid grazing the same areas during the growing season at the same time, year after year.

> *How does ensuring distribution of livestock across the broadest area possible reduce grazing impacts?*

[130] DEIS, Vol. 3, p. 425.

GRZ-G-05 - Wildlife escape ramps should be installed in all livestock water troughs and open storage tanks.

Again, how often do wolves drown in livestock troughs?

GRZ-G-06 - Efforts (e.g., coordination with permittees, temporary fencing, increased herding, and herding dogs) should be made to prevent transfer of disease from domestic sheep and goats to bighorn sheep wherever bighorn sheep occur. Conversions to domestic sheep or goats should not be allowed in areas adjacent to or inhabited by bighorn sheep.

How does this in any way relate to wolves?

GRZ-G-07 - Allotments and other areas closed to permitted livestock grazing should remain closed.

This has some benefit to wolves.

GRZ-G-08 - When unauthorized livestock are found occupying National Forest lands, the owner should be promptly notified to remove them and prevent them from re-entering National Forest lands. If the owner is unknown or uncooperative, impoundment procedures should be initiated.

What relation is there between notifications of unauthorized livestock and wolf recovery?

The plan components assigned to the wolf, and reviewed here, appear to have been randomly grabbed out of a hat. None of these were designed with any direct consideration of the effects of grazing on Mexican wolves.

The plan is missing meaningful components to address livestock-wolf conflicts, carcass disposal, protection of denning sites, and other essential aspects of wolf recovery. Evaluation of this one important species suggests that the analysis method used to mitigate harm of actions implemented under the revised plan is flawed. Pairing vague and weak plan components to species does not provide the coarse or fine filter protections that these species need.

RECOMMENDATION: Based of the evaluation of the Mexican wolf, we suggest that the entire Analysis of At-Risk Species must be revised and include fine-filter plan components that the best available science has identified to conserve and recover species and mitigate harm that results from plan-implemented actions.

III.D Case Study: Sonoran Desert Tortoise.

Background information. The Sonoran desert tortoise is an extremely vulnerable species that heavily relies on more than one-million acres of habitat on the Tonto National Forest. The species is currently classified as a Tier 1b "Species of Greatest Conservation Need" by the Arizona Game and Fish Department. Additionally, the U.S. Fish and Wildlife Service has found that "*listing the Sonoran population of the desert tortoise is warranted*," but, due to inter-agency issues, listing has been delayed and the species was stripped of its status as a "candidate" species, leaving its status to be determined by the courts. Regardless of the official current designation for this species, numerous scientific studies support the conclusion that it faces significant threats to survival within the state of Arizona, including within the Tonto National Forest. This being said, we are astonished that the Forest Service has neglected to list it as a species of conservation concern.

Due to the status of this species in Arizona, as well as the historical and current interest in studying Southwest tortoises, there are numerous academic and scientific materials addressing the unique habitat needs for the Sonoran desert tortoise and the threats they face. Below, we have attempted to summarize many of these studies and sources. Tortoises generally prefer to live on rocky hillsides or outcrops, including preferentially on south-facing or northwest-facing slopes.[131,132,133] However, Bridges (2012) documented tortoises using alluvial fans and washes, so these areas should also be considered when determining management of tortoise habitat. Movement within and between habitats has been less well documented. However, research has determined that males generally have larger home ranges.[134] Additionally, while males are more active foragers in the summer months, females are more likely to spend time foraging in the winter and spring, before laying a clutch.

The relatively long maturity period for tortoises, as well as their small clutch sizes, requires high adult survival for a population to remain viable. Given that adults typically have long lifetimes, changes in population size due to decreases in juvenile populations may take many years to manifest themselves. It also means that population fragmentation and disruption that has occurred in the relatively recent past may not yet have exacted a toll on populations within Arizona. However, significant decreases in population in successive years have been documented and are most likely associated with low precipitation or forage resources due to drought.

Desert tortoise is a hibernating species. Bridges (2012) observed that abundance and availability of shelter sites is a key determining factor in the number of tortoises that a habitat is able to support. They are most active from mid-summer to early fall, while tending to be in burrows or undertaking relatively less movement throughout the rest of the year.[135] However, it is important to note that more recent studies have demonstrated that tortoises, especially females, do utilize plants, water sources,

[131] Germano, D.J., et al. 1994. Range and habitats of the desert tortoise. *Biology of North American Tortoises. National Biology Survey Technical Report Series, Fish and Wildlife Research* 13: 73-84.

[132] Bailey, S.J. 1992. Hibernacula use and home range of the desert tortoise (Gopherus agassizii) in the San Pedro Valley, Arizona

[133] Bridges, A. 2012. Sonoran Desert Tortoise (Gopherus morafkai) Growth and Juvenile Habitat Selection at a Long-term Study Site in Central Arizona, USA. Diss. Arizona State University.

[134] Averill-Murray, R.C., and C.M. Klug. 2000. Monitoring and ecology of Sonoran Desert tortoises in Arizona. Arizona Game and Fish Department.

[135] Martin, B.E. 1995. Ecology of the desert tortoise (Gopherus agassizii) in a desert-grassland community in southern Arizona.

and sunlight during the winter months more than expected, demonstrating that year-round protection of habitat is of high importance.[136]

It is well known that human development and activities have a generally negative effect on native species. For the desert tortoise, this is especially true, due to its reliance on heavily used desert environments, its relatively slow movement, the length of time before maturity is reached, and its low reproductive capacity. Edwards et al. (2004[137]) found that additional problems presented by human development for this species are the barriers that have been created to gene flow between distinct populations of tortoises. The findings of this study showed that this absence of gene flow, which was an important aspect of the tortoise's evolution, has had the effect of isolating reproducing individuals of this species, increasing the risk that any one population could succumb to disease or other threats.

Of course, the desert tortoise faces many other threats, including "habitat loss and degradation from urban and agricultural development and roads, wildfires associated with invasion by non-native grasses and forbs, illegal collection, and genetic contamination of wild populations by escaped or released captives."[138] According to the Arizona Game and Fish Department, fire and grazing are the most important issues that need to be addressed for proper management of this species.[139] Esque et al. (2003[140]) found that tortoise mortality was evident after desert grassland fires in Arizona, indicating that fire was indeed a cause of direct and potentially indirect mortality in desert tortoises. However, within this same study, researchers found evidence of numerous live tortoises, meaning that fire did not completely disrupt habitats and that these animals can recover naturally from natural disturbances such as fire. While studies focused on the interactions between livestock and tortoises have primarily been undertaken with the Mojave desert tortoise populations, there is no indication that the long-term, negative impacts on tortoise survival and viability from livestock grazing are any different in the Sonoran population. One of the key impacts on tortoises from livestock is competition for food sources, as desert tortoises graze daily during their active season, primarily on grasses (Bridges 2012). Another key way that livestock threaten tortoises is by crushing, or direct mortality. Livestock also promote the spread of non-native invasive plants that contribute to unnatural fire regimes, which also affects tortoises.

A further threat to the desert tortoise in the Tonto is increased presence of humans within its habitat, especially when that activity involves off-road vehicles or pets, such as dogs. Off-road vehicle use on the Tonto has increased dramatically in the last few decades, which has resulted in greater use of these

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[136] Sullivan, B. K., Averill-Murray, R., Sullivan, K. O., Sullivan, J. R., Sullivan, E. A., & Riedle, J. D. (2014). Winter Activity of the Sonoran Desert Tortoise (Gopherus morafkai) in Central Arizona. *Chelonian Conservation and Biology*,*13*(1), 114-119. Concluding that "it would be prudent to take measures to minimize potential impacts to tortoises during development projects in winter, especially given the likelihood of slow movement and a concentration of individuals in low areas where water collects."

[137] Edwards, Taylor, et al. "Implications of anthropogenic landscape change on inter-population movements of the desert tortoise (Gopherus agassizii)."*Conservation Genetics* 5.4 (2004): 485-499

[138] Management Plan for the Sonoran Desert Population of the Desert Tortoise in Arizona, AZ Interagency Desert Tortoise Team (Dec. 1996) at 17, *available at* http://www.azgfd.gov/w_c/documents/AIDTT1996.pdf.

[139] Id. at 22. Noting that "grazing by cattle and sheep may result in long-term vegetation changes, disturbance of cryptobiotic crusts, elevated soil erosion and compaction, and reduced infiltration rates." (citations omitted) Habitat degradation has also been found to be highest near water sources, where livestock are most likely to congregate. Livestock grazing was shown to be a factor in both direct and indirect mortality of tortoises in areas where it occurs.

[140] Esque, Todd C., et al. "Effects of desert wildfires on desert tortoise (Gopherus agassizii) and other small vertebrates." The Southwestern Naturalist 48.1 (2003): 103-111.

vehicles off forest roads and in delicate habitat areas. Because tortoises are slow moving, they are unable to move out of the way of oncoming vehicles, making them particularly vulnerable to roads, motorized trails, and off-road use within their habitat and corridors between populations. Additionally, dogs and curious humans can result in tortoise mortality. Capture, harassment, and shooting of desert tortoise have all been documented on the Tonto. Even if these activities do not cause direct mortality, they create stress and negative physiological effects that can decrease survival and reproduction.

CONCERN: The Draft Plan is lacking information on how current management activities affect the tortoise population.

According to the 1985 Plan, the Tonto National Forest should be undertaking the following management activities related to this species: "*Survey, study, and assess the status of Desert Tortoise habitat on the Forest. Identify, document, and correct any management conflicts with Tortoises or their habitat*."[141] Based on information in the Draft Plan and DEIS, it is unclear how forest staff has been implementing this management directive or what information exists regarding current population levels and habitat suitability for the tortoise. For instance, none of the publicly available monitoring reports mention the desert tortoise. We do know, and would like to note here, that the Arizona Game and Fish Department has an ongoing monitoring program at Sugarloaf Mountain in the Mazatals.

RECOMMENDATION: We request that any subsequent version of the Forest Plan and EIS include any applicable and available information about management, management plans, details of the Candidate Conservation Agreement or the Arizona Interagency Desert Tortoise Teams Recommended Standard Mitigation Measures, and the habitat and population levels of the Sonoran desert tortoise.

CONCERN: There is insufficient documentation in the Forest Plan and/or the DEIS on human-associated mortality.

RECOMMENDATION: Documentation of human-associated on tortoise populations is likely available in both Tonto National Forest and Arizona Game and Fish records, and we specifically request that such information be included effects (especially regarding grazing and off road vehicles). This information should be used to develop standards and guidelines to be included in the Draft Plan.

CONCERN: There is no direction in the Draft Plan or DEIS for identifying and protecting habitat corridors.

RECOMMENDATION: The plan should include specific direction for identifying and protecting habitat corridors throughout the range of the tortoise on the Tonto.

CONCERN: Perhaps the most concerning aspect of this discussion is the Forest Service's decision to not list this species as a Species of Conservation Concern. As a result, there are no plan components to protect the tortoise, except for reference to the "Arizona Interagency Desert Tortoise Teams Recommended Standard Mitigation Measures."

RECOMMENDATION: Based on the abundant science documenting the imperiled condition of the Sonoran desert tortoise, and the importance of the Tonto National Forest to its survival, we request that it is added to the list of Species of Conservation Concern, and that meaningful Standards and Guidelines are developed that provide fine-filter conservation protections.

[141] Current 1985 Tonto National Forest Plan, replacement pg. 40-1.

IV. Livestock Grazing.

The ecological costs (as defined by Fleischner 1994)[142] of livestock grazing exceed that of any other western land use.[143] Conservation icon Aldo Leopold wrote in 1923 that *"the lesson is that under our peculiar Southwestern conditions, any grazing at all, no matter how moderate, is liable to overgraze and ruin watercourses."* By consuming vegetation, damaging wildlife habitats and disrupting natural processes, livestock grazing stresses riparian areas, rivers, deserts, grasslands and forests alike — causing significant harm to species and the ecosystems on which they depend.

In listing species under the Endangered Species Act, the US Fish and Wildlife Service identified that livestock grazing was a direct threat to the yellow-billed cuckoo, southwestern willow flycatcher, and the Chiricahua leopard frog. These rare species, which rely on streamside forests and wetlands, are but a few examples of dozens of species directly endangered by grazing, such as lizards and birds.

In 1926, historian Fred Croxen declared that cattle grazing on the Tonto National Forest had converted areas of stirrup-high grass stands to dense stands of brush in just fifty years. That's the same dense brush that fueled rapid fire growth seen in the Woodbury Fire which destroyed thousands of acres of Saguaro cacti in the Superstition Wilderness.

By selectively removing grasses and herbs, cattle grazing is a major factor in converting Arizona's landscapes to dense shrubs and doghair thickets of young, spindly trees, while increasing erosion and furthering the spread of invasive grasses which fuel uncharacteristic desert fires, which can eradicate native cactus like saguaro.[144] Although grazing may in some cases decrease fine fuels that promote fire ignition,[145] overall grazing increases the severity of fires by promoting higher densities of trees and shrubs. In fact, several decades of forest restoration research and publications have verified that livestock grazing and fire suppression in the arid southwest is directly responsible for the uncharacteristically large and volatile wildfires that now threaten communities, forests, and deserts.

In an exhaustive 300-page scientific assessment of livestock grazing in the Sonoran desert, The Nature Conservancy concluded that no current approach to grazing is appropriate for this desert's public lands. It's vital that the Forest Service critically review this report and explain how, and why, in light of these facts, they promote continued grazing in desert ecosystems. Particularly concerning is the Draft Plan's proposal (Guideline RMZ-G-05) to greatly increase the amount of vegetation allowed to be consumed by cattle in riparian areas (see this comment letter's section on "Plan components for Riparian ERU's, and Riparian Areas, Seeps, Springs, Wetlands, and Riparian Management Zones."

Public lands grazing impairs our water quality, vistas, and recreational opportunities. We've seen it firsthand a thousand times, and it breaks our hearts every time. Today more than ever, with drought and climate change stressing ecosystems, and with an increasing urban population seeking quality outdoor experiences, we need the Forest Service to come to terms with the true costs of livestock grazing on our public lands, and to provide plan components that move the Tonto in a new direction of resiliency and sustainability.

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[142] Fleischner, T. 1994. Ecological Costs of Livestock Grazing in Western North America. *Conservation Biology* 8(3): 629-644.

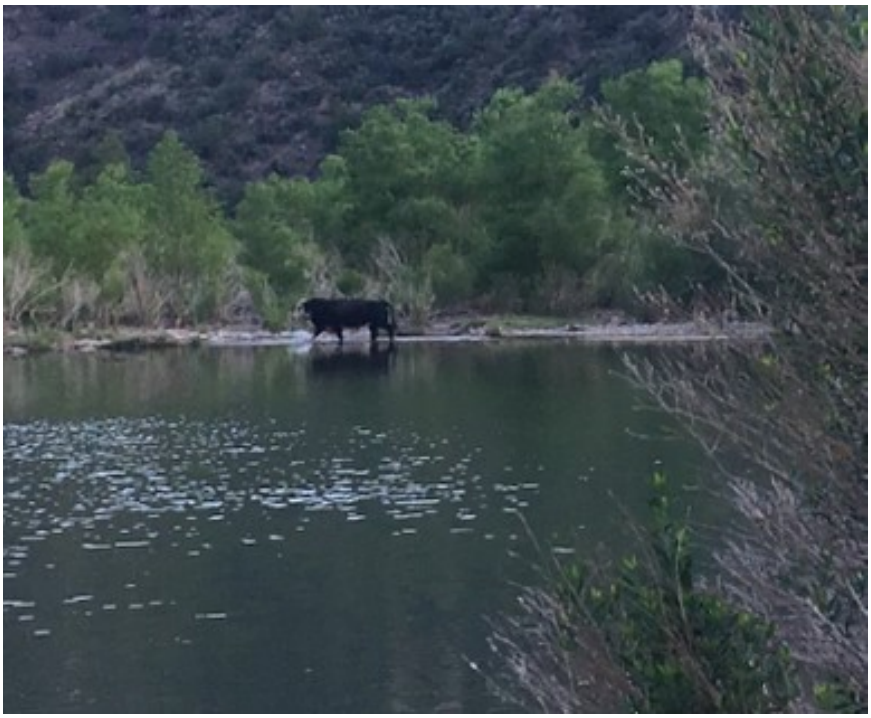
[143] Ibid.

[144] M.G. Narog, A.L. Koonce, R.C. Wilson, and B.M. Corcoran. 1995. "Burning in Arizona's Giant Cactus Community." USDA Forest Service Gen. Tech. Rep. PSW-GTR-158.

[145] https://ucanr.edu/blogs/blogcore/postdetail.cfm?postnum=29569

TOP: Ravaged riparian streambanks along the Verde Wild and Scenic River on the Tonto NF: supposedly protected from grazing for more than 20 years.

BOTTOM: Illegal livestock in the Verde Wild and Scenic River.



IV.A. Grazing impacts to ecosystems and habitats.

More than a century of livestock grazing in western riparian ecosystems has led to a decline in insect, fish, reptile, amphibian, bird, mammals, ground cover, biomass, and native vegetation,[146] making grazing the most destructive widespread activity wrought on Western rivers and watersheds since the arrival of American settlers. Decades of scientific research comparing grazed and ungrazed areas have documented that livestock grazing in the arid west negatively effects water quality and quantity, stream channel morphology, hydrologic function, soil stability, streambank vegetation, and aquatic and riparian wildlife - proving that livestock grazing is an ecological catastrophe.[147]

US Forest Service scientists have concluded that grazing is the most studied threat to riparian areas in the American West[148] and that livestock use is incompatible with maintenance of habitat for wetland and riparian wildlife.[149] Livestock grazing effects have contributed to the listing of many threatened and endangered species, including the yellow-billed cuckoo,[150] spikedace and loach minnow,[151] Northern Mexican and narrow-headed gartersnakes,[152] and others southwestern species.

Grazing impacts on riparian areas fall into four categories: impacts on streamside vegetation, stream channel morphology, water quality/quantity, and streambanks.[153] Collectively, these impacts to vegetation, soils, and water lead to losses of wildlife habitat, reduced stream flow, increased pollution, and eradication of plant and animal species.[154] Grazing on riparian plants reduces vegetative cover and exposes soil to erosion, which in combination with streambank trampling leads to increased erosion and turbidity.[155] Grazing animals congregating in riparian areas feed on native tree and shrub

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[146] Krueper, D.J. 1996. Effects of livestock management on Southwestern riparian ecosystems. Pp 281-301 in Shaw, D.W., and D.M. Finch. 1996. Desired future conditions for Southwestern riparian ecosystems: bringing interests and concerns together. Gen. Tech. Rep. RMRS-GTR-272. USDA Forest Service, Fort Collins, CO. 359 p.

[147] Belsky, A.J., A. Matzke, and S. Uselman. 1999. Survey of Livestock Influences on Stream and Riparian Ecosystems in the Western United States. *Journal of Soil and Water Conservation* 54: 419-431.

[148] Poff, B., K.A. Koestner, D.G Neary, and D. Merritt. 2012. Threats to western United States riparian ecosystems: A bibliography. Gen. Tech. Rep. RMRS-GTR-269. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 78 p.

[149] Zwartjes, P.W., J.E. Cartron, P.L.L. Stoleson, W.C. Haussamen, and T.E. Crane. 2005. Assessment of Native Species and Ungulate Grazing in the Southwest: Terrestrial Wildlife. Gen. Tech. Rep. RMRS-GTR-142. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 74 p. plus CD.

[150] 60 Fed. Reg. at 10707 ("*Overuse by livestock has been a major factor in the degradation and modification of riparian habitats in the United States … Livestock grazing in riparian habitats typically results in reduction of plant species diversity and density, especially of palatable plants like willow and cottonwood saplings*.")

[151] 77 Fed. Reg. at 10,818 ("*Impacts associated with roads and bridges, changes in water quality, improper livestock grazing, and recreation have altered or destroyed many of the rivers, streams, and watershed functions in the ranges of the spikedace and loach minnow*.")

[152] 79 Fed. Reg. at 38718 ("*We found numerous effects of livestock grazing that have resulted in the historical degradation of riparian and aquatic communities that have likely affected northern Mexican and narrow-headed gartersnakes.*")

[153] Kauffman, J.B., and W.C. Krueger. 1984. Livestock impacts on riparian plant communities and streamside management implications-a review. *Journal of Range Management* 37(5): 430-438.

[154] Armour, C.L., D.A. Duff, and W. Elmore. 1991. The effects of livestock grazing on riparian and stream ecosystems. *Fisheries* 16(1): 7-11.

[155] Trimble, S.W., and A.C. Mendel. 1995. The cow as a geomorphic agent - a critical review. *Geomorphology* 13(1995): 233-253

regeneration, disrupting their reproductive cycle and leading to destabilized streambanks,[156] increased water temperatures, loss of hiding and breeding cover, and defecation and urination directly in the water. Reduced rainfall infiltration into soil[157] and increased sediment loads combine to exacerbate riparian ecosystem decline and increase stream down-cutting.[158]

A Forest Service review and assessment of grazing impacts on terrestrial wildlife in Region 3[159] found that grazing has multiple negative effects on native species. This incredibly useful and regionally specific document (GTR-142), assessed the ecological interactions among native wildlife species of the Southwest and grazing and range management practices, and was designed to provide an informational tool for the region's land managers and biologists.

A database developed to compliment the GTR-142 assessment (provided on a companion CD) contains accounts for 305 terrestrial species and subspecies (note, the assessment did not address fish) believed to be potentially vulnerable to both short-term and long-term effects of native and domestic ungulate grazing. The assessment exhaustively details the effects of livestock grazing on wildlife, and includes statements like the two below:

In a section discussing birds of wetland/marsh habitats, GTR-142 states (page 29) that livestock use has "*a consistently negative impact and therefore to be generally incompatible with habitat maintenance*."

In a section discussing mammals of riparian and wet meadow habitats, including the masked and water shrews and the New Mexico meadow jumping mouse, GTR-142 states (page 34) that "… *such wetlands are generally incompatible with livestock use.*"

In addition to GTR-142, we also request that the planning team review Poff et al (2012) - GTR-269 - "Threats to western United States riparian ecosystems."[160] In this comprehensive review and bibliography of threats to riparian areas, the Forest Service authors reviewed "*453 journal articles, reports, books, and book chapters addressing threats to riparian ecosystems in western North America were analyzed to identify, quantify, and qualify the major threats to these ecosystems as represented in the existing literature*."[161] Poff and colleagues write (page 8) that "*most of the publications in this bibliography that address a single threat discuss grazing*" and on page 11 "*the two topics with the most individual references are grazing and invasive species*."

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[156] Patten, D.T. 1998. Riparian ecosystems of Semi-Arid North America: Diversity and Human Impacts. *Wetlands* 18(4): 498-512.

[157] Gifford, G.F., and R.H. Hawkins. 1978. Hydrologic Impact of Grazing on Infiltration: A Critical Review. *Water Resources Research* 14(2): 305-313.

[158] Obedzinski, R.A., C.G. Shaw, and D.G. Neary. 2001. Declining woody vegetation in riparian ecosystems of the Western United States. *Journal of Applied Forestry*. 16(4): 169-181.

[159] Zwartjes, P.W., J.E. Cartron, P.L.L. Stoleson, W.C. Haussamen, and T.E. Crane. 2005. Assessment of Native Species and Ungulate Grazing in the Southwest: Terrestrial Wildlife. Gen. Tech. Rep. RMRS-GTR-142. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 74 p. plus CD. https://www.fs.fed.us/rm/pubs/rmrs_gtr142.pdf

[160] Poff, B., K.A. Koestner, D.G Neary, and D. Merritt. 2012. Threats to western United States riparian ecosystems: A bibliography. Gen. Tech. Rep. RMRS-GTR-269. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 78 p. https://www.fs.fed.us/rm/pubs/rmrs_gtr269.pdf

[161] Poff, B., K.A. Koestner, D.G. Neary, and V. Henderson, 2011. Threats to Riparian Ecosystems in Western North America: An Analysis of Existing Literature. Journal of the American Water Resources Association (JAWRA) 1-14. DOI: 10.1111/j.1752-1688.2011.00571.x. https://www.fs.fed.us/rm/pubs_other/rmrs_2011_poff_b001.pdf

Researchers realized decades ago that habitat loss driven by livestock grazing is primary threat to native fish. As much as fifty years ago, Behnke and Zarn,[162] Sublette et al., and Behnke[163] concluded that livestock grazing on National Forests was harming Rio Grande cutthroat trout populations. They wrote that:

"*Livestock grazing in riparian areas has contributed to the decline in quality of many aquatic habitats and in some instances has been a major factor in eliminating native fishes from portions of their historic ranges. Livestock trample and consume vegetation that maintains stream bank integrity, hoof action destroys undercut banks and accelerates erosion, and feces elevate nutrients unnaturally, particularly in spring habitats… Livestock grazing has contributed to increased erosion in many watersheds and thus elevated sediment loads in virtually all river systems*."[164]

Similar impacts have affected fish across the Tonto NF.

Prominent fish scientists have concluded that "*habitat degradation as a result of excessive grazing pressure can most easily be reversed by excluding livestock from the riparian area*."[165] Parson and Wilson (1991) determined that Apache trout were ten times more abundant on ungrazed streams on the Apache- Sitgreaves National Forest and other areas in the White Mountains, AZ than on grazed streams. Rinne and LaFayette (1991) found that ungrazed streams on the Tonto and Santa Fe National Forests had twice as many trout, trout populations, and trout biomass than grazed streams.[166] Propst and McInnis (1975) found that Santa Fe National Forest streams with little riparian habitat and erosion problems, such as degraded banks or sign of rapid run-off, sustained few or no cutthroat trout.[167] Platts (1991) reviewed 21 studies, finding only one that did not concluded that cattle degrade trout populations and habitat.[168] Chaney et al. (1990) reported 1) that degraded cutthroat spawning habitat in Mahogany Creek, ID recovered when cattle were removed from the riparian area, 2) that populations of cutthroat trout in Huff Creek, Wyoming increased from 36 per mile to 444 per mile when cattle were excluded from the stream area, as a result of better in-stream cover lower water temperature, and decreased sedimentation, and 3) that cattle exclusion from the riparian zone of Bear Creek in Oregon converted an ephemeral reach of the stream into a permanent flow supporting a wild trout population.[169] Similarly, twenty years of cattle exclosure on Camp Creek in central Oregon turned an ephemeral wash into permanent stream capable of supporting redband trout.[170]

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[162] Behnke, R.J. and M. Zarn. 1976. Biology and management of threatened and endangered western trouts. Gen. Tech. Rep. USDA Forest Service, RM-28: 1-45. Rocky Mountain Forest and Range Experiment Station, Fort Collins, CO.

[163] Behnke, R.J. 1992. Native Trout of Western North America. American Fisheries Society, Monograph No. 6.

[164] Propst, D.L. 1999. Threatened and endangered fishes of New Mexico. Tech. Rpt. No. 1. New Mexico Department of Game and Fish, Santa Fe, NM at page 15.

[165] Pritchard and Crowley 2006 at 50.

[166] Rinne, J.N. and R.A. Lafayette 1991. Southwestern Riparian-Stream Ecosystems: Research Design, Complexity, and Opportunity. USDA Rocky Mountain Forest and Range Experiment Station, Fort Collins, CO. 9pp.

[167] Propst, D.L. and M.A. McInnis 1975. An analysis of streams containing native Rio Grande cutthroat in the Santa Fe National Forest. WICHE Report for the Santa Fe National Forest, Region 3, Albuquerque, NM.

[168] Platts, W.S. 1991. Livestock grazing. Pp. 389- 423 In: W.R. Meehan, editor. Influences of Forest and Rangeland Management on Salmonids Fishes and their Habitats. Amer. Fish. Soc. Spec. Pub. 19: 389-423. Bethesda, MD. 751 pp.

[169] Chaney, E., W. Elmore, and W.S. Platts 1990. Livestock Grazing on Western Riparian Areas. EPA report. 14-7, 26-7.

[170] Hunter, C.J. 1991. Better Trout Habitat. Island Press, Washington, D.C.

Grazing in adjacent uplands and river terraces is equally as disastrous, with impacts to biological soil crusts, vegetation, soils, and wildlife.[171] A comprehensive review of grazing impacts in the Southwest concluded that no current grazing management system used by land managers is appropriate for the Sonoran Desert, so as climate changes this must be considered.[172] Livestock grazing is a primary driver of fire regime disruption. Livestock grazing decreases understory biomass and density, reducing competition with conifer seedlings and reducing the ability of the understory to carry low-intensity fire, contributing to dense forests with altered species composition.[173] Livestock grazing directly contributes to fire hazard in the project area by impairing soil productivity and altering vegetation communities, which indirectly contribute to delayed fire rotations, increased forest density, and reduced forage opportunities for herbivorous species and predators. Cattle grazing also negatively impacts high elevation montane riparian meadows and creeks through hydrologic changes, soil compaction, erosion, bank instability, and siltation.[174] Often, these impacts can have greater effects on wildlife than do wildfires.[175]

Continued livestock grazing risks post-treatment invasion of exotic plants. Livestock facilitate the spread of exotic species, particularly in combination with fire, and reduce the competitive and reproductive capacities of native species.[176] Exotic plant species, once established, can displace native species, in part, because native grasses are not adapted to frequent and close grazing in combination with fire disturbance.[177,178,179] Livestock disturb soil, enable seeds of exotic species to spread, and reduce the competitive and reproductive capacities of native species. Exotic plant species, once established, can displace native species, in part, because native grasses are not adapted to frequent and close grazing in combination with fire disturbance.

As briefed here, scientific literature documenting livestock grazing impacts on ecosystems is extensive, and the large majority of studies report severe and lasting negative impacts.[180] Livestock removal leads to a rapid regrowth of riparian willow shrub communities[181] and reestablishment of

[171] Jones, A. 2000. Effects of cattle grazing on North American arid ecosystems: a quantitative review. *Western North American Naturalist* 60(2): 155-164.

[172] Hall, J.A., S. Weinstein, and C.L. McIntyre. 2005. The Impacts of Livestock Grazing in the Sonoran Desert: A Literature Review and Synthesis. The Nature Conservancy in Arizona, Tucson.

[173] Belsky A.J. and D.M. Blumenthal. 1997. Effects of livestock grazing on stand dynamics and soils in upland forests of the Interior West. *Conservation Biology* 11:316-27.

[174] Federal Register Vol. 57 No. 225, November 20, 1992, Endangered and Threatened Wildlife and Plants; Proposed Endangered Status for the Plant "*Salix arizonica*" (Arizona willow), with Critical Habitat.

[175] Horncastle, V.J., C.L. Chambers, and B.G. Dickson. 2019. Grazing and Wildfire Effects on Small Mammals Inhabiting Montane Meadows. Journal of Wildlife Management 83(3): 534-543.

[176] Brooks, M.L., C.M. D'Antonio, D.M. Richardson, J. B. Grace, J.E. Keeley, J. M. DiTomaso, R.J. Hobbs, M. Pellant and D.Pyke. 2004. Effects of invasive alien plants on fire regimes. *BioScience* 54(7):677-688.

[177] Mack, R. N., and J. N. Thompson. 1982. Evolution in steppe with few large, hooved mammals. *American Naturalist* 119:757-72.

[178] Melgoza, G., R.S. Nowak and R.J. Tausch. 1990. Soil water exploitation after fire: competition *between Bromus tectorum* (cheatgrass) and two native species. *Oecologica* 83:7-13.

[179] Belsky, A.J., and J.L. Gelbard. 2000. Livestock Grazing and Weed Invasions in the Arid West. Oregon Natural Desert Association: Portland, OR. April. 31 pp.

[180] Fleischner, T.L. 1994. Ecological costs of livestock grazing in western North America. *Conservation Biology* 8(3): 629-644.

[181] Holland, K.A., W.C. Leininger, and M.J. Trlica. 2005. Grazing History Affects Willow Communities in a Montane Riparian Ecosystem. *Rangeland Ecology and Management* 58: 148-154.

high-quality habitat[182] and avian populations.[183] But full recovery of mature deciduous forests and the diversity that comes with them takes decades of cattle exclusion,[184] meaning monitoring, enforcement, and maintenance of riparian exclosures is crucial. Many Western rivers and their incredible native wildlife have endured abuse and neglect for too long. Complete exclusion of livestock animals is urgently needed to protect critical habitat and ensure the recovery and viability of the full range of native species.

Continued livestock grazing threatens the success of restoring diverse wildlife habitats and improving watershed conditions. Grazing of the most nutritious plants by livestock results in a loss of forage for native species and can alter habitat or insect prey base.[185,186] A decrease in prey base inevitably leads to a decrease in carnivores in the area, which are also eliminated by the government at the request of the livestock community. "*The productivity, diversity, and species richness of native grasslands are threatened by competition from noxious and invasive weeds/grasses. Productivity is threatened by other factors including drought, soil erosion, fire suppression, and improper livestock management practices.*"[187] Grazing also has negative effects on songbirds, reptiles and other mammals especially if their habitat is close to the ground.[188] Rosenstock and Van Riper reported that "*Livestock grazing and fire suppression commonly are cited as causes of woodland expansion.*"[189]

The degraded condition of the Tonto's ecosystems can largely be attributed to cattle damage and ranching-related water developments over the past 150 years. The only is widely accepted way to eliminate cattle impacts and restore springs, streams and upland health is the exclusion of domestic grazers. Consider the following:

• An example of where removal of cattle for 35 years led to the disappearance of rabbitbrush from previously shrub-dominated communities - and native grasses regained dominance;[190]

• An example of where Forest Service scientists at the Intermountain Forest and Range Experiment Station found that protection of an Idaho range from grazing increased grass and forb production by 30% and decreased shrub production by 20%.[191]

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[182] Krueper, D., J. Bart, and T.D. Rich. 2003. Response of vegetation and breeding birds to the removal of cattle on the San Pedro River, Arizona (U.S.A.). *Conservation Biology* 17(2): 607-615.

[183] Poessel, S.A., J.C. Hagar, P.K. Haggerty, and T.E. Katzner. 2020. Removal of cattle grazing correlates with increases in vegetation productivity and in abundance of imperiled breeding birds. *Biological Conservation* 241 (2020): 108378.

[184] Szaro, R.C., and C.P. Pase. 1983. Short-term Changes in a Cottonwood-Ash-Willow Association on a Grazed and an Ungrazed Portion of Little Ash Creek in Central Arizona. *Journal of Range Management* 38(3): 382-384.

[185] Donahue, D. 1999. The Western Range Revisited: Removing Livestock from Public Lands to Conserve Native Biodiversity. Norman, OK: University of Oklahoma Press. 338 pages.

[186] Kie, John G., Charles J. Evans, Eric R. Loft, and John W. Menke. 1991. Foraging behavior by mule deer: the influence of cattle grazing. *The Journal of Wildlife Management* 55(4):665-674.

[187] Central Arizona Grasslands Conservation Strategy, page 21.

[188] Finch, D.M., and W. Block, technical editors. 1997. Songbird ecology in southwestern ponderosa pine forests: a literature review. Gen. Tech. Rep. RM-GTR-292. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station. 152 p.

[189] Rosenstock, S. S. and Van Riper III, C. (2001) Breeding Bird Responses to Juniper Woodland Expansion. *Journal of Range Management*, 54:226-232.

[190] Austin, D.D., and P.J. Urness. 1998. Vegetal change on a northern Utah foothill range in the absence of livestock grazing between 1948 and 1982. *Great Basin Naturalist* 58(2): 188-191.

• An example of where U. of Idaho range scientists documented a 20-fold increase in perennial grass cover after 25 years of grazing exclusion while shrub cover only increased by 1.5-fold, attributing the grass response to "*the availability of seeds as formerly depleted populations increase in size*."[192]

• An example of where in a southeastern Arizona rangeland excluded from cattle grazing for 14 years, grass cover was 45% higher, the grass community was more heterogeneous, herb cover was higher, and rodent and bird numbers were higher than grazed comparison areas.[193]

• USDA research has found that excluding cattle from a landscape for five growing seasons "*significantly increased: (1) total vegetative cover, (2) native perennial forb cover, (3) grass stature, (4) grass flowering stem density, and (5) the cover of some shrub species and functional groups.*"[194]

When maintained, grazing exclosure fencing protects riparian areas and leads to rapid recovery of vigorous native vegetation[195] which is critical to maintain streambank stability and provide habitat to riparian and aquatic wildlife.[196] Prominent fish scientists have concluded that livestock grazing has been a major factor in eliminating native fishes from portions of their historic ranges[197] and that habitat degradation is most easily reversed by excluding livestock from the riparian area.[198] Furthermore, removal of livestock from sensitive ecosystems such as arid-lands riparian areas is a critical component of adapting to climate change.[199]

Again, the only widely accepted way to eliminate the impacts described here and restore stream and upland ecosystem health is the exclusion of domestic grazers like cattle.

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[191] Laycock, W.A. 1967. How heavy grazing and protection affect sagebrush-grass ranges. *Journal of Range Management* 20: 206-213.

[192] Anderson, J.E., and K.E. Holte. 1981. Vegetation development over 25 years without grazing on sagebrush-dominated rangeland in southeastern Idaho. *Journal of Range Management* 34:25-29.

[193] Bock, C.E., J.H. Bock, W.R. Kenney, and V.M. Hawthorne. 1984. Responses of birds, rodents, and vegetation to livestock exclosure in a semidesert grassland site. *Journal of Range Management* 37(3): 239-242.

[194] Kerns, B. K., M. Buonopane, W.G. Thies, and C. Niwa. 2011. Reintroducing fire into a ponderosa pine forest with and without cattle grazing: understory vegetation response. *Ecosphere* 2(5):1-23.

[195] Schulz, T.T., and W.C. Leininger. 1990. Differences in riparian vegetation structure between grazed areas and exclosures. *Journal of Range Management* 43(4): 295-299.

[196] Sarr, D.A. 2002. Riparian Livestock Exclosure Research in the Western United States: A Critique and Some Recommendations. *Environmental Management* 30(4): 516-526.

[197] Propst, D.L. 1999. Threatened and endangered fishes of New Mexico. Tech. Rpt. No. 1. New Mexico Department of Game and Fish, Santa Fe, NM at page 15.

[198] Pritchard, V.L. and D.E. Crowley. 2006. Rio Grande Cutthroat Trout (*Oncorhynchus clarkii virginalis*): A Technical Conservation Assessment. Prepared for the USDA Forest Service, Rocky Mountain Region, Species Conservation Project. Dept of Fishery and Wildlife Sciences, NMSU, Las Cruces, NM.

[199] Beschta, R.L., D.L. Donahue, D.A. DellaSala, J.J. Rhodes, J.R. Karr, M.H. O'Brien, T.L. Fleischner, and C.D. Williams. 2013. Adapting to climate change on western public lands: addressing the ecological effects of domestic, wild, and feral ungulates. *Environmental Management* 51: 474-491.

Two very different scenes of the Verde River on the Tonto National Forest.

AREA GRAZED BY CATTLE	
Date	5/30/19
Latitude	N 34.31752
Longitude	W 111.67937
Tonto Allotment	Skeleton Ridge

Impacts: Tracks, trails, low angle bank shearing, erosion, sedimentation, fresh feces at waters edge, heavy grazing on grasses down to stubble, browsed trees, lack of any tree regeneration. Area smelled strongly of urine and feces.

AREA NOT GRAZED BY CATTLE (27 miles downstream of photo above)	
Date	6/20/19
Latitude	N 34.09939
Longitude	W 111.70477
Tonto Allotment	Red Creek

Notes: Dense grass and herbaceous plants over 4 feet tall cover the banks. Well-formed banks are resistant to erosion and filter pollutants. Multi-storied deciduous trees and tree regeneration provide bird habitat.

A brief note on the center for Biological Diversity's 2019 Verde River Cattle Impact Surveys.

As briefly described above, riparian and aquatic ecosystems on Southwestern public lands - which provide essential habitat for many threatened or endangered wildlife protected under the Endangered Species Act (ESA) - are damaged by livestock grazing. The Verde River watershed in central Arizona is home to fourteen ESA-listed species which rely on functioning riparian and aquatic habitat, as well as another fourteen riparian and aquatic-dependent species recognized by the US Forest Service as sensitive species in the Southwestern region. Ten species have designated or proposed critical habitat in the watershed, and of those, eight have critical habitat on the Verde River and its tributary streams.

Livestock grazing has long been shown to harm these protected species which rely on irreplaceable river habitat that flows through harsh, arid deserts. In response, conservationists have worked to improve riparian area management, including installation of livestock exclosure fencing to protect riparian and aquatic habitats and facilitate species recovery. One such effort was the construction of exclosure fencing along hundreds of miles of southwestern rivers and creeks following a 1997 lawsuit filed by the Center for Biological Diversity against the US Forest Service in Arizona and New Mexico. The resulting 1998 legal settlement applied to fourteen public land grazing allotments in the Verde Watershed which contained riparian habitat for federally protected species (Table 1). Since then, several species have been added to the list of threatened or endangered species, and several species have been granted critical habitat or have proposed rules in review.

Because of increased reports of cattle presence in protected rivers, in 2019 the Center for Biological Diversity surveyed riparian areas along 143.3 stream miles within the Verde River watershed of central Arizona. This included streams within nine '98 settlement allotments, as well as additional areas that provide habitat for aquatic and riparian-dependent species protected under the ESA since 1998. Our objective was to document and quantify livestock impacts within habitats which in many cases have purportedly been fenced to exclude cattle grazing for up to twenty years.

Surveys were completed on the Verde and East Verde Rivers and portions of major tributaries such as Wet Beaver Creek, Fossil Creek, Red Creek, and others. Surveyed streams were within or bordered by 22 public land cattle grazing allotments administered by the Coconino, Tonto, and Prescott National Forests. Field surveyors recorded livestock grazing impacts to riparian vegetation, soils, and streambanks, and documented the condition of exclosure fencing.

Surveyors observed widespread cattle grazing and occupancy in most surveyed stream reaches. Approximately 44% of stream miles were ranked with moderate to significant grazing impacts (62.6 miles). Just 30% of stream miles were absent of any signs of cattle at all (42.9 miles). Livestock use of riparian exclosures was absent in just 1 of 22 allotments (Sears Club/Chalk Mountain, Tonto NF). Feral and permitted cattle impacts were the most severe in the area of the confluence of the Verde and East Verde Rivers and Fossil Creek and reaches up and downstream from there. Fence condition was poor, or fencing was missing entirely, in dozens of locations inspected across the study area.

This survey documents that current US Forest Service livestock management approaches and exclosure fencing are failing to protect riparian and aquatic habitats. Successful recovery of wildlife dependent on riparian and aquatic ecosystems in the Southwest requires that livestock exclosures are better monitored, maintained, and enforced. Additional exclosures may be needed where natural barriers have been used, but failed, to exclude cattle. Removal of feral livestock and re-evaluation of range management practices are urgently needed if species are to avoid further population declines.

Verde River, AZ 2019 Cattle Impact Suvey

Key to Map Features

Overall Grazing Impact Level

- **Absent (30%)**
- **Light (26%)**
- **Moderate (8%)**
- **Significant (36%)**
- Surveyed Grazing Allotments
- Designated Wilderness
- Wild and Scenic River
- National Forest
- Bureau of Land Management
- State Trust Land
- Private Land
- Indian Reservation

Key to Allotment Numbering

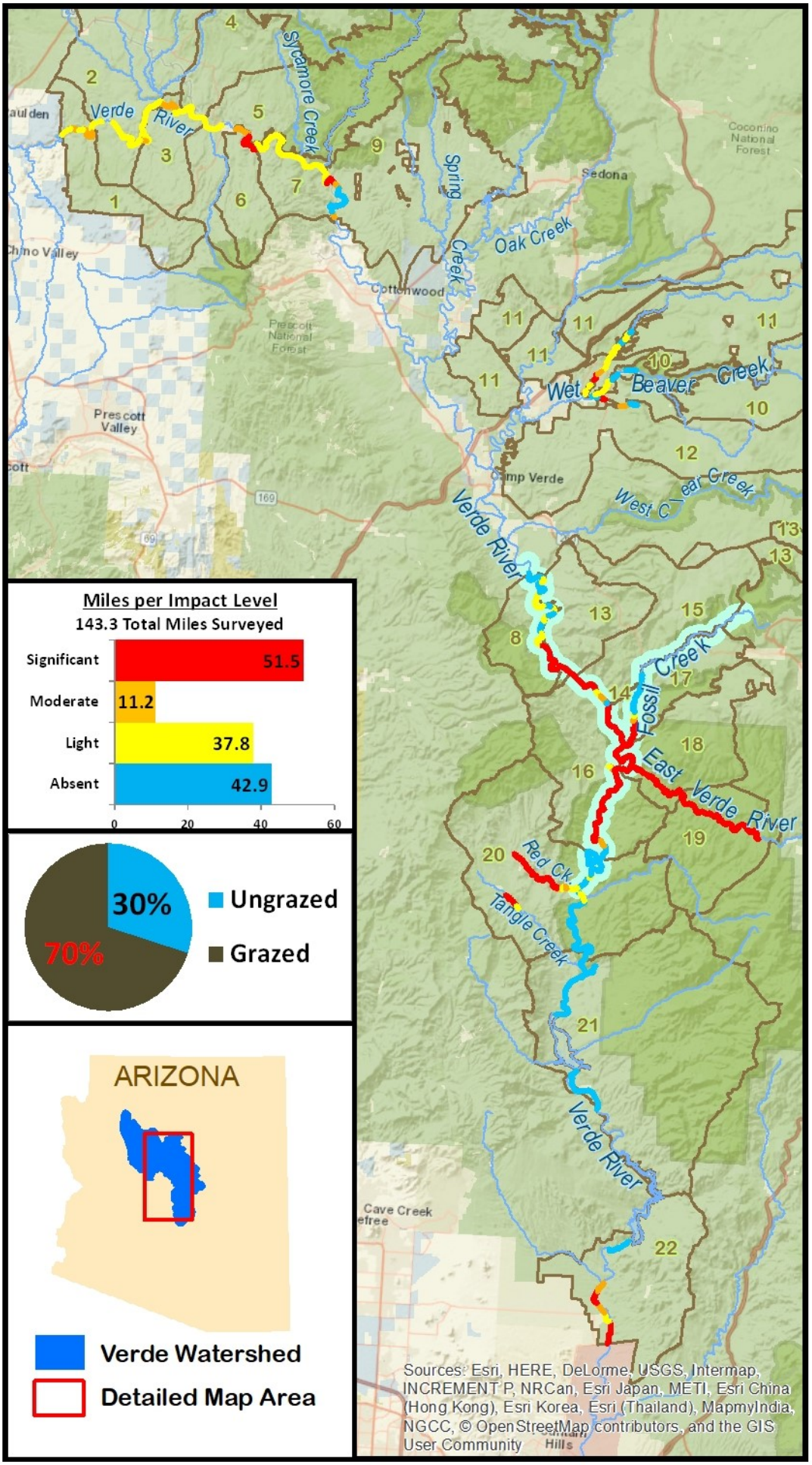
Prescott National Forest
1) Muldoon
2) West Bear/Del Rio
3) China Dam*
4) Sand Flat*
5) Perkinsville*
6) Horseshoe
7) Antelope Hills*
8) Brown Springs

Coconino National Forest
9) Windmill West
10) Beaver Creek*
11) Apache Maid
12) Walker Basin
13) Hackberry/Pivot Rock*
14) Ike's Backbone
15) Fossil Creek*

Tonto National Forest
16) Skeleton Ridge
17) Deadman Mesa
18) Cedar Bench
19) Bull Springs
20) Red Creek*
21) Sears Club/Chalk Mountain*
22) Bartlett

* 1998 Settlement Allotment

0 5 10 Miles



Cattle Impact Examples along Red Creek, Tonto National Forest

Additional photos of cattle impacts, evidence of presence, and fencing condition available by request.

AREA GRAZED BY CATTLE

Date	6/14/19
Latitude	N 34.16174
Longitude	W 111.74378
Allotment	Red Creek
Stream	Red Creek

Impacts: Feces on a rock in the creek.

AREA GRAZED BY CATTLE

Date	6/14/19
Latitude	N 34.16985
Longitude	W 111.76977
Allotment	Red Creek
Stream	Red Creek

Impacts: Feces at the waters edge, tracks and trampled banks, and heavily grazed grasses, rushes, and sedges.

Cattle Impact Examples along the East Verde River, Tonto National Forest

Additional photos of cattle impacts, evidence of presence, and fencing condition available by request.

AREA GRAZED BY CATTLE	
Date	6/26/19
Latitude	N 34.27501
Longitude	W 111.63396
Allotment	Cedar Bench
Stream	East Verde River

Impacts: Extreme grazing down to stubble, feces at water edge, heavy browsing on woody shrubs and trees, trampled and sheared streambanks.

AREA GRAZED BY CATTLE	
Date	6/27/19
Latitude	N 34.24148
Longitude	W 111.56232
Allotment	Bull Springs
Stream	East Verde River

Impacts: Fresh feces in the river. Dozens of live cattle seen in this area.

As described above, surveys of almost 145 miles of river in the Verde Watershed documented extensive and at times severe and pervasive cattle impacts to riparian wildlife habitat in 21 of 22 surveyed grazing allotments on the Prescott, Coconino, and Tonto National Forests. A combination of feral and unauthorized cattle and horses have damaged habitat for fourteen federally protected wildlife species, including eight with critical habitat on the Verde River and its tributaries. Trampled streambanks, diminished tree and shrub regeneration, overgrazed grasses and herbs, and impaired water quality are common impacts in all allotments except for the Sears Club/Chalk Mountain Allotment on the Tonto National Forest. Interestingly, that allotment is retired or vacant, suggesting that the only way to effectively keep cows off of the rivers is to end grazing in the uplands.

The most severely impacted portion of the Verde River study area is the stretch downstream of Browns Spring Ranch to Red Creek and Tangle Creek in the Red Creek Allotment. This area includes dozens of miles of contiguous significantly impacted habitat along the Verde Wild and Scenic River, Fossil Creek Wild and Scenic River, and the East Verde River in the Fossil Springs and Mazatzal Wilderness Areas. Red Creek, while not being designated as Critical Habitat, does support native fish protected by the ESA, such as Gila topminnow. A short stretch of Tangle Creek was surveyed, and results indicate that further surveys should be conducted in the remainder of the creek. As with Red Creek, Tangle Creek is not Critical Habitat, but a globally imperiled insect has been documented there. Current levels of grazing likely threaten the beetle's survival. Fence inspections suggest that range managers and livestock permittees are failing to maintain basic range infrastructure, consistent with many reports to the Forest Service from local conservationists.

Unmaintained or entirely missing fencing renders grazing exclosures useless across much of the study area. Many fences have been destroyed by flooding events, some apparently a decade ago or more, and there has been little effort to monitor or repair breaches. Areas where natural barriers such as cliffs were assumed to impair cattle movement have proven to be ineffective. Cattle move freely between uplands and riparian areas in most areas surveyed due to porous allotment boundaries and exclosure fences and barriers, as well as gates which appear to have been left open for years. Immediate removal of feral and unauthorized livestock is urgently needed. However, due to the prevailing condition of exclosure fencing, the problem will not be solved through animal removal alone. Hundreds of miles of fencing are in need of repair or replacement, and in many cases existing locations are insufficient and fencing should be moved further into the uplands to protect the full floodplain and flood-prone side canyons where fence failures are common.

Cattle stocking rates must be evaluated and in most cases should be reduced dramatically. Access to riparian areas has artificially inflated perceived range carrying capacity by allowing more water to be available to livestock. If riparian exclosures are maintained, the ability to stock existing numbers of cattle will not be feasible. The Red Creek Allotment is a particularly good example, as cattle congregate in Red and Tangle Creeks. Without access to these waters, the upland range cannot sustain current stocking levels. Upland conditions, which in many cases are severely overgrazed and erosion prone, are contributing to the ferocity of floodwaters which destroy fencing in side canyons, as well as contribute sediment to fish habitat. Reduced upland stocking is needed to restore watershed conditions that support functioning riparian areas and hydrology.

The US Forest Service is failing in its duty to conserve federally protected species. Strong Forest Plan direction is needed (but lacking) for monitoring, enforcement, and maintenance of riparian exclosures are needed in order to protect critical habitat and ensure that long-term species viability.

Without adding meaningful plan components to the Forest Plan, the Tonto National Forest will let unmanaged grazing destroy our precious rivers.

ABOVE: Aptly named "Bull Springs" Allotment, Tonto National Forest, East Verde River, AZ: purportedly protected from grazing to protect threatened species.

BELOW: Destroyed riparian soils, eviscerated vegetation, and polluted waters, East Verde River, Tonto National Forest, AZ. ***Is this why the Tonto NF was unwilling to rank the East Verde as Eligible for Wild and Scenic River protection?***

CONCERN: Draft Plan and DEIS fail to analyze the synergistic effects of grazing coupled with other stressors, which exacerbates riparian and desert degradation.

RATIONALE: As we have stated elsewhere in this letter, the DEIS fails to recognize the additive effects of livestock grazing impacts coupled with drought, climate change, elk herbivory, recreation, roads, habitat fragmentation, uncharacteristic wildfire, and other stressors. Forest Service ecologists have established that livestock grazing has exacerbated riparian ecosystem decline and stream down cutting associated with multiple concurrent factors.[200] Likewise, New Mexico Department of Game and Fish has recognized that the effects of livestock grazing are compounded by extended drought and altered hydrological function.[201] Additionally, the Forest Service has written on this issue in a climate assessment of the middle Rio Grande in New Mexico, stating that

"*For many species, reducing non climate-related threats during restoration is important. For example, herbicides pose high risks to amphibians (USACE 2001). Grazing may exacerbate disturbance related to restoration treatments. Warming conditions and increased variability to river flow will reduce the capacity of the riparian habitats and individual species to recover from disturbances. Decisions on land use and conversion should consider the overall effect of human activities plus potential consequences of climate change for habitat loss*."[202]

As Smith and Keinath wrote regarding the northern leopard frog, synergistic effects of climate change and drought are exacerbated by grazing, as depleted water sources cause grazers to congregate on remaining water sources, "*especially by introduced grazers like cattle*."[203] Likewise, regarding Arizona Willow, Decker wrote that "[a]n *important consideration in the evaluation and management of grazing impacts is the additive effect of herbivory from a variety of sources. Although S. arizonica certainly evolved with native herbivores, the effect of domestic livestock in combination with increasing pressure from wildlife means that the plants may frequently be exposed to levels of herbivory beyond their presumed tolerance*."[204]

Forest Service ecologists have cautioned against analyses that ignore synergistic and additive effects. Poff and colleagues concluded, in GTR 269, that "[i]*n most cases, it is difficult to deal with isolated threats as most occur in combination with other threats. Land managers need to be aware of the multiple threats and their interactions in order to successfully manage riparian ecosystems in the western United States.*"[205]

RECOMMENDATION: Any subsequent NEPA document prepared during the Forest Plan revision process must include the best available science cited here (at a minimum) that documents the impacts of livestock grazing on at-risk species and the ecological integrity of their riparian and upland habitats, as well as analyze the synergistic impacts of continued grazing coupled with other stressors. Also, individual impacts to riparian areas should be evaluated as Issues that impact at-risk species.

[200] Obedzinski, R.A.; Shaw, C.G.; Neary, D.G. 2001. Declining woody vegetation in riparian ecosystems of the Western United States. Journal of Applied Forestry. 16(4): 169-181.
[201] New Mexico Department of Game and Fish. 2006. Comprehensive Wildlife Conservation Strategy for New Mexico. New Mexico Department of Game and Fish. Santa Fe, New Mexico. 526 pp + appendices.
[202] Friggens et al. 2013 at 58.
[203] Smith and Keinath 2007 at 3.
[204] Decker 2006 at 29.
[205] Poff et al. 2012 at 11.

Collateral damage in the Forest Service's support of unsustainable ranching.

Generally, many ERUs on the Tonto NF are functioning poorly and not achieving desired conditions because of the effects of cattle grazing combined with region-wide drought. There is little we can immediately do to affect the drought, or long-term climatic fluctuations. However, allowing overgrazing to continue in areas impacted by drought is a terrible approach to forest management. Below, a scene of overgrazed uplands in the Red Creek Allotment, taken in February, 2020. This allotment should be retired permanently. In addition to major devastation of riparian areas by illegal grazing and off road vehicles, heavy rains sheet flow off of these ravaged uplands and cause destructive floods in Red and Tangle Creeks, further exacerbating the loss of biodiversity. Sadly, by eliminating standards that limit utilization, the Forest Plan will do nothing to stop this cycle of abuse.

Cow-blasted land leads to cow-blasted rivers. Red Creek Allotment above ZigZag Spring.

Collateral damage in the Forest Service's support of unsustainable ranching.

We fully support Guideline WFP-G-06. With proper construction and monitoring the Forest Service should be able to prevent situations like the one shown below.

A dead squirrel floating in a poorly designed drinker

IV.B. Concerns with Plan Components for Rangelands, Forage, and Grazing.

There is little new, usable information on grazing issues in the Draft EIS and nothing of substance is offered in the Draft Plan to ensure protection of natural resources from continued abuse by grazing permittees and a compliant agency.[206] The Draft states that there were about 25,000 permitted cattle on the Tonto National Forest in 2015 and about 11,000 actual use. So why is the Forest Plan not slashing range capacity by sixty percent?

Curiously, about the only real issue dealt with in the DEIS is that of vacant allotments, the main point in the discussion on the Forest Service's preferred Alternative B. For some reason the 8 or so ungrazed allotments are of such importance that the Draft Plan's sole stated objective is to evaluate all vacant allotments for either conversion to forage reserves, grant the allotment to another permittee, or close the allotment.

Most of the desired conditions and guidelines are decades old boilerplate items (for example: "*salt or mineral supplements should not be placed near riparian, wetland* …). The only hint of a timely issue is Management Approach # 05: "*Encourage the development of water sources in uplands (including wells) where possible to improve or restore riparian areas*." There is no discussion about carrying capacity and suitability which was the central idea of the 1985 Management Plan, no discussion of utilization studies for riparian and upland areas, no cost – benefit analysis, no discussion of where money is coming from for range improvements, and no real discussion about the effects of climate change on the public lands livestock industry and natural resources.

Also, there is no discussion of the effort the Tonto National Forest put into establishing Riparian Guidelines in 2002. There is no mention of recent controversial decisions such as opening the sheep driveway to cattle or opening pastures that have been closed for decades due to past overgrazing. We see no grazing management direction in the discussion regarding desert areas which comprise about 28% of the Tonto. And, no discussion of the chronic feral and trespass livestock damage on protected rivers.

Instead, the proposed alternative would reopen some of the Sierra Ancha Experimental Forest to grazing and seemingly encourages all or portions of several vacant allotments to reopen to cattle. It is difficult to imagine cows back on the Reavis and Superstition Allotments; these areas have been vacant for a long time mainly due to conflicts with recreationists and should be closed permanently. In addition, Alternative B basically acknowledges that grazing can continue in riparian areas and that utilization will be at the high level of 50% current year's growth on woody and herbaceous vegetation, the limiting factor being the length of time cows can stay in riparian pastures. Although not discussed, the proposed alternative's solution to minimizing the amount of time spent in riparian areas (while of course maximizing overall number of cattle) is construction of numerous, large water infrastructure projects.

In the past few years the Tonto National Forest has approved many such water projects on grazing allotments and more are planned with the claim that such infrastructure will better distribute cattle and benefit wildlife. It is likely that almost all active allotments (close to 100) have or soon will have pipelines, storage tanks, drinkers, and wells far in excess than the forest has ever seen previously.

[206] We have reviewed the Comments of Jeffery Burgess (3/9/2020), and request that we enter those into the project record on our behalf to supplement out comments in this letter. We agree with everything Mr. Burgess has presented in his comments, and emphatically reiterate those here, by reference.

NEPA studies on these projects are approved with little real discussion as to cost or effects on natural resources, and almost always outside of an Allotment Management Plan. This sudden need to intensively plumb so much of the forest is very concerning.

Some scientific studies question how much water infrastructure projects actually improve riparian areas. When in riparian pastures in the spring and summer cattle hang out in the creeks where there is shade and water. Unless riparian areas are fenced and the fences maintained, streambank and vegetation recovery can at best be slow to non-existent. The principal effect of large water infrastructure projects is often to maintain permitted numbers of cattle, not improve riparian areas.[207]

The DEIS essentially admits that riparian areas are necessary for some grazing allotments to survive and that cattle will apparently these areas considerably. Alternative C would close riparian areas rated as non-functioning to grazing until recovery is completed.[208] The DEIS argues that this is not feasible and would cause some ranches to go out of business, as it is possible to only fence smaller riparian zones. Somehow, the livestock industry is able to find money for endless water infrastructure projects but cannot afford the cost of fencing. If we were serious about providing benefits for wildlife, fencing creeks and rivers (wildlife friendly type fencing) would likely provide far more return than water projects.

Consider these rollbacks from the current Forest Plan:

• The DEIS briefly mentions the 1985 Management Plan and states that Alternative A (current Plan) lacks emphasis on restoration.[209] This is a strange statement as the previous Plan contained metrics with specific goals, including reducing permitted cattle numbers from about 35,000 in 1980 to 23,000 in a thirty year period.[210]

• The ’85 Plan called for 30 grazing allotment inspections and 9 production/utilization surveys per year and estimated the cost for each – total cost annually was $51,000. The Plan also called for capacity evaluations every 5 years. Now, these are gone.

• In addition, grazing on riparian area woody species was limited to 20% per year annual growth, overstory vegetation was to be enhanced to 80% and cottonwood-willow restoration had a 20 year plan where 50% moved to the highest structural type. Now the Plan aims for 50% utilization at a minimum.

• Monitoring of riparian areas transects were similarly outlined, 3 times per year every fifth year with a schedule for low and high elevation areas, with costs delineated. No more monitoring.

By contrast, the proposed Plan has almost no metrics that we can find or a single, clearly defined goal to move recovery of riparian areas towards full potential. Additionally, there is no mention in the discussion on grazing on the importance of maintaining uplands in good condition to prevent erosion, which in turn helps with riparian recovery.

[207] For example, see John Carter, James C. Catlin, et al. 2017. Upland Water and Deferred Rotation Effects on Cattle Use in Riparian and Upland Areas, Society for Range Management.
[208] DEIS, Volume 1, p. 131.
[209] See page 129.
[210] 1985 Tonto National Forest Plan, p. 285.

KEY QUESTIONS SPECIFIC TO RANGE PLAN COMPONENTS:[211]

The DEIS needs to discuss issues that are pertinent to the current debate and controversy over grazing on the Tonto National Forest.

We request clear answers to these questions, with reference to the best available scientific papers to back up your answers:

• Do water infrastructure projects actually result in better quality riparian areas?

• Are wildlife species better off with artificial waters or is it better if cows are kept out of creeks and springs?

• What is the effect of groundwater pumping on nearby creeks and springs?

• Where is the money coming from (some permittee's have reportedly received up to $500,000 over the past few years from Environmental Quality Improvement Project and Habitat Project Committee funding.

• How does the Forest Service ensure that these large expenditures using funding from outside the Forest Service achieve stated goals and are properly supervised?

• The DEIS should discuss the status of Allotment Management Plans. How many allotments have Management Plans and what is the schedule for renewal of these Plans?

• What is the monitoring program for the Tonto and how does it receive its funding?

• Has there been litigation against the Forest Service and if so what have been the results? The public needs to know this.

• The DEIS should have some sort of cost – benefit analysis on grazing on the Tonto. This should include the cost of federal funding to maintain the grazing program plus outside funding for range infrastructure. How much does the Tonto spend on its grazing program?

• What is the contribution to Pinal and Gila counties (payment in lieu of taxes) from the cattle industry?

• We see no real analysis of impacts from cattle grazing on endangered species. The DEIS should review the current status of endangered species on the Tonto and describe how management actions will foster their recovery.

• The new Draft Plan needs meaningful metrics and specific goals. The text on p. 39 serves little value and, with the exception of the second paragraph describing governing legislation and regulations, could be removed. Instead, the space should be used to describe the Tonto's National Forest's commitment to improving the condition of our creeks, rivers and uplands in the context of managing cattle grazing.

[211] We would appreciate a written response to each of these questions.

CONCERN: The Draft Plan and DEIS distort the Multiple Use Mandate to the benefit of ranching and detriment of ecosystems and wildlife.

RATIONALE: According to the Multiple Use Sustained Yield Act, not all forest resources are likely to be available and suitable for use in every management area. Federal code states that "[i]*n the administration of the national forests due consideration shall be given to the relative values of the various resources in particular areas*."[212] A number of limitations must be considered as the Forest Service attempts to balance the production of forest products and services for a given management area. The Multiple Use Sustained Yield Act clearly establishes that "*some land will be used for less than all of the resources*" and that the national forests are utilized in such a manner that does not impair the productivity of the land.[213]

The Forest Service is obligated to provide plan direction for achieving ecological sustainability, which consists of the maintenance and restoration of ecological integrity, the maintenance and restoration of air, soil, and water, and the maintenance and restoration of riparian areas. The 2012 planning rule defines ecological integrity as "*the quality or condition of an ecosystem when its dominant ecological characteristics…occur within the natural range of variation and can withstand and recover from most perturbations imposed by natural environmental dynamics or human influence.*"[214] In providing technical recommendations to Forest Service planning under the 2012 planning rule, Hayward et al (2016)[215] make clear that natural range of variation is synonymous with historical ecology and conditions. Therefore, ecological integrity is understood in the context of *historic* ecological conditions, and the impetus of planning is to maintain or restore systems so that they fall within the historic range of variation ("natural range of variation") for that system."[216]

Undoubtedly, domestic livestock are not native to the Tonto National Forest, and were not a disturbance regime that natural or historic ecosystems evolved with. Managing for natural range of variation is inherently incompatible with domestic livestock grazing. Further, in interpreting the Multiple Use Sustained Yield Act as it pertains to Forest Planning, consideration must be given to "[r]*easonably foreseeable risks to ecological, social, and economic sustainability*."[217] Livestock grazing is a reasonable foreseeable risk to the sustainability of riparian areas and other sensitive ecosystems (deserts) and the wildlife that reside there. Indeed, the Forest Service admits that livestock grazing "*can adversely affect hydrologic processes and water quality (e.g., compaction, erosion, sedimentation, stream shade, nutrient enrichment, and waterborne pathogens), especially where animals are concentrated within riparian areas*."[218]

Livestock grazing is currently authorized on 85 percent of the Tonto National Forest.[219] The DEIS and Draft Plan make no indication that plan direction would restrict the physical extent of grazing, and in

[212] 16 U.S.C. § 529.
[213] 16 U.S.C. § 531.
[214] 36 CFR §§ 219.8 and 219.9.
[215] Hayward, G.D., C.H. Flather, M.M. Rowland, R. Terney, K. Mellen-McLean, K.D. Malcolm, C. McCarthy, and D.A. Boyce. 2016. Applying the 2012 Planning Rule to conserve species: a practitioner's reference. Unpublished paper, USDA Forest Service, Washington, D.C., USA.
[216] Steinhoff, G. 2018. Biodiversity Conservation in the National Forests, and the 2012 Planning Rule. *Washington Journal of Environmental Law & Policy* 8(1).
[217] 36 CFR §§ 219.10(a)(7).
[218] Santa Fe National Forest Plan DEIS Vol. 1 at 181.
[219] Per calculations using GIS data available on the region 3 Geospatial portal.

fact there are numerous suggestions that grazing would be expanded in the future, like on vacant allotments that are re-allocated to new permittees. Clearly, the Forest Service has not given consideration to the allowance within the Multiple Use Sustained Yield Act for using some areas for less than all resources and avoiding impairment of the land.

State agency Game and Fish experts have stated that: "*Where multiple consumptive biological uses occur (e.g. national forests), concerns persist regarding the ability to maintain habitats in the condition, connectivity, and quantity necessary to sustain viable and resilient populations of resident [Species of Greatest Conservation Need]. Whether or not national forests can host a variety of land uses without heightened resource conflicts is a serious question*."[220]

In a Forest Service climate vulnerability assessment of the middle Rio Grande ecosystem, Friggens and colleagues provided a much needed context for the degraded baseline condition that southwestern riparian systems are currently in. They argued "[e]*xtensive and irreversible degradation of western riparian zones occurred in the late 19th and early 20th century due to severe overgrazing… [and] affected riparian zones in the Southwest have never recovered from this intense period of use*."[221]

The 2012 planning rule and the current planning process provides the framework for addressing the legacy effects of livestock grazing damage to ecosystems, and an opportunity to eliminate grazing in areas where uses are simply incompatible. This will not be the case, however, if the Forest Service refuses to heed the best available science and acknowledge the ongoing cumulative effects of grazing on riparian systems and obligate wildlife. Comparing the Draft Plans' proposed riparian protection measures with those in the existing 1985 Plan shows how worthless the new plan is. Consider this: page 12 of the 1985 Plan states that "*Management emphasis in riparian areas will feature wildlife needs over recreation and grazing*." There is no comparable statement in the Draft Plan, and as we've pointed out here in fifty different ways, the new Plan goes the other direction and rolls back safeguards.

RECOMMENDATIONS: Any subsequent NEPA document prepared for the Forest Plan revision must explain how continued grazing by non-native cattle is within the natural range of variability. We also request that riparian areas and RMZs are managed exclusively for the protection and restoration of wildlife, water, and ecological integrity, and that plan direction initiates the eventual prohibition of domestic livestock from all such areas. Indeed, existing plan components developed by other National Forests support this area management approach. Consider the Guideline for Riparian and Wetland Ecosystems (FW-RWE-G) included in the Santa Fe National Forest Plan DEIS, which should be copied into the Tonto Plan:

"*Management activities, including vegetation treatments, in riparian areas should only be implemented to maintain or restore the diversity of both native riparian plant species and vegetation structure*."[222]

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[220] New Mexico Department of Game and Fish. 2006. Comprehensive Wildlife Conservation Strategy for New Mexico. New Mexico Department of Game and Fish. Santa Fe, New Mexico. 526 pp + appendices at 66.

[221] Friggens, M.M, D.M. Finch, K.E. Bagne, S.J. Coe, and D.L. Hawksworth. 2013. Vulnerability of species to climate change in the Southwest: terrestrial species of the Middle Rio Grande. Gen. Tech. Rep. RMRS-GTR-306. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 191 p. at 59. https://www.fs.fed.us/rm/pubs/rmrs_gtr306.pdf

[222] Draft Plan at 79.

CONCERN: Plan Components in the Rangelands, Forage, and Grazing section facilitate continued range degradation and will not lead to restoration of the landscape.

RATIONALE: In this section we will comment specifically on plan components in the Rangelands, Forage, and Grazing section of the Draft Plan. Arizona's deserts, rivers, and arid lands cannot tolerate continued destruction by cattle. This plan could turn the page on 150 years of abuse, but it just perpetuates the cowboy myth. If there is anywhere that we need to prioritize protection of deserts and waterways its right here: 70% of all the surface water on all National Forests in the southwest is on the Tonto. The first desired condition listed in the proposed Forest Plans grazing section is "*Sustainable livestock grazing contributes to the long-term socioeconomic diversity and stability of local communities*." This makes it so clear that the highest priority for the Tonto National Forest is to keep propping up a failed paradigm by pretending that the grazing program is sustainable.

The Forest Service must not forget that:

"*Key disturbances in [riparian] systems include surface water withdrawals and impoundments, groundwater pumping, domestic livestock, nonnative wildlife, and feral horse and livestock grazing, roads and motor vehicle activity, recreation pressure, and infestation by nonnative plants and animals. These disturbances can impact riparian ecosystem function*."[223]

This statement mentions *domestic livestock* and *feral horse and livestock grazing*, so that's accurate. But think about this holistically: *surface water withdrawals and impoundments* and *groundwater pumping* are often associated with grazing infrastructure; *roads and motor vehicle activity* are often associated with range management, and access to infrastructure; *and infestation by nonnative plants and animals* is often associated with livestock, such as cows moving Chytrid fungus between water sources.

Because of these reasons, and for the reasons stated elsewhere I this letter, we recommend the following:

RECOMMENDATIONS: Specific to Desired Conditions (GRZ-DC):[224]

01 Sustainable livestock grazing contributes to the long-term socioeconomic diversity and stability of local communities.

> *01 We recommend that "sustainable" is deleted as there is no such thing in riparian or Sonoran desert ecosystems, as described elsewhere in this letter.*

02 Rangelands are resilient to disturbances, fluctuations, and extremes in the natural environment (e.g., fire, flooding, drought, climate variability).

> *We recommend that this desired condition is modified to read as follows:*

[223] Draft Plan, p. 110.
[224] Draft LRMP at 39.

02 Rangelands are resilient to disturbances, fluctuations, and extremes in the natural environment (e.g., fire, flooding, drought, climate change).

ADDITIONAL RATIONALE: This is a comical statement in that the phase "climate change" apparently is not allowed in the new Plan and instead uses the word "variability." The word variability fits in better with the phrase "natural environment," but climate change is not natural in the environment, as least in the short term. The statement should read: Rangelands are resilient to disturbances, fluctuation, and extremes such as fire, flooding, drought, and **climate change.**

03 Livestock grazing allows for healthy, diverse plant communities, satisfactory soil conditions, and sustains the quality of wildlife habitat.

We recommend that this desired condition is modified, to read as follows:

03 Livestock grazing does not negatively impact healthy, diverse plant communities, satisfactory soil conditions or the quality of wildlife habitat.

ADDITIONAL RATIONALE: This is strangely worded to convey a double meaning that livestock grazing gives us diverse plant communities, satisfactory soil conditions - but it doesn't. This desired condition should read: Livestock grazing does not negatively impact healthy, diverse plant communities, satisfactory soil conditions or the quality of wildlife habitat.

04 Livestock management and range improvements sustain or improve other resources.

We recommend that this desired condition is modified, to read as follows:

04 Livestock management and range improvements are only authorized or permitted if they sustain or improve other resource, and livestock grazing does not negatively impact riparian resources.

We further recommend adding a new Desired Condition:

05 Livestock grazing does not negatively impact species of conservation concern.

RECOMMENDATIONS: Specific to Objectives (GRZ-O):[225]

01 At least 2 water troughs or open storage tanks per ranger district will be fitted with wildlife escape ramps each year until all troughs and tanks have ramps.

We recommend that this desired condition is modified, to read as follows:

01 Within the first five years of plan implementation, all water troughs or open storage tanks will be inventoried for condition, and will be fitted with wildlife escape ramps or otherwise disassembled.

[225] DLRMP at 40.

ADDITIONAL RATIONALE: This is such an old issue that it is hard to believe we are still working on it. Hasn't the Forest service figured this out yet?

02 At least one vacant allotment will be evaluated for one of the following options every two years, until there are no vacant allotments. If additional allotments become vacant (waived without preference) they will be evaluated for one or a combination of the following options within two years:

A) Conversion to forage reserves to improve resource management flexibility.
B) Grant to current or new permitted livestock producer.
C) Closure to permitted grazing, in whole or in part.

We recommend that this desired condition is eliminated, as we cannot support the allocation of vacant allotments to forage reserves.

ADDITIONAL RATIONALE: Swing allotments, or grass banks, perpetuate overgrazing. If conditions on any allotment fail to meet or move towards desired conditions or if permitted grazing levels impede movement towards desired conditions for other plan components, or if current climatic conditions do not support livestock grazing, then stocking must be reduced or the pasture/allotment rested, rather than shifting impacts to areas absent of grazing pressure.

The Tonto NF is approximately 2,965,716 acres. Excluded areas contain approximately 107,549 acres or 3.6% of the Forest. There is just one closed allotment, Goldfield, which is 56,550 acres or 1.9% of the Forest. There are eight vacant allotments which add up to just 298,649 acres, or 10% of the Forest. That means that 84.5% of the Tonto NF is open to grazing.[226]

Nearly the entire Tonto National Forest is open to grazing, and the proposed plan largely refuses to commit to closing additional areas at any meaningful scale. This is hugely discouraging.

Instead of trying to figure out how to get cows back on vacant allotments, the following objectives should be considered:

We further recommend adding some new Objectives:

02 Maintain vacant status of allotments and begin the process of retirement.

03 Remove 10 livestock range improvements annually that are abandoned, no longer needed, or in poor or non-functional condition.

04 Trespass cattle entering fenced or closed riparian areas will be a priority management issue for the Tonto National Forest and the problem will be reduced by 75% in 5 years.

05 A cost – benefit analysis will be completed and included along with AMP's.

06 Instream flow rights will be vigorously defended to help protect fish, wildlife and recreation values.

[226] All calculations made using GIS data downloaded from the Region 3 Geospatial Portal.

07 Cattle grazing will be managed in such a manner as to eliminate conflicts with private property homeowners on and near the Tonto National Forest.

08 NEPA studies on grazing will discuss and analyze effects on wildlife and endangered species

RECOMMENDATIONS: Specific to Guidelines (GRZ-G):[227]

Astoundingly, the Forest Plan fails to provide a single Standard for grazing. All Guidelines provided in the Draft Plan should be modified to be listed as Standards, to read as follows:

01 Range improvements shall be maintained to specifications[228] *to provide their intended function and extend the useful life of the improvement. Range improvements shall be removed or decommissioned when no longer needed.*

02 Salt or mineral supplements shall not be placed near riparian, wetland, or other areas where livestock concentrations are undesired, or within the RMZ.

03 Drought preparedness shall be emphasized in Allotment Management Plans and may include flexible stocking rates/livestock classes, flexible rotation schedules, and other strategies for dealing with climate variability.

04 Livestock rotations shall avoid grazing the same areas during the growing season at the same time, year after year.

05 Wildlife escape ramps shall be installed in all livestock water troughs and open storage tanks.

06 Efforts (e.g., coordination with permittees, temporary fencing, increased herding, and herding dogs) shall be made to prevent transfer of disease from domestic sheep and goats to bighorn sheep wherever bighorn sheep occur. Conversions to domestic sheep or goats shall not be allowed in areas adjacent to or inhabited by bighorn sheep.

07 Allotments and other areas closed to permitted livestock grazing shall remain closed.

08 When unauthorized livestock are found occupying National Forest lands, the owner shall be promptly notified to remove them and prevent them from re-entering National Forest lands. If the owner is unknown or uncooperative, impoundment procedures shall be initiated.

In addition we advise the addition of another three Standards:

09 Allotments shall be made available for voluntary permit retirement if they are vacant, understocked, or if permittees have a history of permit violations.

[227] *Id*.
[228] The Final EIS and Plan need to provide the "specifications" referred to here.

10 Livestock grazing shall be prohibited in campgrounds, recreation areas, Botanical Areas, Wild and Scenic Rivers, trailheads, and areas of significant recreational or ecological importance.

11) Feral livestock shall be removed immediately upon discovery.

RECOMMENDATIONS: Specific to Management Approaches for Rangelands and Livestock Grazing:[229]

01 Coordinate permittees' grazing schedules with planned prescribed fire treatments to ensure there will be sufficient fuel to allow burn objectives to be met and forage available for permittee.

We recommend that this management approach is retained.

02 Forest managers work continually with permittees to adjust timing, intensity, and frequency of livestock grazing to respond to changing resource conditions.

We recommend that this management approach is retained.

03 Consider allowing structural range improvements to be added or removed to meet desired conditions in conformance with applicable laws and regulations in the Allotment Management Plan.

We recommend that this management approach is further studied. This management approach to allow range improvements to be added or removed implies that this activity can be done without a new AMP and possibly without a NEPA study. This goes to the heart of the conflict regarding large investments in water infrastructure projects without reviewing its' merits. This statement should be revised to say that significant water infrastructure projects will require at a minimum an Environmental Assessment and should be included during the AMP process.

04 Range managers use a cooperative approach working with permittees, local, county, state, and federal government entities, and non-government organizations and develop partnerships to facilitate flexible and balanced permitted use.

We recommend that this management approach is modified, to read as follows:

04 Range managers use a cooperative approach (including ample public notification of range management projects) working with permittees, local, county, state, and federal government entities, and non-government conservation organizations, and develop partnerships to facilitate flexible and balanced permitted use.

05 Encourage the development of water sources in uplands (including wells) where possible to improve or restore riparian areas.

[229] Draft LRMP at 40.

We recommend that this management approach is modified, to read as follows:

Exclude livestock from all riparian areas, and adjust uplands stocking down as needed to accommodate for reduction of water availability.

This management approach to encourage the development of water sources to improve and restore riparian areas is the one substantive goal of this planning exercise on cattle grazing. Unfortunately, as previously mentioned, there is no discussion in the DEIS of the long term merits or costs of this endeavor. What good is water if during prolonged drought there is no forage? Will cattle not be removed from the Tonto as was done in 2000 to 2001 regardless of the impacts to remaining vegetation and wildlife? Are the costs to literally plumb the Tonto with piping and tanks worth the benefit? Will groundwater pumping affect nearby creeks and streams – we are aware of only one commitment to monitor steamflow and that is Cave Creek on the Cartwright Allotment. Would it not make more sense to adjust stocking levels downward than build infrastructure that might not work out anyway?

06 Work with partners (e.g., University of Arizona and Friends of the Tonto) to complete rangeland monitoring (e.g., Reading the Range and riparian photo points).

We recommend that this management approach is modified, to read as follows:

06 Work with partners (e.g., University of Arizona and Friends of the Tonto, Non-Profit Conservation Organizations) to complete rangeland monitoring (e.g., Reading the Range and riparian photo points).

In addition we advise the addition of another management approach:

Annual Operating Instructions, Allotment Management Plans, Maps of Allotments and Pastures, range monitoring reports, ephemeral use permits, and notices of permit violations will be posted online in "virtual permit folders" and made publicly available in a timely manner.

IV.C. Concerns with the Salt River Horses.

The DEIS briefly outlines the problem – far too many horses in too small of an area, a watershed and riparian area disaster. The Horse Management Group is to be commended for its efforts to tend to these animals but the problems are obvious and serious. The Arizona State legislature has greatly overreached its authority in passing legislation authorizing the State Department of Agriculture to regulate these horses. Under the circumstances, until things change, the desired conditions in the Draft Plan (p. 63) to "*allow for diverse plant communities, satisfactory soil conditions and maintain or improve wildlife habitat*" are probably the best we can do. But that's not good enough.

We recognize that there is a very serious problem with wild horses on Tonto National Forest. The public land resource is being severely overgrazed by approximately 500 wild horses. There is virtually no browse left and feed must be hauled in for the horses, at an approximate cost of $30,000 per month. This is an unacceptable situation. The condition of the public lands must take precedence over the needs of the wild horses. There a number of things that need to be done to correct a situation that is totally out of balance. To start, the herd must be culled down to a population of between 50 to 100 animals. Then, the remainder of the animals need to be removed. It's that simple. A fence needs to be built along the north side of the Salt River from the tribal boundary east to highway 204. The fence needs to then follow north of highway 204 and then west of 204 to where it meets SR 87. We would assume that a fence already exists south of SR 87 to keep the horses from causing accidents with cars, trucks, and motorcycles. The boundary fence with the tribal land needs to be kept in good repair. The horses should not be allowed to access the Salt River for water, but need to use other water sources that are located away from the Salt River. Since these horses are already being fed by feed that is hauled in, another option would be to move them to private property and feed them in the same way that they are now being fed.

Overall, the plan components you have provided are at-odds with our interests. Mainly because the Forest Service seems content with allowing these horses to continue to damage resources. However, we are sure that the solution to this pressing problem won't be found in the Forest Plan, so we will spare you a detailed assessment.

IV.D. Concerns with the Saguaro Wild Burro Management Area.

We don't understand the reasoning behind this half hearted plan section. Burros are highly undesirable on the landscape, so the Forest Plan needs to have forest-wide direction for how to handle this nuisance species, and not pass the buck on this one-page treatment in the Draft Plan. The objective should be to seek congressional de-authorization of the Saguaro Wild Burro Territory, and to add meaningful plan components that provide direction in case burros occur in the Saguaro Wild Burro Management Area or anywhere else where they don't belong, like the Verde and Salt Rivers.

V. Connectivity Conservation: Corridors, Linkages and Core Reserves.

CONCERN: The Draft Plan and DEIS do not address wildlife habitat connectivity in an integrated manner sufficient to conserve ecological integrity.

RATIONALE: We previously commented that the planning process offers an opportunity to reduce wildlife habitat fragmentation and preserve key wildlife corridors in order to improve connectivity and increase the resilience of wildlife to climate change. Relatively recent modeling depicts the Tonto's wildlife connectivity value.[230,231] It does not appear that these products were referenced or utilized, nor does the agency's response to our comments address these available planning products.

In this section, we argue that the Draft Plan and DEIS have not done enough to identify and protect core protected areas, and then link them together with plan components that protect connectivity and reduce fragmentation. In this section we:

- A review of the regulatory framework for connectivity planning.
- An exhaustive review of the best available science on connectivity planning.
- A list of recommend plan components to include in a supplemental DEIS.
- A detailed analysis of how the Wilderness Recommendation process was flawed and how to improve it in a supplemental DEIS.
- A detailed analysis of how the Wild and Scenic River eligibility process was flawed and how to improve it in a supplemental DEIS.

The basis for our recommendations is this: The Tonto National Forest is uniquely poised at the transition between the Sonoran Desert and the Colorado Plateau. It is the only wide swath of relatively unbroken public land that can be managed to accommodate species shifts along elevational and latitudinal gradients as climate forces species and habitat types to move north. We cannot count on Indian Reservations or State or Private lands to serve this role. The Tonto will be increasingly influenced by patterns and forces that are common in the Sky Islands and vast deserts to the south. We believe that affording the highest levels of protection to eligible lands and waters is the only way to effectively protect the integrity of this natural linkage. At a functional level, the Tonto's numerous creeks and rivers are the actual conduits' for ecological flow within the matrix of a mountain landscape. Thus, we advocate for substantial improvements in the Wilderness Recommendation and Wild and Scenic River eligibility processes.

Protections are badly needed for these linkage wildways, or they will be subjected to increased pressure of motorized vehicles, grazing, mining, high-impact recreation, and other intensive uses that degrade habitat and fragment the landscape. Protections should include additional Wilderness recommendations, additional Wild and Scenic River eligibility determinations, and full protection of proposed and designated Botanical Areas and Research Natural Areas, which are management areas

[230] Belote, R.T., M.S. Dietz, B.H. McRae, D.M. Theobald, M.L. McClure, G.H. Irwin, PS. McKinley, JA. Gage, and GH. Aplet. 2016. Identifying Corridors Among Large Protected Areas In the United States. *PLoS ONE* 11(4): e0154223. doi:10.1371/journal.pone.0154223.

[231] Fields, K., D.M. Theobald, and M. Soulé. 2010. Modeling Potential Broadscale Wildlife Movement Pathways Within the Continental United States. Whitepaper, July 2, 2010. Wildlands Network and Colorado State University. http://rewilding.org/rewildit/images/Wild-LifeLines_Wildlands-Network_White-Paper_low-res-copy.pdf

that we strongly support for inclusion in the Final Plan. In addition, we again propose special management area designations that encompass these landscape scale linkage-ways.

Properly designed networks of wildlife corridors represent one of the best strategies to mitigate the negative impacts of habitat fragmentation and help wildlife species adapt to climate change. Strategies that seek to maintain or restore connectivity between protected or otherwise intact natural areas are now considered critical to biodiversity conservation.[232,233] Although the particulars of wildlife responses to climate change are largely unknown,[234] establishment of landscape connectivity via corridors is the most frequently cited strategy for combating the impacts of climate change on biodiversity.[235]

Conservation scientists have long agreed that "*the preponderance of evidence is that corridors almost certainly facilitate travel by many species*."[236] Scientists have formulated a number of analytical frameworks for prioritizing specific habitat corridors to preserve landscape connectivity,[237,238,239] and this area of conservation science continues to see intense growth. The Tonto is a logical landscape to study and develop management approaches to corridor conservation.

To this end we have highlighted, through field inventory and deep analysis, the need for increased Wilderness recommendations along the spine of the Mazatzal Mountains, from the Superstition Wilderness to the northernmost extent of the Tonto National Forest along the Verde River and Mogollon Rim tributaries like the East Verde River. A paired wildway runs form the Salt River to the Mogollon Rim along the Sierra Ancha, where additional Wilderness areas must be recommended, and more rivers determined eligible for Wild and Scenic protection.

We have previously submitted to the Tonto NF a science-based GIS analysis that supports the need for these approaches. Specifically, the modelling work completed by the Sonoran Institute identified the significant ecological linkage between the Superstitions and the Mazatzal, continuing to the Mogollon Rim. This proposal was summarily dismissed in a single paragraph in the DEIS describing a "Wildlife Emphasis Management Area." We whole-heartedly disagree with the DEIS stating that this proposal was "*redundant with proposed management forestwide*."[240] The preferred alternative recommends minimal Wilderness or Wild and Scenic River Eligibility in this corridor, starkly contrasting with the overwhelming scientific basis for protecting landscape-scale ecological linkages.

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[232] Hilty, J.A., W.Z. Lidicker Jr., and A.M. Merenlender. 2006. Corridor Ecology. Washington, Covelo, and London: Island Press. 323 pages.

[233] Taylor, P.D., L. Fahrig, and K.A. With. 2006. Landscape Connectivity: A Return to the Basics in K. R. Crooks, and M. A. Sanjayan, editors. Connectivity Conservation. Cambridge University Press, Cambridge, UK.

[234] Root, T.L., J.T. Price, K.R. Hall, S.H. Schneider, C. Rosenzweig, and J.A. Pounds. 2003. Fingerprints of Global Warming on Wild Animals and Plants. *Nature* 421:57-60.

[235] Heller, N.E., and E.S. Zavaleta. 2009. Biodiversity Management in the Face of Climate Change: A Review of 22 years of Recommendations. *Biological Conservation* 142(1): 14-32

[236] Beier, P. and R.F. Noss. 1998. Do Habitat Corridors Provide Connectivity? Conservation Biology. 12(6): 1241-1252.

[237] e.g., Compton, B.W., K. McGarigal, S.A. Cushman, and L.R. Gamble. 2007. A Resistant-kernel Model of Connectivity for Amphibians that Breed in Vernal Pools. Conservation Biology 21:788-799.

[238] Carroll, C., B. McRae, and A. Brookes. 2011. Use of Linkage Mapping and Centrality Analysis Across Habitat Gradients to Conserve Connectivity of Gray Wolf Populations in Western North America. *Conservation Biology* Online Early.

[239] McRae, B. H., B. G. Dickson, T. H. Keitt, and V. B. Shah. 2008. Using Circuit Theory to Model Connectivity in Ecology and Conservation. *Ecology* 10: 2712-2724.

[240] DEIS, Vol. 1, p. 49.

V.A The legal foundation for the Forest Plan as a Connectivity Conservation Plan.

In April 2012, the Forest Service finalized regulations implementing the National Forest Management Act. These regulations, commonly referred to as the "2012 Planning Rule" established a process for developing and updating Forest Plans and set conservation requirements that Forest Plans must meet to sustain and restore the diversity of ecosystems, plant and animal communities and at-risk species found on these public lands.[241] The rule provides an opportunity to affirmatively plan and manage for connectivity as a landscape-scale conservation strategy, informed by the best scientific information.

Under the 2012 planning rule, the Forest Service is required to include plan direction, including standards and guidelines , to maintain and restore connectivity of terrestrial and aquatic ecosystems and watersheds, taking into account stressors such as climate change, for the purpose of achieving ecological integrity and species diversity.[242] In addition, the rule requires the agency to consider "habitat connectivity" when providing for integrated resource management.[243]

The preamble of the planning rule recognizes that providing corridors in order to connect habitat may be necessary to maintain viable populations of at-risk wildlife within the planning area.[244] The Forest Service's final planning directives offer further guidance. When developing plan components that maintain and restore ecological integrity, planning staff should consider "[e]*cological connectivity at multiple temporal and spatial scales that would provide landscape linkages facilitating the exchange of resources and the movements of species across the broader landscape…*"[245] Planners should consider plan components that are "*designed to facilitate ecosystem adaptation to the effects of stressors*" and "*to limit the ability of stressors to impact ecosystem integrity*.[246]

Providing for connectivity to facilitate wildlife migration and dispersal, movement of species in response to climate change, and other landscape-level ecological processes requires looking outside of the planning area and working with adjacent land managers and private landowners. The preamble of the planning rule states that an objective of the rule is to "[e]*nsure planning takes place in the context of the larger landscape by taking an 'all-lands approach*."[247] The rule also requires the Forest Service to coordinate its planning efforts with equivalent planning efforts of other federal agencies,[248] explaining that the planning process be "*coordinated with the land and resource management planning processes of state and local governments and other Federal agencies*."[249]

The 2012 planning rule provides an approach to maintain and restore connectivity, both within Forest Service planning boundaries as well as across broader landscapes, for the purposes of improving ecological integrity at multiple scales, sustaining wildlife populations and species, and facilitating climate change adaptation. Unfortunately, we don't see how the Tonto utilized this guidance to protect the corridors that are the foundation of resilient ecosystem.

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[241] 36 C.F.R. §§ 219._1-219; Haber and Nelson 2015:2- 3.
[242] 36 C.F.R. §§ 219.8(a), 219.9(a)(1).
[243] 36 C.F.R. §§ 219.8(a), 219.10(a).
[244] 77 Fed. Reg. 21,162, 21,217 (April 9, 2012).
[245] FSH 1909.12, ch. 20, § 23.11(b)(2)(b).
[246] 77 Fed. Reg. 21,162, 21,217 (April 9, 2012).
[247] 77 Fed. Reg. at 21,164.
[248] *See, e.g.,* 36 C.F.R. §§ 219.4(b)(1)-(2), 219.9(b)(2)(ii), 219.10(a)(4).
[249] 16 USC § 1604(a). National Forest Service System Land and Resource Management Plans.

V.B. The scientific basis for the Forest Plan as a Connectivity Conservation Plan.

Considering and planning for habitat connectivity is an effective means to minimize disruption of wildlife habitats. Connectivity is defined as "*the degree to which the landscape facilitates or impedes movement*."[250] Permeability is essentially synonymous with connectivity, referring to the degree to which regional landscapes, encompassing a variety of natural, semi-natural, and developed land cover types, are conducive to wildlife movement and to sustain ecological processes. There are two ways to increase connectivity: (1) focus on conserving areas that facilitate movement, and (2) mitigate landscape features that impede movement, such as roads.[251] Both strategies together produce the most effective results.[252]

A long history of ecological and conservation science has addressed questions of reserve design, extinction risks from isolation, and the value of connectivity (for example, see Newmark 1995,[253] Quammen 1996,[254] and Soulé and Terborgh 1999). The preponderance of relevant, peer-reviewed articles reveals that the most frequently cited recommendation for protecting biodiversity is protection and restoration of connectivity to allow species to move and adapt in response to habitat degradation and climate-induced changes (for example, see Soulé and Terborgh 1999, Heller and Zavaleta 2009, Mawdsley et al. 2009,[255] Hagerman and Satterfield 2014,[256] IPPC 2014,[257] and Schmitz et al. 2015[258]). In the research cited here, conservation scientists emphasize the importance of maintaining a connected network of protected areas to prevent ecosystems and populations from becoming isolated, reduce the risk of extinction, and ultimately sustain biodiversity. Climate change further exacerbates the problem of isolation as fragmented landscapes are less resilient to ecological disturbances, to resisting native species loss, and to reducing emerging threats, such as disease.

The research cited here establishes that the combined threat of climate change and fragmentation is the most important conservation challenge we face. It follows that creating, restoring, and maintaining large, connected networks of protected areas has emerged as one of the highest priorities for conservation in the age of climate change.

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[250] Taylor, P.D., L. Fahrig, K. Henein, G. Merriam. 1993. Connectivity is a Vital Element of Landscape Structure. *Oikos* 68: 571-573.

[251] Ament, R., R. Callahan, M. McClure, M. Reuling, G. Tabor. 2014. *Wildlife Connectivity: Fundamentals for Conservation Action.* Center for Large Landscape Conservation. Bozeman, MT.

[252] Soulé, M.E., and J. Terborgh. 1999. *Continental Conservation: Scientific Foundations of Regional Reserve Networks*. Washington, D.C.; Covelo, CA: Island Press.

[253] Newmark, W.D. 1995. Extinction of Mammal Populations in Western North American National Parks. *Conservation Biology* 9(3): 512-526.

[254] Quammen, D. 1996. *The Song of the Dodo: Island Biogeography in the Age of Extinctions*. London: Hutchinson.

[255] Mawdsley, J.R., R. O'Malley, and D.S. Ojima. 2009. A Review of Climate Change Adaptation Strategies for Wildlife Management and Biodiversity Conservation. *Conservation Biology* 23(5):1080-1089.

[256] Hagerman S.M., and T. Satterfield. 2014. Agreed but not preferred: expert views on taboo options for biodiversity conservation, given climate change. Ecological Applications 24: 548–559.

[257] IPCC. Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Ipcc. 2014.

[258] Schmitz, O.J. J.J. Lawler, P. Beier, C. Groves, G. Knight, D.A. Boyce Jr., J. Bulluck, K..M. Johnston, M.L. Klein, K. Muller, D.J. Pierce, W.R. Singleton, J.R. Strittholt, D.M. Theobald, S.C. Trombulak and A. Trainor. 2005. Conserving biodiversity: practical guidance about climate change adaptation approaches in support of land-use planning. *Natural Areas Journal* 35(1): 190-203.

Researchers have concluded that wildlife corridors increase movement between habitat patches by approximately 50%, compared to patches that are not connected by corridors.[259] Linking protected areas, such as wilderness and primitive areas, as well as other crucial habitats like riparian systems, ensures larger, cohesive landscapes of high biological integrity that allow for the migration, movement, and dispersal of wildlife and plants. Improving connectivity is a strategic and proven method of allowing wildlife to move in response to environmental change. Effective connectivity also facilitates maintenance and restoration of strongly interactive species, which, once ecologically effective populations are achieved, significantly contribute to sustaining ecological resilient habitats.[260]

Properly designed networks of wildlife corridors represent one of the best strategies to mitigate the negative impacts of habitat fragmentation and help wildlife species adapt to climate change. Strategies that seek to maintain or restore connectivity between protected or otherwise intact natural areas are now considered critical to biodiversity conservation.[261,262] Conservation scientists have long agreed "*the preponderance of evidence is that corridors almost certainly facilitate travel by many species*."[263] Scientists have formulated a number of analytical frameworks for prioritizing specific habitat corridors to preserve landscape connectivity (e.g., Compton et al. 2007[264]; Carroll et al. 2011[265]; McRae et al. 2008[266]; Walker and Craighead 1997[267]), and this area of conservation science continues to see intense growth. Although the particulars of wildlife responses to climate change are largely unknown,[268,269,270] establishment of landscape connectivity via corridors is the most frequently cited strategy for combating the impacts of climate change on biodiversity.[271]

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[259] Gilbert-Norton, L., R. Wilson, J.R. Stevens, and K.H. Beard. 2010. A Meta-analytic Review of Corridor Effectiveness. *Conservation Biology* 24(3): 660-668.

[260] Soulé, M.E., and R. Noss. 1998. Rewilding and Biodiversity: Complementary Goals for Continental Conservation. *Wild Earth* 8(3):18-28.

[261] Hilty, J., W. Lidicker, and A. Merenlender. 2006. *Corridor Ecology: The Science and Practice of Linking Landscapes for Biodiversity Conservation*. Island Press, Washington, D.C.

[262] Taylor, P.D., L. Fahrig, and K.A. With. 2006. Landscape Connectivity: A Return to the Basics, in K.R. Crooks, and M. A. Sanjayan, editors. *Connectivity Conservation*. Cambridge University Press, Cambridge, UK.

[263] Beier, P. and R.F. Noss. 1998. Do Habitat Corridors Provide Connectivity? *Conservation Biology*. 12(6): 1241-1252

[264] Compton, B.W., K. McGarigal, S.A. Cushman, and L.R. Gamble. 2007. A Resistant-kernel Model of Connectivity for Amphibians that Breed in Vernal Pools. *Conservation Biology* 21:788-799.

[265] Carroll, C., B. McRae, and A. Brookes. 2011. Use of Linkage Mapping and Centrality Analysis Across Habitat Gradients to Conserve Connectivity of Gray Wolf Populations in Western North America. *Conservation Biology* 26(1): 78-87.

[266] McRae, B.H., B.G. Dickson, T.H. Keitt, and V.B. Shah. 2008. Using Circuit Theory to Model Connectivity in Ecology, Evolution, and Conservation. *Ecology* 89: 2712-2724.

[267] Walker, R.S., and L. Craighead. 1997. Analyzing Wildlife Movement Corridors in Montana Using GIS. *Proceedings of the 1997 International ESRI Users Conference*. Environmental Sciences Research Institute, Redlands, California.

[268] Root, T.L. J.T. Price, K.R. Hall, S.H. Schneider, C. Rosenzweig, and J.A. Pounds. 2003. Fingerprints of Global Warming on Wild Animals and Plants. *Nature* 421: 57-60.

[269] Travis, J.M.J. 2003. Climate Change and Habitat Destruction: A Deadly Anthropogenic Cocktail. *Proceedings of the Royal Society of Biological Sciences* 270: 467-473.

[270] Jarema, S.I., J. Samson, B.J. McGill, and M.M. Humphies. 2009. Variation in Abundance Across a Species' Range Predicts Climate Change Responses in the Range Interior Will Exceed Those at the Edge: A Case Study with North American Beaver. *Global Change Biology* 15: 508-522.

[271] Heller, N.E. and E.S. Zavaleta. 2009. Biodiversity Management in the Face of Climate Change: A Review of 22 Years of Recommendations. *Biological Conservation* 142: 14-32.

V.C. Suggested Wildlife Corridor Goals and Objectives.

As emphasized above, there is an additional procedural requirement that the planning process be "*coordinated with the land and resource management planning processes of state and local governments and other Federal agencies*."[272] For example, the Apache-Sitgreaves, Cibola, Tonto, and Coronado NFs are integral to effective wildlife connectivity implementation on the Gila National Forest.[273] Regardless of the management agency, we suggest that the various forest management plans include complimentary, explicit, achievable goals and objectives that significantly contribute to wildlife connectivity.

1) General

- Designate wildlife corridors so they contain sufficient ecologically effective habitat to facilitate wildlife movement for daily, seasonal or long-term needs in a relatively safe manner.[274]

- Maintain functioning wildlife habitats and migration and dispersal corridors that allow free movement and use of habitats.[275]

- Manage areas to conserve crucial habitats and protect migration and movement routes for mule deer, bighorn sheep, elk, other big game, and other wildlife, such as carnivores.

- Evaluate proposed activities, including recreational use, for their potential to adversely affect important and relevant wildlife values in the corridor. Do not permit any activities that interfere with protection of those values.[276]

- Activities currently authorized by the agency in this corridor shall coexist with wildlife movement, migration and dispersal. Current activities and infrastructure may be required to change or be removed if found incompatible with the corridor's wildlife values.

- Close to mineral or energy developments, including ostensibly renewable sorts.

2) Retain Public Ownership

- Retain public land in federal ownership allowing for the protective management of crucial habitat and movement corridors for wildlife.

- Allow for the acquisition of non-federal lands within the corridor through purchase from willing sellers, exchange, transfer or donation. Acquired lands are to be managed consistent with the corridor's standards and guidelines.

[272] 16 USC § 1604(a). National Forest Service System Land and Resource Management Plans.
[273] See Menke 2018.
[274] Modified from: Bureau of Land Management. 2012. Lower Sonoran Record of Decision and Approved Resource Management Plan.
[275] Bureau of Land Management. 2008. Record of Decision and Approved Pinedale Resource Management Plan.
[276] BLM. 2006. Record of Decision and Approved Dillon Resource Management Plan. February 2006.

- Where possible, augment wildlife values through purchase from willing sellers, exchange, transfer or donation of additional acreage of crucial wildlife habitat for their migration, movement and dispersal.[277]

- Establish and implement in a timely manner mitigation measures for fencing and structures to allow the safe movement of wildlife.

3) Rights of Way

For each wildlife corridor, establish an exclusion area where no large-scale utility transmission and energy development and exploration is allowed. Preclude the granting of new Right-of-Ways (ROWS) for energy development that would negatively impact wildlife, their habitat and its connectivity. Impacts to be avoided by new access roads include fragmentation of habitats and an increase potential for vehicle-related wildlife injuries and mortalities. Establish and implement in a timely manner mitigation measures for fencing and structures to allow the safe movement of wildlife.

4) Mining

- Close the corridor to fluid mineral leasing and to mineral materials sales.

- Close the corridor to all locatable and leasable minerals exploration and development (including geothermal and sodium), and mineral material disposals.

- Withdraw the corridor from location and entry under the Mining Law, subject to valid existing rights.

- Close to recreational placer mining outside of active mining claims.

- Prohibit surface occupancy and surface-disturbing activities.

5) Road Management

- Manage motorized vehicular use as limited to Designated Roads and Trails.

- Establish road and motorized trail density standards within the management area to conform to the best scientific recommendations, generally less than one mile per square mile. Ensure that there will be no net increases in road densities above a scientific credible threshold to maintain the security of core habitat areas.

- Existing and/or designated roads and/or trails will be subject to closures if conflicts with wildlife cannot be mitigated.

- Establish and implement in a timely manner mitigation standards for existing roads crossing public land to facilitate movement of wildlife including a reduction in mortality of wildlife from vehicle collisions.

[277] BLM 2015. Draft Resource Management Plans: Beaver Dam Wash National Conservation Area, Red cliffs National Conservation Area; and Draft Amendment to the St. George Field Office Resource Management Plan; and Draft Environmental Impact Statement. Chapter 4—Environmental Consequences.

- Road construction in areas of relatively high value for potential grizzly bear habitat linkage should be avoided if possible or planned to mitigate potential negative impacts on habitat connectivity, including the consideration of installing crossing structures.

- Prohibit new permanent roads within the corridor in order to maintain unfragmented habitat for wildlife migration and dispersal.

6) Grazing

- Evaluate any proposed changes in grazing guidelines for wildlife, such as timing and intensity of use, for impacts on relevant wildlife values. Implement those changes that benefit wildlife.

- Minimize fencing for livestock and make all fences wildlife friendly, as explained in Landowners Guide to Wildlife Friendly Fences.

- Encourage retirement of grazing permits within wildlife core and corridor boundaries.

- Prohibit grazing in riparian areas.

7) Vegetation Treatments

Only allow vegetation treatments determined beneficial by the best available science of the identified wildlife values. Even-aged silvicultural management and timber harvesting should be prohibited within the special corridor management areas.

8) Special management areas

We are pleased that the Tonto NF has proposed additional Botanical areas and Research Natural Areas. We support the recommendation and designation of all of them at the maximum acreage analyzed. We strongly support that the standards and guidelines would enact the management guidance that is described on page 144 of the Draft Plan.

As we have described elsewhere in this letter, we support additional landscape scale connectivity management areas as a master overly that include designated and recommended Wilderness and designated and eligible Wild and Scenic Rivers in order to protect the natural assets that we have described in detail.

V.D. Wilderness: The Backbone of a Climate-Resilient Corridor Conservation Plan.

Per the direction of the 2012 planning rule[278], the Tonto National Forest is required to identify and evaluate lands that may or may not be suitable to recommend to Congress for wilderness designation as a component of Forest Plan revision. Chapter 70 of Forest Service Land Management Planning Handbook 1909.12 serves as the primary authority directing the progression of this task, and ultimately outlines the Wilderness Recommendation Process.

The Wilderness Recommendation Process is outlined in the following four stages:

1. Inventory: Identify and create an inventory of all lands that may or may not be suitable for inclusion in the National Wilderness Preservation System (NWPS) using a given set of criteria.
2. Evaluation: Evaluate the wilderness characteristics of all lands included in the inventory that may be suitable for inclusion in the NWPS using a given set of criteria and assign a ranking of high, moderate, low, or no for their wilderness character.
3. Analysis: The forest supervisor will determine which areas to further analyze through the National Environmental Policy Act (NEPA) process.
4. Recommendation: The Forest Supervisor will decide which areas, if any, to recommend to Congress for inclusion in the NWPS.

A major focus of our comments is specific to concerns associated with the Evaluation stage of the Wilderness Recommendation Process. The standing of a land area ("polygon" or "unit") following this stage is paramount to its potential inclusion in an alternative of the DEIS.

The Tonto NF provided descriptive rationale for each polygon's standing (rating; i.e. HIGH, MODERATE, LOW, or NO) in the Evaluation stage. These rationales analyzed five criterion: 1) size, 2) apparent naturalness, 3) outstanding opportunities for solitude and/or primitive/unconfined recreation, 4) unique features, and 5) manageability; each of these were identified in the Forest Service Land Management Planning Handbook[279] and were further defined by the Tonto National Forest resource specialists and through public engagement. Criterion is evaluated through the lens of several subcriterion, seen in the outline below. Responses to these subcriterion culminated in overall ratings for each criterion, which then ultimately culminated in a rating for the entire polygon. It is important to note that point values and structures varied across each criterion and subcriterion.

Our concerns raised here use specific examples highlighted in specific evaluation polygons, and then shows how those examples are widespread and undermine the reliability of the entire evaluation and analyses process. We specifically address the evaluations of 6 specific polygons considered in the Wilderness Recommendation Process. These polygons include 90, 88, 86, 76, 60a, and 36a. Our position is that all of these units possess wilderness characteristics of enough significance that they should qualify for recommendation. Polygons 76 and 36a were included in Alternative C. Polygons 90, 88, 86, and 60a were omitted from all alternatives. None were included in Alternative B – the proposed action. All 6 of these polygons received an overall rating of Moderate. The intent of these comments is to show how the Forest Service's faulty inventory and evaluation led to improper

[278] 36 C.F.R. § 219.7(c)(2)(v) "Identify and evaluate lands that may be suitable for inclusion in the National Wilderness Preservation System and determine whether to recommend any such lands for wilderness designation."
[279] FSH 1909.12 (70)(72.1).

'downgrading' of units, with unit-specific and systemic implications.

During January 2019, a field inventory specialist from Wild Arizona put boots on the ground to thoroughly investigate the validity of the Tonto NF's evaluation rationale for these 6 polygons. The chosen polygons were identified cooperatively between Wild Arizona and Center for Biological Diversity staff to represent typical units downgraded during evaluation, including examples that spanned a spectrum from relatively small Wilderness-contiguous polygons to vast wild mountain unit's equivalent in size to some large designated Wilderness areas in Arizona. Additionally, they were selected because they fit within our proposed Mazatzal-Verde Wildlife Corridor, and we have specific concerns for the management of these lands wild and untrammeled character.

Following in-depth field surveys, it is our position that these polygons were unjustifiably penalized and inaccurately rated with low scores. Furthermore, it would seem that not only are these areas themselves inaccurately rated, but that they serve as poignant examples for multiple biases against wilderness recommendation that were systematically applied to the entire wilderness evaluation process. Language similar to the language used in the evaluation rationale of these 6 polygons has been identified in most other polygons across the forest; this occurrence raises serious concerns that these deficiencies reach beyond these 6 units.

Based on field surveys, comprehensive desktop analysis, and comparison of information in the DEIS to our findings, we have identified the following key concerns with the Wilderness Evaluation and Analysis, separated in PART I, PART II, and PART III:

PART 1: Concerns regarding systemic flaws in wilderness evaluation and analysis.

1) The DEIS and Draft Forest Plan fail to address concerns presented in past comment letters.

2) The evaluation stage of the wilderness recommendation process consistently failed to adequately recognize actual topographic and vegetative conditions on the ground as they pertain to wilderness evaluation criterion apparent naturalness, opportunities for solitude, and manageability. This has improperly constrained the amount of recommended wilderness in the Draft Forest Plan and DEIS.

3) The Tonto National Forest unduly penalized wilderness evaluation polygons for the mere presence of improvements (i.e. stock ponds, troughs, wildlife water catchments, non-motorized trails) regardless of how they appear on the landscape. This has improperly constrained the amount of recommended wilderness in the Draft Forest Plan and DEIS.

4) The Tonto National Forest neglects to properly configure unit boundaries to exclude improvements (i.e. stock ponds, troughs, wildlife water catchments) where possible and necessary. Minor boundary reconfigurations could have drastically improved the wilderness character and manageability of polygons across the entire forest. This has improperly constrained the amount of recommended wilderness in the Draft Forest Plan and Draft Environmental Impact Statement.

5) The Tonto National Forest unduly penalizes the manageability ratings of polygons for the presence of cherrystems. This has improperly constrained the amount of recommended wilderness in the Draft Forest Plan and Draft Environmental Impact Statement.

6) The Tonto National Forest over-estimates the pervasiveness of adjacent sights and sounds. This has improperly constrained the amount of recommended wilderness in the Draft Forest Plan and Draft Environmental Impact Statement.

7) The Tonto frequently rated the subcriterion, "*What is the composition of plant and animal communities?"* through the lens of an expert, and not the average forest visitor. This occurrence is at odds with the fundamental idea behind "apparent naturalness. This has improperly constrained the amount of recommended wilderness in the Draft Forest Plan and Draft Environmental Impact Statement.

8) The Tonto does not properly recognize wilderness contiguous polygon's adjacency to designated wilderness in regards to opportunities for solitude and opportunities for primitive/unconfined recreation. This has improperly constrained the amount of recommended wilderness in the Draft Forest Plan and Draft Environmental Impact Statement.

9) The DEIS fails to include a reasonable range of alternatives regarding recommended wilderness.

10) The Tonto reconfigured boundaries to exclude Bureau of Reclamation withdrawals from wilderness evaluation polygons in Alternatives B and C of the DEIS despite designated wilderness areas across the Tonto including these withdrawals. The precedent has been set that inclusion of these withdrawals is acceptable in wilderness areas. Excluding these areas from recommended wilderness areas negatively alters the wilderness character of many polygons.

11) The Tonto National Forest doesn't consider how the implementation of the Travel Management Plan would affect the usage of wilderness evaluation polygon boundary roads and cherrystems.

PART 2: Concerns regarding polygon-specific flaws in wilderness evaluation and analysis, and implications for systemic deficiencies.

12) in addition to these broad concerns, we provide more detailed comments for six wilderness inventory/evaluation units which we analyzed in depth to provide unit specific comments and to use as example of how the broader concerns affected the integrity of the Forest Service's wilderness evaluation and analysis. The units include polygons 90, 88, 86, 76, 60a, and 36b, and are explained in CONCERNS - WILD 12 through WILD 17. Our comments in this section follow the format of the Forest Service's own wilderness evaluation process.

PART 3: Comments specific to other units.

PART 1: Concerns regarding systemic flaws in wilderness evaluation and analysis.

CONCERN - WILD 1: The DEIS and Draft Forest Plan fail to address concerns presented in past comment letters.

RATIONALE - WILD 1: The unaddressed concerns we expressed in 2016, 2017, and 2018 regarding the evaluation stage of the Wilderness Recommendation Process have improperly constrained the amount of recommended wilderness in the Draft Forest Plan and DEIS. Numerous deficiencies observed repeatedly in the evaluation rationale of six rigorously reviewed, and field surveyed, wilderness evaluation polygons (88, 90, 86, 76, 60a, and 36a) are indicative of systematic flaws in the wilderness evaluation process.

As we explained in detail in previous comments submitted to the Tonto -- dated June 30, 2017; October 10, 2017; November 6, 2017; and February 12, 2018 -- and reiterate here, we have serious concerns about the Tonto's wilderness evaluation.[280] We believe flaws in the evaluation resulted in an inappropriately narrow range of inventoried lands being carried forward into the analysis, which led to fewer areas being proposed as recommended wilderness. If the Tonto had modified the evaluation process based on our valid concerns, we believe that more areas with wilderness characteristics would have been analyzed and thus carried forward as recommended wilderness in the DEIS. The Tonto's dismissal of these issues has created a gaping hole in the DEIS analysis for wilderness. Problems with the evaluation are now bleeding into the analysis phase of the process, resulting in an unreasonably narrow range of alternatives and dramatically fewer areas recommended for wilderness that should be based on unbiased, objective criteria.

Furthermore, after critically reviewing the evaluation rationales and completing comprehensive field surveys of polygons 88, 90, 86, 76, 60a, and 36a, we have evidence in support of numerous problematic trends that were identified across these six polygons. The consistency of these trends across these six polygons raises serious doubt as to the validity of the entire wilderness evaluation process. Language similar to the language used in the evaluation rationale of these six polygons has been identified in numerous other polygons across the forest. This pattern raises serious concerns that these deficiencies reach beyond these six examples and in fact undermine the credibility of the entire inventory, evaluation, and analysis phases. We attest that these six polygons serve as poignant examples for multiple biases against wilderness recommendation that were systematically applied to the entire forest. Again, our view is that these major oversights have improperly constrained the amount of recommended wilderness in the Draft Plan and DEIS.

These systematic deficiencies include:

1. Inadequately recognizing topography and vegetation as it pertains to:
    a. Improving screening for solitude. The Tonto NF repeatedly fails to acknowledge the degree to how local topography and certain vegetation types across the forest provide backcountry recreationists solitude.
    b. Masking the noticeability of improvements. The Tonto NF consistently fails to recognize how topography and vegetation causes an acceptable impact to be substantially unnoticeable.

[280] All previously submitted letters will be submitted separately as attachments to these comments.

   c. Preventing motorized trespass. Topography and vegetation (and guardrails) adjacent to motorized wilderness boundaries shield units from motorized trespass.
2. Neglecting to conduct rigorous site evaluation and/or aerial imagery review to inform proper configuration of unit boundaries as a means to:
   a. Exclude "improvements" (i.e. stockponds, wildlife water catchments) along cherrystems. Consistently, wilderness inventory/evaluation polygons were found to contain cherrystems that ostensibly exist to access range improvements. However, the Tonto NF did not exclude the improvements at the end (or along) the cherrystems. Inclusion of these improvements within the units led to penalizing the polygons ratings' for the criterion of both apparent naturalness and manageability.
   b. Exclude impacts that are incompatible with wilderness recommendation (i.e. old highways, motorized lakes). Rather than modify unit boundaries to exclude elements incompatible with wilderness, the Tonto NF left them within the units and downgraded the units' scores.
   c. Enable a polygon to be more manageable for wilderness. Simple boundary modifications were not made that would improve manageability for wilderness scores.
3. Inconsistently recognizing the inherent significance of a wilderness contiguous polygon's adjacency to designated wilderness in regards to opportunities for solitude and opportunities for primitive/unconfined recreation.
4. Consistently rating apparent naturalness (specifically the subcriterion regarding native/nonnative species) through the lens of an expert, and not the average forest visitor. This occurrence is at odds with the fundamental idea behind "naturalness being apparent".
5. Frequently failing to represent outstanding geologic features, recreational opportunities, and watershed resources in the 'Unique Features' criterion.

These assertions underscore the Draft EIS's lack of baseline information. The DEIS's failure to disclose actual conditions on the ground results in a failure to comply the NEPA requirement that mandates that agencies "*succinctly describe the environment of the area(s) to be affected or created by the alternative under consideration*." NEPA also requires the action agency to set an appropriate baseline detailing the nature and extent of the resources in the area: "*The concept of a baseline against which to compare predictions of the effects of the proposed action and reasonable alternatives is critical to the NEPA process*." "*Without establishing ... baseline conditions ... there is simply no way to determine what effect* [an action] *will have on the environment and, consequently, no way to comply with NEPA*." Additionally, a proposed action built on a faulty foundation that does not accurately describe baseline conditions does not satisfy NEPA.

Without baseline data, neither the public nor the agency can understand the effects of the proposed action or craft and analyze alternatives and mitigation measures to protect wilderness values or characteristics. As such, the Forest Service must identify an accurate environmental baseline. Because the Draft EIS contains so little accurate information about existing roads, vegetation condition, range infrastructure, unique features, or wildlife populations, for example, and because the Forest Service appears to have not done sufficiently rigorous field work, the wilderness inventory and evaluation processes fail to comply with NEPA's baseline data requirement.

RECOMMENDATIONS - WILD 1: A supplemental DEIS is needed that appropriately inventories and evaluates units incorporating the valid arguments we are presenting here and in past comment letters.[281] The Tonto must remedy these deficiencies before proceeding to the final EIS, or risk significant administrative slowdowns in a protracted objection. Failure to address these points would constitute and arbitrary and capricious decision. The Tonto should then utilize the findings from this improved evaluation to inform which lands to carry forward in the revised, supplemental wilderness analysis. We feel confident that conducting a proper wilderness evaluation will help the agency address the problems with its narrow range of alternatives. We would gladly assist in a more rigorous review of unit boundaries to address the systemic deficiencies we identify here.

Photopoint 295, Polygon 86: Looking west. A long, enjoyable day hike beginning on the edge of Highway 87 summits Diamond Mountain, traverses ridge lines laden cloaked by grasslands and chaparral, climbs the stellar rock of Indian Springs Peak, and yields a breath-taking view of the Verde watershed. The Tonto's failure to address concerns presented in previous comment letters has tragically excluded outstanding places and experiences such as this.

[281] If the Forest Service refuses to issue a supplemental DEIS that addresses the substantive concerns we have described here, there are areas analyzed in Alternative C that we would like to see adopted into Alternative B, including: Picacho (70), Lime Creek (119A), Mazatzal Contiguous (119B, 96C), Boulder (76), Sierra Ancha Contiguous (Units 91, 65B, 85A, 78, 74, and 69), Wood Canyon (1), Superstition Contiguous (Units 15,16, 24, 18, 22, 10, and 12), and Four Peaks Contiguous (Units 38 and 40). There is one other area that seems to stand out that has not been considered, and that would be the original Cherry Creek Inventoried Roadless Area. This area should rightly be considered as a Sierra Ancha Wilderness Contiguous Area given the fact that the Forest Service has closed the section of FR 203 that was an illegal trespass into the Sierra Ancha Wilderness Area itself. We would like to have the original Cherry Creek IRA shown as a Recommended Wilderness in Alternative B and reclassified as a Sierra Ancha Contiguous Recommended Wilderness Area.

CONCERN - WILD 2: The evaluation stage of the wilderness recommendation process consistently failed to adequately recognize actual topographic and vegetative conditions on the ground as they pertain to wilderness evaluation criterion of apparent naturalness, opportunities for solitude, and manageability. This has improperly constrained the amount of recommended wilderness in the Draft Forest Plan and DEIS.

RATIONALE - WILD 2: The Tonto National Forest is incredibly diverse. it is home to the Mogollon Rim and its canyon country, mountain ranges such as the Mazatzals, Sierra Anchas, and Superstitions, and a variety of floras ranging from Sonoran desert to mixed-conifer forests. As this topographic and vegetative diversity varies across the landscape, and thus across wilderness evaluation polygons, it is paramount that it is considered as it pertains to screening for solitude, masking the noticeability of improvements, and preventing motorized trespass. The TNF repeatedly failed to accurately represent the topography and vegetation found in polygons as they pertain to these topics. Juxtaposing the evaluation rationales of polygons 88, 90, 86, 76, 60a, and 36a with actual conditions on the ground provides poignant examples of this systematic deficiency. The lack of discussion of topographic and vegetative conditions in respect to criterion of apparent naturalness, opportunities for solitude, and manageability, is not limited to these six polygons; this discussion is omitted from most other polygons across the entire forest, which raises serious concerns about the accuracy of how these criterion were rated for ALL polygons.

For example, in Polygon 86, OHV use on adjacent routes (along the unit southern and western unit boundaries) is listed in the TNF's evaluation rationale as an impact to solitude within the polygon. In theory, this *could* affect solitude within a portion of or even an entire wilderness evaluation polygon; however, when topography and vegetation associations are appropriately considered, the potential impact can easily become mitigated. Photopoint 219 (in Appendix I) shows a vehicle travelling along Log Corral Road – the southern unit boundary of Polygon 86. This route follows the drainage bottom of a deep canyon; sights and sounds associated with this route are clearly mitigated by the sloping topography directly adjacent to it. A recreationist needs only be .25 miles away from this boundary element to not be affected by its presence. FSH Chapter 70 stipulates that topography may be considered as it pertains to solitude[282]. Obviously, this route (and really any boundary road) will impact solitude on lands directly adjacent to them – within the line of sight – however, it's important to note that the polygon "…*does (not) need to have outstanding opportunities on every acre.*"[283]

For another poignant example of topography providing screening for solitude see Photopoint 199 in Polygon 36a. The Forest Service's evaluation rationale states that Highway 188 impairs opportunities for solitude within the polygon; Photopoint 199 shows a hiker travelling through slot canyons only .25 miles away from Highway 188 enjoying the solitude found in that location. This topography was not considered by the Forest Service and needs to be. Numerous other examples of topography not being considered as it pertains to opportunities for solitude can be seen in Photopoints 56, 88, 236, 311, 359, 368, and 383, to name just a few. This lack of consideration is a widespread, major deficiency in the wilderness evaluation process, which has ultimately constrained the amount of areas analyzed in the DEIS.

Vegetation can and often does provide screening for solitude as well; Photopoint 333 shows a hiker in Polygon 86 along the Arizona Trail eating lunch amidst pinion-juniper woodlands. This vegetation

[282] FSH 1909.12 (70)(72.1)(2)(a)
[283] FSH 1909.12 (70)(72.1)(2)

association easily screens the hiker from other recreationists in the area. Photopoint 60 shows a pile of old mine tailings; however, it's screened by ponderosa pine/oak transitional woodlands and substantially unnoticeable. The implications of this vegetation association were not considered in Forest Service's evaluation rationale. There are numerous other examples of where the Forest Service failed to recognize the significance of vegetative screening; two more examples can be seen in photopoints 375 and 346.

Topography can and frequently does reduce the noticeability of improvements (i.e. stock ponds, wildlife water catchments, trails). Topography can lead to an improvement being substantially unnoticeable. Photopoint 373 shows an old, unmaintained stock pond in Polygon 90. Astonishingly, the Forest Service penalizes the unit's apparent naturalness rating for this stock pond. Clearly, the Forest Service fails to acknowledge the topography the stock pond is found in. This improvement is along a drainage bottom, and made substantially unnoticeable (in respect to the entire unit) by the topography surrounding it. It should not have penalized the polygon's rating. Another example of topography making range infrastructure substantially unnoticeable can be seen in Photopoint 373.

The Forest Service regularly expresses concern that motorized use on unit boundary routes or cherrystems increases the chances of illegal motorized trespass within the units themselves. However, the Forest Service fails to recognize when and where topography and/or vegetation prevents or seriously deters this sort of activity. Photopoints 15, 44, 173, 233, and 377 are excellent examples of how topography can shield a polygon from illegal motorized trespass.

Please review our critiques of polygons 88, 90, 86, 76, 60a, and 36a for more examples of instances the Tonto NF neglected to properly consider topography as it pertains to solitude, manageability, and noticeability of impacts. All Photopoints can be seen in Appendix I.

RECOMMENDATIONS - WILD 2: Recognizing the significant role that topography and vegetation can (and do on the Tonto) have in screening for solitude, preventing motorized trespass, and masking the noticeability of impacts is paramount to accurately evaluating wilderness character. The Tonto must remedy this trend before proceeding to the final EIS by preparing a supplemental DEIS that corrects wilderness inventory and evaluation deficiencies. The Tonto should utilize the findings from the resulting improved evaluation to inform which lands to carry forward in a revised analysis. We feel confident that conducting a proper wilderness evaluation will help the agency perform an accurate analysis and avoid substantial delays during future phases of the NEPA process.

Photopoint 236, Polygon 86: A hiker enjoys the lonesome landscape. The peaks and canyons of the Mazatzal Mountains mask the noticeability of improvements, provide screening for solitude, and largely prevent illegal motorized trespass. This complex topography improves wilderness character and manageability, despite the Tonto's failure to recognize it.

CONCERN - WILD 3: The Tonto National Forest unduly penalized wilderness evaluation polygons for the mere presence of improvements (i.e. stock ponds, troughs, wildlife water catchments, non-motorized trails) regardless of how they appear on the landscape. This has improperly constrained the amount of recommended wilderness in the Draft Forest Plan and DEIS.

RATIONALE - WILD 3: In addition to our concern regarding the insufficient recognition of topographic and vegetative screening as it pertains to masking the noticeability of improvements, there are a couple other systematically applied flaws in the Tonto's consideration of improvements in the wilderness evaluation process.

As we stated in our comment letter dated June 30, 2017, the Tonto should have added the consideration that improvements similar in type and appearance to improvements that exist in current Tonto National Forest Wilderness areas should not exclude an area from wilderness recommendation. This can help provide consistency when some improvements like ranch fencing or wildlife waters are found elsewhere in designated wilderness.

It should go without saying that designated wilderness areas across the Tonto National Forest (and all national forests in Arizona) contain a variety of range improvements and recreational infrastructure (i.e. trails, climbing bolts, signs, etc). This comment was never incorporated into the evaluation of apparent naturalness criterion, resulting in the penalizations of many wilderness evaluation polygons. When this is juxtaposed to existing improvements in designated wilderness areas on the whole forest, the wilderness evaluation process looks increasingly insufficient and exclusionary.

Chapter 70 of the Forest Service Handbook[284] clearly states that improvements are not inherently at odds with wilderness character. However, the Tonto quickly penalizes a polygon for the presence of minor improvements. For example, Polygon 88 includes two stock ponds and an old corral. One stock pond, is along the northern boundary, and should have been excluded from the unit with a minor cherrystem. The other stock pond, seen at Photopoint 373, is the only remaining stock pond in the polygon. The run-down, non-functional corral is seen at Photopoint 372. Other improvements listed as impacting apparent naturalness are fencing (Photopoints 344, 348), two non-motorized trails (Photopoints 349, 367), and an unauthorized route.

Regardless of the Forest Service's unwillingness to adequately consider whether or not improvements are substantially noticeable, it begins to seem that the Tonto National Forest simply based polygon evaluations on the mere presence of improvements. Improvements were consistently listed as impacts to apparent naturalness as if mere quantities solely determined the degree of impact. The Tonto fails to discuss in any detail ***how*** improvements appear on the landscape and ***how*** they affect apparent naturalness; instead the evaluation rationales indicate penalizations based solely on whether or not improvements are exist, regardless of their condition, level of use, or ease of excluding them from the unit through minor boundary adjustments

Again, please review our critiques of polygons 88, 90, 86, 76, 60a, and 36a for more examples of instances the Forest Service unjustifiably penalized polygons for the mere presence of improvements. All Photopoints can be seen in Appendix I.

[284] FSH 1909.12 (70)(71.22b).

RECOMMENDATIONS - WILD 3: In any subsequently prepared NEPA document, the Tonto National Forest needs to consider and provide rationale for ***why*** and ***how*** improvements detract from apparent naturalness. Polygons must not be penalized for merely containing improvements, especially in cases when minor boundary adjustments would exclude them (further explained below). Making this consideration will undoubtedly improve the accuracy of the wilderness evaluation process. The Tonto should then utilize the findings from this improved evaluation to inform which lands to carry forward in the analysis. We feel confident that conducting a proper wilderness evaluation in a supplemental DEIS will help the agency address the problems with its narrow range of alternatives and lack of accurate baseline information.

Photopoint 373, Polygon 88: This tiny stockpond lies in a canyon bottom, is screened by topography and is substantially unnoticeable. The presence of this stockpond in Polygon 88 wrongly penalized its rating for the criterion apparent naturalness.

CONCERN - WILD 4: The Tonto National Forest neglects to properly configure unit boundaries to exclude improvements (i.e. stock ponds, troughs, wildlife water catchments) where possible and necessary. Minor boundary reconfigurations could have drastically improved the wilderness character and manageability of polygons across the entire forest. This has improperly constrained the amount of recommended wilderness in the Draft Forest Plan and Draft Environmental Impact Statement.

RATIONALE - WILD 4: As we stated in our comment letters dated February 12, 2018, the forest should consider where and how the reconfiguring of unit boundaries might elevate the rating of a polygon and make it more manageable for wilderness. The polygons produced during the Inventory stage of the wilderness recommendation process were rough and approximate, aimed at being broadly inclusive. These boundaries were developed with three criterions: size, roads, and other improvements, which were applied to the entire forest in a GIS analysis to create preliminary polygons. TNF resource specialists and public input then further refined these preliminary polygons into the polygons seen in the Evaluation stage. This certainly was a thought-out, multi-step process; however, it lacked the scrutiny that the nuances of each individual polygon necessitate for evaluation accuracy. Following field survey and an in-depth look at polygons 88, 90, 86, 76, 60a, and 36a, major, consistent oversights in boundary configurations were identified:

1. The Tonto regularly failed to exclude improvements (i.e. stock ponds, wildlife water catchments) along provided cherrystems. Repeatedly, cherrystems would approach improvements in the draft polygons (inferably intended to preserve access to these improvements) but would neglect to exclude the improvements themselves. Therefore, improvements unnecessarily remained within polygon boundaries, and ultimately penalized the polygons in the evaluations of criterion: apparent naturalness and manageability. These improvements are easy exclusions along an adjacent cherrystem. For example, Photopoint 36 shows the Ash Creek Well in Polygon 76. A cherrystemmed route approaches Ash Creek Well, but fails to exclude it. The Ash Creek Well is then listed as an impact to criterion apparent naturalness, and as a manageability issue. This is clearly an inappropriate arrangement. More examples of this situation can be seen at Photopoints 34, 35, 229, 251, 252, and 329. Similarly, improvements existing nearby any unit boundary element can be easily excluded. For example, a stock pond exists along the northern boundary of Polygon 88; it should be cut from the unit boundary in order to improve wilderness character and increase ease of manageability. This issue is pervasive across the entire forest. While we looked in detail at the six units described here, we searched for examples of these problems in other units and they were observed elsewhere, suggesting that a total revision of the evaluation process is badly needed.

2. Numerous cherrystems in the GIS boundary files of polygons 86, 76, 60a, and 36a do not reflect actual conditions on the ground, providing inaccurate baseline information that undermines decision-making by the public and the agency. These cherrystems exclude routes which are naturalized, non-existent, inaccessible, decommissioned, and/or without a purpose. This has resulted in an inaccurately high number of cherrystems per polygon, which ultimately over-inflated the penalizations in the manageability criterion. For example, Photopoint 78 in Polygon 76 shows a 'Road Closed' sign at the beginning of an approximately one mile long cherrystem beginning along El Oso Road. This route is closed and vegetating, however it was still provided a cherrystem in the GIS boundary file of Polygon 76; this resulted in one more

manageability issue and contributed to the manageability rating of less than High for Polygon 76. Photopoints 16, 31, 119, and 117 provide more examples of cherrystems that are unneeded.

3. On several occasions the Tonto failed to make major, necessary boundary adjustments in order to exclude impacts that are incompatible with wilderness recommendation (i.e. old highways, motorized lakes). For example, the old Sunflower Highway went straight through Polygon 86; it was given two short cherrystems, which arbitrarily stopped and left a short segment of the highway within the polygon. This occurrence went on to negatively affect criterion: manageability (two cherrystems, and an old highway in the polygon) and apparent naturalness (an old highway in the polygon is substantially noticeable). The unit boundary should have been drawn along the old highway, and excluded acreage to the east of it. For another example, see Polygon 36a; the unit boundary was drawn along the northern lakeshore of Canyon Lake, which ultimately included the motorized lake within 36a. It should go without saying that motorboat usage and wilderness character are incompatible with each other. The inclusion of Canyon Lake within 36a went on to penalize ratings for criterion: opportunities for solitude and manageability.

4. Other boundary configurations can and should be made to increase manageability. For example, there needs to be a boundary reconfiguration in Polygon 86 along Highway 87 - the southeastern boundary. An awkward complex of cherrystems/exclusions around the Rincon Tanks area creates multiple management challenges. A new boundary should be drawn to exclude this area. Throughout the Wilderness Recommendation Process, the Forest Service has employed the strategy of drawing boundaries along routes and developments. However, FSH 1909.19 Chapter 70 [285] clearly states that natural features are acceptable boundary elements. The boundary should be redrawn using the bases of the northern slope of Black Mesa and the southeastern slope of Diamond Mountain and defining features. The boundary adjustment removes several stock ponds and unauthorized routes, and alleviates a manageability concern.

Please review our critiques of polygons 88, 90, 86, 76, 60a, and 36a for more examples of instances the Tonto NF unjustifiably penalized polygons for failing to make necessary boundary reconfigurations. All Photopoints can be seen in Appendix I.

RECOMMENDATIONS - WILD 4:

1. Reconfigure unit boundaries to exclude improvements that are along cherrystems and other boundary elements.
2. Compare the GIS boundary files of all polygons to actual on-the-ground conditions in order to locate and eliminate unneeded cherrystems. Re-analyze the new quantity of cherrystems as it pertains to manageability.
3. Remove features that are incompatible with wilderness character.
4. Consider making other boundary reconfigurations to improve the manageability of wilderness evaluation polygons.
5. The Tonto should utilize the findings from the resulting improved evaluation to inform which lands to carry forward in a revised analysis in a supplemental DEIS. We feel confident that conducting a proper wilderness evaluation will help the agency address these deficiencies.

[285] FSH 1909.12 (70)(73)(2)(a) "…Use of natural features that are locatable both on the map and on the ground."

The Tonto National Forest has neglected to properly configure unit boundaries to exclude improvements (i.e. stock ponds, troughs, wildlife water catchments) where possible and necessary. Minor boundary reconfigurations could have drastically improved the wilderness character and manageability of polygons across the entire forest. This has improperly constrained the amount of recommended wilderness in the Draft Forest Plan and Draft Environmental Impact Statement.

Photopoint 36, Polygon 76 (Boulder): The Ash Creek Well penalizes this polygons evaluation. A cherrystem proximate to the well fails to exclude it from the polygon boundaries. A necessary boundary reconfiguration would, and should, remove this impact and improve the wilderness character and manageability of Polygon 76.

CONCERN - WILD 5: The Tonto National Forest unduly penalizes the manageability ratings of polygons for the presence of cherrystems. This has improperly constrained the amount of recommended wilderness in the Draft Forest Plan and Draft Environmental Impact Statement.

RATIONALE - WILD 5: Cherrystems are appropriately considered as they pertain to manageability; however, as stated in our comment letter dating February 12, 2018, cherrystems must not in and of themselves penalize a polygon. Cherrystemming is frequently listed as a reason to penalize a polygons manageability criterion rating in the evaluation process. However, the Tonto provides no indication that the nuances of each cherrystem were considered as they pertain to manageability. For example, when considering the manageability issues posed by cherrystems the Tonto should consider:

1. The likelihood of motorized trespass stemming from a cherrystem.
    a. A cherrystem may be situated atop a ridge, or along a canyon bottom, and make-motorized deviation from the cherrystem extremely unlikely. Photopoint 233 in Polygon 86 shows a 4x4 truck making its way up a long cherrystem; topography and vegetation adjacent to this cherrystem make motorized trespass extremely unlikely. Photopoint 173 shows a similar situation adjacent to a cherrystem in Polygon 36a.
2. The degree to which a cherrystem may affect adjacent wilderness character.
    a. How much does a cherrystem affect opportunities for solitude nearby?
        i. Is the cherrystem at the bottom of a canyon? Is it screened by topography?
3. Is the cherrystem to be closed or decommissioned in the final Travel management Plan?
4. Who the primary users of a cherrystem are.
    a. How passable is the cherrystem?
    b. Is it frequently used?
    c. Is it administrative-use only?

It is apparent that the Forest Service did not take these factors into consideration in the evaluation and instead simply considered the *amount* of cherrystems a polygon had, even if they were revegetated, closed, or non-existent. It is important to note that having cherrystems in wilderness areas is not unprecedented; one does not need to look further than the Four Peaks, Mazatzal, and Superstition wildernesses to see this.

Please review our critiques of polygons 88, 90, 86, 76, 60a, and 36a for more examples of instances the Tonto NF over-inflates the manageability issue posed by cherrystems. All Photopoints can be seen in Appendix I.

RECOMMENDATION - WILD 5: Consider the site-specific conditions of each cherrystem (i.e. adjacent topography and vegetation and user groups) and how they pertain to ease of manageability. The Tonto NF must not unduly penalize a polygon for the mere presence of cherrystems. The Tonto should utilize the findings from this reconsideration and conduct an improved evaluation to inform which lands to carry forward in a revised inventory, evaluation, and analysis in a supplemental DEIS. We feel confident that conducting a proper wilderness evaluation will help the agency address these deficiencies, and we would gladly provide assistance to the Forest Service in making these assessments.

Photopoint 78, Polygon 76 (Boulder): This "Road Closed" sign is sticking out of an earthen barrier and marks the beginning of a decommissioned, naturalized route. Despite being closed, this route was given a cherrystem. This wrongly penalized Polygon 76 in the wilderness evaluation.

CONCERN - WILD 6: The Tonto National Forest over-estimates the pervasiveness of adjacent sights and sounds. This has improperly constrained the amount of recommended wilderness in the Draft Forest Plan and Draft Environmental Impact Statement.

RATIONALE - WILD 6: As we stated in our comment letters dated June 30, 2017; October 10, 2017; and February 12, 2018; it is important that adjacent activity, sights or sounds must not be used to inappropriately lower the rating. However, exterior sights and sounds were consistently inappropriately found to penalize an area's rating for opportunities for solitude in Polygons 88, 90, 86, 60a, 36a.

This pattern suggests that this is widespread across all evaluated units. For example, in Polygon 88, the Beeline Highway (87) is listed as an impact to solitude despite it being more than two miles from the nearest unit boundary element. Regardless of the abundant topographic screening found in Polygon 88, a highway two miles away, across a mountainous and vegetated landscape, in and of itself cannot negatively affect opportunities for solitude. Even if it were less distant, and opportunities for solitude were affected along the periphery of the polygon, its vital to remember that an area may have excellent solitude potential in interior portions, even if areas near the boundary are impacted by adjacent development or activity.

An area doesn't have to meet the Solitude criterion everywhere to meet the criterion as a whole; as Chapter 70[286] clearly states, "*nor does it need to have outstanding opportunities on every acre... Consider impacts that are pervasive and influence a visitor's opportunity for solitude within the evaluated area*." The Tonto NF frequently impropoerly interprets this parameter. For example, it would've been inconceivable for Unit 76 (Boulder) to receive anything less than a rating of High for opportunities for solitude, given its over 70,000 acres of mountainous, canyon-carved terrain - and it's encompassed by an Inventoried Roadless Area. However, it received the inadequate rating of Moderate. Unit boundary roads and nearby highways are listed in the evaluation rationale as the primary reasons for this rating. Regardless of adjacent sights and sounds, the interior of a >70,000 acre polygon will inevitably be lonesome and quiet, and constitute the majority of the polygon. Furthermore, this polygon is home to peaks such as Boulder and Pine mountains, Cypress and Park peaks, and Crabtree Butte; and creeks and canyons such as Sycamore Creek, Ballantine Canyon, Park Creek, and Pine Creek. As discussed in a prior concern, the Tonto inadequately recognizes topography as it pertains to opportunities for solitude. Topography plays a significant role in the mitigation of adjacent sights and sounds. For example, Photopoint 311 is taken only 1.25 miles from the Beeline Highway in Polygon 76; it shows a hiker in the foreground of Crabtree Butte, immersed in utter solitude, unknowingly walking towards the Beeline Highway.

For an extreme example, the Pusch Ridge Wilderness that soars over urban Tucson-area development on three sides, yet still provides extremely valuable solitude for thousands of visitors who explore trails through small canyons and across ridgelines in this designated wilderness. Or, consider Rincon Wilderness, adjacent Tucson, or any of the Wilderness areas in Sedona, or Superstition Mountain, which is adjacent to Phoenix. The proximity of these Wilderness areas to urban centers does not diminish the experience sought by visitors except maybe at the very edge of the units.

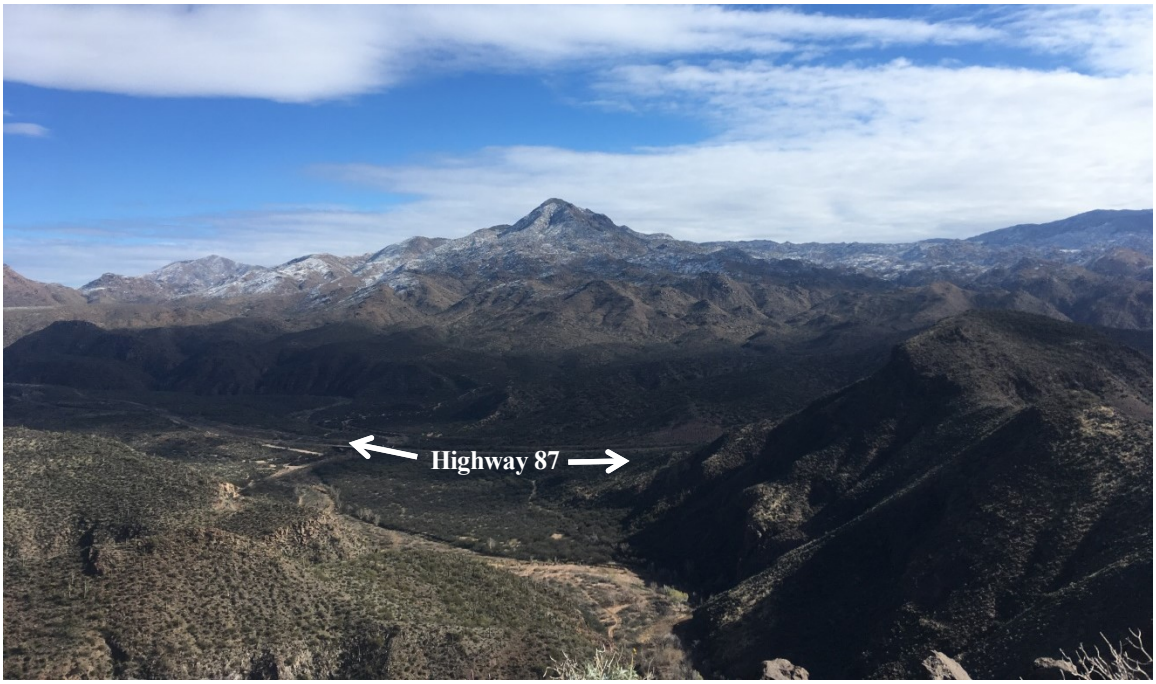
The Tonto frequently fails to recognize that impacts from civilization may be high around the

[286] FSH 1909.12 (70)(72)(1)(2a)

perimeter of an area, yet the area may still receive a High rating for Solitude. Chapter 70 makes this clear. Additionally, based on the rejection of the former "Sights and Sounds" doctrine: "*...many areas ... received lower wilderness quality ratings because the Forest Service implemented a "sights and sounds" doctrine.... this eliminated many areas near population centers and has denied a potential nearby high-quality wilderness experience to many metropolitan residents ... The committee is therefore in emphatic support of the Administration's decision to immediately discontinue this "sights and sounds" doctrine*."[287]

Please review our critiques of polygons 88, 90, 86, 76, 60a, and 36a for more examples of instances the Tonto NF over inflates the pervasiveness of adjacent sights and sounds. All Photopoints can be seen in Appendix I.

RECOMMENDATIONS - WILD 6: The Tonto National Forest should revaluate how adjacent sights and sounds affect the evaluations of polygons by considering variables such as topography and unit acreage. The Tonto should utilize the findings from the resulting improved evaluation to inform which lands to carry forward in a revised inventory, evaluation, and analysis in a supplemental DEIS. We feel confident that conducting a proper wilderness evaluation will help the agency address these deficiencies.



Photopoint 223, Polygon 76 (Boulder): Looking southwest across Highway 87 towards Boulder Mountain and into the vast 72,562 acres of Polygon 76. The Tonto wrongly claims that this highway negatively affects the opportunities for solitude in 76 to the detriment of the polygons evaluation. All of the lands seen in this photo from the highway to the horizon line constitute acreage of Polygon 76. This is a massive area. It is preposterous that the sights and sounds of this comparatively puny highway could pervasively affect the opportunities for solitude in the immensity of polygon 76 enough to warrant downgrading its evaluation rating of this criterion.

[287] House Report 95-540, July 27, 1977, to the eventual P.L. 95-220, "The Endangered American Wilderness Act."

CONCERN - WILD 7: The Tonto frequently rated the subcriterion, "*What is the composition of plant and animal communities?"* through the lens of an expert, and not the average forest visitor. This occurrence is at odds with the fundamental idea behind "apparent naturalness. This has improperly constrained the amount of recommended wilderness in the Draft Forest Plan and Draft Environmental Impact Statement.

RATIONALE - WILD 7: As acknowledged in our comment letter dated October 10, 2017, this subcriterion continues to depart substantially from the guidance of Chapter 70 and often unfairly penalizes areas that may appear unnatural to trained botanists or resource specialists yet would not be evident to the average visitor. For example, many visitors do not understand what species are native, non-native, or invasive.

Plant species such as red brome, fountain grass, buffelgrass, tamarisk, giant reed, and oleander are species that are commonly listed in the wilderness evaluation process as non-natives that penalize the ratings of polygons. Chapter 70 makes *NO* indication of considering non-native species in the evaluation. Rather, Chapter 70 references vegetation *structure* as it pertains to naturalness; for example, "*a plantation style forest with trees of a uniform species, age, and planted in rows".* The average forest visitor is monumentally more likely to notice an unnatural forest structure such as this, than they are to notice these non-native species that can be seen across political boundaries all over the west.

Regardless, the Tonto chose to include the presence of non-native species in their ratings.

In the previously stated comment letter, our coalition suggested that the Tonto hews to the standard of *"the appearance to the average visitor*". While we commend the Tonto for reconfiguring ratings to incorporate this language, after juxtaposing the rating rationales of polygons 88, 90, 76, 36a, 60a, and 86 with conditions on the ground, it seems that the language has changed, but the perspectives have not. The Tonto continues to unfairly penalize areas for conditions that would not be noticed by the average forest visitor.

Many of these species are so abundant that they can be found throughout the entire Tonto National Forest, let alone much of Arizona's National Forests and Wilderness areas. They are so prolific, that it seems unlikely that a wilderness evaluation could ever be exempt from their presence. Red brome (*Bromus rubens)* for example is so common that it was selected as a Focal Species[288] in the draft Forest Plan partly due to its abundance and ease of identification. This species is incredibly common and normalized on much of the Tonto National Forest, yet it consistently penalizes the evaluations of polygons. While it is unarguable that these non-natives are problematic and pose significant management challenges, we suggest that red brome and other similar graminoids that are commonly occurring and "normalized" to the average visitor should carry less weight in the wilderness evaluation stage. It doesn't seem appropriate to penalize a wilderness evaluation polygon for a problem so incredibly widespread, seemingly relentless, and familiar to the average visitor. This begs the question; "To what degree do we accept non-natives as normal?" We contend that graminoids such as red brome *DO* appear natural to the average visitor, and should not affect the rating of the criterion "apparent naturalness".

[288] DEIS, p. 160.

Along these lines, the Tonto overzealously penalizes polygons for the presence of non-natives; these units receive penalizations unworthy of the actual abundance and noticeability of non-natives. For example, the "*large area of invasive yellow star thistle, some oleander, and sweet resin bush that covers approximately 10 acres*" does not consume a large area of Polygon 76. These ten acres of invasive species comprise a mere 0.014% of unit 76's total acreage!

It's crucial to consider the total acreage of a unit in determining how much of an impact a certain disturbance has. For example, while ten acres of invasive species may profoundly impact a 500-acre unit, those same ten acres cannot profoundly impact a 10,000-acre unit; the difference is in the density of the disturbance. Ten acres is a small area in contrast to the 72,721 acres of unit 76. This subcriterion received a rating of Moderate for this unit, partly in due to this rationale, and should have instead received a rating of High.

RECOMMENDATIONS - WILD 7: In a supplemental DEIS, the Tonto National Forest needs to revise the ratings for the subcriterion, "*What is the composition of plant and animal communities?"* in order to not overzealously penalize polygons because of non-native species. The perspective needs to shift from that of a USFS resource specialist to the average visitor. Red brome and other similar graminoids appear natural (familiar) to the average visitor because they are commonly occurring and normalized and should therefore carry less weight in the rating. Additionally, the Tonto needs to consider the density of non-natives (i.e. non-natives/acreage) when evaluating how impactful they are to wilderness character. The Tonto should heed these recommendations and develop an improved evaluation to more accurately inform which lands to carry forward in a revised analysis.

Photopoint 128, Polygon 36a: Here, infrequent buffelgrass is present in low densities and only along drainage bottoms. This hiker is completely oblivious that they are brushing by an invasive, non-native species; they perceive the vegetation to be apparently natural. This amount of buffelgrass cover constitutes a very small percentage of the unit. Non-native buffelgrass negatively affected the polygons rating in the Tonto evaluation and should not have because it is infrequent and apparently natural to the average visitor. Furthermore, Wilderness management does not preclude hand or chemical treatment of buffelgrass, so there are no manageability concerns for this issue.

CONCERN - WILD 8: The Tonto does not properly recognize wilderness contiguous polygon's adjacency to designated wilderness in regards to opportunities for solitude and opportunities for primitive/unconfined recreation. This has improperly constrained the amount of recommended wilderness in the Draft Forest Plan and Draft Environmental Impact Statement.

RATIONALE - WILD 8: Wilderness evaluation polygons that are contiguous with designated wilderness adopt opportunities for solitude and primitive/unconfined recreation from the adjacent wilderness resource. For example, Polygon 88 is contiguous with the Mazatzal Wilderness and represents a logical, outstanding addition to it. Ridges, creeks, canyons, and ecosystems seamlessly transcend the boundaries between these two entities. These geological features provide excellent travel routes for an unconfined recreationist whom would unknowingly cross from one entity to the other. The opportunities for solitude and primitive and unconfined recreation found in the Mazatzal Wilderness contribute to and are accentuated by those found in Polygon 88. However, the Tonto NF fails to recognize this inherent significance of Polygon 88's contiguity with designated wilderness. Similarly, the Tonto NF fails to recognize the importance of this in Polygon 90 (Mazatzal contiguous) and 60a (Four Peaks contiguous). Numerous trails begin in Polygons 90 and 60a, and eventually enter adjacent designated wilderness. Designating these units as Wilderness would actually simplify Wilderness management by making the entirety of these trails subject to Wilderness regulations, rather than having users turn around at a point somewhere in the middle of a trail.

The Tonto NF does acknowledge how adjacency to wilderness positively affects the wilderness in the Superstition recommended wilderness contiguous polygons 12[289] and 18[290] in the DEIS. Thus, the Tonto does recognize this reality, but fails to apply it to other contiguous polygons. While we commend the Tonto for noticing this here, we attest that the lack of acknowledgment of this in Polygons 88, 90, and 60 is indicative of this problem being elsewhere. A simple review of other recommended contiguous polygons, in addition to all of the evaluation rationales from the Evaluation stage, demonstrates this.

RECOMMENDATION - WILD 8: The Tonto must revise the wilderness evaluation to recognize where and when a polygon's opportunities for solitude and/or primitive and unconfined recreation benefit from designated wilderness contiguity. The Tonto should utilize the findings from this reconsideration and conduct an improved evaluation to inform which lands to carry forward in a revised inventory, evaluation, and analysis in a supplemental DEIS. We feel confident that conducting a proper wilderness evaluation will help the agency address these deficiencies, and we would gladly provide assistance to the Forest Service in making these assessments.

Photopoint 51, Polygon 60a: Looking south across Polygon 60a and into the Four Peaks Wilderness. As contiguous entities, travel between the two is seamless. The opportunities for solitude and primitive/unconfined recreation in Four Peaks transcend the boundary and are adopted by 60a.

[289] DEIS, p. 130.
[290] DEIS, p. 134.

CONCERN - WILD 9: The DEIS fails to include a reasonable range of alternatives regarding recommended wilderness.

RATIONALE - WILD 9: The proposed alternatives fail to comply with the requirements of NEPA because they do not consider a sufficiently varied range of recommended wilderness. Specifically, the higher end of the range is not considered. The recommended acreages are as follows[291]:

1. Alternative A – 0 acres
2. Alternative B – 43,206 acres
3. Alternative C – 375,576 acres
4. Alternative D – 0 acres

This is not a meaningful range of alternatives because the maximum upper range (*i.e.*, all inventoried areas) of recommended wilderness is not considered, even though the opposite extreme (zero acres; Alternatives A and D) is included.

Alternatives that range from 0 to 375,576 acres (out of 1,618,850 inventoried potential acres[292]) of recommended wilderness, with two meager action-alternatives, do not constitute a true range that satisfies NEPA. Alternative C, which includes the greatest amount of recommended wilderness, would recommend slightly over 23% of all acres identified in the inventory. To satisfy the range, the Tonto must provide alternatives that fill in the top 76% of the range that is missing. At the very least, the higher range should reflect all evaluated areas rated "High" and "Moderate" in the evaluation stage; this totals 780,875 acres.

RECOMMENDATION - WILD 9: The Tonto must include another alternative (Alternative E) that would offer substantially more recommended wilderness acres in order to satisfy the true range required by NEPA.

CONCERN - WILD 10: The Tonto reconfigured boundaries to exclude Bureau of Reclamation withdrawals from wilderness evaluation polygons in Alternatives B and C of the DEIS despite designated wilderness areas across the Tonto including these withdrawals. The precedent has been set that inclusion of these withdrawals is acceptable in wilderness areas. Excluding these areas from recommended wilderness areas negatively alters the wilderness character of many polygons.

RATIONALE - WILD 10: Numerous polygons identified in the Inventory phase of the Tonto National Forest's wilderness recommendation process along river corridors contained "Bureau of Reclamation (BOR) first-form withdrawals". During the evaluation phase of the wilderness recommendation process, BOR withdrawals did not have implications on polygon boundary configurations. However, these withdrawals were mentioned under the 'Manageability' criterion in the wilderness evaluation rationale.

[291] DEIS, p. 216.
[292] DEIS, p. 87.

> For example: *"This area contains Bureau of Reclamation First Form withdrawals and at least one Salt River Project (SRP) improvement and/or right of way."* – Tonto National Forest[293]

It is important to note that direct communications with the BOR have revealed that the terms 'first and second form withdrawals' are no longer used, they are simply "withdrawals" now. The Tonto must revise this language for the sake of accuracy.

During the Analysis phase, as seen in Alternatives B and C of the DEIS, the Tonto reconfigured any polygons containing BOR withdrawals to exclude the withdrawals. See the following example for context:

> Regarding Polygon 119B: *"Boundary adjustments were made to remove Bureau of Reclamation withdrawn areas that would be difficult to manage for their intended purpose in a recommended wilderness area."* – Tonto National Forest[294]

This language is seen under the "Rationale and Recommendation" in the "Summary of Wilderness Analysis" table[295] of all polygons with BOR withdrawal overlap. This has resulted in drastically altered boundaries and often a massive reduction in what made a polygon's wilderness character outstanding. For example, because BOR withdrawals predominately correspond with river corridors, Polygon 119B completely lost an outstanding landscape feature: a significant stretch of the Verde River, and all of the scenic and recreational values, topographic screening, perennial water, and wildlife, that came along with it. Needless to say, Polygon 119B is not what it was prior to the analysis. In another example, Polygon 20 was completely eliminated because all of its acreage was within BOR withdrawals; this is unacceptable. Other polygons affected are as follows:

1. 32 - Coronado Mesa RWA (Alternatives B and C)
2. 119A – Lime Creek RWA (Alternative C)
3. 119B – Mullen Mesa RWA (Alternative C)
4. 84 – Indian Butte RWA (Alternative C)
5. 119C – Dugan RWA (Alternative C)
6. 119D – Rugged Mesa RWA (Alternative C)
7. 36a – Mesquite Flat RWA (Alternative C)
8. 84 - Indian Butte RWA (Alternative B and C)
9. Polygon 20 received a rating of HIGH, but was only 12 acres contiguous and all in BOR withdrawals. It was not recommended for this reason.

The precedent has been set across the Tonto that BOR withdrawals within wilderness areas are acceptable. The Four Peaks, Superstition, Mazatzal, and Salt River Canyon wildernesses all contain these withdrawals. Similarly, much of the withdrawal lands are in existing Inventoried Roadless Areas (IRAs), and the Forest Service saw no conflict in 2001 when it promulgated the Roadless Area Conservation Rule protecting those areas from most ground-disturbing activities.

[293] Tonto National Forest Wilderness Evaluation Rationale
[294] DEIS, p. 125.
[295] DEIS, p. 115-127.

The Tonto writes that managing these recommended wilderness areas with BOR withdrawals would be too difficult to achieve, however the Tonto successfully does this in four designated wilderness areas on the forest. It seems inappropriate that Four Peaks includes these withdrawals and directly across the river, Polygon 36a is reconfigured to exclude them.

According to the Forest Service Handbook, the planning team "*shall evaluate areas, which must include all lands identified in the inventory, to determine potential suitability for inclusion in the National Wilderness Preservation System using criteria included in the Wilderness Act of 1964, section 2(c), as follows:*

> *5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics. Consider such factors as:*
>
> *b. Legally established rights or uses within the area;*
>
> *c. Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics*;"[296]

Clearly, considering that much of the withdrawn lands are included in designated Wilderness suggests that they are in fact not a barrier to manageability.

Additionally, if the Tonto NF does not heed our concern regarding boundary reconfigurations which accommodate Bureau of Reclamation withdrawals, it is imperative that the affected polygons in the DEIS are reevaluated and reanalyzed. With substantial acreage reductions, polygons are substantially altered, and this corresponds to their evaluation rationale and rating. They are not the polygons they once were, and thus their evaluations are barely applicable, and they need to be revised.

The purpose of the wilderness recommendation process is to identify lands that are suitable for inclusion in the National Wilderness Preservation System. Nothing precludes Congress from designating the withdrawal lands as wilderness. Indeed, Congress did just that when it designated the High Uintas Wilderness in Utah, which includes significant acreage of lands withdrawn *prior to* wilderness designation.

None of the evaluation criteria in Chapter 70 recommend the exclusion of the withdrawal lands. Withdrawals for water development projects or other purposes are not implicated by the inventory or evaluation criteria. To the extent there may be any real or perceived conflicts between management of the withdrawal lands as recommended wilderness and for the operation, maintenance, and protection of SRP or BORs assets/interests, those considerations are properly analyzed in the plan EIS, which they are not. And, of course, any wilderness designation by Congress would accommodate or override any management concerns.

Moreover, if the Forest Service's position is that the withdrawn lands must be protected for potential future water development, then management aimed at protecting the watershed from future disturbances or land conversions is critical. Management of the withdrawal areas as recommended wilderness could provide the best protection for important watershed resources, and should be eligible for analysis in future revisions of the EIS. By excluding those areas from the inventory, the Forest Service has foreclosed that important analysis and management opportunity.

[296] 1909.12 FSH 72.1.

More generally, the Forest Service should provide additional information to the public about the withdrawals and what impacts they may have on required elements of the Forest Plan revision process, including but not limited to the wilderness recommendation process. Ideally, this information would have been included in the forest assessment report, but that opportunity has passed. We have struggled to find accessible and clear information on the withdrawal areas and their requirements. Ensuring that information is available and subject to public input is a critical component of effective public engagement and transparent decision-making.

RECOMMENDATIONS - WILD 10: The Tonto has shown that it is acceptable to include Bureau of Reclamation (BOR) withdrawals within wilderness boundaries. Therefore, we recommend that in any subsequent NEPA document or supplemental analysis prepared for the plan revision:

1) BOR withdrawals should not be excluded from the boundaries of recommended wilderness polygons in the DEIS.

2) If the Tonto proceeds under current direction of excluding withdrawal areas, the Forest Service needs to explain ***how*** the withdrawals would be impacted by management as recommended wilderness.

3) If the Tonto proceeds under new direction of including withdrawal areas, all affected polygons need to be reevaluated and then reanalyzed.

4) An additional alternative must be prepared that provides unadulterated wilderness evaluation polygons for comparison with those provided in the current DEIS.

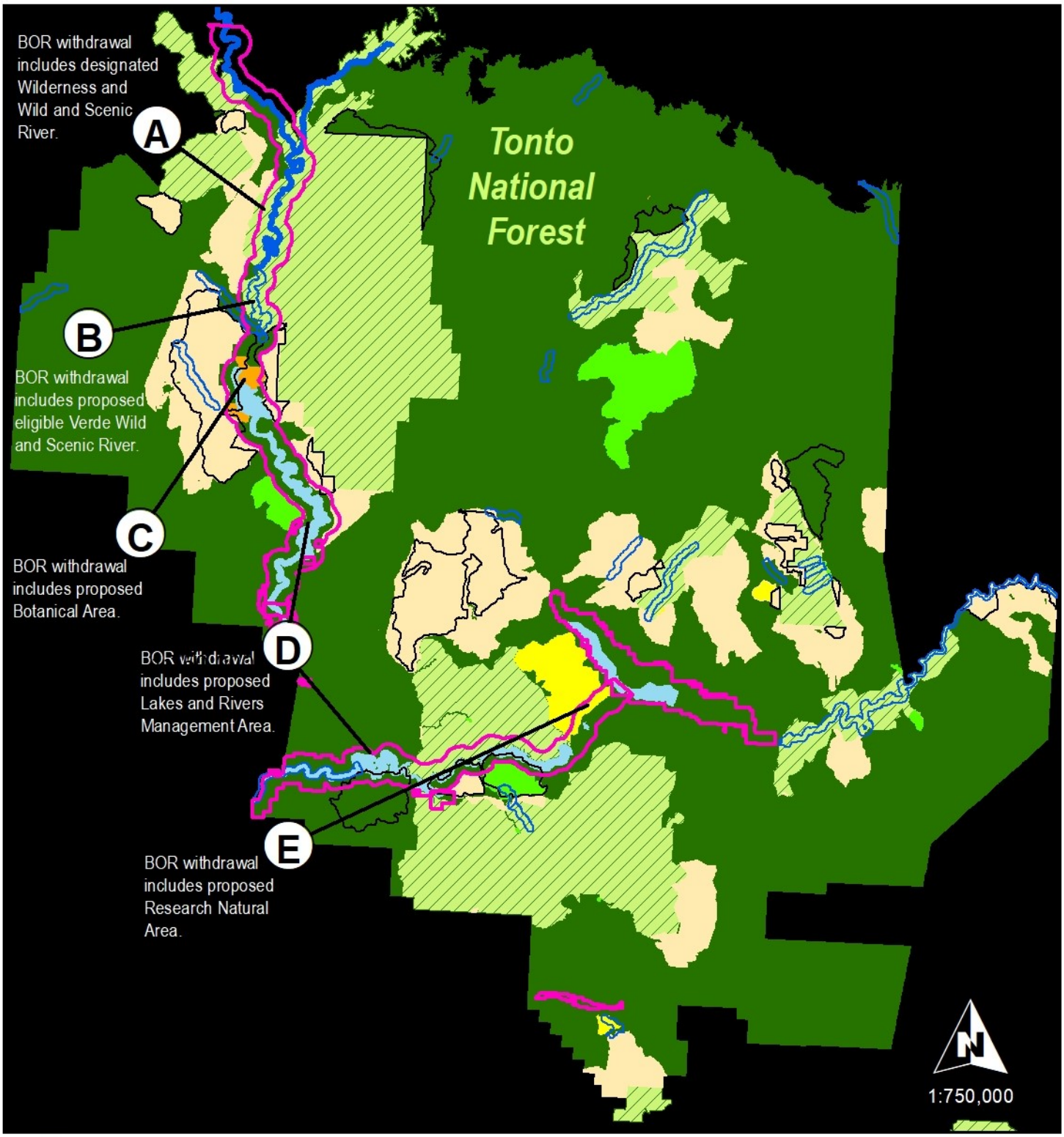
5) Baseline information on the purpose and management of the BOR withdrawals must be included.

Refer to the map on the following page for more analysis of the implications of the Forest Service's improper exclusion of BOR withdrawals. After that, additional key questions are posed based on our understanding of this concern.

Photopoint 188, Polygon 36a (Mesquite Flat): Looking downstream in Black Cross Canyon, a major tributary wash of the Salt River. This is a grand landscape and offers outstanding opportunities for rock climbing, backpacking, scrambling, and day hiking. Solitude is abundant here, too. The exclusion of Bureau of Reclamation withdrawals from wilderness evaluation polygons has removed this area and other wonderful areas from 36a.

Conservation Areas overlaid by Bureau of Reclamation Withdrawals

Why are BOR withdrawals incompatable with recommended wilderness but okay elsewhere?



- BOR-SRP Withdrawn Lands
- Designated Wilderness
- Inventoried Roadless Areas
- DesignatedWildScenicRiver
- Eligible Wild and Scenic River
- AltB Botanical Area
- AltB Research Natural Area
- AltB Lakes And Rivers Management Area
- AltB Recommended Wilderness Area
- AltC Recommended Wilderness Area

CENTER for BIOLOGICAL DIVERSITY

Based on our assessment, some key questions arise regarding the way that the Forest Service used the BOR withdrawals to reduce the size of high-quality wilderness evaluation units. We request that the Forest Service answer these questions:

BOR withdrawals include the currently designated Verde Wild and Scenic River, and a portion of the Fossil Creek Wild and Scenic River. *Do those designations impair BOR/SRPs ability to manage their interests? Does the DEIS or the respective Comprehensive River Management Plans analyze how those areas are affected by BOR withdrawals, or how the withdrawal are affected by the designations?*

BOR withdrawals include portions of the currently designated Mazatzal, Four Peaks, Superstition, and Salt River Canyon Wilderness Areas. *Do those designations impair BOR/SRPs ability to manage their interests? How is management of those existing wilderness areas complicated by the BOR/SRP withdrawals?*

BOR withdrawals include currently designated Inventoried Roadless Areas. *Does that designation impair BOR/SRPs ability to manage their interests? Is management of those IRAs complicated by the BOR/SRP withdrawals?*

BOR withdrawals include the proposed eligible Wild and Scenic River segments along the Verde and Salt Rivers. *Would management for those resources impair BOR/SRPs ability to manage their interests?*

BOR withdrawals include the proposed Research Natural Areas and Botanical Areas. *Would management of those areas impair BOR/SRPs ability to manage their interests? Would BOR/SRPs management affect resources in those areas?*

BOR withdrawals include the proposed Lakes and Rivers Management Area. *Would management of that area impair BOR/SRPs ability to manage their interests? Would BOR/SRPs management affect Forest Service resource management in that area?*

These questions collectively beg a larger question:

If the Forest Service does not foresee any complications resulting from the BOR/SRP withdrawals overlapping currently designated Wild and Scenic Rivers, currently designated Wilderness Areas, currently designated Inventoried Roadless Areas, proposed eligible Wild and Scenic River segments, proposed Research Natural Areas and Botanical Areas, or the proposed Lakes and Rivers Management Area, then why would management of recommended Wilderness be an issue significant enough to justify the substantial boundary modifications?

CONCERN - WILD 11: The Tonto National Forest doesn't consider how the implementation of the Travel Management Plan would affect the boundary roads and cherrystems.

RATIONALE - WILD 11: The Draft Record of Decision for Travel Management on the Tonto National Forest[297] indicates proposed actions that have implications on the usage of routes adjacent to wilderness evaluation polygons. The usage of adjacent routes is often a management consideration as it pertains to maintaining opportunities for solitude and the likelihood of illegal motorized trespass. While the Travel Management Plan (TMP) makes a variety of distinctions of route (road and motorized trail) designation, the two most relevant distinctions to this concern are whether a route will be "decommissioned" or become "administrative use only".

The Draft Record of Decision states that "administrative use only" is defined as a route where "motorized access is restricted, often with a locked gate, to Forest Service personnel or those that hold an authorized use permit to access the motorized route, such as for utility companies to maintain their facilities." The definition of "decommissioned" is implied, and the Draft Record of Decision elaborates further saying that routes may already be effectively obliterated on the ground due to lack of use or previous closure.

The Travel Management Plan will decommission 1,288 miles of routes and limit 574 miles of routes to administrative (or otherwise authorized) use only.[298] There are numerous cherrystemmed and boundary routes associated with Polygons 88, 90, 86, 76, 60a, and 36a that are slated to be decommissioned or authorized-use only. An interactive map[299] provided by the Tonto provides clarity in route designations associated with these polygons. Numerous changing route designations are at odds with the evaluation rationales for all of these polygons. For example, numerous cherrystems in the boundary of Polygon 76 are sited as manageability concerns, yet they are slated to be decommissioned in the TMP.

Any routes that are to be decommissioned do not warrant a cherrystem and should not be considered as management issues. Any cherrystem that is admin-use only presents a significantly smaller management issue. For another example, Service Road 393 (powerline access road) is a large boundary road along northern perimeter of Polygon 86. This road is sited as a manageability issue; however, this route will become "administrative use only" per the Travel Management Plan.

With significantly restricted use, this route should pose a significantly smaller management concern. Please review our critiques of polygons 88, 90, 86, 76, 60a, and 36a for more examples of instances where the Travel Management Plan will affect boundary route usage to the betterment of wilderness management in these polygons. All Photopoints can be seen in Appendix I.

[297] http://www.fs.usda.gov/nfs/11558/www/nepa/59232_FSPLT3_4867869.pdf
[298] "Travel Management on the Tonto National Forest" – Draft Record of Decision, p. 7, Table 1.
[299] Available at:
https://usfs.maps.arcgis.com/apps/MapSeries/index.html?appid=5f4d598ce4554f2486ff2f0378d21a7b

RECOMMENDATIONS - WILD 11: The Tonto National Forest should consider how the implementation of the Travel Management Plan would affect the usage of wilderness evaluation polygon boundary roads and cherrystems, and ultimately affect the evaluations of all polygons. The Tonto National Forest needs to re-evaluate all instances where boundary route usage affected the ratings of polygons. Polygons boundaries need to be adjusted to reflect the decisions of the travel management plan.

Photopoint 125, Polygon 76 (Boulder): Numerous cherrystems branch off of Bushnell Tanks Road into Polygon 76. These cherrystems are listed as management concerns and ultimately penalize the evaluation rating of Polygon 76. Bushnell Tanks Road (and connected dead-end routes) are all listed as "administrative-use only" in the Travel Management Plan.

PART 2: Concerns regarding polygon-specific flaws in wilderness evaluation and analysis, and implications for systemic deficiencies.

The following concerns are directly correlated with the evaluation rationales of these 6 polygons. The rationale for our concerns is to be read sequentially in the criterion - subcriterion flow seen in the outline below. On many occasions we agreed with the rationales provided for specific subcriterion, however we omit discussion of these for simplicity. Referenced "photopoints" contain geospatial information, date/time, imagery, and contextual metadata; these can be found in the Appendix I.

The reasoning behind the following concerns is outlined in critical reviews of the evaluation rationale and is formatted in the below sequence seen in the wilderness evaluation process:

The 5 criterion, point values, and associated subcriterion. Each subcriterion is broken down further into guiding questions. All of this is found in the Tonto National Forest's Evaluation Criteria for the Tonto National Forest Wilderness Recommendation Process document.

I. Size – (A response of YES to any of the following is required)
    i. Any area greater than 5,000 acres.
    ii. Areas less than 5,000 acres but are contiguous to existing wilderness, primitive areas, administratively recommended wilderness, or wilderness inventory of other Federal ownership.
    iii. Areas less than 5,000 acres but are sufficient size to manage as a wilderness based on considerations.

II. Apparent naturalness – 3 points (average of subcriterion)
    i. What is the composition of plant and animal communities?
    ii. What is the extent to which the area appears to reflect ecological conditions that would normally be associated with the area without human intervention?
    iii. What is the extent to which improvements included in the area represent a departure from apparent naturalness?

III. Opportunities for solitude and/or primitive/unconfined recreation – 3 points (highest rank of either of subcriterion)
    i. Consider impacts that are pervasive and influence a visitor's opportunity for solitude within the evaluated area.
    ii. Consider the opportunity to engage in primitive type or unconfined recreation activities that lead to a visitor's ability to feel a part of nature.

IV. Unique features – maximum 1 bonus point for the response of YES to one or more of the following questions
    i. Does the area contain rare plant or animal communities or rare ecosystems?
    ii. Are there any outstanding landscape features such as waterfalls, mountains, viewpoints, waterbodies, or geologic features?
    iii. Are there historic and cultural resources sites in the area of regional or national significance?
    iv. Are there any research natural areas (RNA's)?
    v. Are there any high quality water resources or important watershed features?

V. Manageability – 6 points
    i. Consider:
        1. Shape and configuration, cherry stemming, boundary etc.
        2. Presence and extent of legally established uses or rights (mining, special uses, traditional uses)
        3. Adjacent land management or signed decisions
        4. Percent Roadless area
        5. Prevalence of non-primitive recreation activities
        6. Any other pertinent information

CONCERN - WILD 12 - EXAMPLE OF POLYGON 90: As result of a flawed wilderness evaluation process, Polygon 90 is unjustifiably excluded from the Draft Forest Plan and all alternatives in the DEIS.

RATIONALE - WILD 12 - EXAMPLE OF POLYGON 90: The Mazatzal Wilderness contiguous Polygon 90 constitutes approximately 591 acres along the southeastern wilderness boundary; it was rated "Moderate" by the Tonto National Forest in the wilderness evaluation process. It was not included in any alternatives of the DEIS and should have been. Due to oversights in the consideration of conditions on the ground, a corresponding misguided interpretation of wilderness criteria, and a deficient adherence to vital comments our coalition has provided in the past, the Tonto National Forest has penalized and inadequately rated Polygon 90. These oversights and interpretations, in addition to other necessary critiques, are evident and proven in the following deconstructions of the Tonto National Forest's evaluation rationale ordered by criterion for Polygon 90:

Polygon 90, Criterion: Apparent naturalness (rated High by Tonto National Forest)

1. In response to the question (subcriterion), **"What is the extent to which improvements included in the area represent a departure from apparent naturalness?"** the Tonto National Forest responded:

   "The presence or appearance of improvements does not detract from apparent naturalness. Range improvements (trough and fencing) occur at low density. Some unauthorized routes are in the polygon as well."

   This response resulted in a rating of High for this subcriterion.

Although the rating of High is appropriate for this rationale and criterion, there are a few points to be made here. Along the northern boundary, numerous abandoned routes can be seen following drainages and switch-backing along slopes. The topography of the unit makes the occurrence of routes elsewhere significantly unlikely, so we infer these are the unauthorized routes mentioned in the rationale. These routes along the northern boundary seem to be associated with the abandoned Sunflower Mine. A simple boundary reconfiguration would remove all of these abandoned routes from the unit boundary. The suggested change results in approximately an 11-acre decrease in unit acreage.

Additionally, an abandoned, erect telephone pole was found along a drainage bottom. It can be seen at photopoint 389. This impact is perhaps the related to the historic archaeological site mentioned in the Tonto National Forest's response to question 4c. However, for the sake of scrutiny, we present it here. This impact is substantially unnoticeable because it is screened by topography associated with the canyon it is in, and by the riparian vegetation surrounding it.

Polygon 90, Criterion: Opportunities for solitude and/or primitive/unconfined recreation (rated Moderate by Tonto National Forest), Subcriterion: Solitude

2. In response to the prompt, **"Consider impacts that are pervasive and influence a visitor's opportunity for solitude within the evaluated area"** the Tonto National Forest responded:

> *"Opportunities to feel alone are possible in much of the area, though signs of civilization are possible. There is some OHV use in the area as well as moderate non-motorized use on the trail to wilderness area. Solitude is not easy to find but can be found away from trails."*

This response resulted in a rating of Moderate for this subcriterion.

Polygon 90 is contiguous with the Mazatzal Wilderness and represents a logical, outstanding addition to it. The opportunities for solitude found in the Mazatzal Wilderness contribute to and are accentuated by those found in polygon 90. The Tonto National Forest fails to recognize the inherent significance of this unit's contiguity with designated wilderness in regards to opportunities for solitude. Substantial topographic and vegetative screening strictly within unit 90 provide for outstanding opportunities for solitude. We attest that the opportunities for solitude found within unit 90 support a rating of High for this subcriterion.

The drive in to the unit boundary of unit 90 along Forest Road 25A is in and of itself a rugged, lonesome experience. Forest Road 25A becomes horribly unmaintained following the first crossing of the West Fork of Sycamore Creek, and is essentially a dead-end route for most automotive vehicles. Thus, traffic into this region is limited due to its rugged nature and the opportunities for solitude increase. The recreationist with a vehicle capable of accessing this area will likely feel a sense of solitude simply due to the difficulty of the drive in.

Furthermore, regarding the interior of the unit itself, it is topographically complex. The unit is within the Mazatzal Mountains and is comprised of deep canyons and steep slopes, all of which provide outstanding topographic screening for solitude. It does not take long to escape any sights and sounds associated with unit boundary roads. It is easy to find solitude in this quiet, desolate landscape. Photopoint 382 shows one of several canyons entering the unit. Additionally, the unit contains scattered opportunities for vegetative screening, result of pockets of riparian vegetation (cottonwoods and Arizona sycamores) and ponderosa pine woodlands.

3. In response to the prompt, **"Consider the opportunity to engage in primitive type or unconfined recreation activities that lead to a visitor's ability to feel a part of nature"** the Tonto National Forest responded:

   There are some opportunities for engaging in primitive and unconfined recreation and at least some of these opportunities are of high quality. Hiking, hunting, and backpacking opportunities can be found in the area.

   This response resulted in a rating of Moderate for the subcriterion.

Polygon 90 shares many characteristics with the contiguous Mazatzal Wilderness. The opportunities for primitive and unconfined recreation found in Mazatzal Wilderness contribute to and are accentuated by those found in unit 90. These outstanding opportunities for primitive and unconfined recreation within unit 90 are result of contiguity with the Mazatzal Wilderness, outstanding travel routes, technical terrain, and a breadth of ecosystems. The Tonto National Forest fails to recognize the inherent significance of this unit's contiguity with designated wilderness in regards to opportunities for unconfined recreation. The implications of contiguity on opportunities for primitive/unconfined

recreation must not be underplayed. We believe that the opportunities for primitive and unconfined recreation found in unit 90 support a rating of High for this subcriterion.

The Mazatzal Wilderness straddles the Mazatzal Crest. This landscape of craggy peaks, steep slopes, mysterious canyons, and conifer forests beckons to the backcountry recreationist for a variety of reasons. The 250,761 acres of this existing wilderness area offer outstanding opportunities for backpacking and hiking. Unit 90 is contiguous with the Mazatzal Wilderness, and thus travel between the two is seamless. There are numerous canyons within unit 90, which would make outstanding off-trail backpacking or hiking routes through the unit, and into the depths of the lonesome Mazatzal Mountains and Mazatzal Wilderness. Photopoint 387 shows one of these canyons. This particular canyon holds technical terrain, evident in the cliffs and waterfalls seen in this photo. This terrain adds just as much exciting risk and challenge to the travel route, as it is beautiful. Here, a hiker or backpacker could scramble small escarpments, past ephemeral waterfalls, beneath desert scrub and ponderosa pine forests, and finally into the vastness of the Mazatzal Wilderness.

Polygon 90, Criterion: Unique features (earned 1 bonus point for presence of archaeological site)

4. In response to the 'Unique Features' question, **"Are there any outstanding landscape features such as waterfalls, mountains, viewpoints, waterbodies, or geologic features?"** the Tonto National Forest responded:

   "*No"*

   This resulted in a lost opportunity for one bonus point per the maximum allowed under criterion 'Unique Features'.

First of all, unit 90 exists within the Mazatzal Mountains. Therefore, it is incorrect to say there are no mountains in the unit boundary. In fact, the unit contains one summit at 5,552' elevation. Additionally, this unit contains waterfalls. Photopoint 387 shows a cascade of several waterfalls, draining into the West Fork of Sycamore Creek. The answer to this subcriterion should be "Yes".

Polygon 90, Criterion: Manageability (rated Moderate by Tonto National Forest)

5. In response to the following topics related to criterion 'Manageability': **Shape and configuration, cherry stemming, boundary etc.; presence and extent of legally established uses or rights (mining, special uses, traditional uses); adjacent land management or signed decisions; percent Roadless area; prevalence of non-primitive recreation activities; any other pertinent information**, the Tonto National Forest responded:

   "Management to preserve the area's wilderness characteristics is possible throughout most of the area. Though the area is adjacent to the wilderness, there are roads on three sides of the polygon and access to the Arizona Trail on one of the boundaries. Range improvements may need maintenance but not likely with motorized access. Few other uses or management considerations would impede management to preserve the areas wilderness characteristics."

This rationale resulted in a rating of Moderate for this criterion.

We believe that the evaluation rationale provided by the Tonto National Forest in and of itself supports a rating of High for Manageability. Stated conflictions are negligible. Roads define the northern, eastern, and southern unit boundaries – a completely acceptable situation. The western boundary is contiguous with the Mazatzal Wilderness. All three of these roads contour through and are bench-cut into extremely steep, rocky, densely vegetated slopes; thus, illegal motorized trespass into the unit is highly unlikely. Photopoints 384 and 385 show the topography adjacent to the eastern boundary (Forest Road 25A). Forest Road 25A is runs parallel with the West Fork of Sycamore Creek and its associated canyon. Photopoint 383 shows the southern unit boundary and photopoint 391 shows the northern boundary. Range improvements are often acceptable impacts within the unit boundary. If these range improvement truly do not need to be maintained with motorized access, this easily should not negatively affect manageability. Using hand tools is acceptable within wilderness boundaries.

RECOMMENDATIONS - WILD 12 - EXAMPLE OF POLYGON 90:

1. Reconfigure the northern unit boundary in order to exclude all unauthorized routes.
2. Recognize the inherent significance of polygon 90's adjacency to designated wilderness in regards to opportunities for solitude and opportunities for primitive/unconfined recreation.
3. Recognize the topographically complex landscape as it pertains to opportunities for primitive/unconfined recreation and screening for solitude.
4. Re-evaluate the manageability rating; the provided rationale warrants a rate of HIGH, not MODERATE.
5. Acknowledge the waterfalls and mountainous terrain found in the unit, in respect to 'Unique features' subcriterion.
6. Provide criterion opportunities for solitude and/or primitive/unconfined recreation and manageability with ratings of HIGH.
7. Apply these recommendations and reanalyze polygon 90 for inclusion in an alternative.

Photopoint 387, Polygon 90: Following a rainstorm this canyon wash comes alive with cascades. This wash provides an exciting hiking/backpacking linkage to the Mazatzal Wilderness.

CONCERN - WILD 13 - EXAMPLE OF POLYGON 88: As result of a flawed wilderness evaluation process, Polygon 88 is unjustifiably excluded from the Draft Forest Plan and all alternatives in the DEIS.

RATIONALE - WILD 13 - EXAMPLE OF POLYGON 88: The Mazatzal Wilderness contiguous Polygon 88 constitutes approximately 1,863 acres along the southeastern wilderness boundary; it was rated "Moderate" by the Tonto National Forest in the wilderness evaluation process. It was not included in any alternatives of the DEIS and should have been. Due to oversights in the consideration of conditions on the ground, a corresponding misguided interpretation of wilderness criteria, and a deficient adherence to vital comments our coalition has provided in the past, the Tonto National Forest has penalized and inadequately rated Polygon 88. These oversights and interpretations, in addition to other necessary critiques, are evident and proven in the following deconstructions of the Tonto National Forest's evaluation rationale issued by criterion for Polygon 88:

Polygon 88, Criterion: Apparent naturalness (rated Moderate by Tonto National Forest)

1. In response to the question (subcriterion), **"What is the extent to which improvements included in the area represent a departure from apparent naturalness?"** the Tonto National Forest responded:

   "Appearance of improvements detract from apparent naturalness in some areas. Low density of user created or unauthorized roads. Low density of range improvements including barbed wire fences, pipe rail and dirt stock tanks. Two non-motorized trails including the Arizona National Scenic trail runs through the area."

   This resulted in a rating of Moderate for this subcriterion.

Improvements found within the unit do not frequently detract from apparent naturalness. Improvements do exist, however they are infrequent and are often shielded from most views via topographic and/or vegetative screening.

Regarding the user-created/unauthorized route: this route serves no purpose, is illegal, should be closed, and thus shouldn't impact the rating for this subcriterion. If the Tonto National Forest closed this route it would quickly be reclaimed by natural processes and no longer impact apparent naturalness. This route has not received a cherrystem in the Tonto National Forest's spatial data, nor does it exist in the Tonto National Forest's roads inventory. Historically, this route accessed a stock pond and corral; however, both the stock pond and corral are dysfunctional and abandoned. They are seen in photopoints 372 and 373. Thus, this route no longer serves a purpose, and is clearly kept open illegally.

Two stock ponds were identified within the unit boundaries. One stock pond can be seen at photopoint 373; it is substantially unnoticeable because it lies along a drainage bottom and is screened by topography and has been revegetated. Additionally, this stock pond doesn't appear to hold water well, even on this day of heavy rain. Another stock pond is along the northern boundary, off of Forest Road 25. There is no photo data for this stock pond, however we recommend providing it and its access route a cherrystem. A simple boundary reconfiguration would address this impact. With the exclusion of this stock pond, that leaves only one, substantially unnoticeable stock pond (at photopoint 373) within the unit boundary.

The remains of the corral seen at photopoint 372 do not impact apparent naturalness, as they are rotting away, and substantially unnoticeable.

Barbed wire fencing is a common occurrence in wilderness areas and is commonly substantially unnoticeable because it is small in stature, and is easily screened by vegetation and topography. Photopoints 344, 348, and 351 document occurrences of barbed wire in the unit, all of which are screened by vegetation and substantially unnoticeable.

The field surveyor was unable to locate any pipe rail within unit boundaries.

The two non-motorized routes do not detract from apparent naturalness, because they are small in stature and are easily screened by vegetation and topography. Singletrack trails are generally only noticeable when directly upon them. Additionally, these trails provide valuable opportunities for primitive recreation, and should only be seen as assets to the unit. The trails are: Little Saddle Mountain (244) and the Arizona National Scenic Trail (Arizona Trail). The Arizona Trail singletrack can be seen in photopoint 354; it is clearly a minute impact, and is easily screened by vegetation. Photopoint 349 shows the Little Saddle Mountain trail; it too is small in stature and screened by dense vegetation. Both of these singletracks are substantially unnoticeable. Along these trails there are several gates and signs. At photopoint 352 two trails signs are visible, one for the Arizona Trail and one for directions to several other nearby official Tonto National Forest trails. These signs are substantially unnoticeable as they are small in stature and screened by vegetation. Additionally, the Arizona Trail sign is textured roughly and colored darkly and the other sign is made of locally harvested wood; these characteristics help the two signs blend in. Photopoint 357 shows a gate along the Arizona Trail; gates are common in wilderness areas, as they are often a necessary component of barbed wire fencing; they are small in stature and easily screened by vegetation. This gate is small and colored darkly and is substantially unnoticeable.

Following the removal of one stock pond from the unit boundary, closure of the unauthorized route, and recognition that many of the improvements in unit 88 are substantially unnoticeable, we attest that the rating for this subcriterion should be upgraded to High.

Polygon 88, Criterion: Opportunities for solitude and/or primitive/unconfined recreation (rated Moderate by Tonto National Forest)

2. In response to the prompt (subcriterion), **"Consider impacts that are pervasive and influence a visitor's opportunity for solitude within the evaluated area",** the Tonto National Forest responded:

   "Opportunities to feel alone are possible in much of the area, though signs of civilization are possible. There is some motorized noise from the 87 road and a fair amount of use on the Arizona National Scenic Trail that affects opportunities for solitude.

   This resulted in a rating of Moderate for this subcriterion.

Unit 88 is contiguous with the Mazatzal Wilderness and represents a logical, outstanding addition to it. The opportunities for solitude found in the Mazatzal Wilderness contribute to and are accentuated by those found in unit 88. The Tonto National Forest fails to recognize the inherent significance of this unit's contiguity with designated wilderness in regards to opportunities for solitude. Additionally,

substantial topographic and vegetative screening strictly within unit 88 provides for outstanding opportunities for solitude.

Signs of civilization are possible, however extremely infrequent. Chapter 70 of the Forest Service Land Management Planning Handbook 1909.12 clearly states that opportunities for solitude need not be found on every acre.

Highway 87 is approximately 2 miles away over several bluffs and ridgelines from the unit boundary; this is a significant distance accompanied with topography that shields the unit from the sights and sounds of the highway. Highway 87 does not impact solitude in the unit.

Furthermore, the unit boundary roads also do not impact solitude, as their associated sights and sounds are immediately screened by topography along the unit boundaries. These boundary roads and/or their adjacent topography can be seen in the following photopoints:

1. Photopoint 358 shows the power line service route 393; several small hills along the unit boundary mitigate any potential impacts to solitude from the sights and sounds of this route, as well as the power lines.
2. Photopoint 377 shows topography adjacent to the old Beeline Highway/Sycamore Creek; it mitigates any potential impacts to solitude from the sights and sounds of this route.
3. Photopoint 383 shows topography adjacent to Route 25, the northern boundary. This topography also mitigates any potential impacts to solitude from the sights and sounds associated with this route.

The assertion that the use of the Arizona National Scenic Trail detracts from opportunities for solitude is flawed. First of all, the trail runs along the bottom a major canyon, and is thus not easily detectable from much of the unit. Sights and sounds of the Arizona Trail are screened by the topography associated with this canyon. Although the Arizona Trail is a National Scenic Trail, internationally known, and absolutely incredible, it is not by any means used throughout the year. It's peak use only occurs from February - April and again from September – November; during the rest of the year, it experiences substantially less use. It does not substantially detract from solitude.

Complex topography and dense juniper scrub vegetation both create visual screening and aid in the creation of opportunities for solitude throughout the unit. Photopoint 330 shows the topographic complexity of the unit, and offers insight into the opportunities for topographic screening. Photopoint 346 shows three hikers traveling beneath the cover of outstanding vegetative screening along the Little Saddle Mountain Trail; this screening is provided by riparian and juniper scrub vegetation. Photopoint 375 shows a hiker maneuvering through dense vegetation; he is easily screened by vegetation and experiencing solitude. Photopoint 359 shows two hikers travelling along the Arizona Trail, along the bottom of a major canyon. The topographic and vegetative screenings found in this canyon provide them a sense of solitude. Photopoint 368 shows a hiker travelling along a lonesome desert slope, enjoying utter solitude; here, he is screened by the topography of the hills he is travelling across. Additionally, the rugged and steep character of this landscape creates a challenge that would deter many, and assures those who do enter that they are likely alone.

3. In response to the prompt (subcriterion), **"Consider the opportunity to engage in primitive type or unconfined recreation activities that lead to a visitor's ability to feel a part of nature",** the Tonto National Forest responded:

   "There are some opportunities for engaging in primitive and unconfined recreation and at least some of these opportunities are of high quality. Hunting, hiking dispersed camping, and horseback riding opportunities of moderate quality can be found in the area. No restrictions on user behavior."

   This resulted in a rating of Moderate for this subcriterion.

Unit 88 shares many characteristics with the contiguous Mazatzal Wilderness. The opportunities for primitive and unconfined recreation found in Mazatzal Wilderness and contribute to and are accentuated by those found in unit 88. These outstanding opportunities for primitive and unconfined recreation within unit 88 are result of contiguity with the Mazatzal Wilderness, outstanding travel routes, technical terrain, and exciting geology. The opportunities for primitive and unconfined recreation found in unit 88 support a rating of High for this subcriterion.

The Mazatzal Wilderness straddles the Mazatzal Crest. This landscape of craggy peaks, steep slopes, mysterious canyons, and coniferous forests beckons to the backcountry recreationist for a variety of reasons. The 250,761 acres of this existing wilderness area offer outstanding opportunities for backpacking and hiking. Unit 88 comprises a very similar landscape and is contiguous with the Mazatzal Wilderness, and thus travel between the two is seamless. Several ridgelines, a major canyon, and the Arizona National Scenic Trail (Arizona Trail) create excellent travel routes between unit 88 and the adjacent wilderness.

The Arizona National Scenic Trail offers an outstanding opportunity for primitive recreation, including hiking, backpacking, and horseback riding. The majority of the Arizona Trail within the unit runs adjacent to an ephemeral wash, at the bottom of a craggy canyon. Hikers along this portion of the trail are treated with views of pools of water, waterfalls, lush riparian vegetation, and complex geology. Photopoints 360 and 367 show three hikers traveling along this scenic portion of the Arizona Trail. Photopoints 362 and 364 show some of the scenic geologic and ecological features of this canyon; in both of these photos, the creek's flow was sustained. Photopoint 364 shows a scenic low angle waterfall.

Other excellent opportunities for trail hiking or horseback riding can be found along the Little Saddle Mountain Trail.

This unit offers many excellent opportunities for off-trail hiking, as well. Photopoint 371 shows a hiker travelling a major side drainage on the eastern side of the unit, through interesting geology and dense vegetation. If willing to hike off-trail, many excellent views are to be had. Photopoint 369 shows one of these views. Here, they are immersed in challenging terrain and a state of solitude. Photopoint 330 looks north into the unit, and shows the wide, craggy canyon that the Arizona Trail and ephemeral creek run through. The walls of this canyon are divided into multiple, rocky terraces. The multiple tiers of cliffs that define these terraces mark exciting terrain to travel through, as it offers many opportunities for rock scrambling.

Specifically within the unit, hiking is mainly limited to day hikes- however, with the combined acreage of the adjacent wilderness, the opportunities for off-trail, challenging backpacking routes are endless.

Unit 88 deserves a rating of High for this subcriterion because its contiguity with the Mazatzal Wilderness, challenging terrain, interesting geologic features, and two singletrack trails all offer outstanding opportunities for primitive/unconfined recreation.

Polygon 88, Criterion: Unique features

4. In response to the 'Unique Features' question, **"Are there any outstanding landscape features such as waterfalls, mountains, viewpoints, waterbodies, or geologic features?"** the Tonto National Forest responded:

   "*No"*

   This resulted in a lost opportunity for one bonus point per the maximum allowed under criterion 'Unique Features'.

Unit 88 comprises a portion of the Mazatzal Mountains, and thus it is incorrect to say there are no mountains here. Several small peaks can be seen in photopoint 330. Additionally, in this photo, a wide, craggy canyon can be observed; it too is an outstanding landscape feature. The sides of this canyon are multi-tiered, and defined by rocky cliffs. Also, the creek that runs through this canyon has incised into the bedrock in many places. This has resulted in many standing pools of water, interesting rock patterns, and small waterfalls. Photopoint 362 shows one of these small waterfalls.

Polygon 88, Criterion: Manageability (rated Moderate by Tonto National Forest)

5. In response to the following topics related to criterion 'Manageability': **Shape and configuration, cherry stemming, boundary etc.; presence and extent of legally established uses or rights (mining, special uses, traditional uses); adjacent land management or signed decisions; percent Roadless area; prevalence of non-primitive recreation activities; any other pertinent information**, the Tonto National Forest responded:

   "Management to preserve the area's wilderness characteristics is possible throughout most of the area. Roads define the perimeter of the entire perimeter of the polygon except for a small area that shares a border with the wilderness and a small piece of private land. There is some established mountain bike use on the Arizona National Scenic Trail. There is some motorized encroachment into the area. Access and maintenance of range improvements with motorized/mechanized equipment and transportation would be ongoing."

   This resulted in a rating of Moderate for this subcriterion.

Roads actually only define approximately 50% of the unit boundary, not the "entire perimeter" as stated by the Tonto National Forest. Additionally, about 15% is defined by undeveloped private land and the contiguous Mazatzal Wilderness defines about 35%. The 35% defined by contiguous

wilderness is not by any means a "small area", as stated by the Tonto National Forest, but instead comprises the entire western portion of the unit boundary.

The roads that do define the unit boundaries are the Old N Beeline Highway, Service Road 393, and Forest Road 25. All of these routes do not substantially detract from solitude in the unit and don't create substantial opportunities for illegal motorized trespass. Several photopoints have been collected in support of this position:

1. Photopoint 358 shows the power line service route 393; steep topography in the form of several small hills along the unit boundary eliminate the opportunity for illegal motorized trespass.
2. Photopoint 377 shows topography adjacent to the old Beeline Highway/Sycamore Creek; it mitigates any potential possibility of illegal motorized trespass.
3. Photopoint 383 shows topography adjacent to Route 25, the northern boundary. This topography also mitigates any potential possibilities of illegal motorized trespass.

There is not developed mountain bike use on this portion of the Arizona National Scenic Trail. Mountain bikers utilizing the Arizona Trail frequently diverge from the traditional route, because many portions of the Arizona Trail enter wilderness areas, where mountain biking is prohibited. The portion of the Arizona Trail in unit 88 heads directly into the existing Mazatzal Wilderness; thus, many Arizona Trail mountain bikers choose to bypass this section, as they would only be forced to turn around at the wilderness boundary. Furthermore, the official mountain bike route map for the Arizona Trail does not include this portion of the trail.

Upon the closure of the unauthorized route at photopoint 378, it would rapidly revegetate and no longer impair apparent naturalness or create manageability concerns.

Following the exclusion of the maintained stock pond adjacent to Forest Road 25 (the northern boundary) from the unit boundary, the amount of range improvements within the unit that require motorized maintenance has been substantially reduced, if not completely eliminated.

RECOMMENDATIONS - WILD 13 - EXAMPLE OF POLYGON 88:

1. Reconfigure the unit boundary to provide a cherrystem to the stock pond along the northern boundary.
2. Recognize the inherent significance of polygon 88's adjacency to designated wilderness in regards to opportunities for solitude and opportunities for primitive/unconfined recreation.
3. Recognize the topographically complex landscape as it pertains to opportunities for primitive/unconfined recreation and screening for solitude.
4. Re-evaluate the manageability rating with new information and perspectives
    a. Mountain biking is not established on this portion of the Arizona Trail, thus this should not penalize the unit.
    b. The reconfiguration of the unit to cherrystem the stock pond on the northern boundary would alleviate several management concerns (i.e. range infrastructure maintenance and access)

5. Acknowledge the mountainous terrain found in the unit, in respect to 'Unique features' subcriterion.
6. Provide criterion "apparent naturalness", "opportunities for solitude and/or primitive/unconfined recreation" and "manageability" with ratings of HIGH.
7. Apply these recommendations and reanalyze polygon 88 for inclusion in an alternative.

Photopoint 359, Polygon 88: Hiking along the Arizona National Scenic Trail.

CONCERN - WILD 14 - EXAMPLE OF POLYGON 86: As result of a flawed wilderness evaluation process, Polygon 86 is unjustifiably excluded from the Draft Forest Plan and all alternatives in the DEIS.

RATIONALE - WILD 14 - EXAMPLE OF POLYGON 86: Polygon 86 constitutes approximately 21,230 acres; it was rated "Moderate" by the Tonto National Forest in the wilderness evaluation process. It was not included in any alternatives of the DEIS and should have been. Due to oversights in the consideration of conditions on the ground, a corresponding misguided interpretation of wilderness criteria, poorly configured unit boundaries, and a deficient adherence to vital comments our coalition has provided in the past, the Tonto National Forest has penalized and inadequately rated Polygon 86. These oversights and interpretations, in addition to other necessary critiques, are evident and proven in the following deconstructions of the Tonto National Forest's evaluation rationale issued by criterion for Polygon 86:

Polygon 86, Criterion: Apparent naturalness (rated Moderate by Tonto National Forest)

1. In response to the question (subcriterion), **"What is the extent to which improvements included in the area represent a departure from apparent naturalness?"** the Tonto National Forest responded:

   "Appearance of improvements detract from apparent naturalness in some areas. Range improvements on the east and south side of unit include stock tanks, corrals and fences scattered in the area. There is an unauthorized motorized trail, evidence of historic mining (adits and shafts) in low density, an old highway (paved road) in the northern portion, and the Arizona National Scenic Trail."

   This resulted in a rating of Moderate for this subcriterion.

First and foremost, the old paved highway (the old Beeline Highway) cannot remain within the unit boundary. Although it is abandoned, it constitutes too much of an impact to apparent naturalness to remain in the unit. Reconfiguring the eastern boundary of the unit to follow the western edge of the old highway would eliminate the old highway itself and all of the unit's acreage east of it.

Additionally, there needs to be a boundary reconfiguration along Highway 87 - the southeastern boundary. An awkward complex of cherrystems/exclusions around the Rincon Tanks area creates multiple management challenges. A new boundary should be drawn exclude this area. Through the Wilderness Recommendation Process, the Tonto National Forest has employed the strategy of drawing boundaries along routes and developments. However, FSH 1909.19 Chapter 70 [300] clearly states that natural features are acceptable boundary elements. The boundary should be redrawn using the bases of the northern slope of Black Mesa and the southeastern slope of Diamond Mountain and defining features. The boundary adjustment removes several stock ponds and unauthorized routes.

Maps depicting these boundary reconfigurations are found in Appendix II.

[300] FSH 1909.12 (70)(73)(2)(a) "…Use of natural features that are locatable both on the map and on the ground."

The Tonto National Forest writes that there are range improvements within the eastern and southern portions of the unit. First of all, following the suggested boundary change to remove the old highway, the eastern portion of the unit no longer exists and therefore any range improvements within should no longer be considered in this evaluation. All detected improvements still within the unit boundary should either be excluded along nearby cherrystems and/or have been deemed substantially unnoticeable.

Several stock ponds have been detected within the unit boundary. The majority of these stock ponds are adjacent to unit boundaries/cherrystems, and should be excluded along their respective, nearby boundary element. Often, routes are cherrystemmed to provide access to range improvements. There are several cherrystemmed routes within this unit that access stock ponds, but do not exclude the stock ponds themselves. These stock ponds are as follows:

1. Photopoint 229 shows a small stock pond along a cherrystemmed route (Forest Road 1333). It was not excluded from the unit boundaries along the adjacent cherrystem in the Tonto National Forest's spatial data. This stock pond should be removed from the unit boundary along its respective cherrystem.
2. Further along the Forest Road 1333 lies the Indian Springs Tank. It is accessed via this route, but it was not excluded from the unit boundaries along the route in the Tonto National Forest's spatial data. No photo data exists for this stock pond. This stock pond should be removed from the unit boundary along its respective cherrystem.
3. Photopoint 338 shows a water catchment feature, which may or may not have the same intention as a stock pond. The construction of Highway 87 dammed the wash seen in this photo, and created a stock pond-like structure. If this is indeed a functioning and important stock pond, we suggest it be excluded from the unit boundary.
4. Photopoint 252 shows a stock pond named 'Big Rincon Tank' and photopoint 251 shows a smaller stock pond next to it. Both of these stock ponds were not excluded along the adjacent cherrystem (Forest Road 1705) in the Tonto National Forest's spatial data. These stock ponds should at least be removed from the unit boundary along their respective cherrystem. Furthermore, with the boundary adjustment discussed previously, they would be eliminated from the unit.
5. Photopoint 334 shows another functioning, maintained stock pond, which is accessed by a route seen at photopoint 336. This route follows the path of the Arizona National Scenic Trail, and begins at the end of the cherrystem of Forest Road 1696. This stock pond and its access route should be removed from the unit boundary along their respective cherrystem.

One other stock pond was detected in the unit; it is not nearby any existing boundary element. Photopoint 259 shows a functioning, maintained stock pond. It lies at the bottom of a small drainage and is screened from most views by this topography. Additionally, it is screened by pinion-juniper and interior chaparral vegetation. It does not substantially impact naturalness.

Barbed wire fencing is a common occurrence in wilderness areas, as it facilitates grazing allotments – a use compatible with wilderness – and it is generally substantially unnoticeable. Barbed wire is generally substantially unnoticeable because it is small in stature, and is easily screened by vegetation and topography. Photopoints 257 and 267 show barbed wire within the unit boundaries; in both instances it is substantially unnoticeable because it is running through dense vegetation.

Photopoints 260 and 307 show black poly pipe. Photopoint 260 shows poly pipe, which leaves the stock pond at photopoint 259, and heads towards the town of Sunflower. Photopoint 307 shows poly pipe heading in the direction of Sunflower, too. In both cases, the poly pipe is substantially unnoticeable because it screened by vegetation and is small in stature.

Photopoint 264 shows a corral near the Arizona National Scenic Trail. This corral is substantially unnoticeable because it screened by pinion-juniper woodlands. Furthermore, although corrals are considerably tall, they are made of thin materials, and thus don't constitute a large mass. This corral's posts are made of local materials, which give it a natural appearance.

Singletrack trails do not frequently detract from apparent naturalness, because they are small in stature and are easily screened by vegetation and topography. Singletrack trails, such as the Arizona Trail, are generally only noticeable when directly upon them. The Arizona Trail singletrack can be seen in photopoint 269; it is clearly a minute impact, and is easily screened by the pinion-juniper woodlands surrounding it. Additionally, the Arizona Trail provides valuable opportunities for primitive recreation, and should only be seen as an asset to the unit. Photopoint 266 shows a gate along the Arizona Trail. Gates are common in wilderness areas, as they are often a necessary component of barbed wire fencing; they are small in stature and easily screened by vegetation. This gate is small and colored darkly and is substantially unnoticeable.

Following the elimination of unit acreage east of the old Beeline Highway, another major boundary adjustment near Rincon Tanks, the exclusion of several range improvements along cherrystemmed routes, and the recognition that many other improvements are substantially unnoticeable, that the unit deserves a rating of High for this subcriterion.

Polygon 86, Criterion: Opportunities for solitude and/or primitive/unconfined recreation (rated Moderate by Tonto National Forest)

2. In response to the prompt (subcriterion), **"Consider impacts that are pervasive and influence a visitor's opportunity for solitude within the evaluated area",** the Tonto National Forest responded:

   "Opportunities to feel alone are possible in much of the area, though signs of civilization are possible. It is possible to see the adjacent highway from much of the lower elevation areas. Sights and sounds associated with access to a variety of developments and uses including a private inholding, powerlines on the edge of the polygon, regular overhead flights, OHV use on the southern and western boundaries, and high recreation use on the Arizona National Scenic Trail all impact opportunities for solitude. However, there is limited access and use in some areas of the polygon, making opportunities for solitude possible in about 50% of area."

   This resulted in a rating of Moderate for this subcriterion.

Opportunities for solitude in unit 86 are abundant and possible in much more than 50% of the area, largely a result of the unit's complex topography.

The prominent edge of the Mazatzal Mountains defines the landscape character of much of unit 86. Containing an altitudinal gradient ranging from approximately 2,000' – 5,000', this unit has a lot going on topographically. This considerable topographic gradient has allowed for fluvial weathering

to carve vast, complex canyons and drainage systems throughout the rock strata below. The resulting landscape is one of deep, meandering washes, craggy canyons, and prominent peaks. This complex topography screens recreationists from unit-exterior sights and sounds associated with neighboring developments, and allows for an experience of solitude. Photopoint 222 shows the topography of the southern region of the unit. Additionally, this altitudinal gradient boasts a diversity of ecosystems; here, we see upland Sonoran desert scrub, interior chaparral, and pinion-juniper ecosystems, all of which offer opportunities for vegetative screening. Photopoint 333 documents a hiker who has stopped to eat lunch amidst a pinion-juniper woodland; the pinion pines and juniper trees provide her excellent screening, and thus a sense of solitude.

It is not true that it is possible to be effected by Highway 87 from much of the lower elevation areas. Sights and sounds of the highway do impact solitude in some areas, however they frequently do not. Chapter 70 of the Forest Service Land Management Planning Handbook 1909.12 clearly states that opportunities for solitude do not need to be found on every acre. Topography and vegetation in these lower elevation areas readily shield recreationists from sights and sounds associated with the highway. Photopoint 243 is taken only 0.4 miles from Highway 87 and facing it; here, topography and vegetation provide screening from the sights and sounds associated with the highway. Photopoints 225 and 227 are both taken less than a mile away from Highway 87, and both show canyons, which offer abundant topographic screening for solitude. Photopoint 227 shows a hiker travelling into the depths of the unit along a lonesome canyon; only a half-mile away from the highway the sights and sounds of Highway 87 are mitigated by massive canyon walls. Canyons and washes such as these are common in the unit.

Following the suggested boundary change to remove the old highway from the unit, the town of Sunflower, AZ can no longer be considered an inholding. Instead it simply lies along the unit boundary, and does not have the same impact on solitude that an inholding could have. Furthermore, the portion of the unit directly adjacent to Sunflower contains considerable topographic relief, which shield the rest of the unit from sights and sounds associated with Sunflower. This can be seen in photopoint 340.

Sights and sounds associated with the power lines and service road 393 do no significantly detract from solitude in the unit. Much of the extent of the power lines runs along a topographic low-point in the Mazatzal Mountains, generally following the path of Alder Creek. Thus, they do not stand tall above the unit, and are substantially unnoticeable. Photopoint 300 views the power lines from afar and just how insignificant they are relative to the landscape. Further east, photopoint 331 shows a series of hills and ridges along the unit boundary shielding the power lines from sight. Furthermore, the Travel Management Plan shows this route as being admin-use only; this means that it will not be used by the general public and therefore infrequently used. This reduces impacts to solitude.

OHV use along the southern and western boundaries poses little threat to solitude in the unit boundaries. Log Corral Road, or Forest Road 3456, defines these two boundaries; this route sits at the bottom of a deep, relatively narrow canyon called Log Corral Canyon. Thus, all the sights and sounds associated with this route cannot travel far, and cannot detract from solitude in the unit. Photopoint 219 shows a vehicle travelling along Forest Road 3456, beneath massive canyon walls. These canyon walls clearly shield the surrounding unit from the sight and sounds of this vehicle.

We disagree with the assertion that the use of the Arizona National Scenic Trail detracts from opportunities for solitude. The trail runs beneath pinion-juniper vegetation, meanders through small

hills, and is thus not easily detectable from much of the unit. Sights and sounds of the Arizona Trail are screened by these features. Although the Arizona Trail is a National Scenic Trail, internationally known, and absolutely incredible, it is not by any means a popular route. Additionally, its peak use only occurs from February - April and again from September – October; during the rest of the year, it experiences substantially less use. It does not substantially detract from solitude. Photopoint 261 shows a hiker travelling off-trail, less than 0.25 miles away from the Arizona Trail, in a state of solitude.

Unit 86 contains outstanding opportunities for solitude. Photopoints 236, 283, 295, and 305 all document backcountry recreationists travelling through lonesome, wonderful landscapes, in a state of pure solitude.

3. In response to the prompt (subcriterion), **"Consider the opportunity to engage in primitive type or unconfined recreation activities that lead to a visitor's ability to feel a part of nature",** the Tonto National Forest responded:

   "There are some opportunities for engaging in primitive and unconfined recreation and at least some of these opportunities are of high quality. Dispersed camping, horseback riding, hiking, and hunting opportunities with moderate risk may occur in the area."

   This resulted in a rating of Moderate for this subcriterion.

Opportunities for high quality primitive/unconfined recreation are abundant in unit 86 and thus rating should be should be upgraded to High. As discussed in previously, unit 86 is comprised of incredible terrain, consisting of meandering canyons, precipitous cliffs, a variety of floras, and rocky peaks. It is these landscape features that provide for the outstanding opportunities for primitive/unconfined recreation found here. This unit offers high quality opportunities for hiking, backpacking, horseback riding, rock climbing, camping, and hunting. The Tonto National Forest failed to recognize opportunities for rock climbing whatsoever.

The opportunities for hiking, backpacking, and horseback riding are seemingly endless within unit 86. The unit is carved up into a variety of sandy washes and ridgelines, all of which make outstanding travel routes. Photopoint 227 shows a hiker travelling up the sandy wash of Indian Springs Canyon, amidst Sonoran desert flora. The topography here assures the hiker is in state of solitude. Canyons such as this make excellent routes, as they provide less challenging terrain and easily lead a recreationist deep into the wilderness. There are several other named canyons within the unit that can facilitate this type of travel; they include Alder Creek, Brush Corral Canyon, and Maverick Springs Canyon.

For more challenging terrain, there are several ridgelines and peaks that make excellent travel destinations. The field surveyor and one volunteer went for an outstanding hike up to the summit of Diamond Mountain and then traversing a ridge to the craggy Indian Springs Peak. This was a challenging hike, as the terrain was steep, rocky, and densely vegetated. However, the hike yielded outstanding views and an enjoyable scramble to the summit of Indian Springs Peak. Photopoints 275, 282, 283, 286, 292, 295, 301, and 305 document this incredible hike. Photopoint 275 shows the ascent of Diamond Mountain. Photopoint shows the summit of Diamond Mountain, and the incredible views it has to offer. Photopoint 283 shows the desolate landscape surrounding the hiking route; solitude was

easily obtainable. Photopoint 286 shows a hiker nearing the end of the ridge traverse from Diamond Mountain to Indian Springs Peak. Photopoint 301 shows the prominent Indian Springs Peak. Photopoint 292 shows a hiker scrambling to the summit of Indian Spring Peak and 295 shows the hiker on the summit, basking in the solitude of this lonely desert peak and taking in the views. Photopoint 305 documents the descent back to the car, along a quiet, rocky wash, on the south slope of Diamond Mountain. There are many other routes of this nature.

Indian Springs Peak offers outstanding opportunities for traditional rock climbing. The field surveyor was unable to identify the rock type, however, it was clearly igneous in nature, and utterly solid. The entire circumference of the peak holds aesthetic lines that would appeal to the traditional climber looking for first ascents. This is definitely a backcountry crag, and would make a great destination for an overnight climbing trip. Photopoint 290 shows a hiker scrambling around, surely wishing he had his climbing gear.

The Arizona National Scenic Trail (Arizona Trail) offers outstanding opportunities for primitive recreation, including hiking, backpacking, and horseback riding. In unit 86, the Arizona Trail travels through a gentle landscape of rolling hills, characterized by pinion juniper woodlands. The terrain is mellow and relaxing, but also very aesthetic. Photopoint 270 shows a day-hiker travelling south, with wonderful views of the sunset-lit, snowy Boulder Mountain.

The opportunities for primitive/unconfined recreation within unit 86 are abundant and of high-quality and warrant rating of High. With this new information, it is imperative that the Tonto National Forest reconsiders the incredible opportunities found here.

Polygon 86, Criterion: Unique features

4. In response to the 'Unique Features' question, **"Are there any outstanding landscape features such as waterfalls, mountains, viewpoints, waterbodies, or geologic features?"** the Tonto National Forest responded:

   "*No"*

   This resulted in a lost opportunity for one bonus point per the maximum allowed under criterion 'Unique Features'.

Unit 86 comprises a portion of the Mazatzal Mountains, and thus it is incorrect to say there are no mountains here. There are several prominent peaks in the unit, which include Indian Springs Peak, Maverick Springs Peak, and Diamond Mountain. Indian Springs Peak can be seen in photopoint 301. Many of the canyons within the unit have carved interesting geologic features. One such feature can be seen in photopoint 237; here, steep walls of granite have formed a little slot canyon. Additionally, the unit contains many outstanding viewpoints; some of these can be seen in photopoints 282, 295, and 341. The response here should be "Yes",

5. In response to the 'Unique Features' question, **"Are there any high quality water resources or important watershed features?"** the Tonto National Forest responded:

   "Yes, Alder creek watershed is rated as functioning properly reaches of perennial flow in Sycamore Creek, Log Corral Canyon, and Alder Creek."

Following the suggested boundary change, Sycamore Creek is no longer within the unit boundary. It should be removed from this list.

Additionally, unit 86 drains directly into Bartlett Reservoir, a component of the Salt River Project, which provides water to much of central Arizona. Photopoint 298 shows the reservoir.

Polygon 86, Criterion: Manageability (rated Moderate by Tonto National Forest)

6. In response to the following topics related to criterion 'Manageability': **Shape and configuration, cherry stemming, boundary etc.; presence and extent of legally established uses or rights (mining, special uses, traditional uses); adjacent land management or signed decisions; percent Roadless area; prevalence of non-primitive recreation activities; any other pertinent information**, the Tonto National Forest responded:

   "Management to preserve the area's wilderness characteristics is possible throughout most of the area. Management challenges include several cherry stemmed roads that intrude into the area, the access and use of the Sunflower private inholding, heavily used roads that border the polygon, an unauthorized motorcycle trail, existing special use permit for equestrian use and camping, old paved highway in the polygon, ongoing access and maintenance of range improvements with equipment on a 5-10 year cycle, wildfire prevention and suppression activities associated with community of Sunflower, presence of a powerline access road, and a highway adjacent to area. Management of wilderness character would be moderately difficult throughout most of area.

There are two cherrystems that intrude into the unit: Forest Road 1333 and Forest Road 1696. These cherrystems do not substantially disrupt solitude within the unit.

1. Forest Road 1333 follows a steep ridgeline and contours through rugged terrain; unauthorized motorized trespass is unlikely to originate along this cherrystem. Photopoint 232 shows a 4x4 vehicle travelling this cherrystem, the terrain on either side of the vehicle limits motorized access. The Tonto National Forest's Travel Management Plan shows this route as being admin-use only; this means that it will not be used by the general public and therefore infrequently used. This reduces impacts to solitude and the possibility of motorized trespass.
2. Forest Road 1696 is along the northern boundary. It is slated to be decommissioned in the Travel Management Plan.

Other cherrystems would exist, however various boundary reconfigurations suggest here make them unneeded. Photopoint 281 shows an aerial view of the Rincon Tanks exclusion; this area would have needed cherrystems, but no longer does.

Heavy use roads border the unit, however they do not substantially impact opportunities for solitude within the unit nor do they create opportunities for motorized encroachment. The southwestern boundary, Log Corral Road, lies at the bottom of a deep, rugged canyon. There are not many places along this canyon where a motorized vehicle could drive off-road into the unit. Photopoint 219 shows

a truck travelling along this route, confined to the sandy road by the towering canyon walls. The terrain surrounding this route helps mitigate a potential management issue.

The unauthorized motorcycle trail should be closed and allowed to revegetated. If access were barred to this route, it would rapidly naturalize, and no longer be a management issue or impact to naturalness. Furthermore, it is the Forest Service's responsibility to enforce the closure of unauthorized routes. The Travel Management Plan slates this route to be decommissioned.

The old paved highway was removed from the unit boundary, and no longer presents a management issue. Following the correlated reduction in unit acreage, the town of Sunflower is no longer an "inholding" and shares significantly less boundary with the unit. Motorized trespass originating in the town of Sunflower is unlikely because the unit gains considerable topographic relief directly adjacent to its shared border with Sunflower. This steep gain in elevation deters motor vehicles. It can be seen in photopoint 340. This terrain helps mitigate a potential management issue.

Five stock ponds should be excluded from the unit boundaries along nearby cherrystemmed routes. Following these exclusions, the amount of range improvements within the unit boundaries has been significantly reduced. This reduction in range improvements within the unit should correlate with a reduction in management difficulty.

Highway 87 defines a substantial amount of the unit's boundary; motorized encroachment originating here is unlikely because guardrails, which shield the unit from motor vehicles, bound this highway. Photopoints 239 and 274 show the guardrails separating Highway 87 from unit 86.

Motorized trespass from the northwestern boundary (Service Road 393) is unlikely because steep topography associated with Alder Creek creates a barrier between it and the rest of the unit. Photopoint 300 shows this topography. This topography helps mitigate a potential management issue. Furthermore, the Travel Management Plan shows this route as being admin-use only; this means that it will not be used by the general public and therefore infrequently used. This reduces impacts to solitude and the possibility of motorized trespass.

RECOMMENDATIONS - WILD 14 - EXAMPLE OF POLYGON 86:

1. Reconfigure the unit boundary to exclude the old Sunflower highway and the eastern portion of the unit.
2. Reconfigure the unit boundary to exclude the awkward cherrystem/exclusion clump near the Rincon Tanks.
3. Recognize the topographically complex landscape as it pertains to opportunities for primitive/unconfined recreation and screening for solitude.
4. Re-evaluate the manageability rating with new information and perspectives
    a. The reconfiguration of the unit boundaries to cherrystem multiple stock ponds would alleviate several management concerns (i.e. range infrastructure maintenance and access)
5. Acknowledge the mountainous terrain found in the unit, in respect to 'Unique features' subcriterion.
6. Consider revelations from the Travel Management Plan in respects to cherrystem and boundary road usage.

7. Provide criterion "apparent naturalness", "opportunities for solitude and/or primitive/unconfined recreation" and "manageability" with ratings of HIGH.
8. Apply these recommendations and reanalyze polygon 86 for inclusion in an alternative.

TOP: Photopoint 283, Polygon 86: A hiker looking west to his destination, Indian Springs Peak, from the summit of Diamond Mountain. BOTTOM: Photopoint 301, Polygon 86: After a long day hike, through snow and scrub, we reached Indian Springs Peak. This peak offers enjoyable scrambling and traditional rock climbing on stellar rock quality.

CONCERN - WILD 15 - EXAMPLE OF POLYGON 76: As result of a flawed wilderness evaluation process, Polygon 76 is unjustifiably excluded from the Draft Forest Plan – the proposed action.

RATIONALE - WILD 15 - EXAMPLE OF POLYGON 76: Polygon 76 (Boulder) constitutes approximately 72,550 acres; it was rated "Moderate" by the Tonto National Forest in the wilderness evaluation process. It was not included in alternative B and should have been. Due to oversights in the consideration of conditions on the ground, a corresponding misguided interpretation of wilderness criteria, poorly configured unit boundaries, and a deficient adherence to vital comments our coalition has provided in the past, the Tonto National Forest has penalized and inadequately rated Polygon 76. These oversights and interpretations, in addition to other necessary critiques, are evident and proven in the following deconstructions of the Tonto National Forest's evaluation rationale issued by criterion for Polygon 76:

Polygon 76, Criterion: Apparent naturalness (rated Moderate by Tonto National Forest)

1. In response to the question (subcriterion), **"What is the composition of plant and animal communities?"** the Tonto National Forest responded:

   "In most areas the composition of plant and animal communities would appear natural to the average forest visitor. Dominant vegetation is Sonoran desert, desert scrub and grassland, Juniper, and Ponderosa Pine communities on typical elevation gradients and small patches of riparian vegetation along Sycamore Creek. Species and habitat of special status include Mexican Spotted Owl Protected Activity Centers and critical habitat, Bezy's Night lizard, Lowland Leopard Frog, Gila monsters, Gila Top Minnow, Desert Sucker, Golden Eagle, 9 Species of Bat (including Western Red Bat), Tonto Basin and Hohokam Agave, and Sonoran Desert Tortoise. The presence of exotic, invasive and/or non-native plant and animal communities are found in infrequent small patch sizes in the area, though there is a large area of invasive Yellow Star Thistle, some Oleander, and sweet resin bush that covers approximately 10 acres. There are also infrequent patches of red brome and nonnative mustard."

   This resulted in a rating of Moderate for this subcriterion.

The listed dominant vegetation types are accurate, however the Tonto National Forest should include the interior chaparral community. Interior chaparral is highly abundant on the landscape, especially in burn scars. Not only does this vegetation type characterize huge swathes of land, it also has implications for wildlife habitat, opportunities for primitive/unconfined recreation, and opportunities for solitude.

The composition of plant and animal communities would appear natural to the average visitor. The low abundance of nonnative and invasive species does not warrant a rating less than High for this subcriterion.

The Tonto National Forest writes, "The presence of exotic, invasive and/or non-native plant and animal communities are found in infrequent small patch sizes". While Chapter 70 of the Forest

Service Land Management Planning Handbook 1909.12[301] makes no mention of nonnatives, the Tonto National Forest's Final Evaluation Rationale[302] states that for a score of High, "…The presence of exotic, invasive and/or non-native plant and animal communities are sparse to absent in the area." Meanwhile, the language "…The presence of exotic, invasive and/or non-native plant and animal communities are found in infrequent small to moderate patch sizes in the area" is used to define a rating of Moderate. While "infrequent small…patch sizes" is arguably synonymous with "sparse" and these rationales are flawed and arbitrarily distinguishable at best to begin with, the "infrequent small patches of exotic, invasive, and/or nonnative species" in polygon 76 are in fact "sparse" and are acceptable for a score of High. Thus, the "infrequent patches of red brome and nonnative mustard", also are acceptable for a score of High.

For example, the "large area of invasive yellow star thistle, some oleander, and sweet resin bush that covers approximately 10 acres"; it is not true that this comprises a "large area" within unit 76. It is important to consider the total acreage of a unit in determining how much of an impact a certain disturbance has. For example, while ten acres of invasive species may profoundly impact a 500-acre unit, those same ten acres cannot profoundly impact a 10,000-acre unit; the difference is in the density of the disturbance. These ten acres of invasive species comprise a mere 0.014% of unit 76's total acreage. Ten acres is a small area in contrast to the 72,721 acres of unit 76, and is thus an acceptable impact for a rating of High.

The Tonto National Forest fails to accurately consider patch size in relation to unit acreage. This needs to be addressed.

Photopoint 24 documents a common scene in the lower elevations of the unit: apparent naturalness. Here, Sonoran desert scrub and interior chaparral communities blend. All observed species are the native constituents of these vegetation types. Photopoints 53 and 61 document similar scenes, however at higher elevations. Photopoint 53 documents a burn scar, in which the interior chaparral community is flourishing. Photopoint 61 shows unburned ponderosa pine woodlands, with an understory of *Quercus gambleii.*

2. In response to the question (subcriterion), **"What is the extent to which improvements included in the area represent a departure from apparent naturalness?"** the Tonto National Forest responded:

   "Prevalence of improvements is overall low throughout the area and may be concentrated in some spots but is more typically dispersed through the area. It is common to find spots where improvements are absent or unseen. There are 7 non-motorized system trails, areas of historic mining activity, a moderate density of authorized system routes, a moderate density of range improvements including the Ash Creek well that has a building with a pump system, 3 spring developments with above ground poly pipe, 6 troughs and additional stock and storage tanks."

   This resulted in a rating of Moderate for this subcriterion.

[301] FSH 1909.12 (70)(72.1).
[302] "Evaluation Criteria for the Tonto National Forest Wilderness Recommendation Process" – Tonto National Forest.

The language stating "prevalence of improvements is overall low throughout the area" and disturbances are "more typically dispersed through the area" is accurate. Additionally, "it is common to find spots where improvements are absent or unseen" is accurate. The field surveyor was unable to locate any improvements, which were "concentrated in some spots".

In reference to the 7 non-motorized system trails in the unit: all of these trails are substantially unnoticeable, offer outstanding opportunity for primitive recreation, and thus should only be considered as assets to the unit. The thinking that single-track trails detract from apparent naturalness is flawed. The key word here is "apparent". These seven singletrack trails include: Boulder Creek (73), Pine Creek Loop (280), Park (66), Denton (69), Sycamore (68), Ballantine (283), and the Arizona National Scenic Trail (Arizona Trail). All seven of these trails are only noticeable when directly upon them, and are otherwise easily screened by topography and vegetation, as they are small in stature. Photopoint 105 documents the Ballantine Trail (283); second to the Arizona Trail, this is the most used and maintained trail. However, it remains substantially unnoticeable, as it is screened by vegetation and the topography associated with the canyon it runs parallel with. Photopoint 6 shows the Park Trail (66) and photopoint 22 shows the Denton Trail (69); both of these trails are overgrown, eroded, and unmaintained. Additionally, they are often screened by topography and vegetation. Both trails are substantially unnoticeable, as result of the lack of maintenance and adjacent screening. Photopoint 115 documents the Arizona Trail; it is screened by topography and vegetation and is thus substantially unnoticeable. The majority of the Arizona Trail within unit 76 follows the Boulder Creek Trail (73), and perhaps should not be counted as one of the seven trails mentioned here. In general, the majority of official trails within unit 76 are highly unmaintained; this lack of maintenance makes trails increasingly unnoticeable.

More often than not, historic mines are substantially unnoticeable because they are revegetated and screened by the topography they are excavated into. Photopoint 60 documents an abandoned mine; it is screened by vegetation and topography, and appears to be nothing more than a pile of loose rock. It does not pose a serious impact to naturalness.

Many of the range improvements, such as troughs, storage tanks, and stock ponds within unit 76 should be excluded from the unit boundaries. In many cases, the Tonto National Forest has cherrystemmed routes along the unit boundaries, which provide access to range improvements; however, they neglected to exclude the improvements themselves. If a route is provided a cherrystem, the improvement it accesses should also be excluded. This is a serious issue seen across all polygons in the wilderness recommendation process.

One example of this is the Ash Creek Well and it's associated building, pump house, and trough, which can be seen at photopoint 36. A short, incorrectly placed cherrystem in the Tonto National Forest's spatial data approached this improvement, but did not exclude it. Historically, a bladed road accessed the well; now, the sandy creek bed of Ash Creek is the primary access route. The cherrystem should be reconfigured to exclude the proper access route and all improvements associated with the Ash Creek Well, thus eliminating this impact from the unit boundary. Photopoint 38 shows impassable terrain, which would bar motorists from encroaching further into the unit from this proposed cherrystem, and thus mitigating a potential management issue.

Other examples of this are as follows:

1. Photopoints 30 and 106 both show large, unused water tanks adjacent to cherrystemmed routes. These tanks were not excluded in the Tonto National Forest's spatial data, but should have been. Exclude these impacts along their respective, adjacent cherrystems.
2. Photopoint 34 shows a water trough, which has not been excluded from the unit boundary. A cherrystemmed route approaches this water trough, but does not exclude it in the Tonto National Forest's spatial data. Exclude this impact along the adjacent cherrystem.
3. Photopoint 35 shows a functional rainwater catchment within the unit boundary and adjacent to a cherrystemmed route. Exclude this impact along the adjacent cherrystem.
4. A stock pond is present within the unit boundary and is adjacent to the cherrystemmed route, Route 1381. We recommend excluding this impact along the adjacent cherrystem.
5. A water trough is present within the unit boundary at the site of 'Cline's Cabin', near the end of the cherrystemmed route, Route 143A. Exclude this impact along the adjacent cherrystem.
6. Several stock ponds are present along Route 3529, off of Bushnell Tanks Road. Route 3529 is cherrystemmed in the Tonto National Forest's spatial data, however one stock pond towards then end of the route is not excluded. Exclude this impact along the adjacent cherrystem.

There are other improvements within the unit boundary that are not accessed by a cherrystemmed route, and thus are not as readily excludable from the unit boundary. The majority of these impacts are substantially unnoticeable, and are discussed in the following paragraphs.

Barbed wire fencing is common in wilderness areas, as it is small in stature, and substantially unnoticeable- often growing through thick vegetation and unmaintained. An example of this can be seen at photopoint 5; it is camouflaged by rust, and is screened by thick vegetation. It is substantially unnoticeable.

Photopoint 4 shows a functional, blue water trough and a neighboring abandoned water trough. Although this impact is functional and noticeable within fifty feet, at large it is substantially unnoticeable as mesquite trees screen it from view. It is important to consider the total acreage of a unit in determining how much of an impact a certain disturbance has; although this impact is noticeable and blatantly unnatural, is constitutes an insignificant portion of the unit's total acreage.

Photopoints 9 and 48 document black poly pipe running across the ground. In both cases, this poly pipe is substantially unnoticeable as it is screened by vegetation and is small in stature.

This subcriterion deserves a rating of High following the necessary exclusion of several range improvements along adjacent cherrystems, and because the majority of improvements are substantially unnoticeable and infrequently occurring.

Polygon 76, Criterion: Opportunities for solitude and/or primitive/unconfined recreation (rated Moderate by Tonto National Forest)

3. In response to the prompt (subcriterion), **"Consider the opportunity to engage in primitive type or unconfined recreation activities that lead to a visitor's ability to feel a part of nature",** the Tonto National Forest responded:

> "Opportunities to feel alone are possible in much of the area, though signs of civilization are possible. Opportunities improve when away from the Arizona Trail, and two major highways that are adjacent to the polygon."
>
> This resulted in a rating of Moderate for this subcriterion.

It is true that "opportunities to feel alone are possible in much of the area". Signs of civilization are possible, however extremely uncommon due to this unit's massive acreage and topographic complexity.

It is true that "opportunities (for solitude) improve when away from the Arizona Trail, and (the) two major highways that are adjacent to the polygon." Given the massive acreage of the unit, it's easy to say that the majority of the unit is *away* from these features, and that they do not substantially impact solitude. Furthermore, solitude does not need to be found on every acre. Chapter 70 of the Forest Service Land Management Planning Handbook 1909.12 clearly states this.

However, specifically regarding the Arizona Trail: high-use is only during the late winter/early spring months for northbound hikers and late summer/early fall months for southbound hikers. The rest of the year it sees much less traffic, and thus the impact the Arizona Trail has on solitude fluctuates throughout the year. Ultimately, the Arizona Trail never negatively affects opportunities for solitude, at any time of the year.

Polygon 76 straddles the crest of the Mazatzal Mountains, and is thus riddled with topographic complexity. The unit's highest point (Boulder Mountain) stands tall at 6,320', towering above the basins below, which lie at approximately 2,200'. This massive, steep altitudinal gradient is carved up with canyons, washes, and creeks; rocky slopes, rolling hills, and craggy peaks fill the voids between. These immense landscape features beckon to the residents of the Phoenix metropolitan area not only for recreation, but also as a place to find silence. This unit is filled with opportunities for solitude, result of seemingly endless waves of topography and lack of development.

Photopoints 56, 88, 97, and 311 all document samples of the outstanding landscape features, which provide topographic screening for solitude. Photopoint 56 is looking east down into the headwaters of Sycamore Creek from the Mazatzal Crest. This creek has carved a deep canyon, and offers outstanding topographic screening. Creeks and canyons like this are common coming down off of the Mazatzal Crest, on both the eastern and western slopes. Photopoint 88 is looking N towards the massive Pine Mountain and its surrounding complex topography. Photopoint 97 is looking N into an area known as 'The Boulders'; here, recreationists can scramble through boulders, chutes, and caves, in a state of solitude, assured they are alone by the dense silence of the abundant rock. Photopoint 311 shows a hiker travelling north towards Crabtree Butte. The hiker is not even 1.5 miles from Highway 88, yet they are completely shielded from the sights and sounds of the highway by the nearby hills and peaks. Photopoints 11, 40, and 99 are all scenic photos, but also document opportunities for topographic screening in the unit. Additionally, all of these photos show a rugged landscape, which is challenging to travel through. Here, a backcountry recreationist can find solitude in the experience of travelling into challenging terrain where not many others would venture.

Additionally, there are moderate to outstanding opportunities for vegetative screening in the unit. The Sonoran desert scrub and interior chaparral communities offer moderate screening, and the unburned

ponderosa pine/Gambel oak forests at higher elevations offer outstanding vegetative screening, evident in photopoint 61.

The rating of this subcriterion should be upgraded to High, because this unit contains ample opportunities for topographic and vegetative screening, and its large acreage assures plenty of space away from sights and sounds of nearby highways.

4. In response to the prompt (subcriterion), **"Consider the opportunity to engage in primitive type or unconfined recreation activities that lead to a visitor's ability to feel a part of nature",** the Tonto National Forest responded:

   *"*There are abundant opportunities for engaging in primitive and/or unconfined recreation. These opportunities are of high quality and/or risk. The area provides high quality hiking, hunting and horseback riding. Camping is common."

   This resulted in a rating of High for this subcriterion.

Although the rating of High is appropriate for this rationale and criterion, there are a few points to be made here. This unit provides more than just hiking, hunting, and horseback riding; it also provides opportunities for traditional rock climbing, bouldering, and backpacking. These opportunities are in part due to the incredible topography found in the Mazatzal Mountains. Here, recreationists travel from afar to travel the winding canyons, mountain slopes, boulder fields, montane forests, and rugged ridgelines.

This is an incredibly aesthetic landscape to move through, with a variety of sceneries. This unit spans a massive altitudinal gradient, and thus also spans a massive ecological gradient. Here, recreationists have a variety of landscapes and environments to recreate in. The diversity of this landscape is apparent in photopoint 40. In the lower elevations, recreations can experience the Sonoran Desert- a classic Arizona experience. Here, they can travel across alluvial fans, through sandy washes and canyons, over exposed granite, amidst of flora of saguaro cacti, palo verde, mesquite, and other Sonoran desert scrub vegetation. This scenery can be seen in Photopoint 99. This contrasts greatly with the higher elevations of the unit, where recreationists can drop into the headwaters of surrounding creeks and washes, traverse ridge tops, climb granite cliffs, and take in sweeping views, all from within the shade of pine forests. Photopoint 61 shows a portion of this scenery. Fall colors can even be enjoyed in the higher elevations of the Mazatzals, evident in photopoint 62. Additionally, this unit hosts several riparian corridors, which creates other wonderful scenic opportunities. A ribbon of sycamores follows the path of Park Creek, seen in Photopoint 11. Sycamore Creek's perennial flow (seen in photopoint 112), hosts a lush riparian corridor of willow, cottonwood, ash, and sycamore, which can be seen in photopoint 118.

Unit 76 contains many opportunities for bouldering, scrambling, and traditional rock climbing. Areas such as "The Boulders", seen in photopoint 97, and other boulder-strewn lands such as that seen in photopoint 54, offer copious amounts of opportunities for bouldering on high-quality granite. Along with opportunities for first ascents, there are many established traditional and sport routes in the unit. One climbing area is on the south face of Boulder Mountain. This area offers outstanding, remote traditional climbing on granite and truly offers a backcountry climbing experience, filled with risk and solitude. Due to the long approach, this would make for an excellent overnight trip. More climbing can be found nearby on Pine Creek on a variety of bluffs, boulders, and cliffs. Another, more popular

climbing area, known as "The Colony" lies along Sycamore Creek, at the base of Crabtree Butte. Sycamore Creek has carved a magnificent canyon through the granite surrounding Crabtree Butte, seen in photopoint 112; this is where the climbing lies. This area features multiple established traditional and sport routes on large granite walls.

This unit offers outstanding opportunities for hunting mule deer. The field surveyor observed two hunters in different locations carrying their kills out of the unit.

The opportunities found here for hiking, backpacking, and horseback riding must not be understated. They are outstanding throughout the unit, from the lower elevations to the higher elevations. Backpackers and day-hikers have a variety of routes to pick from, from the many canyons flowing out of the eastern and western slopes, to the various ridgelines, to the craggy peaks. The exciting terrain to explore is seemingly endless. There are many excellent hikes in which a recreationist could travel along washes, creeks, and canyons from the desert lowlands, up to the Mazatzal Crest, and into a starkly different world with outstanding views. One of these routes can be seen in photopoint 13, which shows Park Creek. The Park Creek canyon provides an outstanding, challenging route from the lowlands up to Edwards Park- a wooded meadow. In addition to the variety of off-trail travel opportunities, the unit also hosts a variety of singletrack trails, which allow a hiker or horseback rider to more easily obtain an outstanding backcountry experience. Several of these trails can be seen at photopoints 12, 25, and 29. Furthermore, unit 76 hosts a portion of the Arizona National Scenic Trail, which can be seen at photopoint 114.

Preservation of unit 76 as wilderness would preserve all of these outstanding opportunities for primitive and unconfined recreation.

Polygon 76, Criterion: Unique features

5. In response to the 'Unique Features' question, **"Are there any outstanding landscape features such as waterfalls, mountains, viewpoints, waterbodies, or geologic features?"** the Tonto National Forest responded:

   "*No"*

   This resulted in a lost opportunity for one bonus point per the maximum allowed under criterion 'Unique Features'.

Unit 76 straddles the crest of the Mazatzal Mountains, which are considered a prominent mountain range in Arizona; therefore, an answer of "No" to this subcriterion cannot be correct. The extent of these mountains can be seen in photopoints 1 and 40. Furthermore, there are several prominent peaks within this portion of the range, and are as follows: Boulder Mountain, Cypress Peak, Edwards Peak, and Pine Mountain. The highest peak, Boulder Mountain (6,320'), can be seen in photopoint 223. The snow seen in this photo makes the mountainous terrain found here all the more evident. Cypress Peak (5,952') is seen in photopoint 123 and Pine Mountain (6,236') is seen in photopoint 88.

There are several waterbodies to note, too. Sycamore Creek runs perennially in some locations, this flow can be seen in photopoint 121. Also, there are several pools of water along Sycamore Creek in its canyon at photopoint 112. Many springs can be found in this unit also; Denton Spring can be seen at photopoint 28 and photopoint 7 shows Packard Spring.

There are many outstanding views too, which are obtainable from the highlands of the unit. Photopoint 27 shows a sweeping view looking NE, and is taken only from mid-slope. Photopoint 52 shows a view from higher up, looking SE towards Roosevelt Lake. Photopoint 321 shows a hiker taking in an excellent view from Boulder Pass, after a rewarding hike. The answer to this subcriterion should be "Yes".

6. In response to the 'Unique Features' question, **"Are there any high quality water resources or important watershed features?"** the Tonto National Forest responded:

   "*No"*

   This resulted in a lost opportunity for one bonus point per the maximum allowed under criterion 'Unique Features'.

The eastern slope of the Mazatzal Mountains, and thus roughly the eastern half of unit 76 drains directly into the Tonto Creek watershed, and thus into Roosevelt Lake. Roosevelt Lake is a component of the Salt River Project, which supplies drinking water to the Phoenix metropolitan area. Providing unit 76 with wilderness designation would help preserve this high-quality watershed feature. The answer to this subcriterion should be "Yes".

Polygon 76, Criterion: Manageability (rated Moderate by Tonto National Forest)

1. In response to the following topics related to criterion 'Manageability': **Shape and configuration, cherry stemming, boundary etc.; presence and extent of legally established uses or rights (mining, special uses, traditional uses); adjacent land management or signed decisions; percent Roadless area; prevalence of non-primitive recreation activities; any other pertinent information**, the Tonto National Forest responded:

   *"*Management to preserve the area's wilderness characteristics is possible throughout most of the area. Private land and two major Arizona highways bound the area and there is heavy cherry stemming around the perimeter of the polygon. There is a moderate degree of motorized encroachment coming from the private edge, mineral materials activities, and access required for range Improvements. 75% of the polygon is part of an inventoried Roadless area. This area contains Bureau of Reclamation First Form withdrawals."

   This resulted in a rating of Moderate for this subcriterion.

The problems presented by these two highways are negligible. Highways 188 and 87 mostly define the western, northern, and eastern unit boundaries. Management issues can arise from adjacent motorized routes such as these, in the form of possible impacts to solitude and creating the potential for illegal motorized encroachment. However, the Tonto National Forest fails to accurately consider the implications of topography, vegetation, and guardrails adjacent to these highways. The majority of the land directly adjacent to these routes is rugged, steep, and often densely vegetated. These features limit the possibility of illegal motorized trespass, as the average mechanized vehicle simply cannot do it. Photopoint 104 shows a steep, rocky, densely vegetated slope adjacent to Highway 87; motorized trespass is unlikely here. Furthermore, considerable portions of these highways have guardrails, which create barriers between the unit and motor vehicles. Additionally, unit 76 is massive and

topographically complex and thus, these two highways pose little threat to the vast majority of solitude in the unit.

Similarly, the topography and vegetation adjacent to the several forest roads along the southern and northern boundaries also protect against motorized encroachment. These forest roads include El Oso Road on the southern boundary and Bushnell Tanks Road and El Reno Road on the northern boundary. Photopoint 44 shows the topography and vegetation adjacent to El Oso Road; it is steep and densely vegetated and therefore motorized trespass would be unlikely. Photopoint 15 shows the topography and vegetation adjacent to El Reno Road; it is also steep and densely vegetated and therefore motorized trespass would be unlikely. Photopoint 125 shows a road closure sign for Bushnell Tanks Road; this road closure temporarily prevents motorized trespass along this boundary because vehicles cannot access it.

Furthermore, the closure of Bushnell Tanks Road prevents access to several cherrystemmed routes, which intersect with it. These routes are admin-use only, currently, and are shown as such in the Travel Management Plan. There are many other cherrystems along the unit boundaries. However, several of these cherrystems in the Tonto National Forest's spatial data are inaccurate and/or do not actually correspond with any routes on the ground.

There are many unnecessary cherrystems in the Tonto National Forest's spatial data, and they are as follows:

1. Photopoint 16 shows a barbed wire fence that bars access to an old route. This route has largely been revegetated, is inaccessible, and was never as long as the Tonto National Forest's spatial data suggests. This route is unused and inaccessible. It does not warrant a cherrystem.
2. Photopoint 19 shows an abandoned, unmaintained route numbered 1379. Access to this abandoned route is restricted by private property. This route is unused and inaccessible. It is to be decommissioned in the Travel Management Plan.
3. Photopoint 20 shows an undisturbed landscape at the sight of a strange cherrystem branching off of the cherrystem of Route 1380. It seems to have been an error, and should be removed from the boundary.
4. Photopoint 31 shows a cherrystem that is too long. The cherrystem is intended to exclude Route 1720, however the spatial data continues beyond actual extent of the route. This seems to have been an error; the cherrystem should be shortened. This portion of the route is slated to be decommissioned in the Travel Management Plan.
5. Photopoint 78 shows an "AREA CLOSED" sign, which indicates the closure of the old route beyond it. This route has been cherrystemmed in the Tonto National Forest's spatial data, and should not be. The route has been closed, has been re-naturalized, and thus does not warrant a cherrystem. This route is slated to be decommissioned in the Travel Management Plan.
6. Photopoint 117 shows a braid of Sycamore Creek, which is not a motorized route. This is a streambed and covered with downed logs and low hanging tree scaffolds. It has been cherrystemmed in the Tonto National Forest's spatial data, and should not have been. Photopoint 120 shows the other end this cherrystem; here, an old route is present. However, this route is inaccessible, unmaintained, and unused.
7. Route 1351, a TRAL route, has been cherrystemmed near the southern boundary, along the Arizona Trail/El Oso Road cherrystem. This route warrants a cherrystem, however

the cherrystem was made too long in the Tonto National Forest's spatial data. Shorten the cherrystem.

There are many other considerations in regards to the Travel Management Plan. Several other cherrystems, or portions of, are listed to be decommissioned and/or admin-use only. Any routes that are to be decommissioned do not warrant a cherrystem and should not be considered as management issues. Any cherrystem that is admin-use only presents a significantly smaller management issue. Pending changes to route useage should be considered when evaluating the effects of these routes on adjacent wilderness character and management. The numerous revelations from the Travel Management Plan are listed below:

1. Photopoint 78 shows a route that is closed, and to be decommissioned.
2. A small cherrystem heading W of the Arizona Trail/Mazatzal Divide cherrystem is being decommissioned past the wildlife water catchment
3. Eastern Boundary (south to north):
    a. Cherrystem to Ash Creek Well is ATV-admin only trail. PP 36, 38.
    b. Cherrystem to wildlife water catchment (PP 35) is ATV admin use only.
    c. Forked cherrystem leading to tough at PP 34 is ATV admin use only
    d. Cherrystem past PP 30 is decommissioned in addition to non-existent.
    e. A fork of a cherrystem leading up Walnut Canyon heads south; it is decommissioned.
    f. Cherrystem leading to Chalk Spring, at PP 19, is being decommissioned.
    g. Cherrystem beginning near Tonto/Sycamore Creek confluence is Admin-Use only
4. Northern Boundary:
    a. A large cherrystem beginning at Reno Pass, roughly following the county line is admin-use only.
    b. All of the cherrystems off of Bushnell Tanks Road are administrative-use only.

Cherrystems have the potential to present a management issue, as they increase the possibility of impacts to solitude within the unit and illegal motorized encroachment; however, many cherrystems should be removed. Upon recognition that these noted cherrystems are unnecessary, the amount of cherrystems in the unit has been dramatically increased. This new perspective will help eliminate much of this potential management issue. It is important to mention the long, central cherrystem along El Oso Road; although this cherrystem pierces the center of the unit, it does not substantially affect the surrounding unit. First of all, it is atop the Mazatzal Crest and dips in and out of steep topography, and is thus not readily noticeable from the surrounding wild lands. Additionally, it would be difficult for motorized vehicles to trespass into the surrounding unit, because the terrain in this region is very rugged and steep.

There are several range improvements within the unit, which require occasional access for maintenance. In many cases, cherrystemmed routes approach these range improvements, however they do not exclude the improvements. Many of these range improvements were discussed previously (in relation to apparent naturalness) and we have recommended removing them from the unit boundaries along the adjacent cherrystems. Following the appropriate removal of these improvements, there are significantly fewer improvements, if any, within the unit that require motorized access.

Wilderness designation of unit 76 would preserve the Inventoried Roadless Area within the unit boundary.

RECOMMENDATIONS - WILD 15 - EXAMPLE OF POLYGON 76:

1. Reconfigure the unit boundary to exclude numerous inaccurate and unnecessary cherrystems. These cherrystems are listed under **Polygon 76**, Criterion: Manageability
2. Consider the Tonto National Forest Travel Management Plan in respects to cherrystem and boundary road usage. Recognize how routes will be used or decommissioned has profound implications on the management of adjacent wilderness resources.
3. Reconfigure the unit boundary, particularly cherrystems, to exclude various impacts to naturalness. For example, the Ash Creek Well. These impacts are listed under **Polygon 76,** Criterion: Apparent naturalness.
4. Recognize the topographically complex landscape as it pertains to screening for solitude and apparent naturalness (causing improvements to be substantially unnoticeable). Many improvements in 76 are substantially unnoticeable. These are listed in **Polygon 76**, Criterion: Apparent naturalness.
5. Consider the total acreage of a unit in determining how much of an impact a certain disturbance has.
6. Re-evaluate the manageability rating with new information and perspectives.
7. Acknowledge the mountainous terrain found in the unit, in respect to the 'Unique features' subcriterion.
8. Acknowledge the watershed resources (Roosevelt Lake) found in the unit, in respect to the 'Unique features' subcriterion.
9. Provide criterion "apparent naturalness" and "manageability" with ratings of HIGH.
10. Provide subcriterion "solitude" with a rating of HIGH.
11. Apply these recommendations and reanalyze polygon 76 for inclusion in an alternative.

Photopoint 55, Polygon 76 (Boulder): Looking north into Big Pine Flat amidst the higher elevations of Polygon 76. Opportunities for solitude and unconfined recreation are seemingly endless in this vast landscape.

CONCERN - WILD 16 - EXAMPLE OF POLYGON 60a: As result of a flawed wilderness evaluation process, Polygon 60a is unjustifiably excluded from the Draft Forest Plan and all alternatives in the DEIS.

RATIONALE - WILD 16 - EXAMPLE OF POLYGON 60a: Polygon 60a presented here constitutes approximately 12,883 acres; it was rated "Moderate" by the Tonto National Forest in the wilderness evaluation process. It was not included in any alternatives of the DEIS and should have been. Due to oversights in the consideration of conditions on the ground, a corresponding misguided interpretation of wilderness criteria, poorly configured unit boundaries, and a deficient adherence to vital comments our coalition has provided in the past, the Tonto National Forest has penalized and inadequately rated Polygon 60a. These oversights and interpretations, in addition to other necessary critiques, are evident and proven in the following deconstructions of the Tonto National Forest's evaluation rationale issued by criterion for Polygon 60a:

Polygon 60a, Criterion: Apparent naturalness (rated Moderate by Tonto National Forest)

1. In response to the question (subcriterion), **"What is the composition of plant and animal communities?"** the Tonto National Forest responded:

> *"In most areas the composition of plant and animal communities would appear natural to the average forest visitor. Plant communities are diverse transition along typical elevation gradients from Sonoran desert to mixed conifer grassland up to ponderosa pine communities. Some Riparian, cottonwoods, sycamore and desert willow-mostly confined to Rock Creek and Bumblebee also occurs in the area. Species and habitats of special status include Mexican Spotted Owl (MSO) designated critical habitat as well as an MSO Protected Activity Center, Lowland Leopard Frog, Bald Eagle breeding areas, 11 species of bats including the western Red Bat, Peregrine Falcon, Golden Eagle, Sonoran Desert Tortoise, Gila Monster, and Hohokam and Desert Agave. Suitable habitat for a variety of game and non-game species occurs in the area. The presence of exotic, invasive and/or non-native plant and animal communities are found in infrequent small patch sizes in the area. Invasives include fountain grass along the lake shore and Highway 188 and Lovegrass around Mill Water spring. Approximately 90% of the area has been impacted by wildfire. Lone Fire and Edge Complex fire both responsible for vegetation type changes."*
>
> This resulted in a rating of Moderate for this subcriterion.

The Tonto National Forest writes that non-native fountain grass, *Pennisetum setaceum*, is present along the eastern unit boundary of 60a, adjacent to the lakeshore of Roosevelt Lake and Highway 188. This is not the case. The most important, supporting point to be made here is regarding a recommended boundary reconfiguration seen in maps provided in Appendix II. The altered boundary occupies significantly less adjacency to the lakeshore of Roosevelt Lake and Highway 188. The resulting smaller, shared perimeter does not contain abundant fountain grass. Photopoint #39 is taken from the side of the Highway 188 and documents the native species composition, as well as the lack of fountain grass, along the eastern boundary of unit 60a. Here, mesquite, scrub-oak, acacia, and saguaro cacti characterize the flora. In sum, the presence, or lack thereof, fountain grass along the unit boundary should not penalize 60a.

The Tonto National Forest writes that Lovegrass (*Eragrostis lehmanniana*) can be found at Mill Water Spring. First of all, springs are minute features on the landscape, occupying the smallest fraction of the total acreage of an area, in this case: unit 60a. In turn, a flora associated with a spring is often extremely limited in regards to the area they cover, as they are confined to the hydrology associated with the spring. Thus, the presence of a non-native species, at one spring, cannot represent an abundance high enough to characterize a landscape, nor can it be significant enough to negatively reduce a rating for this criterion High to Moderate.

The Tonto National Forest writes that 90% of the unit's acreage was burned, and that two wildfires have resulted in vegetation type changes, or what is commonly called type-conversion. Within the Tonto National Forest's rationale, it is unclear if these occurrences have negatively affected the unit's rating for this subcriterion. It is important to note that wildfire is a natural occurrence, and is a component of the historic range of variability of many species assemblages. Its occurrence should not detract from a unit's rating, nor should associated vegetation changes. In unit 60a, interior chaparral and ponderosa pine forest predominately characterize the flora. Both of these species assemblages are adapted to varying degrees of high-severity fire. In the case of high-severity fire, stand replacement is observed, and following this, the process of succession begins. As succession progresses, various species assemblages are observed, slowly transitioning from one to the next over time. The duration in which each composition characterizes a landscape is result of many abiotic factors, including climate and disturbance regimes. For example, in the case of ponderosa pine forests, what may appear as an indefinite type-conversion to another species assemblage (often interior chaparral) is simply a waiting game for the proper climatic conditions to support the regeneration and recruitment of ponderosa pine forests. Inversely, if global climate change has shifted the climate niche space of ponderosa pine forests away from this area, and the flora will not be able to succeed back to what it was pre-wildfire, this too is natural. Regardless, whether we are looking at a vegetation change as a component of succession, or if it is indeed a more permanent type-conversion, it is a natural occurrence. Wildfire and associated vegetation changes should not affect the rating for this subcriterion.

Photopoint 50 documents the native species composition found in the higher elevations of the unit. Here, interior chaparral and ponderosa pine communities characterize the landscape. No fountain grass or lovegrass can be found here.

2. In response to the question (subcriterion), **"What is the extent to which improvements included in the area represent a departure from apparent naturalness?"** the Tonto National Forest responded:

   "Little or no evidence of human influence on the landscape. Prevalence of improvements is rare or scattered. Improvements include several wildlife tanks, six developed recreation trails, including the Arizona Trail, trailhead #132 and parking lot. Range improvements include 1 barbed wire fence, 1 pipeline at New Mex Well with 2 cement troughs, 1 corral at Middle Water, 1 pipeline and 1 trough stemming from the Middle Water Spring. There are no range improvements on the southern portion of the polygon."

   This resulted in a rating of High for this subcriterion.

While the rating of High for this subcriterion is accurate, the rationale needs to be critiqued, in part due to the suggested altered unit boundary. The following critiques only further support the rating of High for unit 60a.

First of all, the trailhead and parking lot for Trail No. 132 are not included within the new boundary, nor should they ever have been; this sort of infrastructure is used my motorized vehicles, and cannot be within a wilderness boundary and thus should have been cherrystemmed from the beginning.

The New Mex Well and the associated two cement troughs are not within the new unit boundary, and should no longer be recognized in the Tonto National Forest's rationale.

The new unit boundary only hosts three developed recreation trails, not six. The field surveyor agrees that the presence of these trails does not detract from apparent naturalness, as they are substantially unnoticeable and only noticeable when directly upon them.

The corral at Middle Water and the trough stemming from Middle Water are cherrystemmed, and thus do not hold relevance pertaining to apparent naturalness.

The field surveyor was able to locate the pipeline stemming from Middle Water Spring; it initially began at Middle Water Spring on the other side of El Oso Road, crossed under the road, and likely continued downslope to the corral at Middle Water. However, as seen in Photopoint 49, the black poly-pipe is cut, and dysfunctional. The pipe could not be located past this point, heading towards the corral. This spring/pipe/trough system is not in use, and not intact. This further supports the rating of High for this subcriterion.

Polygon 60a, Criterion: Opportunities for solitude and/or primitive/unconfined recreation (rated Moderate by Tonto National Forest)

1. In response to the prompt (subcriterion), **"Consider impacts that are pervasive and influence a visitor's opportunity for solitude within the evaluated area",** the Tonto National Forest responded:

   "Opportunities to feel alone are possible in much of the area, though signs of civilization are possible. Use on the 188 and El Oso roads make it difficult to experience a feeling of solitude when in close proximity. However, once away from roads, few visitors venture off into the rugged and steep terrain in the interior of the polygon. Use of Roosevelt Lake and Apache Lake affects solitude due to the sounds of motor boats."

   This resulted in a rating of Moderate for this subcriterion.

Unit 60a is contiguous with Four Peaks Wilderness and represents a logical, outstanding addition to it. The opportunities for solitude found in Four Peaks Wilderness contribute to and are accentuated by those found in unit 60a. The Tonto National Forest fails to recognize the inherent significance of this unit's contiguity with designated wilderness in regards to opportunities for solitude. Substantial topographic and vegetative screening strictly within unit 60a provide for outstanding opportunities for solitude. Additionally, substantial topographic and vegetative screening strictly within unit 60a provide for outstanding opportunities for solitude. The opportunities for solitude found within unit 60a support a rating of High for this subcriterion.

Browns Peak and the Four Peaks of the Four Peaks Wilderness tower above the surrounding Sonoran Desert, beckoning to the lowland backcountry recreationist with misty summits, shady understories, craggy ridges, and lonely slopes. As designated wilderness, it is no secret that this is a lonesome, mysterious landscape. Backcountry recreationists easily find solitude amidst the topography and vegetation found here. This landscape continues into, as it is contiguous with, unit 60a. From the south, the montane landscape of Four Peaks Wilderness shadows over, and abruptly descends into, unit 60a. The steep north-facing slopes and deep gorges of Browns Peak (7,657'), which are cloaked and filled with mixed-conifer and ponderosa pine forests, seamlessly drape into unit 60a. These shared characteristics are responsible for the opportunities for solitude found in unit 60a. The contiguity of Four Peaks Wilderness and unit 60a can be seen in photopoint 42 and 51. In both of these photopoints, the vegetation and topography of Four Peaks Wilderness seamlessly coalesce with that of unit 60a. This seamless adjacency is evidence that the opportunities for solitude found in Four Peaks Wilderness are shared with those found in unit 60a. Furthermore, this contiguity accentuates the solitude found in both separate entities.

Unit 60a also contains topographic features, which offer their own opportunities for solitude. In photopoint 43, Bumblebee Creek has carved a deep canyon into the eastern slope of the Mazatzal Mountains. From within topography of this depth and complexity, a recreationist is easily screened from the sights and sounds associated with El Oso Road, Tonto Basin, Roosevelt Lake, and Highway 188. Furthermore, a ribbon of riparian vegetation along the creek provides excellent vegetative screening for a recreationist to travel beneath. In the western half of unit 60a, granite cliffs, slabs, and boulders characterize much of the landscape; this can be seen in photopoints 84 and 82. When immersed in rock outcrops as such, a recreationist finds outstanding solitude, easily convinced they are alone by the dense silence of the rock. Photopoint 95 shows the western-most, northern edge of the unit boundary. El Oso Road has the potential to compromise opportunities for solitude within this portion of the unit; however, it does not. In photopoint 95, the topography quickly and dramatically rises in elevation from Picadilla Creek, which El Oso Road parallels. This altitudinal contrast puts recreationists within unit 60a high above and away from the sights and sounds of El Oso Road and thus in a state of solitude.

Photopoint 50 shows the interior chaparral/ponderosa pine eco-tone; these are the native, and most common, species assemblages of the unit. The growth forms of constituent species *Quercus turbinella, Pinus ponderosa, Juniperus deppiana, Q. gambleii, Q. palmeri, Arctostaphylos pungens, A. pringleii, Rhus aromatica, Cercocarpus montanus, Garrya wrightii,* and *Robina neomexicana* offer excellent vegetative screening. In the Sonoran desert scrub ecosystems within the eastern half of the unit, the same can be said about constituent species *Prosopis spp.* and *Acacia spp.* Vegetative screening provides cover for a recreationists from the sights and civilization and other recreationists.

Regarding the Tonto National Forest's assertion that El Oso Road and Highway 188 affect solitude when in close proximity: the field surveyor found this to be true, but only in the upmost closest proximity. It is important to note that opportunities for solitude need not exist on every acre of the unit. The majority of this unit contains opportunities for solitude, result of topographic screening, vegetative screening, and adjacency to Four Peaks Wilderness. Photopoints 43 and 95 provide evidence showing that topography adjacent to El Oso Road quickly alleviates any and all disruption to solitude caused by motorized travel on El Oso Road. Also, the altered unit boundary has resulted in significantly less shared perimeter with Highway 188 and Roosevelt Lake, and thus, the likelihood of these adjacent features impacting solitude is decreased substantially.

2. In response to the prompt (subcriterion), **"Consider the opportunity to engage in primitive type or unconfined recreation activities that lead to a visitor's ability to feel a part of nature",** the Tonto National Forest responded:

   "There are some opportunities for engaging in primitive and/or unconfined recreation and at least some of these opportunities are of high quality. Great hunting can be found in the area. Horseback riding is very common and considered moderate quality. High quality backpacking and hiking can also be found in the area. Good to high quality camping can be found in the area."

   This resulted in a rating of Moderate for this subcriterion.

It is true that this unit offers high quality camping, backpacking, and hiking. This rationale alone supports a rating of High for this subcriterion.

As discussed in regards to solitude, unit 60a shares many characteristics with the contiguous Four Peaks Wilderness. The Tonto National Forest fails to recognize the significance of this. The opportunities for primitive and unconfined recreation found in Four Peaks Wilderness contribute to and are accentuated by those found in unit 60a. These outstanding opportunities for primitive and unconfined recreation within unit 60a are result of varying topography, contiguity with Four Peaks Wilderness, a diverse ecological gradient, an abundance of exposed granite, and the presence of several non-motorized trails, including the Arizona Trail. The opportunities for primitive and unconfined recreation found in 60a support a rating of High for this subcriterion.

Unit 60a straddles the crest of the Mazatzal Mountains, and thus occupies a diverse landscape. Here, a recreationist can move through Sonoran desert scrub foothills to rocky summits beneath a mosaic of ponderosa pines. The landscape diversity found here creates for a variety of terrain and scenery. Photopoint 43 shows Bumblebee Creek, which would be an excellent, diverse route to travel. Day-hiking or backpacking along this creek would bring a recreationist past saguaro cacti, up and through granite boulders beneath a canopy of Arizona sycamores, and into higher elevation ponderosa pine forests. The ecological gradient spanned here offers a constant change in scenery, and great opportunities for nature study. Here, a recreationist could very likely travel from the desert, to the snow. Furthermore, they could continue their travel into the Four Peaks Wilderness. This would be a strenuous and adventures route.

Photopoint 82 shows a landscape characterized by granite. Here, boulders, massive slabs, and cliffs beckon to the rock scrambler, boulderer, and even to the adventurous traditional rock climber. The expanse of this granitic landscape is impressive, and offers abundant opportunity.

This diverse landscape is contiguous with Four Peaks Wilderness, and thus adopts many of the recreation opportunities found there. Any off-trail travel within unit 60a, can seamlessly continue into the wild landscape of Four Peaks. The shared acreage of unit 60a and Four Peaks Wilderness offers over 70,000 acres for unconfined recreation. Also, there are several non-motorized trails that begin in unit 60a and seamlessly travel into Four Peaks Wilderness. Trail No. 133 (Browns Trail) and Trail No. 130 (Four Peaks Trail) are two of these trails, and can be seen in photopoint 67. These trails offer excellent access to unit 60a and Four Peaks Wilderness, and provide outstanding horseback riding, hiking, and backpacking opportunities. Photopoint 74 shows Trail No. 83, which offers outstanding, scenic opportunities for hiking and backpacking and also connects to Four Peaks Wilderness. This

trail is significantly less maintained. Photopoint 69 shows the Arizona National Scenic Trail (Arizona Trail) trailhead along the unit 60a boundary. The Arizona Trail runs through the unit, before entering the Four Peaks Wilderness. We contend that the presence of the Arizona Trail alone supports a rating of High for primitive and unconfined recreation. The preservation of unit 60a as wilderness would secure the wilderness characteristics that recreationists desire when they hike these trails into the Four Peaks Wilderness.

Polygon 60a, Criterion: Unique features

3. In response to the 'Unique Features' question, **"Are there any outstanding landscape features such as waterfalls, mountains, viewpoints, waterbodies, or geologic features?"** the Tonto National Forest responded:

   "*No"*

   This resulted in a lost opportunity for one bonus point per the maximum allowed under criterion 'Unique Features'.

Unit 60a straddles the Mazatzal Crest, and thus the Mazatzal Mountains. Therefore, it is completely incorrect to say there are no mountains here. Photopoint 42 shows the Mazatzal Mountains, and the adjacent Four Peaks Wilderness. With an approximately 4,000' altitudinal gradient, viewpoints are inevitable. Furthermore, existing along the crest, there are incredible views looking both, east and west. Photopoint 64 shows the view looking northeast from the unit boundary, towards Tonto Basin. The response to this subcriterion should be "Yes".

4. In response to the 'Unique Features' question, **"Are there any high quality water resources or important watershed features?"** the Tonto National Forest responded:

   "*No"*

   This resulted in a lost opportunity for one bonus point per the maximum allowed under criterion 'Unique Features'.

Half of unit 60a is in the Roosevelt Lake watershed, and the other half is in the Saguaro Lake watershed. Both of these reservoirs are highly visited recreation destinations, where recreationists rely on the quality of the water to boat, fish, and swim. Also, both of these reservoirs are components of the Salt River Project, which provides water to much of central Arizona. Wilderness designation of unit 60a is compatible and supportive of the health of these two reservoir's watersheds. Photopoint 46 shows Roosevelt Lake from within the unit boundary.

Polygon 60a, Criterion: Manageability (rated Moderate by Tonto National Forest)

1. In response to the following topics related to criterion 'Manageability': **Shape and configuration, cherry stemming, boundary etc.; presence and extent of legally established uses or rights (mining, special uses, traditional uses); adjacent land management or signed decisions; percent Roadless area; prevalence of non-primitive recreation activities; any other pertinent information**, the Tonto National Forest responded:

> *"*Management to preserve the area's wilderness characteristics are possible throughout most of the area. The presence and extent of management activities and other uses that detract from wilderness characteristics are scattered. Topography and vegetation limit unauthorized roads. There is a low density of range improvements and few mineral development or rights, though there is one mine in the polygon. This area contains Bureau of Reclamation First Form withdrawals and at least one Salt River Project (SRP) improvement and/or right of way."
>
> This resulted in a rating of Moderate for this subcriterion.

It is true that topography and vegetation limit unauthorized roads; photopoints 43 and 95 further support this.

Following the suggested reduction in unit acreage and corresponding boundary change, the unit contains less range improvements. It is likely that it also contains less or no mineral developments or rights; this should be investigated by the Tonto National Forest. The unit likely no longer contains Bureau of Reclamation First Form withdrawals, Salt River Project improvements, or Salt River Project right of ways; this is because boundaries are no longer shared with the Salt River, the Theodore Roosevelt dam, and much less boundary is shared with the lake itself.

A rainwater catchment system and associated water cistern should be excluded along the unit boundary (seen on access road to Brown Peak trailhead).

Photopoint 89 shows the condition of a route, which was initially cherrystemmed. This route has been reclaimed by nature, and is mostly impassable. It is unmaintained, unmarked, and seems to serve no purpose. We propose this cherrystem be removed from the unit boundary. The removal of this cherrystem further supports the manageability of this unit. This route is shown as admin-use only in the Travel Management Plan; even if it were passable, it would be infrequently used.

There are a few other considerations to have in regards to the Travel Management Plan. Several other cherrystems, or portions of, are listed to be decommissioned and/or admin-use only. Any routes that are to be decommissioned do not warrant a cherrystem and should not be considered as management issues. Any cherrystem that is admin-use only presents a significantly smaller management issue. Pending changes to route usage should be considered when evaluating the effects of these routes on adjacent wilderness character and management. The numerous revelations from the Travel Management Plan are listed below:

1. Cherrystem at PP 89 is admin only.
2. Small cherrystem N of PP 89 cherrystem is admin only.
3. Cherrystem off of El-Oso Road, leads to "Waterhole", begins one mile E of Middle Water Spring is admin-only to the water-hole, decommission beyond. This is a large cherrystem. The decommissioning of this route is a huge benefit to the wilderness character of 60a.

RECOMMENDATIONS - WILD 16 - EXAMPLE OF POLYGON 60a:

1. Reconfigure the unit boundary to remove the suggested eastern portion (east slope of Mazatzals). See maps in Appendix II.

2. Reconfigure the unit boundary to remove a few inaccurate and unnecessary cherrystems. These cherrystems are listed under **Polygon 60a**, Criterion: Manageability
3. Consider the Tonto National Forest Travel Management Plan in respects to cherrystem and boundary road usage. Recognize how routes will be used or decommissioned has profound implications on the management of adjacent wilderness resources.
4. Recognize the inherent significance of polygon 60a's adjacency to the Four Peaks Wilderness in regards to opportunities for solitude and opportunities for primitive/unconfined recreation.
5. Reconfigure the unit boundary to exclude the wildlife water catchment.
6. Recognize the topographically complex landscape as it pertains to screening for solitude and apparent naturalness (causing improvements to be substantially unnoticeable).
7. Consider the total acreage of a unit in determining how much of an impact a certain disturbance has.
8. Re-evaluate the manageability rating with this new information and these new perspectives.
9. Acknowledge the mountainous terrain found in the unit, in respect to the 'Unique features' subcriterion.
10. Acknowledge the watershed resources (Roosevelt & Saguaro Lakes) found in the unit, in respect to the 'Unique features' subcriterion.
11. Provide criterion "apparent naturalness" "opportunities for solitude and/or primitive/unconfined recreation" and "manageability" with ratings of HIGH.
12. Apply these recommendations and reanalyze polygon 60a for inclusion in an alternative.

Photopoint 70, Polygon 60a: Looking across Polygon 60a at Four Peaks Wilderness at golden hour.

CONCERN - WILD 17 - EXAMPLE OF POLYGON 36a: As result of a flawed wilderness evaluation process, Polygon 36a is unjustifiably excluded from the Draft Forest Plan – the proposed action.

RATIONALE - WILD 17 - EXAMPLE OF POLYGON 36a: Polygon 36a (Mesquite Flat) constitutes approximately 2,560 acres in the DEIS; it was rated "Moderate" by the Tonto National Forest in the wilderness evaluation process. It was not included in alternative B and should have been. In the evaluation stage it contained 7,231 acres, but was reconfigured to exclude Bureau of Reclamation withdrawals from its boundaries. Due to oversights in the consideration of conditions on the ground, poor boundary configurations, a corresponding misguided interpretation of wilderness criteria, and a deficient adherence to vital comments our coalition has provided in the past, the Tonto National Forest has penalized and inadequately rated Polygon 36a. These oversights and interpretations, in addition to other necessary critiques, are evident and proven in the following deconstructions of the Tonto National Forest's evaluation rationale issued by criterion for Polygon 36a (original evaluation acreage):

> *Disclaimer:* If the Tonto National Forest does not heed our concern regarding boundary reconfigurations which accommodate Bureau of Reclamation withdrawals, it is imperative that the affected polygons in the DEIS are reevaluated and reanalyzed. With substantial acreage reductions, polygons are substantially altered, and this corresponds to their evaluation rationale and rating. They are not the polygons they once were, and thus their evaluations are barely applicable, and they need to be revised.

Polygon 36a, Criterion: Apparent naturalness (rated Moderate by Tonto National Forest)

1. In response to the question (subcriterion), **"What is the composition of plant and animal communities?"** the Tonto National Forest responded:

   "In most areas the composition of plant and animal communities would appear natural to the average forest visitor. Sonoran desert plant and animals. Common Riparian and upland nonnatives/invasives. Giant Reed and tamarisk in the riparian. Brome, Bufflegrass and fountain grass. Species of special status include Sonoran desert tortoise, peregrine falcon, bald eagle, Pima Indian mallow, lowland leopard frog, and Gila topminnow. Suitable habitat for a variety of Sonoran desert game and non-game species exists in the area."

   This resulted in a rating of Moderate for this subcriterion.

The Tonto National Forest notes the occurrence of riparian nonnative/invasive species (giant reed and tamarisk) within the unit boundaries. These species were undetectable along the numerous washes surveyed by the field surveyor. These species likely occur in the riparian habitat adjacent to the northern and southern lakeshores of Canyon Lake along the northern boundary of unit 36a. Due to a number of other management issues surrounding the inclusion of Canyon Lake within unit 36a, we recommend redrawing the unit boundary to exclude Canyon Lake. This boundary adjustment removes the northern lakeshore, and its associated riparian habitat, from unit 36a. This dramatically reduces the amount of riparian habitat and thus nonnative/invasive species that could be in the unit. Furthermore, the southern lakeshore of Canyon Lake should be excluded by instead drawing the northern unit

boundary a few yards upslope of the high-water line. In doing so, the possibility of water-level rise into unit 36a is mitigated. Water levels, and thus the size of Canyon Lake itself, fluctuate; this needs to be considered in the exclusion of Canyon Lake in order to maintain its exclusion. Removing the southern lakeshore eliminates even more habitat conducive to these nonnative/invasive species. In conclusion, the removal of Canyon Lake and its northern and southern lakeshores removes substantial riparian habitat from the unit boundaries, and thus removes the habitat supportive of these nonnative/invasive species (giant reed and tamarisk).

The average visitor would not notice the nonnative grasses mentioned in this rationale. Bufflegrass *(Cenchrus ciliaris)* is detected at sporadic intervals along wash bottoms at a couple locations; however, it is not substantially unnoticeable. Furthermore, the majority of washes within unit 36a are entrenched into deep, craggy canyons; thus, the habitat available to bufflegrass is screened by this topography. This screening prevents bufflegrass from being substantially noticeable. Photopoint 128 shows an undisturbed recreationist walking directly past bufflegrass, along a sandy wash. Here, bufflegrass is growing at a low density and is overshadowed by the native flora.

Photopoint 181 shows an upland slope supporting native flora: Sonoran desert scrub. This photo is representative of all upland areas in the unit.

This subcriterion should be rated High.

Polygon 36a, Criterion: Opportunities for solitude and/or primitive/unconfined recreation (rated Moderate by Tonto National Forest)

2. In response to the prompt (subcriterion), **"Consider impacts that are pervasive and influence a visitor's opportunity for solitude within the evaluated area",** the Tonto National Forest responded:

   "Opportunities to feel alone are possible in much of the area, though signs of civilization are possible. Authorized motorized boating occurs on Canyon Lake. High use occurs on the adjacent 88 road, however, when away from roads, opportunities' for solitude improve. Terrain is rolling, so visual screening may improve feeling of solitude in some spots."

   This resulted in a rating of Moderate for this subcriterion.

Unit 36a sits directly in-between the Superstition and Four Peaks wildernesses and thus already sits in a lonesome, quiet region of central/southwestern Arizona. The major, potential impacts to solitude in unit 36a include Highway 88 (the Apache Trail), Canyon Lake, and the town of Tortilla Flat; however, due to substantial topographic screening within the unit, all of the sights and sounds associated with these developments do not affect solitude in the unit. The Tonto National Forest writes, "Terrain is rolling, so visual screening may improve (the) feeling of solitude in some spots"; the field surveyor has found this assertion to be true, however to a higher degree than the Tonto National Forest has alluded to.

Generally, the geology of the unit can be defined as deep canyons, craggy cliffs, and polished domes comprised of various tuffs. Not only do these remarkable landscapes attract recreationists in search of hiking, backpacking, rock climbing, canyoneering, and spectacular vistas, they also provide outstanding opportunities for solitude, as result of topographic screening. More often than not, a

recreationist can pursue their choice mode of recreation while in a state of solitude. Photopoints 171 and 178 both show some of the topographic complexities common in unit 36a. Photopoints 134 and 138 show a hiker completely immersed in a wonderland of rock and oblivious to unit-exterior developments. Photopoint 154 shows the view from within one of several caves found in the unit; solitude is inevitable within the depths of a cave.

Photopoint 197 shows the gentler, but still substantially rolling topography adjacent to the Apache Trail in the southeastern corner of the unit. Photopoint 199 shows a hiker in a narrow canyon less than a quarter (.25) mile away from the Apache Trail, completely unaffected by the highway's presence. This portion of the unit is comprised of rolling domes of tuff embedded with narrow canyons, all of which provide outstanding topographic screening from the sights and sounds of the nearby highway. Vegetative screening is also presented here, evident in Photopoint 210.

In the southwestern corner of the unit, nearby Tortilla Flat, the unit dramatically rises away from the town and highway, forming huge escarpments seen at Photopoint 215. These escarpments shield the leeward portions of the unit from the sights and sounds of Tortilla Flat and the Apache Trail. In a similar respect to Canyon Lake, Photopoints 126 and 153 show unit 36a towering a few hundred feet above the lake, sitting atop steep, craggy escarpments. Thus, unit 36a sits on a completely separate altitudinal plane, than does the lake. These escarpments and corresponding altitudinal differences shield the majority of unit 36a from sights and sounds associated with Canyon Lake.

Beneath these escarpments however, Tortilla Flat, the Apache Trail, or Canyon Lake may impact a recreationist. Thus, this unit may not have outstanding opportunities for solitude on every acre. However, on page 11 of Chapter 70 in the Forest Service Handbook 1909.12, it is clearly stated that, "…nor does it need to have outstanding opportunities on every acre". This is an acceptable impact to solitude.

Regarding the long cherrystem in the center of the unit: it does not substantially impact solitude in the unit boundaries. The majority of the cherrystemmed route is set into and atop rolling terrain. Therefore, motorized use of the cherrystem is often screened by topography, and doesn't affect solitude within the unit. Photopoint 175 shows this topography adjacent to the cherrystem.

This subcriterion is absolutely deserving of a rating of High in unit 36a.

3. In response to the prompt (subcriterion), **"Consider the opportunity to engage in primitive type or unconfined recreation activities that lead to a visitor's ability to feel a part of nature",** the Tonto National Forest responded:

   "There are abundant opportunities for engaging in primitive and unconfined recreation and these opportunities are of high quality. Hiking, hunting, horseback riding, primitive camping, fishing, kayaking, rock climbing and canyoneering opportunities can be found in the area."

   This resulted in a rating of High for this subcriterion.

The following information further supports the rating of High for this incredible unit:

Photopoints 144, 149, 151, and 152 document an excellent day hike to the summit of Black Cross Butte, complete with immense views of the Four Peaks, the Superstitions, and the Salt River Canyon.

Photopoints 131, 133, and 141 document a day hike into a major canyon and tributary of Canyon Lake. This canyon provides outstanding opportunities for hiking and backpacking. Here, hikers are immersed in a wondrous maze of rock, complete with chutes, side canyons, polished creek beds, plunge pools, and small caves. The opportunities for routes and nooks to explore are endless. Photopoint 133 documents the technicality of the terrain; often, hikers are required to navigate rocky chutes and slopes connecting various terraces within the canyon. Opportunities for rock scrambling, bouldering, and technical rock climbing abound. Photopoint 188 shows the grandeur of this immense canyon further downstream. Several water sources can be found in this canyon to sustain overnight backpacking trips; one can be seen at Photopoint 136.

A major side canyon to the previously discussed canyon can be seen at Photopoints 171, 175, 176, 178, 184, and 186. Photopoint 171 looks broadly into this region. This canyon and its side drainages are other prime examples of this unit's outstanding opportunities for primitive recreation, as it also hosts its own alluring geology. Photopoint 184 shows a narrow, sandy slot canyon and Photopoint 176 shows a tiered slot canyon, complete with several pools of water. These canyons provide outstanding, scenic hiking opportunities and possible canyoneering opportunities. The canyon shown in Photopoint 176 would likely require technical canyoneering gear to descend and is indeed an inviting route. Photopoints 175 shows a pool of water hidden in this canyon. Photopoint 186 shows the boulder-strewn canyon bottom and one of several massive oak trees; this is a beautiful landscape to move through.

Photopoint 190 views the western half of the unit; this terrain shares many characteristics of the areas previously discussed.

Photopoints 206, 207, and 211 view terrain features unlike the rest of the unit. Here, the geology consists of rounded domes and narrow, meandering canyons. This terrain offers its own unique opportunities for primitive recreation. These canyons also hold water (seen in Photopoint 211), and thus support extended backcountry recreation. Opportunities for canyoneering are found here too, evident in the fixed gear seen in Photopoint 212.

Due to suggested boundary changes, the opportunities for kayaking and fishing and have been diminished and should be removed from the list of opportunities.

Polygon 36a, Criterion: Unique features

> In response to the 'Unique Features' question, **"Are there any high quality water resources or important watershed features?"** the Tonto National Forest responded:

"No"

> This resulted in a lost opportunity for one bonus point per the maximum allowed under criterion 'Unique Features'.

The watershed within unit 36a drains directly into Canyon Lake. Canyon Lake is a component of the Salt River Project and serves as a source of drinking water for the Phoenix metropolitan area. Wilderness designation of unit 36a would help insure the protection of this high quality watershed feature.

Polygon 36a, Criterion: Manageability (rated Moderate by Tonto National Forest)

1. In response to the following topics related to criterion 'Manageability': **Shape and configuration, cherry stemming, boundary etc.; presence and extent of legally established uses or rights (mining, special uses, traditional uses); adjacent land management or signed decisions; percent Roadless area; prevalence of non-primitive recreation activities; any other pertinent information**, the Tonto National Forest responded:

   "Management to preserve the area's wilderness characteristics is possible throughout most of the area. Roads define the perimeter of the entire perimeter of the polygon except for a small area that shares a border with the wilderness and a small piece of private land. There is some established mountain bike use on the Arizona National Scenic Trail. There is some motorized encroachment into the area. Access and maintenance of range improvements with motorized/mechanized equipment and transportation would be ongoing."

This resulted in a rating of Moderate for this subcriterion.

One possible challenge originates with the long cherrystem that cuts into the polygon. This cherrystem runs amongst steep, rugged terrain and thus minimally impacts the opportunities for solitude in the unit- result of topographic screening. Additionally, much of this rugged terrain adjacent to the cherrystemmed route prevents unauthorized motorized trespass. This terrain can be seen in Photopoint 175. This cherrystem does not impact solitude and does not present a substantial threat of unauthorized motorized encroachment. Additionally, the spatial data provided by the Tonto National Forest of this cherrystem does not match what is on the ground; Photopoint 168 documents what is on the ground.

Two other cherrystems can be seen at Photopoint 157 and 164. Steep, rocky topography and dense vegetation adjacent to these cherrystems prevents the likelihood of unauthorized motorized trespass here. The spatial data provided by the Tonto National Forest of both of these cherrystem does not match what is on the ground; Photopoints 157 and 164 document what is on the ground.

The field surveyor agrees that there is minimal possibility of motorized encroachment from adjacent roads due to the steep topography and dense vegetation found within the unit. Photopoints 159 and 258 show this topography and vegetation along these adjacent roads (unit boundaries).

The Tonto National Forest writes, "Removing the motorized lake from this polygon would increase its manageability." We believe that removing Canyon Lake from the unit boundary is of paramount importance, as recreational motorized use is not compatible with wilderness designation. Canyon Lake was not included in the boundaries for Four Peaks Wilderness on the opposite side of the lake, nor should it be included in unit 36a. Photopoints 126 and 153 show the topography surrounding Canyon Lake. Unit 36a sits several hundred feet above the lake, atop massive cliffs. This topography shields the unit from the motorized use of Canyon Lake.

The Tonto National Forest writes that 90% of the unit is comprised of an Inventoried Roadless Area (IRA). The preservation of this IRA is compatible with wilderness designation.

The removal of Canyon Lake from the unit boundary, and recognizing that the rugged terrain in the unit shields against motorized encroachment, this unit supports a rating of High for manageability.

RECOMMENDATIONS - WILD 17 - EXAMPLE OF POLYGON 36a:

1. Reconfigure the unit boundary to remove Canyon Lake from the unit boundary. Canyon Lake is motorized, and needs to be excluded from the unit boundary for the same reasons it was not included in Four Peaks Wilderness.
2. Do not exclude the Bureau of Reclamation withdrawals from 36a. The precedent has been set across the Tonto National Forest that including these withdrawals within wilderness is acceptable (i.e. Four Peaks, Salt River Canyon, Superstition, and Mazatzal wildernesses). The removal of this acreage from 36a drastically reduces what makes this unit so outstanding.
3. Reconfigure the unit boundary to remove a few inaccurate and unnecessary cherrystems.
4. Recognize the topographically complex landscape as it pertains to screening for solitude and preventing motorized trespass.
5. Re-evaluate the manageability rating with this new information and these new perspectives.
6. Acknowledge the watershed resources (Canyon Lake) found in the unit, in respect to the 'Unique features' subcriterion.

Photopoint 159, Polygon 36a (Mesquite Flat): Looking northwest across the Sonoran Desert and into the wild lands of 36a.

PART 3: Comments specific to other units.

CONCERN - WILD 18: Polygon 67 – Sierra Ancha Wilderness Contiguous Recommended Wilderness Area A is not included in the map of Recommended Wilderness in Alternative B.

RATIONALE - WILD 18: The Sierra Ancha Wilderness Contiguous Recommended Wilderness Area A is recommended in Alternative B, however it does not appear on the map of "Recommended Wilderness in Alternative B."

RECOMMENDATION - WILD 18: Include Polygon 67 in the map of recommended wilderness for alternative B on page 129 of the DEIS.

CONCERN - WILD 19: Polygon 119D – Rugged Mesa is listed as "Not Recommended" in the Summary of Wilderness Analysis section of the DEIS despite its appearance in the map of Recommended Wilderness in Alternative C.

RATIONALE - WILD 19: Polygon 119D is listed as "Not Recommended" in the Summary of Wilderness Analysis section of the DEIS despite its appearance in the map of Recommended Wilderness in Alternative C and inclusion the list of recommended wilderness in Alternative C .

RECOMMENDATION - WILD 18: The Tonto NF needs to clarify whether or Polygon 119D – Rugged Mesa is included in Alternative C or not. Additionally, the DEIS needs to be revised to clarify this.

CONCERN - WILD 20: 119E and 119F were never evaluated and received no mention in the "Summary of Wilderness Analysis" section of the DEIS.

RATIONALE - WILD 20: The boundary of Polygon 119B – Mullen Mesa was reconfigured to exclude Bureau of Reclamation withdrawals along the Verde River corridor; this reconfiguration severed the polygon and resulted in the creation of two new polygons: 119E and 119F. This occurrence is mentioned in the DEIS. No other information is available on these two polygons in the DEIS. This indicates that they were never evaluated.

RECOMMENDATION - WILD 20: Polygons 119E and 119F must be properly evaluated before they are analyzed in the DEIS.

CONCERN - WILD 21: Inventoried Roadless Areas astonishingly not recommended for Wilderness.

RATIONALE - WILD 21: Nearly all of the Inventoried Roadless Areas in Alternative B (Proposed Alternative) are not included in the "recommended wilderness areas." This doesn't seem to make logical sense. Apparently for Alternative B NONE of the IRA's had adequately high wilderness characteristics to qualify them as "Areas Recommended for Wilderness?" Yet in Alternative C the Boulder IRA did, in fact, have the necessary level of high wilderness characteristics and it qualified as a "recommended wilderness area." The Inventoried Roadless Areas logically should be the starting point for recommended wilderness areas.

RECOMMENDATION - WILD 21: A supplemental analysis should rank IRAs higher in the evaluation process.

V.E. Wild & Scenic Rivers: Arteries of a Living Landscape.

The purpose of the WSR Act as passed in 1968 was to balance the then national effort of damming and developing our nation's waterways with a program that would also protect and preserve some of our nation's rivers that were still free-flowing and possessed outstanding remarkable values. Since the laws passing, we have come to learn a tremendous amount more about the ecological role of rivers, especially as corridors for wildlife movement in time and space. And, we've learned a tremendous amount about how destructive past damming and diversion efforts have been to river ecology and fluvial geomorphic processes. The Forest Plan must go to the furthest extent possible to protect the free-flowing nature of streams on the Tonto NF that are still alive and interconnected.

The DEIS mentions the seven "*special use, high hazard*" dams owned by Salt River Project on the Salt and Verde Rivers. These dams generate power and store and distribute water to central Arizona. Some could argue that these dams that have led to significant positive impacts from the perspective of allowing millions of people to live in the Salt River Valley. But these dams have permanently impounded the rivers into reservoirs, impacting many miles riverine habitat with significant negative impacts to the natural environment. It is for just this reason that Congress passed the Wild and Scenic Rivers Act in 1968:

> "*It is hereby declared to be the policy of the United States 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 that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations. The Congress declares that the established national policy of dams and other construction at appropriate sections of the rivers of the United States needs to be complemented by a policy that would preserve other selected rivers or sections thereof in their free-flowing condition to protect the water quality of such rivers and to fulfill other vital national conservation purposes."*[303]

Given the major impacts of these dams it is entirely reasonable to balance the loss of free-flowing river segments with a program on the Forest that protects some rivers and the much smaller streams. Under this important law, it is the policy of the United States is to preserve selected rivers in order to complement the practices that have destroyed other free-flowing rivers and their natural values.

We appreciate the work that the Forest Service has done thus far on the Draft Evaluation and the inclusion of 23 eligible stream segments, including 13 segments that haven't previously been determined eligible. However, the Draft Plan and the Wild and Scenic Eligibility Study fails to recognize numerous rivers that are both free-flowing and have at least one ORV and not all ORVs are appropriately recognized on Eligible segments. The Eligibility phase of the Wild and Scenic Act is designed to be the broadest, with the least number of qualifications. We ask that the Forest Service reevaluate their approach to evaluating ORVs and consider adding our segment-specific Eligibility recommendations to the Draft Plan and DEIS Preferred Alternative. In the following comments, we have identified sections of the Wild and Scenic Eligibility Study that we agree with, areas of concern, and we offer specific recommendations for eligible river reaches within the Tonto NF.

[303] Wild & Scenic Rivers Act, October 2, 1968.

Summary of Concerns with the Tonto NF's Wild and Scenic River Eligibility Analysis.

The Tonto's Wild and Scenic River Eligibility Analysis is a much appreciated step towards protection of some of the Nation's most unique and wild desert streams. We agree with the eligibility determination with a 'wild' classification for Pueblo Canyon. The descriptions of its ecological, historic, and scenic resources are accurate. Similarly, we agree with the eligibility determination that gave Cold Spring Canyon and Devil's Chasm Wild classifications. The recognition of their natural and historic resources is important. We concur with the Forest Service's description and support the Recreational classification of Canyon Creek. The proposed Recreational classification is appropriate for this heavily fished and hiked stream with nearby roads and a considerable amount of fencing installed and maintained on the shoreline to control herbivory by elk and cattle. The Recreational classification for the Lower Salt River is appropriate. The segment is known locally as "the Tubers run," and there is moderate development along the nearby roads. Recreational uses include tubing, rafting, kayaking, hiking, picnicking, bird watching, and wildlife watching. Visitation is very heavy (in the thousands of visitors on weekends), and it supports a commercial tubing enterprise.

Clearly, there is much to celebrate in its current form, but there are areas where feel strongly that improvements should be made. In the following pages, we explore these concerns and provide our rationale and recommendations to be included in any subsequent NEPA document or supplemental analysis prepared for the Forest Plan revision.

1) Public Comment. The DEIS implies that written comments on the Wild and Scenic River Eligibility Process were not considered. We have submitted a tremendous amount of information during past comment periods, and ask that it be again considered as much of it is still valid.

2) Suitability. We agree that only eligibility and preliminary classification should be carried out as part of the current plan revision process, but the suitability language should be removed.

3) Un-named Streams. Early phase of Wild and Scenic River evaluation dismisses unnamed streams.

4) Inadequate Rationale. The Wild and Scenic Eligibility Study and Rationale Spreadsheet include insufficient data and justification on the eligibility determinations.

5) Regions of Comparison. Multiple scales should be employed when using Regions of Comparison to evaluate ORVs.

6) Additional ORVs. Some eligible segments need additional ORVs described, including the Lower and Upper Salt River, Verde River, Upper and Lower Tonto Creek, and Salome Creek

7) Eligibility. We argue for the eligibility of additional river segments, including the East Verde River, Haigler, Spring, Christopher, Sycamore, Ellison, Pinto, and Cherry Creeks, and Devils Canyon, which all possess ORVs for wildlife, scenery, geology, and recreation.

8) Shortened Segments. A number of segments ranked eligible are substantially shorter than past evaluations, and justification is not given for these contractions. Here, we argue for extending certain segments, including the Verde River, and Squaw, Lime, Pine, Lower Tonto, and Salome Creeks.

9) Downgraded Classifications. We argue that segments of Arnett, Tangle, Lime, and Lower Tonto Creeks should be classified at higher levels, consistent with levels of protection in past assessments.

CONCERN - WSR 1: The DEIS implies that written comments on the Wild and Scenic River Eligibility Process were not considered.

RATIONALE - WSR 1: The DEIS states that:

"Specific resource information about each river and stream was gathered from maps and professional knowledge provided by Tonto National Forest resource specialists and *comments received by the public using ArcGIS online, an online mapping tool.*"[304]

The section describes reviewing the public comments that were submitted on-line, but makes no mentioned of written comments submitted by hand or email. Certain contributors to this coalition letter submitted detailed comments in letter form, and do not recall receiving any acknowledgement of their submission. Because those comments are still applicable to this process, they are attached now as Appendix V in case the Forest Service has not fully considered them.

RECOMMENDATION - WSR 1: All written public comments timely submitted must be considered by the Forest Service.[305]

CONCERN - WSR 2: We agree that only eligibility and preliminary classification should be carried out as part of the current plan revision process, but the suitability language should be removed.

RATIONALE - WSR 2: We agree with the statement in the DEIS that only eligibility and preliminary classification will be carried out as a part of the plan revision process. However, there exists contradictory and confusing language in the DEIS regarding how a suitability study would impact interim protections for eligible streams. The DEIS indicates that any eligible river may be studied for suitability at any time and that the Tonto NF would conduct a suitability study in response to proposed projects on eligible streams, and that rivers found not to be suitable would lose interim protections. The 2012 Forest Planning Rule requires Forest Plans to: 1) include an eligibility inventory and 2) protect both eligible and suitable (congressional study) rivers. Neither the 2012 Rule or the Wild and Scenic Rivers Act make any mention of a process to remove interim protections for streams that are determined eligible through the Forest Planning process. Thus, suitability studies should only be completed under the direction of Congress.

RECOMMENDATION - WSR 2: We appreciate the Forest Service's decision to solely focus on eligibility in the plan revision and ask that the language on page 314 and 372 be changed or removed to eliminate the possibility of removing interim protections for Eligible streams in the future.

[304] DEIS, Vol. 3, P. 313 (emphasis added).

[305] Forest Service Handbook 1909.12 Chapter 82.73: "*The determination that a river area does or does not contain one or more outstandingly remarkable values is a professional judgment on the part of the Responsible Official as informed by the Interdisciplinary Team, best available scientific information,* ***and public participation****. As part of this determination process, the Responsible Official should solicit and document input from organizations and individuals familiar with specific river resources. Other sources of information for identifying outstandingly remarkable values include the Nationwide Rivers Inventory; State river assessments; Tribal governments, other Federal, State, or local agencies;* ***and the public***."

CONCERN - WSR 3: Early phase of Wild and Scenic River evaluation dismisses unnamed streams.

RATIONALE - WSR 3: The first step of the eligibility process was to "Identify all free-flowing named streams/rivers."[306] A deficiency of this process is that in Arizona there are many named canyons that do not have formally named streams associated with them. Two examples on the Tonto Forest include Haunted Canyon (a major tributary to Pinto Creek) and The Gorge (north of Polles Mesa) that empties into the East Verde River. Both of these canyons have free-flowing water and high quality riparian habitat. We appreciate that the Forest Service identified segments for study on Devils Chasm, Pueblo Canyon, Cold Spring Canyon, Devils Canyon, and Telegraph Canyon, but don't understand why The Gorge, Haunted Canyon, and possibly other important streams which may be unnamed were not identified early in the process.

There are other benefits to the TNF for conducting such assessments, such as identifying reaches that might contain rare species and qualify for other special management designations, and identifying problems that warrant attention and correction.

RECOMMENDATIONS - WSR 3: Expand the review, using in-house knowledge and GIS tools to identify unnamed waterways that can be considered eligible for WSR.

CONCERN - WSR 4: The Wild and Scenic Eligibility Study and Rationale Spreadsheet includes insufficient data and justification on the eligibility determinations.

RATIONALE - WSR 4: The Wild and Scenic River Eligibility Rationale Spreadsheet does not provide sufficient documentation of eligibility as directed in the Forest Service Handbook. The FSH stipulates that documentation must include separate river narratives for each river segment evaluated in the planning process and that the narrative should include a description of "free-flowing characteristics, water quality, and presence or absence and a description of outstandingly remarkable values." Simply stating that ORVs don't exist isn't adequate narrative and we have identified the following insufficiencies in the Rationale Spreadsheet:

• Of the 357 named streams reviewed, only 75 were carried forward for further study and the remaining 282 provided no justification for being dropped from the process other than that no ORVs were identified.

• Of the 75 streams that were further studied, 23 were determined to be Eligible and only 7 of the remaining 52 streams had any substantial explanation for their ineligibility.

• Numerous justifications for ineligible segments simply state that the segment did not meet the ORV threshold, but no further explanation is given (e.g., Sycamore Creek). Providing further justification will help the public understand the process and allow for more robust public comment.

RECOMMENDATIONS - WSR 4: 1) The Forest Service needs to demonstrate that a thorough analysis of each river segment has been completed and needs to provide description of all possible ORVs analyzed in the preliminary review. 2) Additional justification needs to be provided for the 52 streams that were further studied, but found to be ineligible. 3) Please provide details on why the ORV threshold was not met and which ORVs were considered.

[306] DEIS, Vol. 3, P. 313.

CONCERN - WSR 5: Multiple scales should be employed when using Regions of Comparison to evaluate ORVs.

RATIONALE - WSR 5: While the FSH allows, as an alternative option, the Responsible Official to conclude that a single region of comparison can be used for evaluating ORVs , we strongly advise that multiple Regions of Comparison be used and that the regions of comparison include multiple scales. The 1999 Report from the Interagency Wild & Scenic Rivers Coordinating Council concludes that the region(s) of comparison needs to include multiple scales and that "*In addition to regional or statewide comparison, values must also be considered from a national perspective. For example, while multiple species of anadromous fish are relatively common in rivers on the Mt. Baker-Snoqualmie NF this association of multiple species is uncommon nationally.*" This example in the Mt. Baker-Snoqualmie NF is very applicable to ORVs and river segments within the Tonto National Forest. For example, while the unique Sonoran Desert viewscapes and wildlife are common on rivers throughout Arizona, they are very unique when compared to rivers across the nation. Additionally, the Forest Service Handbook defines an ORV as a "*scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar river-related value that is unique, rare, or exemplary feature and is significant when compared with similar values from other rivers at a regional or national scale*." This further indicates that multiple scales should be considered for regions of comparison.[307]

RECOMMENDATION - WSR 5: Overall, when considering Regions of Comparison, the Forest Service should employ multiple lenses that seek to recognize ORVs rather than to exclude them. For example, if an ORV is not unique or exemplary within the Tonto NF Boundary, then the Forest Service should evaluate the ORV relative to Arizona, the Southwest Region, and/or the nation.

Sycamore gallery forest along the East Verde River: An ecosystem only found in Arizona, providing suitable habitat for yellow-billed cuckoo, and highlighting the need for a larger region of comparison.

[307] An added concern is the lack of public participation in defining the area of comparison.

CONCERN - WSR 6: Some segments found eligible in the Draft Plan and DEIS need additional ORVs described.

RATIONALE - WSR 6: We appreciate the inclusion of the 23 Eligible river segments in the Draft Plan and DEIS and the extensive research that the Forest Service undertook in this review. To be perfectly clear, we emphatically support Eligibility for all 23 of these segments. However, numerous other river segments should be determined Eligible and some ORVs for eligible segments need further narrative.

We strongly support the Eligibility determinations and the associated ORVs for the Lower Salt River, Upper Salt River, Verde River, Upper Tonto Creek, Lower Tonto Creek, and Salome Creek. However, here we provide the following suggestions to improve the ORV findings and narrative descriptions for these six river segments.

A) Rationale specific to Lower Salt River

The Lower Salt River attracts visitors from throughout the State of Arizona and its Sonoran Desert landscape makes it a nationally unique area. This stretch of the Salt has been described to have spectacular topography, birds of prey, and interesting desert plants (e.g., Saguaro cactus). The identified Recreation ORV, including float-boating (i.e., human powered boating or paddling), is a key component of the Lower Salt. The segment provides a beginner floating experience and is easily accessible from the Phoenix area.

RECOMMENDATION - WSR 6A - SPECIFIC TO LOWER SALT RIVER ORVs: 1) The Draft Plan recognizes "rafting" as a recreational use, however it would be more appropriate to use a broader term, such as float-boating, since the river is frequented by kayaks, rafts, stand up paddleboards, and other craft types. 2) We agree with the Recreational Classification.

B) Rationale specific to Upper Salt River

The Upper Salt is known as one of the best multi-day paddling runs in the nation and it is so popular that it is permitted through an annual lottery system. The Salt's scenery and geology have been compared to the Grand Canyon of the Colorado and its Sonoran Desert landscape is spectacular. We strongly support eligibility determination for the Upper Salt River and we support its numerous ORVs, including recreation, geologic, cultural, and scenic.

RECOMMENDATION - WSR 6B - SPECIFIC TO UPPER SALT RIVER ORVs: We have identified a couple of minor discrepancies in the narrative of the DEIS. On page 363 of the DEIS it says that recreation on the river draws people from across the state and the region, but paddlers travel from all across the nation to paddle the Salt if they win a permit. The language should be adjusted to include this broader recognition. Additionally, on page 363 it says that the Upper Salt River would be divided into three different river segments with Wild, Scenic, and Recreation Classifications, but there is no further mention of the third Recreation segment. This language should be corrected to remove the inconsistencies.

C) Rationale specific to Verde River

We strongly support an eligibility determination on the Verde River along with the identified ORVs of fish, wildlife, recreation, and historic. We appreciate that river running is acknowledged in the narrative, as this is truly a special place for river recreation and meets the criteria for an Outstandingly Remarkable Value. This section of the Verde River provides intermediate, Class I-III paddling opportunities in a remote and unique setting. It is difficult to find such remote paddling opportunities that aren't extremely challenging, making the Verde more accessible to paddlers with intermediate to advanced skills. This segment would be contiguous with the previously designated Wild and Scenic Verde River, which assigns the ORVs of Scenery, Fish, Wildlife, and Cultural/Historic to the Verde River.

RECOMMENDATION - WSR 6C - SPECIFIC TO VERDE RIVER ORVs: Continue to carry the Verde River forward as Eligible into the next phase of plan revision. The ORV of Scenery should be added, consistent with the contiguous upstream portion of the river.

Canoeists stopping in a side canyon along the Eligible segment of the Verde River.

D) Rationale specific to Upper Tonto Creek

The DEIS fails to acknowledge that the Upper Tonto Creek is a highly regarded and remote kayaking run. An American Whitewater supporter and a local boater described this segment as "one of the coolest [paddling] runs I have EVER done. It's a fantasy land." Similar to the Lower Tonto Creek, this segment has more reliable flows than other creeks in the area.

RECOMMENDATION - WSR 6D - SPECIFIC TO UPPER TONTO CREEK ORVs: We support the identified Recreation, Scenery, Wildlife, and Historic ORVs. On page 366 of the DEIS Volume 3, the language should be changed to read "Canyoneering and whitewater kayaking are both considered to be very high quality and unique within the state."

E) Rationale specific to Lower Tonto Creek

The DEIS describes Lower Tonto Creek has having "some (minimal) whitewater boating" which significantly downplays this special river segments popularity. American Whitewater's National Whitewater Inventory (NWI) describes this reach as one of the best day-runs in Arizona and as a classic. The Lower Tonto provides a remote, scenic wilderness experience for more intermediate paddlers. This segment is also easily reached from both Pheonix and Flagstaff and has more reliable flows that other rivers in the state, making it both popular and reliable.

RECOMMENDATION - WSR 6E- SPECIFIC TO LOWER TONTO CREEK ORVs: On page 349 of the DEIS Volume 3, the language should be changed to read "…fishing, whitewater boating, wildlife viewing…" which is to say that "minimal" should be removed. An additional sentence should be added at the end of the same paragraph to read "The Lower Tonto has been described to be one of the best day trips for paddling in Arizona and provides remote and scenic experience for intermediate paddlers."

E) Rationale specific to Salome Creek

While the DEIS acknowledges that Recreation is an ORV on Salome Creek, it fails to recognize kayaking as a contributor to the Recreation ORV. Salome Creek, or The Jug, provides one of the most challenging and remote paddling experiences in Arizona and is highly renowned around the southwest region. It has been described as "one of the most amazing places that you will be able to boat ever". While its high-challenge prevents this segment from being commonly run, it is without a doubt one of the most unique river segments that is paddled in the region. Tyler Williams, author of Paddling Arizona: A Guide to Lakes, Rivers, and Creeks said, "The Sierra Ancha Mountains from Salome Creek provide one of the most dramatic vistas in the Sonoran Desert. The scenic value would qualify this area as a National Park."

RECOMMENDATION - WSR 6E - SPECIFIC TO SALOME CREEK ORVs: We concur with the Scenery and Recreation ORVs and with the preliminary Classification of Wild. On page 357 of the DEIS Volume 3, change the language to read "Other primitive recreation opportunities in the area including hiking, backpacking, picnicking, whitewater kayaking, fishing and hunting."

RECOMMENDATION - WSR 6F- SPECIFIC TO ARNETT CREEK ORVs:

The Tonto wrongly removes the Outstandingly Remarkable Value of "Ecological and Riparian Values" from eligible wild & scenic Arnett Creek/Telegraph Canyon. In the 1993 Resource Information Report Arnett Creek/Telegraph Canyon[308] had the Outstandingly Remarkable Value (ORV) of "Ecological and Riparian Values." The DEIS removes this ORV and provides the following rationale:

> *"In the Resource Information Report, Potential Wild, Scenic, Recreational River Designation, National Forests of Arizona (1993), ecological and riparian values were identified as outstandingly remarkable for Arnett Creek/Telegraph Canyon. However, that report did not identify a region of comparison and since 1993 the stream is less stable due to declined perennial flow. The creeks are proximate to Boyce Thompson Arboretum, which has introduced non-native plant species to the area. Non-native oleander (invasive), palm tree, and salt cedar infestations are now present in Arnett creek. When comparing ecological and riparian resources with other similar resources in the state, they were not exceptional and no longer met the criteria for outstandingly remarkable."* [309]

Wild Arizona is currently (early 2020) organizing and facilitating volunteers in the removal of oleander and tamarisk along this segment of Arnett Creek/Telegraph Canyon. Crews have been packing out vegetation and treating stumps with herbicides. Aided by a massive flood that removed ~50% of the tamarisk on this stretch, Wild Arizona has been highly successful in this restoration endeavor. Upon satisfactory review by the Tonto of the work that Wild Arizona has completed and plans to complete, the Tonto should reinstate the ORV of Ecological and Riparian Value because the non-native species concern has been substantially mitigated.

[308] 1993 Resource Information Report, p. 323-328.
[309] Tonto National Forest – Wild and Scenic Rivers Evaluation-Named Streams spreadsheet

Kayakers explore the dramatic geology and frigid waters of the Hellsgate segment of Upper Tonto Creek.

CONCERN - WSR 7: The Forest Service failed to recognize multiple river segments as Eligible for inclusion in the National Wild and Scenic River System, including the East Verde River, Haigler Creek, Spring Creek, Christopher Creek, Sycamore Creek, Ellison Creek, Devils Canyon, Pinto Creek, and Cherry Creek, which all possess Outstandingly Remarkable Values for wildlife, scenery, geology, and recreation, among other ORVs.

RATIONALE - WSR 7: We appreciate the inclusion of the 23 Eligible river segments in the Draft Plan and DEIS and the extensive research that the Forest Service undertook in this review. To be perfectly clear, we emphatically support Eligibility for all 23 of these segments. However, numerous other river segments should be determined Eligible. Here we provide the following rationale and recommendations for additional rivers that should be determined Eligible:

A) Rationale specific to East Verde River

In all of the Tonto National Forest there are only four waterways bearing the name "river". The East Verde River is one of these four. The East Verde River was determined to be Eligible in the 1993 Resource Information Report for its Wildlife and Riparian ORVs, yet was found ineligible in the current DEIS. The Forest Service removal of East Verde River from the list of eligible streams is not justifiable.

The 1993 Resource Report presents strong evidence of the outstandingly remarkable values of riparian, fisheries, and wildlife. This 1993 report (page 248) in fact does present both qualitative and quantitative assessment of the vegetation. It speaks on one hand of the fairly common community of sycamore - ash – cottonwood – mixed deciduous trees, but on the other hand it notes this is the rarest riparian community type on the Tonto forest. It goes on to describe the moderately dense tree canopy of 40% cover. Plant diversity is high, with 9 tree species, 11 shrubs, and 10 common herbaceous species. The report then interprets these findings, stating that "The high structural and species diversity contribute to high values for riparian-dependent resources such as wildlife habitat and recreation. Riparian vegetation condition is good." For the resource of fish and wildlife it contains numerous fish species, 4-5 of which are native, including the roundtail chub, a candidate for threatened species, and endangered razorback sucker. The report actually rates segment #2 to have outstandingly remarkable wildlife value because it provides fair to excellent habitat for a variety of threatened and endangered species, both on a national level and from within the State of Arizona.[310]

Scenery ORVs: The perennial waters of East Verde River support a solid ribbon of riparian vegetation that contrasts dramatically with the surrounding scrub, juniper, and pinon. This presents a stunningly beautiful appearance when viewed from higher elevations, as shown in the photograph. The serenity and scenery found in the valley carved by the East Verde River is outstandingly remarkable and sublime. This scenery draws many visitors.

Fisheries ORVs: In addition to the fish previously noted, the river is regularly stocked with trout, a cold water species that is intolerant of poor quality water.

Wildlife ORVs: The entire East Verde River is proposed Critical Habitat for the Narrow-headed Gartnersnake.

[310] 1993 Report, p. 248.

Recreation ORVs: Not only are the Wildlife and Riparian ORVs still present, recreation has risen to the level of an ORV since 1993. The East Verde River is recognized in both online and print guidebooks as a challenging, steep kayaking run with beautiful waterfalls (some unrunnable) and small gorges. It is promoted by Arizona State Parks as a highly attractive destination.[311] The East Verde is at the convergence of multiple wilderness areas, giving it a unique wilderness setting.

The current evaluation presents no new information assessing the status of vegetation, fish, or wildlife. For recreation values there is no new information presented either. But since the 1993 report the road to the Doll Baby Trailhead has been upgraded with an anecdotal increase in public visitation. No new data are presented about the relative impact to flows in the segment below East Verde Park at Arizona highway 87 to the confluence with Verde River that may be caused by the releases from the CC Cragin reservoir. But, there are numerous feeder streams and flows from unnamed canyons that also help support the flow of East Verde River in this reach.

Again, we refer you to the Citizen's proposal of 1991 for information about its eligibility and additional ORV's of Scenic and Cultural. We strongly urge reconsideration of your "not Eligible" finding.

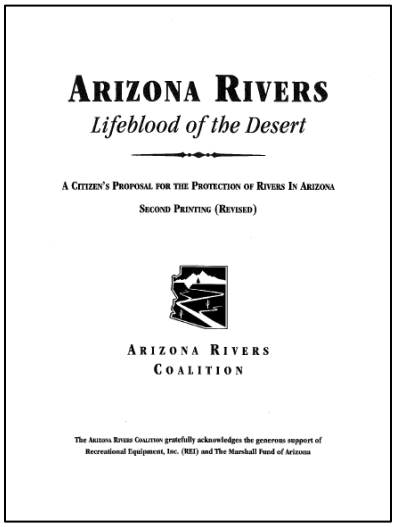
RECOMMENDATION - WSR 7A - SPECIFIC TO THE ELIGIBILITY OF THE EAST VERDE RIVER: Determine the East Verde River to be eligible for inclusion in the National Wild and Scenic River Inventory for its Recreation, Wildlife, Fish, Scenery, and Riparian ORVs. A classification of Wild would be appropriate for the lengthy segment that runs through the Mazatzal Wilderness, an extremely remote segment, with stunning visual appeal, and no development nor roads along the reach other than the LF Ranch, which is likely to soon be owned by the Forest Service and hav

[311] Arizona State Parks. Arizona Rivers and Streams Guide (1989). Page 136-137.

This photograph below of the East Verde River in early 1990 shows the outstandingly remarkable features of scenery, riparian habitat, and a beaver dam near the confluence of Pine Creek. The presence of beaver here indicates this would be a suitable location to consider its reintroduction. Very, very few streams in Arizona at this elevation have this keystone species. On page 113 of the Forest Plan (Management Approaches, item 04) we are pleased to see assessment of the return of beaver to riparian ecosystems. As a well-recognized keystone species, beaver may play a significant role in restoring degraded riparian systems. This type of project could draw public support for the Forest's management practices of riparian habitat. The Plan should add objectives for restoring beaver. We suggest to aim for beaver restoration to 10 miles of stream per year.

The East Verde is the kind of river that staff of the Tonto Forest could proudly show to the chief of the Forest Service. We strongly urge reconsideration of your "not Eligible" finding.

Again, we refer you to the 1991 Citizen's Proposal for information about its eligibility and additional ORV's of Scenic and Cultural, provided in Appendix III.



ARIZONA RIVERS

Lifeblood of the Desert

A CITIZEN'S PROPOSAL FOR THE PROTECTION OF RIVERS IN ARIZONA

SECOND PRINTING (REVISED)

ARIZONA RIVERS COALITION

The ARIZONA RIVERS COALITION gratefully acknowledges the generous support of Recreational Equipment, Inc. (REI) and The Marshall Fund of Arizona

The East Verde River has been a recreation destination for decades.

B) Rationale specific to Haigler Creek

This stream contains outstandingly remarkable values. In the Hellsgate Wilderness section, Haigler Creek flows through a number of scenic narrows. One of the pools in this stream contains some type of a gas seep. These two ORVs make this stream regionally significant from a geological standpoint. This stream would also be an excellent candidate for the reintroduction of Arizona native fish species.

ORVs include scenic, riparian vegetation, wildlife, fish, recreational, and cultural. Native fish include longfin dace, desert sucker, and speckled dace.[312] Haigler Creek serves as a wildlife movement corridor from the desert to the forest. Nearly the entire length of Haiger Creek, from almost the top of Naegelin Canyon to its confluence with Tonto Creek in the Hellsgate Wilderness, is proposed Critical Habitat for the Narrow-headed Gartnersnake. The snakes are known to occur in Haigler Creek but likely at a low density.[313] The upper half of Haigler Creek is within a ponderosa pine and mixed conifer forest that is designated Critical Habitat for the Threatened Mexican spotted owl.

High in the watershed, Haigler Creek is a popular fishing stream in forested setting. The middle segment, from Forest Road 411in Naegelin Canyon to private land, is in an unroaded canyon and only accessible by trail or overland travel. The bottom several miles are within the Hellsgate Wilderness. Non-motorized recreational users frequently enjoy hiking the length of this stream and then exiting the Hellsgate Wilderness Area via Hellsgate Trail # 37.

[312] USFWS. 2017. Biological Opinion on the Haigler Creek Aquatic Habitat Restoration Project.
[313] USFWS. 2017. Biological Opinion on the Haigler Creek Aquatic Habitat Restoration Project.

RECOMMENDATION - WSR 7B - SPECIFIC TO THE ELIGIBILITY OF HAIGLER CREEK: Three Segments of Haigler Creek should be determined eligible for inclusion in the National Wild and Scenic River Inventory. The Upper Segment, approximately four miles in length, from its headwaters to the crossing of Forest Road 411, should have a preliminary Classification of Recreation, as it is paralleled by Forest Road 411. The middle segment, approximately five miles in length, from Forest Road 411 to private land north of the Haigler Creek Recreation Site, should have a preliminary Classification of Wild. The lower segment, approximately nine miles in length, from the Alderwood Recreation Site to the confluence with Tonto Creek should have a preliminary Classification of Wild.

C) Rationale specific to Spring Creek

The Forest Service argument against eligibility of Spring Creek makes no sense. On the contrary, the documented presence of 4 species of native fish provides powerful, compelling justification FOR its eligibility. If the presence of non-native species were a determining factor then virtually no Arizona stream would qualify for Wild and Scenic designation on the basis of its fishery.

Native fisheries in Arizona have faced tremendous threats and suffered from loss of species and abundance over the past decades. Spring Creek is Critical Habitat for the Endangered Spikedace, as well as several miles of Rock Creek, which feeds Spring Creek from the south.

The uncommon density of alder in the riparian zone also makes this creek outstandingly remarkable in the Tonto Forest, and in the state of Arizona. The presence of dense alder is an important indicator of perennial flow, an increasingly rare condition in Arizona. Riparian habitat dominated by alder is an outstandingly remarkable finding and value.

Riparian jewels such as Spring Creek have outstandingly remarkable values and are highly deserving of inclusion in the Wild and Scenic River system. The lowermost several miles of Spring Creek are within the Hellsgate Wilderness.

RECOMMENDATION - WSR 7C - SPECIFIC TO THE ELIGIBILITY OF SPRING CREEK: Spring Creek should be determined eligible for inclusion in the National Wild and Scenic River Inventory with a preliminary Classification of Wild.

D) Rationale specific to Christopher Creek

Christopher Creek, known as the Box Canyon to kayakers, flows into Tonto Creek and is a spectacular steep creek with challenging Class IV-V+ rapids . This segment begins at Christopher Creek Campground and ends at the confluence with Tonto Creek, and is approximately 2.75 miles long. Since it was first attempted in 2005, Christopher Creek has received worldwide recognition in the kayaking community and numerous descents have been made. The discovery of this creek as a world class steep creek run classifies as a change in circumstances since Christopher Creek was last reviewed and elevates it to the level of an ORV.

RECOMMENDATION - WSR 7D - SPECIFIC TO THE ELIGIBILITY OF CHRISTOPHER CREEK: Determine Christopher Creek from Hwy 260 to Tonto Creek to be eligible for inclusion in the National Wild and Scenic River Inventory for its Recreation ORV. The preliminary classification should be Scenic due to the Campground at the put-in, but an otherwise remote setting.

Kayakers on Christopher Creek.

E) Rationale specific to Ellison Creek

Ellison Creek provides the only "park and huck" kayaking opportunities in Arizona. This stretch can also be combined with the East Verde, which it runs into. This segment has not previously been determined eligible, however kayaking on Ellison Creek has become more recognized since the 1993 Resource Information Report.

RECOMMENDATION - WSR 7E - SPECIFIC TO THE ELIGIBILITY OF ELLISON CREEK: Determine Ellison Creek to be eligible for inclusion in the National Wild and Scenic River Inventory for its Recreation ORV. We recommend that the preliminary classification be Scenic due to the roadside access.

F) Rationale specific to Sycamore Creek, Mesa Ranger District

Located on the Mesa Ranger District and starting in section 25 just south of the Cross F Ranch and proceeding downstream to section 26 just east of the Fort McDowell tribal land, this stream has several outstanding remarkable values. The recommended classifications for this stream are as follows: "scenic" from the south boundary of Cross F Ranch to the north boundary of the Diamond Ranch, "scenic" from the south boundary of the Diamond Ranch to the upper bridged crossing of SR 87, "wild" from the upper bridged crossing of SR 87 downstream to the lower bridged crossing of SR 87, "scenic" from the lower bridged crossing of SR 87 downstream to the private property in section 26. The upper section upstream of State Route 87 and south of Sunflower is a highly scenic narrow area that is very popular with recreational users and is part of the Boulder Inventoried Roadless Area and would add another wilderness value to this potential wilderness area. Much of Sycamore Creek has been severely impacted by uncontrolled off-highway vehicle use. Designating this stream as an eligible Wild & Scenic River will give the Forest Service another tool to manage this area in a manner that is appropriate. Nearly all of this stream exists in a Sonoran Desert setting and as such, is rare and unique, and should be managed in a manner so as to preserve the Sonoran Desert in an unimpaired manner for future generations. Desired future conditions for this stream should limit off-highway vehicle users to crossing the stream at designated crossing on Forest Service roads with streambed and stream bank travel eliminated. There will be no grazing west of Hwy 87 on the Sunflower Allotment for at least the next 10 years, which will reduce conflicts and further enhance riparian qualities. Key ORVs include riparian vegetation and recreational.

Sycamore Creek is a beautiful, Saguaro filled classic Arizona desert canyon. The reach upstream of SR 87 reliably supports a pair or two of nesting blackhawks which are noted on most, if not all, years. This area is highly valued as a birding area and draws visitors from the Phoenix metropolitan area. Its use as a site for picnics and car camping is heavy on weekends, and it has regional importance for users who choose not to drive to locations on the north end of the Tonto Forest or other Forests along the Mogollon Rim. It provides Class V kayaking opportunities and is highly regarded by expert kayakers that travel from throughout the Southwest and Southern Rockies regions of the U.S to kayak its gorges. The run itself has a very remote setting, although it is easily accessed from Hwy 87 just Northeast of Phoenix.

RECOMMENDATION - WSR 7F - SPECIFIC TO THE ELIGIBILITY OF SYCAMORE CREEK: Sycamore Creek should be determined eligible for inclusion in the National Wild and Scenic River Inventory with a preliminary Classification of Scenic and Wild as described above.

A Kayaker on Sycamore Creek juxtaposed against Saguaro cactus, in the heart of Arizona's Sonoran desert.

G) Rationale specific to Devil's Canyon

Located on the Globe Ranger District and starting in section 10 north of US 60 and proceeding downstream to the Forest boundary in section 34, this stream has several outstanding remarkable values, including riparian vegetation, wildlife, cultural, and geological. The recommended classifications for this stream are as follows: "scenic" starting in section 10 downstream to the bridged crossing of US 60, "wild" from the bridged crossing of US 60 downstream to the Forest boundary. This stream contains excellent examples of riparian vegetation existing in a Sonoran Desert setting. This stream would be an excellent place for the reintroduction of Arizona native fish species. It is possible that ocelots have migrated north into this area. Non-motorized recreation users use this area for hiking and climbing trips.

Surprisingly, the Forest Service has determined that there are 'no outstandingly remarkable geological values' in this canyon. We do not agree with this determination, and we feel that the Forest Service has erred in failing to consider the Historic and Pre-historic value, particularly the importance of this canyon to local Indian tribes. The local Apache name for the area is Gan bi Koh or "place of five mountain Spirits," which has commonly been shortened to Ga'an Canyon. Even a casual observation of the geological standing rock formations in the canyon reveals why the native people would consider the canyon to support the spirits of ancestors. Additional ORVs of the canyon include scenery, recreation (hiking and rock climbing), riparian, and wildlife. In addition, the inclusion of Oak Flat (Chichi l Bi[dagoteel) on the National List of Historic Properties as a Traditional Cultural Property – the designation of which was supported by the Tonto National Forest and includes Ga'an Canyon, adds to the importance of designing the canyon as eligible for wild and scenic.

Biological features support its determination as eligible. Ga'an Canyon is home to the endangered Arizona Hedgehog Cactus as well as species such as: White-nosed Coati, Ringtail, Mountain lion, Black bear, Bobcat, and a variety of bird species. Previous flora and fauna surveys have shown that Gaan Canyon is botanically diverse and supports a high diversity of bird species (Jacobs 2009).[314] Eleven special status bird species exist within 5 miles of the project area according to review tools provided by the Arizona Game and Fish Department.

Interior chaparral vegetation includes manzanita (Arctostaphylos pungens), catclaw acacia (Acacia greggii), desert broom (Baccharis centennial), and scrub oak (Quercus turbinella) (Spangle 2008). Other common upland species include hop bush (Dodonaea viscosa), birchleaf mountain mahogany (Cercocarpus betuloides), jojoba (Simmondsia chinensis), wait- a-minute bush (Mimosa biuncifera), cholla (Opuntia sp.), and agave (Agave sp.) (Jacobs 2009). Vegetation composition throughout the uplands is significantly influenced by Arizona Uplands division Sonoran Desert elements as evidenced by the presence of saguaros (Carnegiea gigantea), which are fairly common on rocky east- and south-facing slopes.

RECOMMENDATION - WSR 7G - SPECIFIC TO THE ELIGIBILITY OF DEVIL'S CANYON: Devil's Canyon should be determined eligible for inclusion in the National Wild and Scenic River Inventory with a preliminary Classification of Wild.

[314] From wildlife camera report in the Resolution Copper DEIS (pages 170 – 180)

Characteristic geology in Devils (Ga'an) Canyon.

H) Rationale specific to Pinto Ck (segment from Layton Ranch to Blevens Wash, approx. 8 miles)

The riparian values of this stream were important enough to protect that the Forest Service applied for and received a certificate for an in-stream flow water right from the Arizona Department of Water Resources. We refer you to the 1991 Citizen's Proposal, page 26 (see Appendix III), for a detailed description of this stream. Its ORVs are scenic, riparian, ecological, and prehistoric cultural. We have shortened the recommendation to 8 miles to accommodate FSR #1491 that was not visible on the map in the 1991 Proposal. A 2003 photo of the creek condition prior to massive pumping by Pinto Valley Mine is shown below.

Downstream view of Pinto Creek, taken from the weir at the Pinto gage, May 2003. Scene was within the segment of Pinto Creek eligible for Wild and Scenic River designation. Note healthy riparian trees (cottonwood and willow), cattails, and impenetrable streamside vegetation. Photo: T. Flood

Pinto Creek has long contained biologically important features and remains an attractive place for the public to visit, picnic, camp, study and observe wildlife. The density of its riparian vegetation provides excellent habitat for riparian obligate species. The Fish and Wildlife Service has proposed a 6-mile segment as critical habitat for Yellow-billed cuckoo as it was documented to occupy the area during its breeding season. Some of the more formal recognitions of the importance of the Pinto Creek area include:

- Arizona State Parks included Pinto Creek on its list of candidate critical streams and wetlands.[315]

- The Arizona Rivers Coalition in 1991 included 9 miles of middle and lower Pinto Creek in the Citizen's Proposal for Wild and Scenic Rivers (WSR) in Arizona.[316]

- The USFS has included it as "eligible" for WSR designation in Forest Planning documents. In its 1993 assessment of Arizona rivers the USFS regional office listed 8.8 miles as eligible for a "scenic" designation. At that time its outstandingly remarkable values were listed as "scenic, riparian, and ecological."[317]

- The Tonto National Forest recognized it as the single best riparian habitat in the Tonto Basin, and applied for an in-stream flow right from the Arizona Department of Water Resources. This rare, hard-to-obtain state right to in-stream flows was granted with a priority date of 1983.

In very recent years the creek has suffered from heavy pumping of nearby wells which threaten to dewater the creek. To considerable extent, this already is occurring. **This impact begs for an aggressive response from the Forest Service to defend its hard-won in-stream flow right.** Riparian systems are dynamic, and sometimes respond in short order with regrowth if natural flows are restored.

RECOMMENDATION - WSR 7H - SPECIFIC TO ELIGIBILITY OF PINTO CREEK: We recommend the Forest Service find the creek eligible for WSR with a scenic classification in order to protect its ORVs of riparian and ecological, scenic, and cultural features.

[315] Arizona State Parks. Arizona Streams and Wetlands Inventory, Appendix 9-A. SCORP 1989.
[316] Arizona Rivers Coalition: Arizona Rivers, Lifeblood of the Desert. Salt River Basin, Pinto Ck. Pg. 26-27. 1991.
[317] US Department of Agriculture, USFS, Southwestern Region. Preliminary Analysis of Eligibility and Classification for Wild/Scenic/Recreational River Designation. Pinto Creek, page 58-59. January 1993.

I) Rationale specific to Cherry Creek

Cherry Creek WSR nomination: On the WSR evaluation spreadsheet the Forest Service has used a Region of Comparison argument to determine that Cherry Creek has no outstandingly remarkable values in comparison to other streams within the state of Arizona. We question this determination and ask the Forest Service to consider the amount of recreation that occurs along Cherry Creek as testimony that the public highly values the ORVs of scenery, riparian, fish and wildlife, and recreation. This visitation level is quite different from other similar streams, and is a factor that the Forest Service might not have taken into account. The stream is remote from the large metropolitan areas, yet it draws many visitors who travel considerable distance to play in its perennial waters, fish, picnic, and camp.

The 1993 Resource Assessment was quite strong in its ORV findings of wildlife, scenic, fish, and wildlife. With such a large watershed from which to receive runoff it would be surprising if riparian restoration from recent landscape disturbances is not occurring. A more current assessment of its status may produce favorable findings.

RECOMMENDATION - WSR 7I - SPECIFIC TO ELIGIBILITY OF CHERRY CREEK: In comparison with other streams in Arizona we find that it indeed does stand out, and we request a reconsideration of its "not eligible" determination.

CONCERN - WSR 8 - SEGMENTS MISSING FROM ELIGIBLE RIVERS

A number of river segments ranked eligible are substantially shorter than past evaluations, and justification is not given for these contractions. Here, we argue for extending certain segments, including Squaw Creek, the Verde River, Lime Creek, Pine Creek, Lower Tonto Creek, and Salome Creek.

Squaw Creek: The DEIS does not explain why the Eligible segment ends at the North Fork of Squaw Creek. Another eight to ten miles of Squaw Creek are in a similar condition as the segment determined as Eligible. Also, should be Wild as no road along the edge and the evaluation admits that it is not impounded.

Verde River: We appreciate the Wild eligibility determination for the lower Verde River from the downstream end of the currently designated Wild segment to the confluence with Red Creek. We suggest that this segment should be extended downstream a short distance to the northern extent of the Lakes and Rivers Management Area, and even include the portion of the Horseshoe Recommended Botanical Area that crosses the river. This segment possesses all of the ORVs of the upstream segment, and managing the entire Verde River as Wild to the northern extent of the Lakes and Rivers Management Area would streamline management priorities and approaches, as this would alleviate a short section without a management specific overlay.

Lime Creek: The small (6 foot high) fish barrier cannot be considered as an impoundment, rather it functions to block upstream migration of fish. Lime Creek should be eligible all the way to its confluence with the Verde River. We support the listing of "fisheries" as an outstandingly remarkable value (ORV). Additional ORVs that should be listed in the assessment include Lime Creek's riparian-dependent wildlife, its role as a wildlife corridor, and prehistoric ruins in proximity to the creek. Based on this essentially undeveloped status, it is much more appropriate that Lime Creek be classified as "wild."

Pine Creek: We are puzzled why the proposed segment abruptly ends well before reaching its confluence with the East Verde River. The eligible WSR designation should be extended to that confluence. As this is a wilderness area from the bottom, there is no vehicular access and no development. Please justify why the lower boundary of the eligible segment does not extend to the Pine Creek confluence with East Verde River. This lower segment is deserving of inclusion as it contains most of the attributes of the segment north of it in the more canyon confined reach.

Lower Tonto Creek: The Forest Service proposes only 3.07 miles of eligible stream, and a 'scenic' designation. The reach should extend to the Gun Creek confluence, making a segment length of ~ 7.5 miles.

Salome Creek: The proposal for only 8.53 miles of eligibility is considerably shorter than the 19.6 miles studied in the USFS 1993 WSR Resource Report (pages 132-136).

CONCERN - WSR 9 - RECOMMENDED CLASSIFICATIONS

Certain segments were ranked at 'higher' levels of protection in past assessments. Here, we argue that segments of Arnett Creek, Tangle Creek, Lime Creek, and Lower Tonto Creek should be classified at higher levels than they are in the Draft Plan.

Arnett Creek/Telegraph Canyon: Arnett Creek/Telegraph Canyon was first eligible for wild & scenic designation in 1993[318] when it was classified as a "Scenic" stream segment. However, the DEIS suggests changing this classification from Scenic to Recreational[319]. The Tonto provides the following rationale for this classification change:

> *"Though there is no water resource development within this segment, there is a fish barrier just upstream from the segment. There is a lot of work along this corridor, including a lot of shoreline development including fences and stock tanks. This segment is easily accessible, with roads viewable within the river corridor. Water quality is impaired on both Arnett Creek and Telegraph Canyon."*[320]

First, the referenced fish barrier is *downstream* of the stream segment, not upstream; this language needs to be revised. Second, while this rationale could appear to be unsupportive of a "Scenic" classification we contend that the extent of improvements is not as noticeable as the Tonto suggests. There are no roads in view or in use within the area, nor any stock tanks or cattle infrastructure. There are two fences that have been installed or actually rebuilt to prevent cattle intrusion into the main part of Arnett below the confluence. There are two historic routes that are relatively visible but by no means are they possible roads; they are completely blocked or washed out and in many places unidentifiable. Throughout the lower end of the creek just above the fish dam there is some historic water pipes above ground that likely pumped water to or from a mine above the creek. This has all been here long before 1993.

Additionally, the planning rule[321] requires the Tonto to protect the values of eligible streams; this includes those streams identified as eligible in 1993. Therefore, no improvements should have been developed along this stream segment between 1993 and 2020. If new improvements were indeed developed, it would seem that the Tonto failed to adhere to the planning rule. The Forest Service should change the classification of Arnett Creek/Telegraph Canyon from "Recreational" to "Scenic" in any subsequent NEPA documents.

Tangle Creek: The description of the ORVs of Scenery and Natural (riparian, ecological) accurately describe Tangle Creek. The segment classified as Recreational is appropriate, but the 7.01 mile segment classified as scenic does not fit. Rather, the description on page 314 of the DEIS for "wild" applies better: generally inaccessible except by trail, with watersheds or shorelines essentially primitive. The only road is generally at least ½ mile from the creek, and scenery is dominated by rolling hills and distant ridges. It is not appropriate to use the presence of unmanaged cattle to place a "scenic" classification to the 7.01 mile segment, which we recommend as "wild."

[318] 1993 Resource Information Report, p. 323-328.
[319] DEIS, p. 331.
[320] Tonto National Forest – Wild and Scenic Rivers Evaluation-Named Streams spreadsheet
[321] 36 CFR 219.10 (v)

Lime Creek: As stated earlier, Lime Creek should be eligible all the way to its confluence with the Verde River, but we disagree with the proposed "scenic" classification. The lower half portion of Lime Creek is extremely remote. Access to the creek is difficult because the water in Horseshoe Lake blocks foot passage to the creek when the lake level reaches a certain point. The other access road (FSR 1630) is unreliable because of its steep grade and its limey soil that turns to clay when wet. Even relatively light vehicular traffic on the road has badly eroded it. A faint, rugged, abandoned miner's trail is the only sign of human intrusion into the lower area. Cattle have not been seen in the creek for more than a decade. The portion of both upper and lower Lime Creek that is within the canyon is remarkably remote, so much so that it is rarely used even by hikers. Thus, the remoteness, general inaccessibility, and essentially undeveloped status of lower Lime Creek would support a "wild" classification.

Lower Tonto Creek: The segment has only one road that crosses it - at the Seventy-six Ranch. The reach below the ranch is exceptionally remote. The entire segment should be classified as wild, not scenic. The Forest Service justifies the designation on claims of limited amounts of grazing. Grazing should not be permitted in this riparian area.

VI. Roads and Recreation.

CONCERN: The Draft Plan and DEIS fail to provide for, or consider and analyze, Forest Plan components that provide for an ecologically and economically sustainable forest road system, thereby failing to meet planning rule requirements.

RATIONALE:

I. The best available science shows that the Tonto National Forest's road system is economically and environmentally unsustainable.

Best available science shows that roads cause significant adverse impacts to National Forest resources.[322] A 2014 literature review from The Wilderness Society surveys the extensive and best available scientific literature—including the Forest Service's General Technical Report synthesizing the scientific information on forest roads[323] —on a wide range of road-related impacts to ecosystem processes and integrity on National Forest lands.[324] Erosion, compaction, and other alterations in forest geomorphology and hydrology associated with roads seriously impair water quality and aquatic species viability. Roads disturb and fragment wildlife habitat, altering species distribution, interfering with critical life functions such as feeding, breeding, and nesting, and resulting in loss of biodiversity. Roads facilitate increased human intrusion into sensitive areas, resulting in poaching of rare plants and animals, human-ignited wildfires, introduction of exotic species, and damage to archaeological resources.

Forest road networks have been shown to have detrimental effects on water and aquatic resources in forested landscapes. Road systems can change a natural hydrologic regime by altering natural flow patterns and increasing sediment delivery to streams. Roads have been shown to destabilize side-casted material and hillsides, expand the lengths of gullies and stream channels, increase sediment delivery, and alter streamflow and channel adjustments. The presence of roads can also affect natural drainage patterns over the long-term by intercepting subsurface drainage in cutslopes, capturing rainfall on hardened road surfaces, and routing excess runoff into the stream channel system. Where a dense road network is well connected to the stream network, it can be an "extension" of the actual stream network and alter streamflow regimes.

Sediment from the road system can be delivered to streams by direct erosion of cut and fill slopes associated with stream crossings or by surface runoff from roads and ditches that carries sediment-laden water directly or indirectly to streams. Roads lacking surface rock, those with steep grades and steep side slopes, and those that cross streams or are in close proximity to streams are the greatest contributors of sediment from surface erosion.

Forest road culverts can deliver large amounts of sediment to receiving waters when the culvert plugs and fails. Culverts that remain in a road behind a gate or berm that are not properly sized, positioned,

[322] *See,* e.g., 66 Fed. Reg. at 3208 ("Scientific evidence compiled to date [2001] suggests that roads are a significant source of erosion and sedimentation and are, in part, responsible for a decline in the quality of fish and wildlife habitat.")

[323] Gucinski, M., J. Furniss, R. Ziemer, and M.H. Brookes. 2001. Forest Roads: A Synthesis of Scientific Information. Gen. Tech. Rep. PNWGTR-509. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 103 p. Available at: http://www.fs.fed.us/pnw/pubs/gtr509.pdf.

[324] *See* Appendix IV. The Wilderness Society, May 2014. Transportation Infrastructure and Access on National Forests and Grasslands: A Literature Review.

and inspected have an increased risk for failure by reducing awareness of potential maintenance needs. The accumulation of debris has the potential to obstruct culverts and other road drainage structures. Without maintenance and periodic cleaning, these structures can fail, resulting in sediment production from the road surface, ditch, and fill slopes.

Forest roads contribute to the spread of invasive species. Roads themselves—regardless of whether they are open or closed to the public, system roads or temporary—split apart the forest landscape, creating more buffers where invasive species are likely to grow.[325] The Forest Service must assess how forest roads are likely to provide a vector for the spread of invasive species by fragmenting the landscape and creating buffers that are less resistant and resilient to stressors like invasive species. It should also assess how use of forest roads by log hauling trucks and other motorists will further exacerbate the risk of spreading invasive species.

Science also shows that forest roads and trails play a role in affecting wildfire occurrence.[326] (noting human-ignited wildfires account for more than 90% of fires on national lands and are almost five times more likely in areas with roads). Closed roads (as opposed to decommissioned roads) remain on the landscape and thus continue to allow for human caused wildfires. What's more, closed roads that remain on the landscape can affect where and how forests burn.[327] The Forest Service should consider how forest roads and trails increase the risk of human-caused wildfires.

Climate change intensifies the adverse impacts associated with roads. The Forest Service should analyze the cumulative impacts of forest roads and climate change. The need to evaluate climate change impacts is bolstered by the fact that "*[t]he harms associated with climate change are serious and well recognized,*" and environmental changes caused by climate change "*have already inflicted significant harms*" to many resources around the globe.[328]

For example, as the warming climate alters species distribution and forces wildlife migration, landscape connectivity (large, intact areas without roads) becomes even more critical to species survival and ecosystem resilience.[329] Climate change is also expected to lead to more extreme weather events, resulting in increased flood severity, more frequent landslides, altered hydrographs, and changes in erosion and sedimentation rates and delivery processes.[330] Many forest roads are poorly located and designed to be temporarily on the landscape, making them particularly vulnerable to these climate alterations.[331] Even those designed for storms and water flows typical of past decades may fail under future weather scenarios, further exacerbating adverse ecological impacts, public safety concerns, and maintenance needs.[332] At bottom, climate change predictions affect all aspects of road

[325] See Appendix IV, p. 11.
[326] *Id.,* p. 29.
[327] *Id.*
[328] *Massachusetts v. EPA*, 549 U.S. 497, 521 (2007).
[329] Attachment A at 9-14.
[330] *See, e.g.*, Halofsky, J.E. et al. eds., USDA, Forest Service, Pacific Northwest Research Station, *Adapting to Climate Change at Olympic National Forest and Olympic National Park*, PNW-GTR-844 (2011), pages 21-27.
[331] *Id.* at 36-38.
[332] *See, e.g.*, Strauch, R.L. et al., *Adapting transportation to climate change on federal lands in Washington State*, Climate Change 130(2), 185-199 (2015) (noting the biggest impacts to roads and trails are expected from temperature-induced changes in hydrologic regimes that enhance autumn flooding and reduce spring snowpack).

management, including planning and prioritization, operations and maintenance, and design.[333]

The inability of the Forest Service to maintain its road system to standard exacerbates many of these risks, leading to increased road failures, stream sedimentation, and blocked fish passages, among other harmful environmental consequences. The Tonto National Forest has an $80 million dollar deferred maintenance backlog, and in fiscal year 2014 only had a base funding level for road maintenance of $1.5 million, but required $7 million to bring all system roads to their objective maintenance level.[334] The Forest Service explained that, "*[r]oad construction and maintenance budgets declined 40 percent between 2009 and 2014 and are expected to continue to decrease...Because of limited budget and funding source availability, there is a trend to use most road maintenance funding on roads open to passenger car use – maintenance level 3 to 5 roads.*"[335] Yet, maintenance level 2 roads account for approximately 76 percent of the Tonto National Forest road system at 3,255 miles.[336] The environmental consequences of such a massive shortfall were not included in the DEIS, or addressed in the Draft Plan as we explain below.

II. Forest plan components must be consistent with the Forest Service's regulatory framework.

We support many of the proposed plan components for roads, but stronger management direction is needed to achieve a sustainable, minimum road system. Among other things, the draft plan does not adequately incorporate Subpart A of the Travel Management Rule within the 2012 Forest Planning framework, or provide adequate components to move towards an ecologically and economically sustainable minimum road system. Most notable is the absence of road density thresholds, and lack of components that address fiscal sustainability, ecological impacts, or climate change resilience. Plan components should provide direction for expeditiously identifying and implementing the minimum road system through a subsequent NEPA process and project-level actions.

A. Forest plan components for roads infrastructure must comply with the 2012 Planning Rule and Forest Service Directives.

The 2012 Planning Rule guides the development, amendment, and revision of Forest Plans, with an overarching goal of promoting the ecological integrity and ecological and fiscal sustainability of National Forest lands:

> *Plans will guide management of [National Forest System] lands so that they are ecologically sustainable and contribute to social and economic sustainability; consist of ecosystems and watersheds with ecological integrity and diverse plant and animal communities; and have the capacity to provide people and communities with ecosystem services and multiple uses that provide a range of social, economic, and ecological benefits for the present and into the future.*[337]

To accomplish these ecological integrity and sustainability goals, the rule imposes substantive mandates to establish plan components—including standards and guidelines—that maintain or restore

[333] Halofsky, J.E. et al. eds., USDA, Forest Service, Pacific Northwest Research Station, *Adapting to Climate Change at Olympic National Forest and Olympic National Park*, PNW-GTR-844 (2011) at 35.
[334] Tonto National Forest Final Assessment Report Vol. II, p. 194.
[335] *Id.,* p. 195
[336] *Id., p. 193.*
[337] 36 C.F.R. § 219.1(c).

healthy and aquatic and terrestrial ecosystems, watersheds, and riparian areas, and air, water, and soil quality.[338]

Plan components must be designed *"to maintain or restore the structure, function, composition, and connectivity"* of terrestrial, riparian, and aquatic ecosystems;[339] must take into account stressors including climate change, and the ability of ecosystems to adapt to change;[340] and must implement national best management practices for water quality.[341] The rule also requires the Forest Service to establish riparian management zones for which plan components *"must ensure that no management practices causing detrimental changes in water temperature or chemical composition, blockages of water courses, or deposits of sediment that seriously and adversely affect water conditions or fish habitat shall be permitted."*[342] In addition, plans must include plan components for *"integrated resource management to provide for ecosystem services and multiple uses,"* taking into account *"[a]ppropriate placement and sustainable management of infrastructure, such as recreational facilities and transportation and utility corridors."*[343] Plan components must ensure social and economic sustainability, including sustainable recreation and access.[344]And the Forest Service must *"use the best available scientific information"* to comply with these substantive mandates.[345]

Given these substantive requirements of the 2012 Planning Rule, the Forest Service must comprehensively address the road system in its plan revision. The significant aggregate impacts of that system on landscape connectivity, ecological integrity, water quality, species viability

and diversity, and other forest resources and ecosystem services, necessitates that the Forest Service satisfy the rule's substantive requirements by providing sufficient management direction for transportation infrastructure. As described above, plans must provide standards and guidelines to maintain and restore ecological integrity, landscape connectivity, water quality, and species diversity. Those requirements simply cannot be met absent integrated plan components directed at making the road system considerably more sustainable and resilient, especially given changing climate conditions.

The Forest Service's final directives on infrastructure recognize this: *"[t]he central consideration in land management planning for infrastructure is that the integrated desired conditions and other plan components set a framework for the sustainable management of the plan area's infrastructure and mitigation of adverse impacts."*[346] To that end, plan components should *"reflect the extent of infrastructure that is needed to achieve the desired conditions and objectives of the plan,"* and *"provide for a realistic desired infrastructure that is sustainable and can be managed in accord with other plan components including those for ecological sustainability."*[347] Plan components also must

[338] *Id.* §§ 219.8(a)(1)-(3); 219.9(a) (corresponding substantive requirement to establish plan components that maintain and restore the diversity of plant and animal communities and support the persistence of native species).
[339] *Id.* § 219.8(a)(1) & (a)(3)(i).
[340] *Id.* § 219.8(a)(1)(iv).
[341] *Id.* § 219.8(a)(4).
[342] *Id.* § 219.8(a)(3)(ii)(B).
[343] *Id.* § 219.10(a)(3).
[344] *Id.* § 219.8(b).
[345] Id. § 219.3.
[346] FSH 1909.12, ch. 20, §23.23l
[347] Id. § 23.23l(1)(b); see also *id.* § 23.23l(2)(a) (desired condition for roads "should describe a basic framework for an appropriately sized and sustainable transportation system that can meet [identified access and other] needs").

ensure fiscal sustainability.[348] More generally, the revised plan is the logical and appropriate place to establish a framework for management of the forest road system. Plans *"provide a framework for integrated resource management and for guiding project and activity decisionmaking."*[349] Plans allow the Forest Service to comprehensively evaluate the road system in the context of other aspects of forest management, such as restoration, protection and utilization, and fiscal realities, and to integrate management direction accordingly. Plans also provide and compile regulatory direction at a forest-specific level for compliance with the Clean Water Act, Clean Air Act, Endangered Species Act, and other federal environmental laws relevant to the road system and its environmental impacts.[350] And plans allow forest managers and the public to clearly understand the management expectations around the road system and develop strategies accordingly.

With frequent turnover in decision-making positions at the forest level, a plan-level management framework for the road system and transportation infrastructure is particularly critical. Moreover, with climate change anticipated to necessitate forest-wide upgrades and reconfigurations of transportation infrastructure, it is especially important that plans provide direction for identifying and achieving an environmentally and fiscally sustainable road system under future climate scenarios.

Lastly, the Forest Service does not have another planning vehicle to direct long-term and forestwide management of the road system and to ensure compliance with current policy and regulatory direction. Travel Management Plans (TMPs) under subpart B of 36 C.F.R. part 212 is not a substitute for the integrated direction for transportation management that land management plans must provide. The main purpose of TMPs is to designate roads, trails, and areas that are open to motorized travel – not to achieve a sustainable transportation system, decommission unneeded roads, or otherwise meet the ecological restoration mandates of the 2012 Planning Rule. While a final decision regarding the Tonto Travel Management Plan is imminent, it does not actually identify or authorize implementation of a forest road system that ensures the protection of national forest lands as required under Subpart A of the Travel Management Rule (TMR).

B. Forest plan components for roads and infrastructure must reflect the agency's duties under the TMR Subpart A.

To address its unsustainable and deteriorating road system, the Forest Service promulgated the Roads Rule (referred to as "Subpart A") in 2001.[351] The rule directs each National Forest to conduct *"a science-based roads analysis,"* generally referred to as a travel analysis report.[352] Based on that analysis, forests must: (1) identify unneeded roads for decommissioning or other uses;[353] and (2) identify the minimum road system needed for safe and efficient travel and for the protection,

[348] 36 C.F.R. § 219.8(b); see also *id.* §219.1(g) (plan components generally must be "within . . . the fiscal capability of the unit"); FSH 1909.12, ch. 20, § 23.23l(1)(c) (same).

[349] 36 C.F.R. § 219.2(b)(1); see also *id.*§ 219.15(e) (site-specific implementation projects, including travel management plans, must be consistent with plan components).

[350] See id. § 219.1(f) ("Plans must comply with all applicable laws and regulations . . . .").

[351] 36 C.F.R. §§ 212.1-212.21 (Administration of the Forest Transportation System), 66 Fed. Reg. 3206 (Jan. 12, 2001).

[352] 36 C.F.R. § 212.5(b)(1). Forest Service Manual 7712 and Forest Service Handbook 7709.55, Chapter 20 provide detailed guidance on conducting a travel analysis.

[353] 36 C.F.R. § 212.5(b)(2).

management, and use of National Forest system lands.[354] Subpart A defines the minimum road system (MRS) as the road system determined to be needed to:

> *(1) Meet resource and other management objectives adopted in the relevant land and resource management plan;*
>
> *(2) Meet applicable statutory and regulatory requirements;*
>
> *(3) Reflect long-term funding expectations; and*
>
> *(4) Ensure that the identified system minimizes adverse environmental impacts associated with road construction, reconstruction, decommissioning, and maintenance.*
>
> *Id.*[355]

While Subpart A does not impose a timeline for agency compliance with these mandates, the Forest Service Washington Office, through a series of directive memoranda, ordered forests to produce a travel analysis report by the end of fiscal year 2015.[356] The memoranda articulate an expectation that forests, through the Subpart A process, *"maintain an appropriately sized and environmentally sustainable road system that is responsive to ecological, economic, and social concerns."*[357] They clarify that travel analysis reports must address *all* system roads—not just the small percentage of roads maintained for passenger vehicles. And they require that travel analysis reports include a list of roads likely not needed for future use. Completion of the travel analysis process is a crucial first step in achieving compliance with Subpart A, but forests then must utilize that analysis to identify the MRS and unneeded roads for decommissioning through site-specific analysis under NEPA at the appropriate scale. Providing Forest Plan components that ensure completion of this process is necessary to achieve the substantive requirements of the 2012 Planning Rule we note above.

The plan revision is the appropriate place to ensure that Subpart A's requirements will be met over the next 10 to 15 years, and to set standards and guidelines for achieving an environmentally and fiscally sustainable MRS through decommissioning or repurposing unneeded roads and upgrading the necessary portions of the system. With Forest Plans determining the framework for integrated resource management and "an appropriately sized and sustainable transportation system," direction for identifying and achieving that MRS belongs in the Forest Plan.[358] Indeed, the regulatory history of the Roads Rule makes clear that the Forest Service intended that Forest Plans would address Subpart A compliance. In response to comments on the proposed Roads Rule, the Forest Service stated:

> *The planning rule provides the overall framework for planning and management of the*

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[354] *Id.* § 212.5(b)(1).

[355] The requirements of subpart A are separate and distinct from those of the 2005 Travel Management Rule, codified at subpart B of 36 C.F.R. part 212, which addresses off-highway vehicle use and corresponding resource damage pursuant to Executive Orders 11644, 37 Fed. Reg. 2877 (Feb. 9, 1972), and 11989, 42 Fed. Reg. 26,959 (May 25, 1977).

[356] Memorandum from Leslie Weldon to Regional Foresters *et al.* re Travel Management, Implementation of 36 C.F.R., Part 212, Subpart A (Mar. 29, 2012); Memorandum from Leslie Weldon to Regional Foresters re Completion of Travel Management and Next Steps (Sept. 24, 2015); Memorandum from Leslie Weldon to Regional Foresters re Travel Analysis Reports, Subpart A – Data Management (Sept. 19, 2016).

[357] *Id.*

[358] *See* FSH 1909.12, ch. 20, § 23.23l(2)(a).

> *National Forest System. The road management rule and policy which are implemented*
>
> *through the planning process must adhere to the sustainability, collaboration, and science provisions of the planning rule. For example, under the road management policy, national forests and grasslands must complete an analysis of their existing road system and then incorporate the analysis into their land management planning process.*[359]

If the revised plans do not provide plan direction towards achieving a sustainable MRS, it is unlikely that the Forest Service will satisfy the requirements of Subpart A during the life of the plans (as evidenced by the lack of direction in the existing plans and the inability of forests to achieve environmentally and fiscally sustainable road systems to date). Forest managers and the public need forest-specific direction on how to achieve the desired MRS and ensure its sustainability in the face of climate change, all within realistic fiscal limitations of the unit. The purpose of a Forest Plan is to provide that direction, and it would be arbitrary for the Forest Service to fail to do so in its plan revision. At the very least, the revised plan must include standards and guidelines that direct compliance with Subpart A within a reasonable timeframe following plan adoption. As we explain below, the Draft Plan fails to provide the necessary components to meet Subpart A requirements, sustain the forest's ecological integrity, or ensure the road system does not impede connectivity or provide for a diversity of species.

Finally, the Tonto National Forest completed its travel analysis in 2011 and the Tonto Assessment explains, "[t]he report provides a recommended minimum road system for the Tonto. The recommendations from the travel analysis report may be used during plan revision to inform the development of desired conditions, goals, and other plan components related to management of the Forest's transportation system."[360] Yet, it is unclear how those recommendations informed the Draft Plan, and, indeed, we question their relevance given the recommendations call for a road system larger than the existing condition.[361] Further, the Draft Record of Decision for Travel Management on the Tonto National Forest recommends 1,288 miles of roads for decommissioning, though it is unclear how many are system roads.[362] Clarification is necessary given the DEIS analysis focuses on national forest system roads. The Forest Service explained that 1,033 miles were not included in the 2011 Travel Analysis Process.[363] Together, these facts support the need for further travel analysis of the Tonto National Forest road system.

Next steps toward compliance with the TMR, Subpart A is for the Forest Service to fully analyze its road system in light of the discrepancies between the 2011 Travel Analysis Process, the ongoing Travel Management Planning, and the DEIS. Such site-specific analysis would finally identify and implement the minimum road system at the appropriate geographic size under NEPA,[364] and to decommission unneeded roads starting with the most environmentally problematic. The Forest

[359] 66 Fed. Reg. at 3209 (emphasis added).
[360] Assessment Vol. II, p. 192
[361] Tonto National Forest 2011 p. 177. Travel Analysis Process report, p. ("Not taking into account those routes recommended to become available for motorized trails, the ID Teams have recommended a minimum road system (appendix I), which totals approximately 4,425 miles)." The DEIS notes the existing condition is 4,295 miles, (DEIS p. 228), a difference of 130 miles fewer roads than the recommended minimum system.
[362] Travel Management on the Tonto National Forest Draft Record of Decision, October, 2019, p. 6.
[363] Travel Management on the Tonto National Forest Final Supplemental Environmental Impact Statement, p. 9. Table 3.
[364] *See, e.g.*, Memorandum from Leslie Weldon to Regional Foresters re Completion of Travel Management and Next Steps (Sept. 24, 2015).

Service must draft the revised Forest Plan roads components in light of and consistent with its duties under the TMR, Subpart A to identify a minimum road system and prioritize unneeded roads for decommissioning. Toward that end, the Forest Service must include a Forest Plan component that directs updating travel analysis until the forest actually implements its minimum road system. We recommend updates be completed every five years.

RECOMMENDATIONS: The final revised plan should incorporate by reference all applicable regulatory requirements for the forest's transportation system, including Subpart A of the Travel Management Rule. Enforceable plan components for roads should ensure that the Tonto National Forest will achieve compliance with these requirements over the life of the plan.

III. The Draft Plan and DEIS fail to include or fully consider components that will ensure an ecologically and economically sustainable national forest road system.

A. The Draft Plan and DEIS does not address road density thresholds

There is no discussion of road density in either the Draft Plan or DEIS. This is a critical omission because the adoption of road density thresholds, especially for important watersheds, migratory corridors and other critical wildlife habitat, is one of the most effective strategies for achieving an ecologically sustainable road system. For example, there is a direct correlation between road density and various markers for species abundance and viability.[365] Further, the Forest Service recognizes that

> *"Roads and trails indirectly affect terrestrial species through: 1) loss of habitat due to conversion of native vegetation to a particular road/trail surface (paved, gravel, dirt); 2) fragmentation of habitats due to a road and trail system development; 3) interruption in migratory patterns of wildlife to reach breeding habitat or winter range habitat; and 4) lack of habitat use by wildlife due to disturbance caused by use of the road or trail system."*[366]

Yet, the Forest Service failed to include road density standards in any of its alternatives or incorporate them into the Draft Plan. As such, the Tonto National Forest should use the plan revision process as an opportunity to examine current road densities, identify their cumulative impacts, and determine how proposed management direction will influence these densities over the life of the revised plan.[367] The Forest Service must also establish road densities and direction for decreasing habitat fragmentation in a manner that facilitates wildlife connectivity.

It is imperative that the Forest Service incorporates plan direction that will reduce fragmentation and improve connectivity on the forest. Plan components that direct the removal of unneeded roads, seasonal closures, and that limit the construction and use of roads in areas important for fish and wildlife are critical for addressing habitat fragmentation and improving connectivity. As proposed, the Draft Plan includes one wildlife, fish and plant desired condition dedicated to connectivity, and lacks a sufficient corresponding desired condition under the roads section.[368] At best, the Draft Plan provides only a generic desired condition that "[r]oads have minimal adverse environmental impacts to soil,

[365] FSH 1909.12, ch. 10, § 12.13 & Ex. 01 (identifying road density as one of the "key ecosystem characteristics for composition, structure, function, and connectivity" used to assess the "status of ecosystem conditions regarding ecological integrity."

[366] DEIS, p. 74.

[367] For guidance see attachment #2 of The Wilderness Society, May 2014. Transportation Infrastructure and Access on National Forests and Grasslands: A Literature Review.

[368] Draft Plan, p. 115, (WFP-DC-05)

riparian areas, watercourses, native vegetation, and at-risk species."[369] Together these desired conditions still lack the necessary direction to provide for, or improve, connectivity for terrestrial wildlife. Further, in order to meet the desired condition, the Draft Plan provides only a general guideline, WFP-G-08, providing non-binding management direction suggesting that roads, "*should be designed and maintained to minimize negative impacts to the movement and dispersal of wildlife, fish, and rare plants,*" and infrastructure (i.e. roads) "*that do negatively impact movement and dispersal should be modified or removed when no longer in use in order to improve connectivity*."[370] Such guidelines will not effectively restore habitat connectivity without species specific road density standards.

The final EIS should identify current road densities in the Tonto National Forest and explain how the alternatives would impact road density throughout the forest. Maps at varying scales should be included as a visual representation. The EIS should analyze the impacts of road densities and determine what density thresholds are necessary to protect ecological values in the forest, with a particular focus on sensitive areas including watersheds, wildlife habitat and migration routes, and areas that are vulnerable to flooding (which may wash out roads and cause harm). The plan components should incorporate road density thresholds, based on the best available science, as a key tool in achieving a sustainable minimum road system that maintains and restores ecological integrity.[371] The density thresholds should incorporate the use of the term "road" under the Forest Service Watershed Condition Framework, applying it to all open and closed linear features on the Tonto National Forest, including closed, non-system, and temporary roads, and motorized trails.[372]

RECOMMENDATIONS: The final EIS should identify current road densities in the Tonto National Forest and explain how the alternatives would impact road density. The final revised plan should incorporate road density thresholds at a level that would protect and maintain ecological integrity, and facilitate connectivity for at-risk species.

B. The Draft Plan and DEIS fail to provide for or consider an economically sustainable national forest road system.

As we previously noted, the Tonto National Forest acknowledges the fiscal challenges of maintaining a sustainable road system.[373] Most notable was the admission that the Forest Service prioritizes Maintenance Level 3-5 roads, even though Maintenance Level 2 roads account for 88 percent of the road system.[374] In fact, the lack of maintenance for ML 2 roads is the primary reason for poor road

[369] Draft Plan, p. 57 (RD-DC-04).
[370] Draft Plan, p. 116.
[371] FSH 1909.12, ch. 10, § 12.13 & Ex. 01 (identifying road density as one of the "key ecosystem characteristics for composition, structure, function, and connectivity" used to assess the "status of ecosystem conditions regarding ecological integrity."
[372] See USDA Forest Service. July 2011. Watershed Condition Classification Technical Guide. FS-978, p. 26.("*For the purposes of this reconnaissance-level assessment, the term "road" is broadly defined to include roads and all lineal features on the landscape that typically influence watershed processes and conditions in a manner similar to roads. Roads, therefore, include Forest Service system roads (paved or nonpaved) and any temporary roads (skid trails, legacy roads) not closed or decommissioned, including private roads in these categories. Other linear features that might be included based on their prevalence or impact in a local area are motorized (off-road vehicle, all-terrain vehicle) and nonmotorized (recreational) trails and linear features, such as railroads*").
[373] Tonto National Forest Final Assessment Report Vol. II, pp. 193-195.
[374] *Id.* (see also DEIS, p. 228.

and trail indicator scores under the Watershed Condition Framework.[375] Yet, the DEIS fails to adequately incorporate maintenance shortfalls in its analysis or provide specific direction in the plan components directing action for roads that cause increased resource risk due to lack of maintenance. As it stands, "*[m]ost of the routine maintenance is currently performed on the most traveled roads. On average, approximately 500 miles, or approximately 12 percent of all roads, are maintained per year*."[376] Inadequate resources are likely to remain a persistent problem, and we recognize that there is only so much the Forest Service can do unless it has a bigger budget. Nonetheless, it is critical for the Tonto National Forest to do a better job of using and prioritizing its transportation funding and clearly identify priority actions so that funds are used efficiently.

The final EIS should clearly identify probable impacts, using the best available science, so the Tonto National Forest can better meet the challenges ahead. Clearly identifying likely impacts of the forest's transportation funding shortfall and poorly maintained road system is the first step towards addressing them as effectively as possible. The Forest Service must then identify how to move towards a minimum road system using the funds available, with concrete actions that will reduce the amount of maintenance required over the life of the plan. The DEIS explains that *"[t]ravel analysis and travel management decisions could help reduce long-term maintenance needs by identifying roads that are not needed or could be put in storage."*[377] We agree, and urge the Forest Service to include plan components that directs updating its travel analysis given it was last completed in 2011, and then analyzing the results on a landscape scale in order to identify a minimum road system that is fiscally sustainable. The Draft Plan lacks such components, and in fact, includes just one management approach directing the Tonto National Forest to "*[p]rioritize decommissioning of roads that impact flow regimes, are redundant routes, cause mass movement of soils and sediment, are built within the riparian management zone, or have substantial negative impacts to at-risk species*."[378] However, it is unclear if such direction would actually result in a fiscally sustainable minimum road system, and further, management approaches are not enforceable and may never be implemented. If the Tonto National Forest really intends to prioritize funding for these uses, it should replace this management approach with an enforceable plan component. But plan components for roads should not only require effective prioritization of the agency's limited transportation dollars; they also must identify how the forest will move towards a minimum road system. The proposed management direction for roads does not do this.

Inadequate road maintenance increases the fiscal burden of the entire system, since it is much more expensive to fix decayed roads than maintain intact ones, and it endangers and impedes access for forest visitors and users as landslides, potholes, washouts, and other failures occur. A sustainable road system must be sized and designed so it can be adequately maintained under current fiscal limitations.[379] The Tonto National Forest cannot just wait for additional funding that may never come to address its decaying road system; it must proactively identify what actions can be done over the life of the plan given available resources and make incremental progress over time.

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[375] DEIS, p. 408. ("*This indicator was influenced by low frequency of maintenance on level 2 roads (high-clearance, native-surface roads), location of roads close to stream channels, and to a lesser extent, by road density*.").
[376] DEIS, p. 194.
[377] DEIS, p. 196
[378] Draft Plan, p. 58.
[379] See FSH 1909.12, ch. 20, § 23.23l(1)(c) (plan components for road system "must be within the fiscal capability of the planning unit and its partners").

RECOMMENDATIONS: The final EIS must identify likely impacts of the transportation funding shortfall and deferred road maintenance. The final plan must include enforceable plan components (not management approaches) that require effective prioritization of the forest's transportation funding and move the forest towards a minimum road system.

C. The draft plan and DEIS fail to adequately address ecological impacts and climate change resilience.

The draft plan and DEIS do not sufficiently analyze the impacts of the Tonto National Forest's transportation system on forest ecology, including water resources, wildlife and connectivity, especially in the context of climate change. The analysis concerning roads and wildfires is also incomplete. The Forest Service failed to address the impacts of climate change on the forest's road system and determine how the achieving a minimum road system can increase resilience to these impacts. These omissions are critical and must be addressed in the final plan and EIS.

As described in the 2014 transportation literature review provided by The Wilderness Society, the impacts of climate change on roads and forest ecology, watersheds, and species are profound. [380] Further, the Forest Service Office of Sustainability and Climate has compiled climate change vulnerability assessments for several regions of the Forest Service discussing near-term consequences for managers to consider.[381]

The DEIS, however, fails to use this best available science to discuss the environmental consequences of the Tonto National Forests over-burdened and under-maintained road system within the context of changing climate conditions. Rather, the analysis simply states:

> *In all alternatives, climate change and drought will likely reduce access and require additional maintenance because of the increased likelihood of catastrophic wildfire, flood events, and uncharacteristic natural disasters, which can lead to erosion, fallen trees, damaged culverts, and road failures*.[382]

While undoubtedly true, such conclusory statements fail to provide sufficient analysis necessary to provide opportunity for meaningful comments. For example, how many miles of ML 2 roads not currently maintained to their objective standard are in areas of increased flood risk due to climate change? How many of these roads are susceptible to increased erosion due to wildfire risk that may also cause increased sedimentation to streams with at-risk fish species? The DEIS lacks the necessary specificity to answer these questions. This lack of analysis must be addressed in the final EIS. As we noted, the draft plan components include some management direction that would limit the negative impacts of roads. This is a start, but more is needed. The final plan should include comprehensive plan components that would minimize the impacts of the Tonto National Forests' road system on watersheds, wildlife, and ecological values across the forest.

In particular the final EIS and revised Forest Plan should incorporate direction from the Forest Service's recently released a transportation resilience guidebook that identifies opportunities for the Forest Service to identify and address climate vulnerabilities in its transportation systems. The

[380] *See* Appendix IV. The Wilderness Society, May 2014. Transportation Infrastructure and Access on National Forests and Grasslands: A Literature Review. pp. 9-14.
[381] Halofsky et al. 2017, 2018a, 2018b, 2019.
[382] DEIS, p. 230

guidebook specifically mentions Forest Plans as an example of planning processes that provide "*an opportunity to analyze baseline conditions and climate change vulnerabilities and to develop climate resilient strategies for the future*."[383] The Tonto National Forest should use the transportation resilience guidebook to inform the analysis and plan components that must be developed in the final plan and EIS to address climate change in the context of the forest's transportation system.

RECOMMENDATIONS: The final EIS must discuss ecological impacts of the forest's road system, identify impacts of climate change on the road system, and explain how the alternatives would address these impacts. The final revised plan should include enforceable plan components that would minimize the ecological impacts of the forest's road system and increase the road system's resilience to climate change impacts.

IV. The DEIS fails to take a hard look at the road system and its effects under the alternatives.

The forest transportation system is a significant issue that must be meaningfully analyzed under NEPA.[384] As we note above, the DEIS lacks sufficient analysis pertaining to the Tonto National Forest road system in the context of climate change effects, watershed resources (particularly the road/trail indicator rankings), the consequences from the lack of adequate maintenance or how road densities affect wildlife habitat fragmentation and connectivity. The dedicated roads section in the DEIS provides very little information on the environmental consequences from the road system and virtually no analysis that can satisfy NEPA's hard look requirements, even at the programmatic level.[385]

Beyond the section on infrastructure, the DEIS does provide a smattering of information related to general impacts of roads in various sections, but no detailed analysis. For example, the Forest Service acknowledges that all the alternatives will require the use of closed (ML 1) and temporary roads, and provides some cursory discussion about effects to soils such as erosion and sedimentation.[386] Yet, the analysis lacks discussion about the current condition of ML 1 roads, the number that require reconstruction to meet operational standards, how many are within 300 ft of streams, or the number closed as part of mitigation for at-risk species. The DEIS also fails to discuss past effects from temporary road construction and use, or the number of temporary roads that may still remain from past projects. The omission is particularly glaring given the Forest Service acknowledgment that many temporary roads exist as unauthorized routes:

> *In addition to National Forest System roads, many unauthorized routes exist that are not part of the Tonto National Forest transportation system. Unauthorized routes were created for the purpose of permitted resource extraction, such as mining or timber, and were considered temporary roads that would be unneeded after the permitted use ceased.*[387]

Several other examples exist, including the lack of analysis regarding roads within riparian areas. The DEIS fails to discuss current roads and trail indicator rankings under the Watershed Condition

[383] U.S. Forest Service Transportation Resiliency Guidebook: Addressing Climate Change Impacts on U.S. Forest Service Transportation Assets (Sept. 2018), https://www.fs.fed.us/eng/transp/documents/pdf/USFSTransportationResiliencyGuideBook.pdf, at 39.
[384] See 40 C.F.R. §§ 1501.7, 1502.1.
[385] DEIS, pp. 228-235.
[386] DEIS, p. 354.
[387] Tonto National Forest Final Assessment Report Vol. II, p. 191.

Framework (WCF), as we noted above, particularly the specific "proximity to water" attribute applicable to riparian areas.[388] The DEIS does explain general harmful consequences roads pose to riparian conditions.[389] Yet, it fails to put those impacts into context by measuring and discussing how roads contribute to imparied and unstable conditions within riparian ERU.[390] At a minimum the analysis should have included the miles of road and densities within each riparian ERU, and also the WCF road and indicator and attribute scores.

As it stands, the DEIS overall fails to provide this level of analysis for each forest resource where roads pose some environmental consequence: air quality, soils, watersheds and water resources, riparian & wetlands, at-risk species, habitat connectivity, wildlife and plant species, and species of conservation concern. In order for the Forest Service to meet its substantive duties under NEPA, it needs to conduct a much more robust analysis as we explain, including but not limited to sufficiently describing or disclosing:

- The condition of the road system beyond their departure from objective maintenance levels.[391] The Forest Service needs to analyze the environmental consequences of these departures to specific forest resources;
- How system and unauthorized roads affects the character of inventoried roadless and recommended wilderness areas;
- The fiscal and ecological sustainability of the transportation system, including a description of how the transportation system interacts with the hydrologic system (number of stream/route crossings; proximity of roads to streams; spatial intersection of routes and erosive soils; spatial relationship of routes and water bodies with excessive sedimentation);
- The number, miles and location of system and unauthorized roads that are in wildlife movement areas and possibly impeding wildlife movement;
- The number, miles and location of system and unauthorized roads that are proximal to streams with at-risk fish species, and the degree to which the road segments are impacting or threatening species' habitats; and
- How climate change may impact the road system and its effects on other resources.

As we noted previously the DEIS makes clear that the current transportation system is unsustainable and leading to resource damage. Yet the Forest Service fails to evaluate or disclose the adverse impacts to natural resources that will occur if adequate transportation management funding is not available. In fact, in places the Forest Service actually relies on the presumption that the Tonto National Forest will have management capacity to mitigate impacts through existing and expanded partnerships: "*Alternative B would increase opportunities to develop and expand partnerships with*

[388] See USDA Forest Service. July 2011. Watershed Condition Classification Technical Guide. FS-978, p. 26 (defining proximity to water attribute as the length of road located within 300 feet of streams and water bodies or hydrologically connected to them).

[389] DEIS, p. 381.

[390] See DEIS, p. 380, Table. 82.

[391] The DEIS failed to disclose this departure, but the Tonto Assessment Vol. II, p. 193 explains, "[*f]or example, of the 3,255 miles of operational maintenance level 2 roads (open, high-clearance roads); 1,062 of those miles (approximately 30 percent) have an objective maintenance level of 1 (closed to vehicular traffic).*"

various interest and users groups in addition to expand existing partnerships with other federal, state, county and local governments, to leverage resources for mutual benefit to enhance and maintain forest roads."[392] Especially concerning is that one user group representing motorized recreation is performing road maintenance.[393] Yet, the DEIS fails to discuss this maintenance work, how many miles have been completed, or if there have been any evaluations by Forest Service engineers to verify the activities have actually resulted in achieving the objective maintenance level. The Forest Service cannot rely on vague partnerships to address its massive road maintenance backlog, or to forego the necessary analysis NEPA requires.

RECOMMENDATION: The absence of a hard look analysis as we describe is a violation of NEPA and should be rectified in the final EIS.

V. The Forest Service must consider and include plan components that provide for an ecologically and economically sustainable forest road system.

We support several Draft Plan components that provide good direction toward achieving a sustainable forest road system, but more is necessary to truly achieve this goal. We urge the Forest Service to consider the following components to supplement or replace those in the Draft Plan.

A. Desired Conditions

The desired conditions that directs minimizing adverse environmental impacts, including sedimentation, and that directs the removal of unauthorized and unnecessary roads, appears to incorporate direction under the TMR Subpart A, yet we suggest supplementing them with the following desired conditions:[394]

- Fiscal Sustainability: The transportation system provides a well-maintained system of needed roads that is economically and environmentally sustainable.
- Climate Resilience: The design, management and maintenance of roads provides for a climate resilient transportation system able to withstand variable storm events and wide fluctuations in precipitation.
- Connectivity: The design, management and maintenance of the transportation system provides landscape and aquatic connectivity necessary for the recovery and viability of fish and wildlife species.
- Sustainable Access: The design, management and maintenance of the road system provides for safe and consistent access for the appropriate utilization and protection of forest resources and ecosystem services.
- The forest road system meets road density standards based on the best available science.
- Road decommissioning is prioritized to enhance primitive and semi-primitive non-motorized ROS settings, improve the character of Inventoried Roadless Area and recommended

[392] DEIS, p. 233.
[393] Tonto Assessment Vol. II, p. 196 ("*Off-highway vehicle groups have begun to perform maintenance items such as signing and vegetation trimming on maintenance level 2 roads the groups frequent.*").
[394] Draft Plan, p. 57, RD-DC-01, 04, 05, 06.

wilderness areas, and increase habitat connectivity and the ecological integrity of sensitive areas.

B. Objectives

Objectives should provide a concise, measurable, and time-specific statement of a desired rate of progress towards achieving a sustainable minimum road system. The draft plan falls far short of this, including only a single objective that directs decommissioning just 10 miles of either system or unauthorized roads each year.[395] As we explain in our comments on sustainable recreation, the Draft Travel Plan Decision designates approximately 1,288 miles of roads for decommissioning, and to achieve that number over the next 15 years, the agency would need to decommission approximately 85 miles annually.[396] As such, the Forest Service needs to greatly increase its road decommissioning objective, and also establish others in order to achieve the desired conditions. We recommend the following objectives:

- Within 3 years of plan adoption, the forest shall identify its minimum road system and an implementation strategy for achieving that system that is consistent with Forest Plan direction and relevant regulatory requirements.
- Over the life of the plan, implement the minimum road system (pursuant to 36 C.F.R. § 212.5(b)).
- The forest shall make annual progress toward achieving the minimum road system and road density standards, including but not limited to decommissioning 5% of roads identified as unneeded each year.
- Within 10 years of plan approval, decommission high-priority, unneeded roads with the most benefit in achieving an ecologically and fiscally sustainable transportation network (e.g., roads posing a high risk to forest resources, roads in inventoried roadless areas and other ecologically sensitive areas, etc.).
- Within 10 years of plan approval, address all roads within at-risk or impaired watersheds according to the Watershed Condition Framwork's roads and trails indicator, and within watersheds contributing to sediment or temperature impairment under section 303(d) of the Clean Water Act.
- Within 5 years of plan approval establish a publicly available system for tracking temporary roads that includes but is not limited to the following information: road location, purpose for road construction, the project-specific plan (required below), year of road construction, and projected date by which the road will be decommissioned.
- Within 10 years of plan approval, all temporary roads will be reflected in the tracking system.
- Over the life of the plan, all temporary roads without a project-specific plan will be fully treated to remove the road template, restore hydrological function and soil conditions, and return the slope to its original contour.

[395] Draft Plan, p. 57 (RD-O-01).
[396] Travel Management on the Tonto National Forest Draft Record of Decision, October, 2019, p. 6.

C. Standards

Standards ensure that roads do not impair ecological integrity and otherwise satisfy the substantive requirements of the 2012 Planning Rule and Subpart A under the TMR. Generally, we support the proposed standards in the Draft Plan, especially direction requiring removal of temporary roads, and the use of best management practices for road construction and maintenance. However, to fully meet the proposed desired conditions and our proposed plan components, the final revised Forest Plan will require additional standards.

Foremost we urge the Forest Service to establish road and motorized trail density standards. Such standards are absolutely necessary to meet the substantive requirements under the 2012 Planning Rule. We recommend establishing road and motorized trail density standards that will protect and restore the forest's ecological integrity and ensure species viability. Such standards should be based on the best available science:

- In important watersheds, wildlife habitat, migratory corridors, and general forest matrix; and
- For relevant species or resources present on the forest, including but not limited to threatened and endangered species and species of conservation concern.

Further, we propose the following specific standards to ensure compliance with Subpart A and the planning rule:

- During dust abatement applications on roads, chemicals shall not be applied to roads within or adjacent to Riparian Management Zones, and shall not be applied directly to watercourses, water bodies (e.g., ponds and lakes), nor wetlands.
- For new road construction and reconstruction of existing road segments adjacent to riparian management zones, do not side-cast fill material.
- No increase to the combined baseline total road and motorized trail density to protect important watersheds, Riparian Management Zones, migratory corridors, and general forest matrix.
- No increase to the combined baseline total road and motorized trail density to protect important wildlife habitat, including but not limited to habitat important to threatened and endangered species, and species of conservation concern.
- Temporary road plan: No temporary road shall be constructed prior to the development of a project-specific plan that defines how the road shall be managed and constructed.
- Temporary roads shall be located and constructed to facilitate removal and restoration following the needed use. All temporary roads shall be closed and rehabilitated within a reasonably short time (not to exceed 3 years) following completion.
- To reduce the risk to aquatic resources when decommissioning roads, making roads impassable, or putting roads into intermittent stored service, roads shall be left in a hydrologically stable condition.

- For decommissioned roads, reclaimed roads, or impassable roads, this means the road must be re-vegetated, no longer function as a road, and all stream-aligned culverts must be removed.
- For intermittent stored service roads, this means all stream-aligned culverts must be removed.
- Defining "hydrologically stable condition" is critical to implementation and effect of this plan component, as is distinguishing between decommissioned - reclaimed - impassable roads and intermittent stored service roads.

- When placing physical barriers such as berms on travel routes, such as roads, skid trails, temporary roads, and trails, assure that drainage features are sufficient to avoid future risks to aquatic resources by, including but not limited to, removing all stream-aligned culverts.
- Avoid all wetlands and unstable areas when reconstructing existing roads or constructing new roads and landings. Minimize impacts where avoidance is not possible.
- In fish bearing streams, construction, reconstruction, or replacement of stream crossings shall provide and maintain passage for all life stages of native aquatic organisms unless barriers are necessary to prevent spread or invasion of nonnative species.[397]
  - Crossings shall also allow for passage of other riparian-dependent species through the establishment of banks inside and beneath the crossing feature.

Finally, the Forest Service should convert several road guidelines into standards, and we propose the following with changes as indicated:

- 01 - "New motorized routes or areas ~~should~~ **[shall]** not be constructed in areas designated as Primitive in the Recreation Opportunity Spectrum (ROS), or current protocol.
- 02 - "Construction of temporary roads in areas designated as Semi-Primitive Non-Motorized (ROS) ~~should~~ **[shall]** be avoided unless required by a valid permitted activity or management action. If authorized, roads should be constructed and maintained at the lowest maintenance level needed for the intended use, then rehabilitated.
- 06 - "New or reconstructed roads should be located outside of the riparian management zone, or other important water resources (e.g., meadows, wetlands, seeps, and springs), in order to prevent resource damage. If road construction in riparian areas is unavoidable, it ~~should~~ **[shall]** be designed and implemented to minimize effects to natural waterflow, aquatic species, channel morphology, water quality, and native riparian vegetation. The number of stream crossings should be minimized to reduce negative impacts to natural resources.
- 07 - New or redesigned stream crossings (e.g., bridges and culverts) ~~should~~ **[shall]** be wide enough to pass the bankfull without obstructing or confining the flow.
- 10 - "When temporary roads are necessary, stream crossings ~~should~~ **[shall]** be designated to mitigate sedimentation and gradient changes and impacts to channel stability. These crossings

[397] This proposed standard would convert and replace the Draft Plan guideline RD-G-08.

should be designated by the appropriate resource specialists and removed after use."

D. Guidelines

Converting several of the Draft Plan proposed guidelines as we propose will ensure the final plan complies with the 2012 substantive requirements, and achieves an ecologically sustainable road system. Toward this end, we also propose the follow guidelines:

- The forest shall make annual progress toward achieving the minimum road system, and road/motorized trail density standards.
- For projects with road-related actions, the purpose and need statement should include achieving a sustainable minimum road system, road/motorized trail density standards, and the analysis should consider recommendations from an updated travel analysis report.
- Roads (unauthorized, temporary, non-system, and system) identified for decommissioning and naturalization through the travel analysis reports or other processes will be closed, decommissioned, and reclaimed to a stable and more natural condition as soon as practicable.
- To enhance landscape connectivity and ecological integrity, prioritize road decommissioning based on:[398]
    - Effectiveness in reducing fragmentation, connecting un-roaded and lightly-roaded areas, and improving water quality in stream segments, with a focus on inventoried roadless areas, important watersheds, and other sensitive ecological and conservation areas and corridors;
    - Benefit to species and habitats;
    - Addressing impaired or at-risk watersheds;
    - Achieving road/motorized trail density standards; and
    - Enhancement of visitor experiences.
    - Cost-effectiveness and feasibility, including opportunities to incorporate road decommissioning work into other forest projects.
- To enhance public safety and efficiency of the transportation system, prioritize maintenance of needed routes based on:
    - Storm-proofing needs and opportunities (e.g., relocating roads away from water bodies, resizing or removing culverts, etc.);
    - Restoring aquatic and terrestrial habitats and habitat connections by, in part, reducing or upgrading stream crossings.
- Design road construction, reconstruction, decommissioning, and maintenance activities to minimize adverse environmental impacts. To minimize sediment delivery to streams from

[398] This proposed guidelines converts and replaces the Draft Plan Management Approach 02.

roads when constructing, reconstructing, or maintaining roads, road drainage should be routed away from potentially unstable channels, fills, and hillslopes.

- Guideline RD-G 03[399] should be expanded to include roads where ongoing motorized use is prohibited. Also, Management Approach 02 (draft Plan, p.58) should be expanded to also prioritize decommissioning roads that are permanently legally closed, that have high risk of unlawful use, or that have negative direct or indirect impacts on cultural resources.

RECOMMENDATION: We urge the Tonto National Forest to analyze our recommended Forest Plan components in the final EIS, and include them in the Revised Forest Plan.

IV. Monitoring

The Forest Service's plan monitoring program should provide information that enables the agency to determine if a change in components or other plan content guiding management of resources may be needed.[400] The monitoring program must set forth questions and associated indicators designed to inform management by testing relevant assumptions, tracking relevant changes, and measuring management effectiveness and progress toward achieving the Forest Plan's desired conditions or objectives.[401]

In order to ensure effective monitoring of the Tonto National Forest road system in relation towards achieving the Desired Future Conditions, we propose the following monitoring questions/indicators:

- How many miles of road have been improved or maintained to meet objective maintenance standards?
- How many miles of road have been treated to meet best management practices?
- How many miles of road have been effectively treated within at-risk and impaired watersheds according to the WCF roads and trails indicator, and within watersheds contributing to sediment or temperature impairment under section 303(d) of the Clean Water Act?
- What percentage of road miles have been decommissioned in a subwatersheds with a "poor" WCF roads and trails indicator?
- What percentage of unneeded road miles have been decommissioned and reclaimed within inventoried roadless areas or areas with identified wilderness characteristics,[402] critical habitat, or other areas with recognized conservation values.
- What is the percentage of forest with decreased habitat fragmentation in areas important for providing connectivity and wildlife habitat?
- What percent of the road system is regarded as climate ready?

[399] Draft Plan, p.58: "*Prioritize decommissioning of roads that impact flow regimes, are redundant routes, cause mass movement of soils and sediment, are built within the riparian management zone, or have substantial negative impacts to at-risk species*."
[400] 36 C.F.R. § 219.12(a)(1). See also FSH 1909.12, ch. 30.2.
[401] Id. § 219.12(a)(2).
[402] See FSH 1909.12, chapter 70, section 72

- What percentage of subwatersheds have identified minimum road system?
- What percentage of subwatersheds with an implemented minimum road system?

RECOMMENDATIONS: We urge the Forest Service to include these or other comparable monitoring questions and indicators in order to effectively track progress toward achieving the desired conditions for the Tonto National Forest road system.

CONCERN - REC 1: The Draft Plan and DEIS fail to provide for, or consider and analyze, Forest Plan components that provide for sustainable recreation, thereby failing to meet planning rule requirements.

RATIONALES - REC 1:

I. Sustainable Recreation and the Recreation Opportunity Spectrum in the Planning Rule and Forest Service Directives

The 2012 planning rule establishes ecological sustainability as the overarching goal of planning, and directs that land management plans should provide people and communities with ecosystem services and multiple uses that provide a range of benefits – including recreational, educational, and spiritual – for the present and into the future.[403] To achieve this, the rule requires the Forest Service to provide for "sustainable recreation," which the rule defines as "the set of recreation settings and opportunities on the National Forest System that is ecologically, economically, and socially sustainable for present and future generations."[404]

In regard to the intersection between sustainable recreation and protecting environmental resources, the planning rule requires plan components, including standards or guidelines, to ensure achievement of the substantive provisions related to ecological integrity, sustainability, and diversity.[405] The planning rule also requires the plan to include "plan components, including standard and guidelines, to provide for…[s]ustainable recreation, including sustainable settings...."[406] The Forest Service, therefore, has an obligation to develop plan components guiding the management of recreation settings, opportunities, infrastructure, and access that enable the agency to achieve these substantive provisions.

Further, the planning directives add detail to the planning rule's provisions. Drawing on the unit's distinctive role and contributions, the directives urge the forest to be proactive in developing a "coherent system of sustainable and socially compatible recreation opportunities."[407] In doing so, the Forest Service should:

- *Use the ROS to define recreation settings, and then establish compatible activities (opportunities) within those settings. The Forest Service can create ROS sub-classes to reflect*

[403] 36 C.F.R. § 219.1(c).
[404] Id. § 219.19.
[405] 36 C.F.R. §§ 219.8(a) and 219.9
[406] 36 C.F.R. § 219.10(b)(1)(i)
[407] FSH 1909.12, § 23.23a(1)(d)(2)

specific situations on a forest or reflect seasonal variations, as well as create different ROS settings for winter.[408]

- *Map desired ROS classes based on management areas, geographic areas, designated areas, and/or independent overlay mapping, noting that desired ROS settings may be different from existing ROS settings.*[409]

The plan must include components, including standards or guidelines, to drive the transformation from existing to desired ROS settings.[410] It must also include components to direct management in specific 1) ROS classes, 2) management areas, 3) geographic areas, 4) designated areas, or 5) other places (e.g., landscapes with unique character, high conflict potential, cultural values, water features, scenic quality, important recreation destinations).[411]

II. The DEIS fails to analyze the Recreation Opportunity Spectrum settings

The Draft Plan includes several components specific to the ROS settings.[412] Yet, it is unclear how the Forest Service derived these components since the DEIS lacks any discussion or analysis of the ROS settings, and only mentions it during the sections pertaining to designated Wilderness, Inventoried Roadless Areas, and in the glossary.[413] Specifically, DEIS lacks any discussion or analysis of current ROS settings, departures under the existing condition or desired ROS settings under each action alternative. The Forest Service fails to follow its own directives in using the ROS to define recreation settings. The Draft Plan and DEIS both lack any ROS map of desired classes, or delineate existing ROS settings as compared with Alternative A. The omission is particularly glaring as the Forest Service explains in the Tonto Assessment:

> *Since the 1985 inventory, new uses and demands have likely encroached on areas within the less developed (primitive and semi-primitive nonmotorized) end of the spectrum, potentially shifting more acres into the semi-primitive motorized and roaded natural classes. This is likely due to the increased pressure from off-highway vehicle use and proliferation of motorized vehicle routes in many areas and due to the general increase in visitation and associated changes in the social settings. The Tonto National Forest staff is currently developing a formal re-inventory of the recreation opportunity spectrum. The revised inventory will accurately represent the existing conditions. The revised inventory will also help define desired conditions for the plan revision process.*[414]

The degree of departure between the 1985 inventory and the existing condition is likely significant, especially in regards to shifts from semi-primitive non-motorized to motorized settings. Yet, the DEIS fails to analyze this departure even though the Forest Service stated it was performing a formal re-inventory of the ROS. The need to measure ROS departure is even more important given the harmful

[408] Id., § 23.23a(1)(d)(1).
[409] Id., § 23.23a(2)(a).
[410] Id., § 23.23a(2)(c) & (g).
[411] Id., § 23.23a(2)(h).
[412] Draft Plan, p. 22 - REC-S-01, p. 58 - RD-G-01, p. 135 - DWSRMA-G-03, p. 139 - EWSRMA-G-03, p. 147 - IRAMA-DC-01, and p. 149 - NTMA-G-03.
[413] DEIS, p. 208, 234 & 272.
[414] Tonto NF Final Assessment Report of Social and Economic Conditions, Trends, and Risks to Sustainability, p. 130. (Hereafter, Assessment Vol.II)

effects of unmanaged motorized recreation.[415] The Tonto Assessment provides a table displaying allocations under the 1985 Forest Plan.[416]

Table 39. Acres of recreation opportunity spectrum (ROS) classes assigned by the 1985 forest plan for each ranger district and the percent of the Tonto National Forest assigned to each class

ROS Class	Cave Creek	Globe	Mesa	Payson	Pleasant Valley	Tonto Basin	Total	Percent of Forest
Urban	0	13,386	0	17,939	0	0	31,325	1.1 %
Rural	0	6,485	191	14,790	6,879	13,515	41,859	1.4 %
Roaded Natural	84,982	118,943	71,605	87,673	84,025	166,158	613,384	20.7 %
Semi-Primitive Motorized	178,559	170,000	116,891	196,110	178,343	154,267	994,170	33.5 %
Semi-Primitive Nonmotorized	222,657	156,306	178,349	86,399	167,518	196,690	1,007,919	34.0 %
Primitive	113,643	5,816	72,465	59,869	0	8,715	260,507	8.8 %
Unknown	11,288	0	4,836	0	0	0	16,124	0.5 %
Total Acres	**611,129**	**470,935**	**444,336**	**462,780**	**436,765**	**539,345**	**2,965,290**	**100.0 %**

As such it is reasonable the Forest Service to provide corresponding tables in the DEIS for each alternative and the existing condition. Measuring the departure is especially pertinent when evaluating how these shifts have affected current special management areas, particularly Inventoried Roadless Areas (IRAs). The Forest Service acknowledges the importance of IRAs.[417] It also recognizes the harmful effects of unmanaged recreation and the proliferation of unauthorized roads and trails.[418] Yet, the agency fails to analyze how departures in ROS settings have affected roadless characteristics. The omission is particularly glaring given each alternative allows motorized use in IRAs.[419] Moreover, the analysis explains for all action alternatives "*...IRA should be managed for Primitive, Semi-Primitive Non-Motorized, and Semi-Primitive Motorized ROS and consistent with the appropriate visual quality objectives of the area.*"[420] However, the DEIS fails to specify the number of acres by ROS class within each IRA, or discuss how ROS settings will protect roadless characteristics.

Finally, regulations differentiate between a trail, a National Forest System trail, and an unauthorized road or trail. The Draft Plan should likewise specify when it refers to these these terms, otherwise the use of the term, "road" or "trail" will not refer to system roads or trails, or unauthorized roads and trails. Forest Plan components will change significantly based on the use of each definition.

III. The Forest Service failed to provide motorized recreation suitability determinations

The Forest Service is required to complete suitability determinations for motorized recreation within each desired ROS class.[421] Though an ROS setting may allow motorized use, such activity may not be

[415] DEIS, p. 210
[416] Assessment Vol. II, p. 129 Table 38.
[417] DEIS, p. 234.
[418] DEIS, p. 60, 210. Assessment Vol. II, p.119.
[419] DEIS, p. 238.
[420] *Id.*
[421] FSH 1909.12, § 23.23a(2)(d).

suitable in certain areas or on specific roads and trails. The Forest Service should not provide blanket allowances in motorized ROS settings. Suitability determinations should be based on a variety of factors including, but not limited to: legal status, access, soils, vegetation, wildlife habitat needs, sensitive habitats, water features, and scenery management. Not only does the Draft Plan and DEIS fail to delineate specific ROS settings, it also fails to provide the requisite suitability determinations, which is a likely factor in the Draft Plan allowance of nonconforming uses in recommended wilderness and failure to provide nonmotorized ROS settings to protect roadless characteristics.

As an example, current motorized use on FSR #203B (Cherry Cr. Rd.) affects several special area designations including the Sierra Ancha Wilderness Area, Sierra Ancha Contiguous IRAs, the eligible scenic section of Cherry Creek (segment 1-b), eligible wild section of Cherry Creek

(segment 1-a), and the Cherry Creek IRA. The boundary between the eligible Wild and Scenic Cherry Creek either overlaps or is adjacent to the wilderness boundary for the Sierra Ancha Wilderness. Significant controversy surrounds motorized use on this road since it facilitates violations into the wilderness area, and degradation of the surrounding wilderness and roadless character. In fact, there is evidence that Cherry Creek Road was illegally constructed in violation of the Primitive Area Regulations and is currently an illegal incursion into the Sierra Ancha Wilderness. The Tonto NF should enforce the law by closing the road; besides coming into compliance, such action would reduce the risk of additional resource damage. Comments during the long history of the travel management planning process note this concern along with others related to off-road vehicles conflicts in special areas.[422] Had the Forest Service conducted the appropriate suitability determinations, then the agency could have properly analyzed an alternative to resolve such conflicts and maintain the special areas' characteristics.

The Forest Service must correct these deficiencies.

IV. The Forest Service must properly analyze off-road vehicle use and incorporate plan components to ensure motorized use is ecologically sustainable

A. Incorporate the Minimization Criteria into the Revised Plan

Subpart B of the Travel Management Rule (TMR) requires that motorized use occur only on a designated system of roads, trails and areas.[423] The Rule also establishes two exceptions to the ban on cross-country driving in the summertime; motorized vehicles can travel a defined limited distance off specific route segments for the purposes of dispersed camping and game retrieval when specified on the map.[424] Forest Service policy instructs forests to use the exceptions "sparingly."[425] Given cross-country motorized use accounts for a sprawling, unmanageable network of user-created and unauthorized routes, the Forest Service should have considered an alternative that eliminates motorized big game retrieval.

[422] See Travel Management Planning comments from the Grand Canyon Chapter of the Sierra Club dated September, 2014. (Appendix V).
[423] 36 C.F.R. § 212.51(a)
[424] 36 C.F.R. § 212.51(b)
[425] 70 FR 68285

Executive Orders establish that off-road vehicle trails and areas must be located to minimize damage to forest resources and existing and potential recreation uses.[426] The executive orders also include protective mechanisms designed to ensure that off-road vehicle designations are not impairing the protection of public lands. Specifically, they obligate the Forest Service to: 1) periodically monitor the effects of off-road vehicle use, and based on the data amend or rescind the off-road vehicle designations,[427] and 2) immediately close areas and trails to off-road vehicle use if the Forest Service determines that the use of off road vehicles "will cause or is causing considerable adverse effects on the soil, vegetation, wildlife, wildlife habitat or cultural or historic resources of particular areas or trails of the public lands … until such time as [the agency] determines that such adverse effects have been eliminated and that measures have been implemented to prevent future recurrence."[428]

Although travel management for the most part is decided in conforming project-level plans and decisions, land management plans should reinforce the travel management rule's provisions and requirements in standards, and provide the necessary detail on how the Forest Service will carry out and comply with the executive order provisions. Additionally, to the degree land management plans allocate areas as suitable for motorized use, these allocations are subject to the minimization criteria established in the executive orders. The Draft Plan lacks components incorporating the minimization criteria, which are necessary to meet the 2012 Planning Rule's sustainability and diversity requirements.[429] Specifically, the plan must include standards that establish the Forest Service will apply the Executive Order minimization criteria to projects that propose to create or modify off-road vehicle area or trail designations. Application of the criteria requires the Forest Service to demonstrate how each area and trail as well as the aggregate system minimizes – not just considers – impacts to forest resources and other existing and projected recreation uses. If included, the aggregate system includes cross-country driving zones for dispersed camping or game retrieval enabled under the travel management rule.

To the extent that motorized recreation occurs on system roads, plan components must ensure that such access and use is sustainable. To that end, it makes sense to extend the minimization and monitoring concepts in the Executive Orders to motorized recreation occurring on roads. Specifically, standards and guidelines should ensure that:

- all motorized designations minimize impacts;[430]
- are periodically monitored, reviewed, and modified as needed; and
- are modified immediately when considerable adverse damage is occurring.

These plan components are necessary to ensure that recreation is sustainable regardless whether it occurs on a trail, in an area, or on a road.

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[426] Exec. Order No. 11644, 37 Fed. Reg. 2877 (Feb. 8, 1972), as amended by Exec. Order No. 11989, 42 Fed. Reg. 26,959 (May 24, 1977).
[427] *Id.*. § 8
[428] *Id.*. § 9
[429] 36 C.F.R. §§ 219.8(a) and 219.9
[430] This reinforces the provision at 36 C.F.R. § 212.5(b)(1) that requires the Forest Service to identify a minimum road system ("forests must first "identify the minimum road system needed for safe and efficient travel and for administration, utilization, and protection of National Forest System lands.") See Section VI of these comments for a more in-depth discussion of this requirement.

B. Cross-Country Motorized Travel

The Tonto Assessment clarifies the seriousness of unmanagemed motorized recreation.[431] Notably, the Forest Service acknowledge the following:

> *Unauthorized routes often leave tracks and ruts that can remain visible for years. Many portions of the Tonto National Forest, such as near the metropolitan areas of Cave Creek and Mesa, consist of braided or crisscrossed patterns of unauthorized routes developed by motorized users. In the Sonoran Desert, vegetation is slow to become established or reestablished after it has been damaged...Because the desert is fragile and*
>
> *vegetation is slow to become established, the proliferation of routes developed by off-highway vehicle riders in these areas has led to severe degradation of the natural desert landscape. In addition, illegal dumping and excessive trash are common in these areas. These changes dominate the landscape in localized areas, resulting in the overall condition of the area being extremely poor.*[432]

The DEIS explains the Tonto National Forest has yet to comply with the 2005 TMR, and that just four ranger districts have a closure order protecting the forest from cross-country motorized travel.[433] The Forest Service must correct this deficiency immediately, and issue closure orders for the remaining districts in the event the final Tonto Travel Management Plan becomes delayed.

In addition to the Tonto Assessment, the DEIS also recognizes the extensive damage and ecological degradation that occurs from cross-country motorized use.[434] Yet, the Forest Service fails to discuss or analyze the continued allowance of motorized big-game retrieval under implementation of the TMR as proposed in the Tonto Travel Plan Draft ROD:

> *In compliance with the Final Travel Management Rule (36 CFR 212.51(b)), I designate motor vehicle use up to 1 mile on both sides of all designated roads and motorized trails solely for retrieving legally harvested elk and bear in game management units 21, 22, 23, 24A, 24B, and 37B ... My decision results in approximately 1,935,850 acres where motorized retrieval is permitted.*[435]

Given the acknowledged harmful environmental consequences from cross-country motorized use, the Forest Service failure to fully analyze motorized big game retrieval is a fatal flaw in the DEIS. The agency must correct this deficiency and demonstrate how such an allowance complies with planning rule requirements, and meets the definition of sustainable recreation.[436] In particular, the Forest Service must address how driving off-road to retrieve game would

- Hinder the protection of soil and water resources;
- Continue the proliferation of unauthorized routes;

[431] Assessment Vol. II, pp. 119-122.
[432] *Id.,* pp. 119, 121-122.
[433] DEIS, p. 61.
[434] *Id.*, p. 60-61
[435] Travel Management on the Tonto National Forest Draft Record of Decision. October, 2019, p. 12-13.
[436] 36 C.F.R. §§ 219.8(a), 219.9 and 219.19.

- Fail to minimize impacts to species of conservation concern and prevent harm to plant species of conservation concern;
- Damage archaeological, cultural and historic resources;
- Damage vegetation;
- Conflicts with other hunters and forest users;
- Cause wildlife disturbance and degradation of wildlife habitat;
- Contribute to the spread of noxious weeds;
- Allow for unauthorized intrusion and negative impacts on Wilderness, Roadless, other management areas, and other land ownership;
- Cause damage from widening of existing unauthorized routes and single track system trails;
- Cause confusion over travel management rules; and
- Impede enforcement of motorized travel designations.

Further, the draft plan should have contained standards and guidelines that guide how, when, and if exceptions to the cross-country driving prohibitions for dispersed camping and game retrieval will be allowed. Such direction must clarify how the Forest Service will implement the exceptions "sparingly" as intended by the travel management rule and applicable policy directives. As it stands, the Draft Plan lacks any of these components, and as such, fails to ensure true ecologically sustainable recreation.

We believe that the long-term practice of allowing driving off-road to retrieve game on the Forest is not sustainable. The Forest Service must consider and adopt an alternative in the final plan that precludes the use of the big game retrieval and dispersed camping exemptions provided under the 2005 TMR. Given the history of unmanaged motorized use, the prevalence of unauthorized use, and the failure of the Forest Service to prevent future illegal off-road vehicle activity, such an alternative is not only reasonable, but necessary to comply with the Forest Planning rule requirements.

C. Monitoring

The Forest Service must create and carry out a strategy for monitoring the impacts of off-road vehicle use on Forest Service-administered lands, and make the monitoring results available to the public, including recommendations for amendments or rescissions of off-road vehicle designations. The strategy will include indicators that trigger action under Section 9 of the Executive Order.[437] If applicable, the strategy must also include monitoring, trigger points, and actions related to the impacts that result from cross-country driving for dispersed camping or game retrieval enabled under the travel management rule.

[437] Section 9 requires that when the agency determines that the use of off road vehicles will cause or is causing considerable adverse effects on the soil, vegetation, wildlife, wildlife habitat or cultural or historic resources of particular areas or trails of the public lands, it must immediately close such areas or trails to the type of off road vehicle causing such effects, until such time as he determines that such adverse effects have been eliminated and that measures have been implemented to prevent future recurrence.

As it stands, the Draft Plan lacks sufficient monitoring protocols to address the pervasive problem of unauthorized motorized use, or determine if motorized designations are not conflicting with the Planning Rule's sustainability and diversity requirements, or evaluate the effects from allowing motorized recreation in recommended wilderness and inventoried roadless areas. As it stands, the Draft Plan simply asks, "[i]s unsustainable recreation infrastructure being identified and addressed?[438] This is hardly sufficient to track and address damage from illegal off-road vehicle use, or assess effects to roadless and wilderness characteristics or to ensure motorized designations comply with the minimization criteria. The Forest Service must revise its monitoring plan and strategy to fully address these deficiencies.

RECOMMENDATIONS - REC 1:

In addition to correcting the deficiencies we note above, several additions and changes to the Draft Plan are necessary to ensure compliance with the Forest Planning rule. Below is a list of our proposed changes.

I. Desired Conditions (REC-DC)

The Draft Plan desired conditions does not adequately address the impact of motorized recreation, or ensure it will meet the Forest Planning rule requirements for sustainability and diversity of species. Further, the Draft Plan lacks desired conditions specific to the ROS. To fill these gaps, we suggest adding the following new desired conditions:

- Proper management of motorized recreation ensures the use does not impair ecological, cultural, or other resources. Management of motorized recreation minimizes conflicts among uses; damage to soil, watershed, vegetation, and other national forest resources; and harassment of wildlife and disruption of wildlife habitat.

- The primitive ROS class provides recreation opportunities in unroaded and nonmotorized settings. Unmodified natural and natural-appearing settings dominate the physical environment.

- The semi-primitive non-motorized ROS class provides for non-motorized recreation opportunities in unroaded and nonmotorized settings. A natural-appearing setting dominates the physical environment, with only subtle or minor evidence of human-caused modifications.

- The design, management and maintenance of the designated motorized system of roads, trails and areas provides landscape and aquatic connectivity necessary for the recovery and viability of fish and wildlife species.

- The design, management and maintenance of the designated motorized system of roads, trails and areas is climate resilient and able to withstand variable storm events and wide fluctuations in precipitation.

- Infrastructure and development related to sustainable recreation reflects long term funding expectations.

[438] Draft Plan, p. 166, Table 24.

II. Objectives (REC-O)

The Draft Plan lacks specific objectives that will ensure achieving or maintaining the desired ROS settings. We recommend adding the following objective:

- Within 10 years, all motorized roads and trails within primitive and semi-primitive nonmotorized ROS classes will be decommissioned or converted to non-motorized trails.

In addition, the Draft Plan provides an objective to decommission just 10 miles of motorized or non-motorized trails every 5 years under certain conditions. The objective suggests the more generic trail definition of any "route 50 inches or less in width or a route over 50 inches wide that is identified and managed as a trail."[439] The Forest Service should differentiate between National Forest System trail, a trail and unauthorized trails, and set specific objectives far above the 10 miles currently proposed. The Draft Travel Plan Decision designates approximately 1,288 miles of roads for decommissioning.[440] Yet it is unclear if any of these roads may actually be managed as trails given the supporting analysis refers generically to these as "routes."[441] In fact, the analysis explains 1,033 miles did not receive consideration in the travel analysis process, meaning they could be trails.[442] If the Forest Service adopts the Draft Plan proposed objective, it would decommission only 30 miles of trail, but to achieve the decommissioning target approximately the agency would need to decommission approximately 85 miles annually. As such, the Forest Service must identify how many of these miles it considers trails, and adjust the proposed Draft Plan objective accordingly.

III. Standards

We support the standard ensuring consistency with the applicable ROS settings, (REC-S-01), but urge the Forest Service to strengthen it by prohibiting motorized use in primitive and semi-primitive non-motorized settings as we clarify below. Additionally, in order to meet Forest Planning rule requirements, and ensure the integrity of non-motorized ROS settings, the Forest Service must include strong standards for managing motorized recreation, and directing the construction of new roads and motorized trails. We urge the agency include the following:

- Motorized uses are prohibited in primitive recreation opportunity spectrum settings.
- No new roads and motorized trails or areas shall be constructed or designated in desired primitive recreation opportunity spectrum settings.
- No new roads and motorized trails or areas shall be constructed or designated in desired semi-primitive nonmotorized recreation opportunity spectrum settings, except for necessary administrative activities, permitted activities, and emergency access.
- Any temporary project-level roads or motorized trail construction in desired semi-primitive nonmotorized settings must be rehabilitated within two years of project completion.
- Motorized uses are prohibited in desired semi-primitive nonmotorized recreation opportunity spectrum settings, except for necessary administrative activities, permitted

[439] 36 C.F.R. § 212.1
[440] Travel Management on the Tonto National Forest Draft Record of Decision, October, 2019, p. 6.
[441] Travel Management on the Tonto National Forest Final Supplemental Environmental Impact Statement, p. 9. Table 3.
[442] *Id., p. 9.*

activities, and emergency access.

- Motorized use designations will minimize conflicts among recreational uses; minimize damage to soil, watershed, vegetation, and other national forest resources; and minimize harassment of wildlife and disruption of wildlife habitat.

- No management decision will authorize cross-country motorized travel. (If the Forest Service fails to consider or adopt this standard, we urge the agency adopt the following direction):

    - Management decisions authorizing cross-country motorized travel will be done sparingly, and must ensure the protection of soil, water and species of conservation concern.

IV. Guidelines

We generally support the Draft Plan proposed guidelines, but urge the Forest Service to change the following to standards: REC-G-03, 04 and 09. Further, allocating a motorized ROS setting to specific areas does not automatically make such use suitable, as such we urge the Forest Service adopt the following guideline:

- ROS allocations do not equate to motorized designations, and implementation-level travel planning is necessary to designate motorized use in areas with motorized settings.

Further, in order to achieve the desired conditions and objectives, the Forest Service should adopt the following guidelines:

- Trails should be designed, constructed, rerouted, decommissioned, or maintained using current best practices to promote sustainable design while providing desired recreation opportunities and protecting the values of other resources.

- Trails should not be used for management activities that may negatively impact the trail, such as for landings and as skid trails. Impacts to system trails should be avoided and mitigated upon project completion if unavoidable.

- Existing trail segments found to adversely impact natural or cultural resources should be evaluated to address such impacts. Use alternative designs, reroutes, mitigations, or decommissioning of the trail to eliminate, minimize, or resolve adverse impacts.

- Project-level analysis should identify and remove unauthorized trails.

V. Management Approaches

Management approaches are not Forest Plan components, rather the Forest Planning rule defines them as optional plan content.[443] As such, they do not have the same force and effect as plan components. Therefore, we recommend the Forest Service convert management approaches numbers 1 and 10 into guidelines.

[443] 36 C.F.R. § 219.7(f)(2)

CONCERN - REC 2: The Draft Plan fails to provide meaningful restrictions on Recreational Shooting.

RATIONALE - REC 2: The Forest Service needs to be concerned about the effects of recreational target shooting on the Tonto Forest. Consider these points:

- It sometimes is a source of range and forest fires. Consider the 2013 Doce Fire on the Prescott National Forest, which was started by an incendiary target or round, and led to the high severity burning of the Granite Mountain Wilderness.

- It tends to displace or disturb other recreational uses such as hiking, wildlife watching, picnicking, and camping. People avoid areas of shooting activity, giving shooting an outsized impact on other users.

- Illegal shooting at cactus and trees damages vegetation.

- Litter is difficult to remove, and highly toxic.

- Little is known about the amount of lead that is being deposited onto Forest property, endangered people and wildlife.

- The dispersion and exposure to lead is a serious enough problem that there is an EPA guidance document on the topic.[444] The risk occurs both to the shooter and persons who clean-up heavily contaminated sites.

- Runoff of lead into waterways and groundwater has been poorly studied.

RECOMMENDATION - REC 2: Any subsequent version of the Draft Plan and DEIS must address the issues above with additional Standards and Guidelines.

[444] https://www.epa.gov/sites/production/files/documents/epa_bmp.pdf

VII. Lands and Access.

CONCERN: Lands/Access Direction fails to address climate change and neglects to prioritize the public interest in addressing potential land ownership adjustments.

RATIONALE: Scientists believe climate change will affect future forest conditions by altering forest processes and biodiversity. The revised Tonto Forest Plan's Lands and Access section does not directly address impacts from climate change that can be expected over the life of the plan. To redress this, the Lands and Access Desired Conditions (LA-DC) must include a statement that calls for a landownership pattern that is resilient to disturbances on the Tonto National Forest. The Lands and Access Guidelines (LA-G) must include in its consideration of lands for acquisition and conveyance whether the considered lands increase the Forest's resiliency to disturbance caused by future climate change.

The Draft Plan's Lands and Access Guidelines (LA-G) appear to be improperly formatted. Items 02-08 should be nested under LA-G 01 as factors for the Forest Service to consider when evaluating opportunities to acquire non-federal lands by purchase or exchange. The LA-G should also state a preference for purchase, rather than exchange, in acquiring non-Federal lands.

The Lands and Access Guidelines should list the factors the Forest Service must consider when determining whether a land exchange proposal would well serve the public interest. See 43 U.S.C. § 1716(a). The updated landownership adjustment plan referenced in the Management Approaches for Lands and Access should be included in the Lands and Access Standards (LA-S) so that proposals to exchange out of National Forest lands or acquire non-federal lands that are not identified in the landownership adjustment plan cannot be considered without a concurrent amendment to the Tonto Forest Plan. Specifying non-Federal lands for possible acquisition and National Forest lands as available for exchange will add analytic rigor and accountability to the Forest Plan. This would also prevent *post hoc* rationalizations for proposed exchanges and purchases.

NEPA analyses of land exchange proposals often identify reduced costs of surveying and maintaining property boundaries as a purpose or need for the trades. Those analyses typically neglect to identify the cost savings the proposals would offer, casting doubt on the purpose and need for the trade. The Lands and Access Standards should include a standard that the NEPA analysis for each land trade proposal includes a quantitative assessment of the costs of surveying and maintaining boundary lines and corners for both the proposed exchange and the no action alternative.

VIII. Lakes & Rivers Management Area.

CONCERN: Lakes & Rivers Management Area (LRMA) would shortcut proper planning.

RATIONALE: We recognize the impacts caused by high use recreation around the lakes and rivers of the Tonto NF. While we cannot directly support Forest Service actions that lead to less wild and natural landscapes, we understand the challenge posed by high use recreation, and accept that the agency must do something about it. Before we provide comments specifically about the plan components related to the LRMA, we must emphasize this one key point:

The Forest Plan will set the framework for management direction in the LRMA.[445] However, a comprehensive EIS must be developed independent from the Forest Plan to analyze specific sites, facilities, roads, infrastructure, and other developments that may be implemented within the LRMA. We stress a comprehensive EIS is needed, and NOT a piecemeal approach that installs ill-conceived projects through categorical exclusions.

To be clear, the creation of this "Area" does not absolve the Forest Service from NEPA requirements for disclosing site-specific impacts and providing alternatives for comparison. Thoughtful planning of how to implement this plan direction will ensure that despite increased development, "*The area is a highly desirable recreation destination to both day users and overnight visitors throughout the year and attracts diverse user groups*" and "*Natural resources in the Lakes & Rivers Management Area are resilient to disturbances*."

RECOMMENDATIONS: Here are some specific comments on LRMA plan components:

LRMA, S-3: We generally support that off-highway vehicle recreation shall be prohibited unless authorized in a designated off-highway vehicle area, designated permit zone, or where the primary use of vehicles is for transportation to and from dispersed camping areas or for water access. However, it's imperative that 1) the decisions of the Travel Management Plan are implemented with priority, and 2) any other changes to vehicle uses must be analyzed in the comprehensive EIS described above.

LRMA, S-4: We strongly support that permitted livestock will not be allowed in the LRMA. Due to the popularity of these areas for recreation, it is of utmost importance to keep these watersheds clean and healthy without negative impacts from livestock grazing.

LRMA, Management Approach #4: We generally support this management approach; however, the Forest Service should take into consideration the potentially negative ecological impacts of removing wood from rivers and only remove woody debris when it is a legitimate hazard to human life.[446]

Generally we find the remainder of the plan components to be appropriate to the issue at hand, and not offensive. We strongly believe that an additional Guideline should be added:

LRMA-G 04: Improvement plans or proposals must consider impacts on native wildlife and minimize harm or disturbance.

[445] If the Area is approved in the Record of Decision.

[446] American Whitewater provides important background on this topic, including which factors to consider when removing woody debris.

IX. Cultural and Historic Resources.

Our comments first define cultural resources (there is no known basis in Federal law for the reference to "historic resources") in order to connect these places, objects and traditions to specific and pertinent U.S. law and policy. The comments then review the laws most pertinent to Tonto NF cultural resource management (currently referenced at Tonto NF and across most of USFS as "heritage management". The comments then get to the point—offering suggestions for assuring compliance with five essential mandates for Federal agency cultural resource management (including, of course, Tonto NF heritage management), namely that:

(1) all cultural resources threatened by Tonto NF use and agency management decisions are properly and expertly identified;

(2) the full range of values associated with the cultural resources are considered and assessed;

(3) the full spectrum of Tonto NF management and use effects to cultural resources and cultural resource values are considered;

(4) the full range of treatment options are considered as means for avoiding and reducing the adverse effects of Tonto NF management and use on cultural resources; and

(5) each and every one of these essential and indispensable steps is completed in close and continuing consultation with the nine Indian tribes which have expressed and demonstrated affinities and interests in Tonto NF lands, and as appropriate, and with other parties attaching values to cultural resources.

The term "cultural resources" inclusively refers to all places, objects, and associated traditions that constitute essential links between the past and the present. Fragile, irreplaceable, and generally nonrenewable, cultural resources are recognized using various terms of reference in many U.S. Federal laws, regulations, policies, including but not limited to *historic properties* (NHPA); human remains, *cultural items* and cultural patrimony (NAGPRA), *archaeological resources* (ARPA), *sacred sites* (E.O. 13007), and elements of the human environment (NEPA).

Cultural resources define and orient the American Nation and our national character, while also providing senses of orientation, place, belonging, and distinctiveness to America's innumerable constituent communities. The existence of cultural resources, as well as their settings, locations, materials, workmanship, feelings, and associations, can and do have profound significances for people and groups. Individuals and communities rely upon, utilize, ascribe meanings to, and derive benefits from cultural resources on the basis one or more of their manifold values: aesthetic, economic, educational, historical, inspirational, political, scientific, social, spiritual, etc.

For no sector of the United States are the values of cultural resources greater or more potent or persistent than they are for federally recognized American Indian people and tribes. In setting the standards, processes, and goals for planning and evaluating proposed Tonto NF uses and management actions or decisions, the adopted Tonto NF Forest Plan and final EIS must reflect consideration of the interests and preferences of the ten or so tribes having documented and ongoing historical and cultural connections to Tonto NF. This is true, first and foremost, because of the U.S. Government's judicially enforceable trust responsibility for the welfare of tribes and tribal citizens. The mandate for Forest Plan prioritization of cultural resource is also necessary because cultural resource laws, regulations,

policies, and court decisions that are directly relevant to Tonto NF and because of the long and virtually unbroken history of Tonto NF management decisions that have had and are having unmistakably adverse effects on cultural resources and, thereby, on the tribes and the tribal and nontribal communities that rely upon cultural resources.

Federal authorities that specifically and directly require continuing compliance, consultation, consideration and protection efforts by Tonto NF include:

- ***The National Historic Preservation Act*** (NHPA-16 U.S.C. Section 470f), which requires federal agencies to take into account the effects of their undertakings on historic properties. NHPA's Section 101 (d)(6)(A) affirms that properties of religious and cultural significance to Indian tribes may be eligible for listing in the National Register of Historic Places. NHPA's Section 106 regulations (36 CFR Part 800) require agency consultations throughout the Section 106 process with any Indian tribe that attaches religious and cultural significance to historic properties that may be affected by the agency's undertakings.
- ***The National Environmental Policy Act*** (NEPA) requires an environmental impact statement (EIS) for any proposed federal action that may significantly affect the quality of the human environment. The NEPA statute does not specifically refer to Indian tribes, but Council on Environmental Quality (CEQ) regulations (Sections 1501.2(d)(1) and 1501.7(a)(l)) and policies (see https://ceq.doe.gov/nepa/regs/ej/justice.pdt) require agencies to (1) contact Indian tribes early in the planning process and provide tribes opportunities to consult and participate in EIS preparation; (2) enable tribes to participate as cooperating agencies with federal agencies in NEPA reviews; and (3) "recognize the interrelated cultural, social, occupational, historical, or economic factors that may amplify the natural and physical environmental effects of the proposed agency action."
- ***The American Indian Religious Freedom Act*** (AIRFA) commits the federal government "to protect and preserve for American Indians their inherent right of freedom to believe, express, and exercise the traditional religions of the American Indian ... including, but not limited to, access to sites, use and possession of sacred objects, and the freedom to worship through ceremonials and traditional rites."
- ***The Native American Graves Protection and Repatriation Act*** (NAGPRA), Section 3(c) requires federal agencies to consult with Tribes prior to the intentional removal or excavation of Native American human remains and other cultural items from federal lands.
- ***Executive Order 12898, Environmental Justice in Minority and Low-Income Populations***, requires federal agencies to make environmental justice part of its mission by identifying and addressing "disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations."
- ***Executive Order 13007, Indian Sacred Sites***, applies to all federally owned lands except Indian trust lands (that is, reservations). It requires the U.S. Forest Service and other agencies that manage federal lands to (1) accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners; and (2) avoid adversely affecting the physical integrity of such sites.
- ***Executive Order 13175, Consultation and Coordination with Tribal Governments*** aims in part "to strengthen the United States' government-to-government relationships with

> Indian tribes." Consultation processes must embody the unique relationship between the U.S. and the Indian tribe(s).

The recitation of these authorities is made necessary by the simple fact that the Tonto NF has failed, almost continuously and completely, to uphold its public trust and tribal fiduciary duties to protect and safeguard cultural resources. Apache clan origin sites and cultural landscapes in the Wheatfields and Top of the World areas have been desecrated and destroyed. The spectacular and unique cliff dwellings of the Sierra Anchas are rapidly becoming piles of rubble. Most or all ancient residential and burial sites across Tonto NF have been plundered, funerary objects and remains of tribal members' forebears have been scattered, shattered, and sold to the highest bidder. Tonto NF is deeply complicit in the ongoing conversion of the entire northern and western flanks of the Pinal Mountains, including the Oak Flat sacred precinct, into an industrial "minescape." This unconscionable and largely unmitigated destruction of cultural resources must be halted, and the adopted Forest Plan must be a pivotal part of the solution to this longstanding and ongoing Tonto NF management failure.

RECOMMENDATION: The forest-wide 1989 Cultural Resources Assessment and Management Plan mentioned on page 42 of the Draft Plan requires expansion and enhancement. Advances in historic and cultural preservation policy and practice render that 1989 Plan out of date and inadequate for Forest Planning and management purposes. Regardless of whether or when the 18989 Plan is updated, the adopted Forest Plan mast make it clear that it cannot substitute for cultural resource inventories and assessments for all projects and undertakings. The Forest Plan should specify that separate cultural resource inventory / assessments are required for all projects, programs, and actions that have the potential to disturb cultural resources or historic properties, explicitly including historic properties potentially eligible for the National Register due to their cultural or religious importance (that is, traditional cultural properties, TCPs). The National Environmental Policy Act (NEPA), the National Historic Preservation Act (NHPA), E. O. 13175, and related USDA and USFS rules require consultations with affected and interested tribes on all cultural resource inventories and assessments.

RECOMMENDATION: Change the third sentence in paragraph four on page 42 to: The conditions of cultural resources on the Tonto National Forest are most notably impacted by water/wind erosion, livestock grazing, recreation, construction, mining and minerals related activities, off-highway vehicle and other vehicular traffic, and vandalism.

RECOMMENDATION: Change the fifth paragraph on page 42 to: Heritage tourism is a valuable cultural service growing in popularity on the Tonto. Cultural sites that have been enhanced by interpretive developments and outreach activities are useful in engaging and educating visitors and residents about Arizona's historical and ancient past. However, interpretive developments and outreach activates involving Native American cultural features must be conducted and initiated on the basis of consultations with affected and interested tribes.

RATIONALE: We redirect Tonto NF attention to the five essential and invariant mandates for Federal agency cultural resource management:

(1) All cultural resources threatened by Tonto NF use and agency management decisions must be properly and expertly identified;

(2) The full range of values associated with the cultural resources must be considered and assessed;

(3) The full spectrum of Tonto NF management and use effects to cultural resources and cultural resource values must be considered and addressed;

(4) The full range of treatment options must be considered and, where practical, employed as means for avoiding and reducing the adverse effects of Tonto NF management and use on cultural resources; and

(5) Each of the four prior steps is completed in close and continuing consultation with Indian tribes which have expressed and demonstrated affinities and interests in Tonto NF lands, and as appropriate, and with other parties attaching values to cultural resources.

Therefore, we recommend:

RECOMMENDATION: Add the following Desired Condition:

06 Historic properties and other cultural resources, including cultural landscapes and traditional cultural properties (TCPs) continue to preserve all of the characteristics that qualify the property for listing in the National Register of Historic Places.

RATIONALE: The adopted Forest Plan and final EIS must address prior Tonto NF failures by establishing improved procedures for identifying the range of effects on cultural resources from proposed management actions, assessing the number, nature and significance of all such effects, and considering all reasonable means for avoiding and reducing the impacts of these effects. The Forest Plan-EIS must, in other words, identify direct, indirect, biophysical (including chemical, mechanical, atmospheric and hydrologic), visual, sociocultural, and other-short-term, long-term, and cumulative effects of the proposed Tonto NF management projects and programs on all cultural resources and the people and communities who rely on these resources. Per NHPA, this means the Forest Plan-EIS must, at a minimum, specify mandates and procedures for the identification of effects and impacts on the settings, locations, materials, workmanship, associations, and feelings for each and every qualifying cultural resource. At a minimum, this means every listed or potentially eligible (for listing) historic property, every sacred site, and every location, landscape, feature and association contributing to the significance and integrity of every historic property threatened by Tonto NF management actions must be identified and assessed in terms of likely and reasonably foreseeable effects and impacts. Any proposal to create a strategy to sample rather than inventory any area of potential effect (APE) for any proposed action or undertaking to identify cultural resources or to assess identified cultural resources for values, effects, or treatment options must be developed, and should be implemented, in consultation with the affected tribes and communities electing to participate in such consultations.

Therefore, we recommend:

RECOMMENDATIONS: Modify the following Standards:

02 modify to say: Damage to significant cultural resources and NRHP-eligible historic properties, including traditional cultural properties, is not allowed.

03 Modify to say: Cultural resources and historic properties, including traditional cultural properties are considered when working to achieve other resource objectives (ecosystem restoration, rangeland management, mining and mineral extraction, recreation).

RATIONALE: Federal laws and regulations, especially NEPA and the CEQ rules, affirm Tonto NF mandates to identify and assess the significance of the full range of adverse effects to the full range of cultural resources and cultural resource values as integral elements of the human environment and, thus, of human health and well-being.

Therefore, we recommend:

RECOMMENDATIONS: Modify the following Guidelines:

01 Modify to say: Sites listed in, nominated to, or eligible for the National Register of Historic Places (NRHP) (including traditional cultural properties) and American Indian sacred sites shall be managed for avoidance and protection from all Tonto NF actions and undertakings

02 Modify to say: Cultural resources (including artifacts) should be preserved in place, except when endangered by natural causes. When this is not possible, Tonto NF must assure that the full range of treatment options and alternatives is considered, in consultation with affected tribes and other interested parties, to avoid and reduce alteration and harm to cultural resources. The adopted Forest Plan and final EIS should embrace a broad-minded, creative, and consultative approach to avoiding and reducing Tonto NF management action and land use effects and impacts on cultural resources. The adopted Forest Plan must require and set standards for consultations to identify new and previously under-examined options for effects and impacts avoidance and reductions, potentially including off-site, compensatory, and community-based mitigation activities, among other alternatives.

05 Modified to say: Other Forest activities (e.g., motorized travel, developed recreation, road construction, grazing, mining and mineral extraction, and range improvements) should be managed to limit adverse impacts (e.g., disturbance, damage, movement of, alterations, or removal) to cultural and historic resources, as directed by the National Historic Preservation Act (NHPA) as amended.

07 Modified to say: Dispersed recreation (including unauthorized caches), grazing, mining and mineral extraction activities, road construction, and range improvements should be prohibited in the vicinity of sensitive archeological sites, and these activities should be moved if causing adverse impacts to cultural resources (e.g., disturbance, damage, movement of, alterations, or removal).

CONCERN: Livestock grazing constitutes a significant adverse effect on Tonto NF cultural resources.

RATIONALE: The DEIS and draft Forest Plan discounts common sense, federal laws, and scientific evidence by neglecting to consider the effects of grazing on cultural resources. Scientific research on the effects of livestock on cultural resources is not abundant, but all available evidence indicates that livestock can and do cause damage to most types of cultural resource sites. Livestock grazing also alters vegetation, soils, and drainage conditions, usually for the worse and always to the detriment of

cultural landscapes.[447] Federal agency studies also confirm that livestock and livestock permit programs have significant adverse effects on cultural resources. For example, the Final EIS prepared for the Bodie-Coleville planning units concluded:

> *Livestock use impacts on cultural resources include: displacement (vertical and horizontal) and breakage of artifacts, and the mixing of depositional associations through trampling; destruction or enhanced deterioration of structures and features through rubbing; and an acceleration of natural erosional processes. Plants valued by Native American traditionalists could be trampled or consumed by livestock, adversely affecting plant availability at some locations. For purposes of analysis it is assumed that the impacts of livestock use are distributed in proportion to the actual distribution of livestock, with the most intensive impacts occurring at livestock use concentration areas. Cultural Resources located on lands having erosional or other types of watershed deterioration problems attributed to livestock use impacts are assumed to receive high impacts. Cultural resources are non-renewable, and impacts of livestock use on cultural resources are cumulative* (Bodie-Coleville EIS 1982:4–92).[448]

Additional adverse effects from grazing include soil compaction, toppling of architectural features, creation of movement corridors, and degradation of springs and streams, all or most of which are themselves cultural resources from the perspective of tribal cultural representatives and others. Anderson's recent research on links between grazing and cultural resources includes data and conclusions relevant to Tonto NF management planning.[449] Anderson assessed cattle grazing effects on 47 cultural resource sites located on diverse grazing allotments on two national forest ranger districts. Fieldwork at each cultural resource site included documentation of artifacts and features and assessment of six interrelated variables: (1) the density of cattle excrement; (2) the depth and length of cattle trails; (3) the depth and extent of cattle wallows at sites with surface water; (4) the condition of all riparian areas or springs associated with the sites; (5) the condition of fences established to exclude livestock from sites; (6) the types and levels of livestock effects on artifacts and features. Less than nine percent of the sites assessed (4 of 47) showed low or no signs of adverse effects from grazing. Sites associated with riparian areas and surface water had the greatest and most diverse adverse effects.

No studies available to our Coalition argue that livestock grazing of any kind conserves, protects or enhances cultural resources or riparian areas. Additional research, including high-resolution baseline studies followed by monitoring of artifacts and features in sites subjected to grazing at various levels of intensity, could contribute more science. Such studies must be required by the Tonto NF if any

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[447] Horne, S., and McFarland, J. 1993. "Issue Paper: Impacts of Livestock Grazing on Cultural Resources." On file, Los Padres National Forest, 6755 Hollister Avenue Suite 150 Goleta, CA 93117; Todd, L.C., Burnett, P.C., Burger, O., and Rapson, D.J. 2003. Assessing Grazing Impacts on the Upper Greybull: A Conceptual and Methodological Framework. Laboratory of Human Paleoecology, Colorado State University, Ft. Collins, Colorado.

[448] For additional Federal Government recognitions of significant adverse on cultural resources due to grazing, see Haas, D. 2006. "Summary of Livestock Grazing Impacts on Archaeological Sites Located on BLM-Administered Lands in Colorado, A Study of Cultural Resource Assessments for Grazing Permits from Fiscal Years 1998 to 2003." Bureau of Land Management, Colorado State Office, Denver.

[449] Anderson, S.R. 2007. Assessing Cattle Grazing Impacts on Archaeological Sites in the Humboldt-Toiyabe National Forest. Paper Submitted in Partial Fulfillment of Requirements for the MA in Anthropology, Northern Arizona University.

further consideration is given to allowing livestock grazing within the the documented boundaries of cultural resources or sensitive riparian areas.

RECOMMENDATIONS: If the Tonto NF continues to plan for livestock grazing then it must also assess the costs and landscape, site, and hydrologic consequences of the management treatments necessary to protect Tonto NF cultural resources, riparian areas, cultural resources, and other protected areas and values from the damaging and often enduring effects of livestock grazing. This additional information should be prepared for any supplemental or future NEPA documents associated with the Forest Plan revision.

X. Mining.

Under the National Forest Management Act (NFMA), the agency cannot approve any use of Forest Service land that is not consistent with the applicable Forest Plan, including all standards, guidelines, directives and desired management conditions in that Plan. There is no exemption for mining projects. "The Forest Service's failure to comply with a Forest Plan violates the NFMA." Save Our Cabinets v. U.S. Dept. of Agriculture, 254 F.Supp.3d 1241, 1258 (Forest Service approval of mine failed to comply with Forest Plan Desired Conditions and thus violated the NFMA). "Each proposed site-specific project must (1) be consistent with the Forest Plan and any amendments; [and] (2) be analyzed as required by NEPA." Rock Creek Alliance v. U.S. Forest Service, 703 F.Supp.2d 1152, 1182 (Forest Plan requirements apply to ROD for mining project). *See also* Hells Canyon Preservation Council v. Haines, 2006 WL 2252554, *7-*10 (D. Or. 2006)(approval of mining violated Forest Plan).

CONCERN: Mining on the Tonto National Forest is dealt with only sporadically in the 3 volume Draft EIS, and just 3 pages are devoted to it in the draft Plan itself. Essentially, discussion and direction on mining is said to be under the prevue of Title 36 CFR part 228, subpart A, and Forest Service Manuals 2800 and 2809.15. The basic argument is that the Forest Service has little discretion and regulatory authority over mining locatable minerals and can at best work to possibly minimize environmental impacts. Saleable minerals (sand and gravel) is regulated differently, and the Forest Service does minimally discuss its authority, although such mineral activity is usually quite limited on the Tonto. We feel that the proposed Management Plan standards, guidelines and objectives could be far stronger than what is presented in the Draft.

The DEIS needs a far more robust description and history of the effects of mining on the Tonto NF in order to arrive at a proper list of Standards, Guidelines and Objectives in the Final Plan. In the 1000 plus pages of the 3-volume document, perhaps 3 or 4 pages discuss mining's environmental effects, and then only superficially. There is no mention, for example, of the Pinal Creek cleanup project (over 20 years and still going), spills from various mines including Pinto Valley, direct loss of natural waterways (Carlota Mine), degradation and loss of riparian areas from excessive groundwater pumping, serious air and water quality problems, impaired streams, etc. Mining is directly responsible for the removal of Pinto Creek from the list of eligible Wild and Scenic Rivers as it has become dewatered from pumping and contaminated from spills. Similarly, there is no acknowledge of the conflict and controversy over public lands hardrock mining as the 1985 Management Plan, however briefly, did point out.

The Forest Service, in its Draft EIS, needs to discuss its regulatory authority regarding mining of locatable minerals with respect to protection of the environment. Its' authority, despite the agency's opinion to the contrary, can be considerable if fully utilized.

First, the Mining Laws, as antiquated and obsolete as they are, should be properly interpreted and applied. For example, the 1872 law and subsequent amendments are clear that for a lode mining claim to be valid there has to be a valuable ore deposit on that 20 acre site. If a claim cannot be shown to be valid the agency has every right to deny its use. Also clear in the Mining Laws is the prudent person principle, which states that if a prudent person thought he had found an economically viable ore deposit, he/she was entitled to mine, provided the area was not specifically withdrawn from mining. Routing a creek on a bench inside a mine pit (Carlota Mine) is not the act of a prudent person as the pit slope will fail, the diversion channel will be swept away, and Pinto Creek's water will go

into pit. (We note that pit walls at the Carlota mine have already failed in at least two places, see photo). Similarly, Pinto Valley Mine's proposed expansion is not the act of a prudent person as groundwater pumping is destroying Pinto Creek and unstable tailings piles - among the highest in the world - are going to fail and pollute, if not destroy Pinto Creek and Roosevelt Lake. A prudent person uses a balance sheet and does not set out to incur more costs than his project can bring in.

Another powerful tool the Forest Service possesses is the National Environmental Policy Act (NEPA). This review process not only allows but requires a rigorous analysis of environmental impacts and alternatives to the proposed project to reduce these impacts. The agency is often reluctant to pursue meaningful alternatives in the mistaken belief that the Mining Laws guarantee the right to mine but it is not the agency's problem if the proposed Plan of Operations submitted by the mining company is flawed. The project at Oak Flat, for example, is thought by many to be more of an experiment than a proposed mine (Mining Technology, 24 February, 2020, Evaluations of Predictions ….Steve Emerman, 2019). The Draft Environmental Impact Statement should have required a more proven and less destructive mining method other than block caving, which has rarely been done at this depth. The Mining Laws do not require the Forest Service to provide a mining company with maximum financial return.

The Forest Service can require conditions and mitigation in conjunction with special use permits. Special use permits are used to grant access across forest service lands for things such as waterlines and transmission lines which impact our public lands. Conditions attached to these permits can reduce and mitigate environmental impacts and should be used to the fullest extent.

The Tonto National Forest has a dozen instream flow rights on the Tonto to support beneficial uses for fish, wildlife and recreation. While these rights can be junior to previous rights, mining companies should not be able to pump so much water that instream flow rights cannot be maintained. The Forest Service should require reduced or managed pumping or alternative water supplies in order to keep flows in its creeks and rivers.

Given the extreme impacts mining has had on the Forest, the proposed Plan should include a discussion on the importance of adequate bonding to ensure proper reclamation occurs and long term protections are in place when mines close.

We see no discussion regarding land exchanges on the Forest and no direction as to how these exchanges should be conducted to ensure the public receives equal value.

The Cultural and Historic Resources section of the plan, pages 42 to 44, makes it clear that cultural resources must not be damaged or disturbed. Yet mining and mineral extraction activities have (past and present) disturbed large numbers of highly significant cultural and historic resources. The desired conditions, standards, and guidelines need to reflect this prohibition

RECOMMENDATIONS: - Revisions to Tonto National Forest Draft Land Management Plan, pp. 54 – 56.

The first paragraph on p. 54 of the Draft Plan should read: "The Forest Service follows regulations under 36 CFR 228 Subpart A for locatable minerals AND HAS ADDITIONAL REGULATORY AUTHORITY to minimize adverse impact on National Forest System surface resources."

Desired Conditions

01 – We approve of this statement that mining and mineral activities comply with law, regulation, and policy. However, it should go without saying that anyone using our public forests need to obey the law. One would hope that the forest Service would not only encourage, but demand and extractive users of our public lands go well beyond the bare minimum required by law in protecting our public lands and stewarding public resources. Language should be added to this condition saying: companies engaging in mining and mineral activities are highly encouraged to not only follow the letter of mining regulations, but to go beyond in an effort to return public land to a condition the same or better than when activities commenced. (We urge the Forest Service to be more proactive in carrying out this desired condition).

02 – Retain and modify as follows: They possess a resilient forest ecosystem suitable to permanent post mining landform and are returned as closely as possible to pre-mining conditions.

03 – Retain and modify as follows: Mineral materials on National Forest lands are available to the public and to local, State, and Federal government agencies where protection of, and/or mitigation of effects on, other resources is assured, and where removal is not prohibited.

04 and 05 – Retain

06 – Land Exchanges will take into account mineral values in the appraisal process and give the public opportunity to comment in the Draft EIS process.

07 – Bonds will be set an amount to properly carry out reclamation and provide for closure in a manner that will ensure against adverse impacts to natural resources. All bonds must be open to public inspection and must be reassessed every 5 years.

Objectives

01 – change as follows: Initiate at least one environmental review for closure of one or more abandoned or inactive mine(s) every two years.

Standards

01 – Retain

02 – Retain and modify as follows: Required reclamation activities shall be designed to establish resilient post-mining ecosystems.

03 – Retain

04 – Mines that are determined to pose a threat to public health and safety will undergo a special review process involving all necessary federal and state agencies to determine an appropriate remedy and course of action.

05 – Instream flow rights will be defended to protect fish, wildlife, and recreation values in the affected waterway.

06 – No mines will be permitted that require rerouting of major streams where future environmental costs are determined likely to exceed benefits from the mine.

07 – Mining operation with a history of large and damaging spills that have incurred significant cleanup and environmental costs will not be allowed to operate beyond what is specified in the current Plan of Operations.

08 – When preparing Plans of Operations, mining companies will be encouraged to coordinate with other nearby mine operators regarding disposition and timing of projects to help facilitate finding brown field sites for safe disposal of mine waste.

Guidelines (In general, change the word "should" to "shall" in this section.)

01 – Retain

02 – modify as follows: Placer mining shall not damage riparian vegetation, degrade water quality, and negatively impact channel stability.

03 through 06 – Retain

Management Approaches

01 through 06 – Retain

07 – Fully incorporate and pursue alternatives in the NEPA process that will help protect the Tonto National Forest from extreme adverse environmental impacts.

08 – Begin a discussion of a minimum ore grade below which the Forest that can advise project proponents to not pursue due to extreme amount of waste and increased risk of tailings failures.

09 – Create a working group of independent mine engineers, federal and state agencies, and interested public to study and make recommendations relating to the hazards of mine waste on the Tonto National Forest.

The collapsed wall at the Carlota Pit: Pollution, sedimentation, and loss of habitat.

Appendices and Attachments

I. Field Survey data and Photopoints for Wilderness Evaluation Units 88, 90, 86, 76, 60a, and 36a. (Submitted to CARA on 3/12/20 in six installments)

II. Maps to accompany concerns specific to Wilderness Evaluation Units 88, 90, 86, 76, 60a, and 36a. (Submitted to CARA on 3/12/20)

III. 1991 Citizens Proposal for the Protection of Rivers in Arizona. (Submitted to CARA on 3/11/20)

IV. The Wilderness Society, May 2014. Transportation Infrastructure and Access on National Forests and Grasslands: A Literature Review. (Submitted to CARA on 3/11/20)

V. Past comments submitted by coalition partners. (Emailed to SM.FS.tontoplan@usda.gov on 3/11/2020)

VI. Hall, J.A., S. Weinstein, and C.L. McIntyre. 2005. The Impacts of Livestock Grazing in the Sonoran Desert: A Literature Review and Synthesis. The Nature Conservancy in Arizona, Tucson[450]. (Submitted to CARA on 3/11)

Notes on literature cited:

Many works cited here have been submitted to the planning team during earlier comment periods.

We have provided hyperlinked citations for most of the works cited in this letter. We request that these documents are retrieved by the planning team to better understand our comments, and to add to the project record.

In many cases, we have cited US Forest Service reports, EPA reports, Fish and Wildlife Service documents, Federal Register notices, and other government documents. We trust that the planning team has ready access to these.

Many works cited are co-authored by US Forest Service scientists, such as spotted owl experts Joe Ganey and Malcolm North whose work we have cited. We trust that the planning team has easy access to scientific articles written by agency colleagues.

[450] This Appendix contains a valuable Nature Conservancy report on grazing in the desert. We ask that the Forest Service justify how you can support continued grazing in the desert in light of this study. To be clear, we want any subsequent NEPA document prepared for the Forest Plan to explicitly clarify how a science-based Forest Plan can provide management direction that would continue grazing in the desert portions of the Tonto National Forest.