



Sent via email and certified email.

April 3, 2015

Mr. Champe Green, Forest Planner
Cibola National Forest and National Grasslands
2113 Osuna Rd. NE.
Albuquerque, NM 87113
Email: comments-southwestern-cibola@fs.fed.us

RE: Notice of Intent to Revise the Land and Resource Management Plan for the Cibola National Forest Mountain Ranger Districts

Dear Mr. Green and Forest Planning Staff,

Please accept the following comments submitted on behalf of the Center for Biological Diversity in response to the notice of intent to revise the land and resource management plan for the Cibola National Forest Mountain Ranger Districts, published in the Federal Register February 9, 2015. The published notice stated that comments received by April 3, 2015 would be most useful, making these comments timely.

The Center for Biological Diversity (the Center) is a national, nonprofit conservation organization with more than 800,000 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 protection, recovery, and viability of native species and habitat. While we maintain members and supporters within the counties where ranger districts of the Cibola National Forest are located, our national public lands are to be managed for the benefit of all Americans, and we therefore speak for all our members and supporters throughout the United States.

The Center intends for these comments to be comprehensive and easily understandable, however, if the Forest Service requires additional information about a recommendation or proposed course of action, the Center requests the opportunity to elaborate and provide additional information.

Please note that relevant scientific documents cited within these comments have been included with the copy of our comments sent on via certified mail in electronic form. We request that all references and documents submitted be incorporated into the administrative record for this project.

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I. Introduction

a. Legal Requirements

Under the National Forest Management Act of 1976 (NFMA), the Forest Service was required to develop guidelines to ensure forest management plans “provide for the diversity of plant and animal communities based on the suitability and capability of the specific land area . . . [and] provide . . . for steps to be taken to preserve the diversity of tree species similar to that existing in the region”¹ In 2012, the Forest Service published final regulations, pursuant to its NFMA mandate, to guide the development of land and resource management plans of all national forests throughout the United States.²

Within the 2012 Rule, the Forest Service reiterated and elaborated on NFMA’s stated goals for providing for and protecting species diversity. Specifically, the 2012 Rule requires that plans ensure that forests “consist of ecosystems and watersheds with ecological integrity and diverse plant and animal communities,” and provide ecological benefits including “habitat for fish, wildlife, and plant communities.”³ To achieve this, the 2012 Rule adopted “a complementary ecosystem and species-specific approach to maintaining [plant and animal diversity].”⁴ This approach requires the Forest Service to develop forest “plan components, including standards and guidelines, to maintain or restore the ecological integrity of terrestrial and aquatic ecosystems and watersheds,” as well as the “the diversity of ecosystems and habitat types.”⁵ In cases where plan components developed using this ecosystem-approach fail to adequately contribute to the recovery of federally listed species or maintenance of viable populations of species of conservation concern, species-specific components must be developed to achieve these goals.⁶

In all cases, plan components must be developed using “the best available scientific information.”⁷ And the Forest Service must document how the best available science was used to formulate the plan and the monitoring program.⁸ This type of documentation specifically requires the Forest Service to: “Identify what information was determined to be the best available scientific information, explain the basis for that determination, and explain how the information was applied to the issues considered.”⁹

The dual ecosystem- and species-specific approaches called for in the 2012 Rule have the potential to lead to the improvement of all ecosystems and habitats within the Cibola National Forest. The Center supports the development of ecosystem-level plan components to achieve greater ecosystem resiliency, watershed health, habitat connectivity, and greater protection of the region-wide ecosystem of western New Mexico. However, the Center also finds that based on the best available science, the Cibola’s own assessment of forest conditions, and the manageable specific threats facing species within the forest, species-specific plan components for listed and sensitive species are also required to meet the Forest Service’s mandates under NFMA and the 2012 Rule.

Additionally, the Forest Service cannot rely only on the identification of desired conditions to meet the requirements of the 2012 Rule or provide sufficient management direction for the forest plan. This is especially true in the context of ensuring the protection of resources, as required under NFMA and the

¹ 16 U.S.C. § 1604(g)(3)(B) (2012).

² *See generally* 36 C.F.R. § 219.1 et seq. (2014) (hereinafter 2012 Rule).

³ 36 C.F.R. § 219.1(c).

⁴ *Id.* § 219.9

⁵ *Id.*

⁶ *Id.*

⁷ *Id.* § 219.3

⁸ *Id.*

⁹ *Id.*

2012 Rule. Therefore, while identification of desired conditions is an important element to forest planning, standards and guidelines must also be established and must provide for sufficient certainty for future management actions in order for the Forest Service to avoid violating legal requirements under federal statutes and regulations.

This comment letter serves to provide both background information relevant to specific topics of concern that should be addressed within the revised Cibola National Forest land and resource management plan and specific recommendations designed to meet the requirements of the 2012 Rule, the provisions of the Endangered Species Act¹⁰, and other federal statutes and regulations. Our recommendations should be used to formulate components of the Forest Service's preferred proposed plan alternative and components of other evaluated alternatives, as appropriate. All of the recommendations for management provided within this comment are reasonable approaches within the Cibola National Forest that meet the purpose and needs for this action, and therefore their associated direct and indirect environmental effects should be analyzed within the Environmental Impact Statement (EIS) for this plan revision. As stated in the Council of Environmental Quality's National Environmental Policy Act (NEPA) implementing regulations, an EIS must "[r]igorously explore and objectively evaluate all reasonable alternatives" and "devote substantial treatment to each alternative considered."¹¹ If an alternative approach to management proposed within these comments is not incorporated into an alternative or is eliminated from further study within the EIS and plan revision process, the Forest Service must provide the rationale for such a decision.¹² We expect the Forest Service to respond substantively to each issue raised in these comments pursuant to the requirements of NEPA.¹³

In addition to analyzing and incorporating the Center's suggestions in to plan components and alternatives, the Forest Service has a responsibility to develop a wide range of alternatives to study within this plan revision process. The range of alternatives is "the heart of the environmental impact statement."¹⁴ NEPA requires agencies to "rigorously explore and objectively evaluate" a range of alternatives.¹⁵ NEPA requirements state that "no action concerning the proposal should be taken which would: (1) Have an adverse environmental impact; or (2) Limit the choice of reasonable alternatives."¹⁶

The Forest Service must "study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources."¹⁷ There are many unresolved conflicts within the scope of this planning process, and the Forest Service has a responsibility to fully develop alternatives which provide a range of different management strategies for the various uses of the Cibola National Forest. Of equal importance, the Forest Service must adequately "describe the environment of the areas to be affected or created by the alternatives under consideration."¹⁸ Establishment of baseline conditions is a requirement of NEPA.¹⁹

¹⁰ 16 U.S.C. § 1531 et seq.

¹¹ 40 C.F.R. § 1502.14.

¹² *Id.*

¹³ As required by 40 C.F.R. § 1503.4(a).

¹⁴ *Id.*

¹⁵ See 40 C.F.R. §§ 1502.14(a) and 1508.25(c).

¹⁶ 40 C.F.R. § 1506.1(a). *Catron County v. U.S Fish and Wildlife Service*, 75 F.2d 1429 (10th Cir. 1996)(partial NEPA compliance is not enough.) In addition, the law requires consideration of a range of mitigation measures. See *Kootenai Tribe of Idaho v. Veneman*, 313 F.3d 1094,1122-1123 (9th Cir. 2002) (and cases cited therein) (stating that agencies must develop and analyze environmentally protective alternatives in order to comply with NEPA).

¹⁷ 42 U.S.C. § 4332(2)(C) and (E).

¹⁸ 40 C.F.R. §1502.15.

¹⁹ In *Half Moon Bay Fisherman's Marketing Ass'n v. Carlucci*, 857 F.2d 505, 510 (9th Cir. 1988), the Ninth Circuit states that "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." The court further held that,

b. Monitoring and Adaptive Management

In addition to providing direction for the development of forest management strategies, the 2012 Rule dictated that the Forest Service create plans that incorporate “responsive planning,” which in this case requires a detailed monitoring program.²⁰ While the specifics of the monitoring program adopted by each forest are left to the discretion of the Forest Service, the general principle to be followed is to create a plan that will result in the collection of information that “should enable the responsible official to determine if a change in plan components . . . may be needed.”²¹ Given the ongoing research into best forest management practices, the range of potential impacts associated with climate change, and the amount of time this plan will provide management guidance, it is essential that the Cibola National Forest monitoring program be robust and scientifically-based. Under the 2012 Rule, the monitoring program must include questions and associated indicators, which will operate by “testing relevant assumptions, tracking relevant changes, and measuring management effectiveness and progress toward achieving or maintaining the plan’s desired conditions or objectives.”²² Essentially, the monitoring program should act as the backbone of the adaptive management strategy to be employed by the Forest Service.

Science-based adaptive management involves “treating management interventions as experiments, the outcomes of which are monitored and fed back into management planning” (Gillson et al. 140). Essentially, as outlined by land management experts, an adaptive management approach to forest management should include creation of management strategies (plan components/specific action alternatives in this case), implementation of those strategies/actions, monitoring of the effects (under the monitoring plan developed as part of this plan revision process), and pre-determined triggers for changes in management based on the results of monitoring (Nie and Schultz 2012). In some cases, it may be appropriate for the Forest Service to identify a range of management strategies for a specific forest use, such as livestock grazing, which could be used at different times based on relevant conditions and the results of monitoring. The range of management strategies and identification of trigger points for more project-specific actions may be developed later in time during project-specific NEPA, but this plan should call for such an approach as a general method of management.

As a general matter, if the Forest Service intends on adopting an adaptive management approach to forest planning, or for specific activities authorized by the Cibola National Forest plan, such adaptive management should follow science-based standards and include defined and specific trigger points that result in either identified changes in management strategy or the initiation of a public input process to revise management guidelines. The primary goal of the Forest Service in adopting this general management approach should be to manage forest resources to meet desired conditions for forest resources, including wildlife species and habitat, while allowing for changes in management if monitoring indicates that desired conditions are not being met, before conditions have deteriorated past the point at which the Forest Service can remedy the problem.

II. General Recommendations for the Development of the Forest Plan

The Forest Service has a responsibility to undertake management of national forests in the public interest and to provide for species diversity, recovery, and viability throughout the Cibola National Forest. These overarching responsibilities must guide the development of plan components that will drive management

“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.”

²⁰ 36 C.F.R. § 219.5.

²¹ *Id.* § 219.12(a).

²² *Id.* § 219.12(a)(2).

of the Cibola National Forest in the 21st century, according to best available science, and with the understanding that some ecological processes and natural resources have been and will continue to be profoundly affected by human actions, uses, climate change and other stressors. Fundamentally, the Forest Service must reconsider all previous management prescriptions and assumptions in completing this plan revision.

As an initial matter, the Forest Service must assess how current and historic management has impacted ecosystems, including identifying management actions that have degraded and impaired conditions of ecosystems and habitat forest-wide. The Forest Service cannot properly manage the Cibola National Forest without identifying and then changing standards and guidelines that previously have moved the forest away from desired conditions or had negative impacts on forest ecosystems. Likewise, the Forest Service should identify current plan components that have resulted in positive impacts to forest ecosystems, and analyze how retaining these components would affect future conditions.

Another key component of this plan revision process should be the identification of the current and potential impacts of climate change on the Cibola National Forest's wildlife and habitat resources. Following this analysis of impacts, the Forest Service should attempt to design plan components that are designed to either mitigate or prevent the impacts to species and habitats. Climate change in the southwestern United States is not a problem of the future, but rather one that is already occurring and impacting forest resources. Scientific research and monitoring demonstrate that within the Southwest, average temperatures are increasing, severe drought is occurring, and flows of rivers and streams are lower than in the past (Garfin et al. 2013). These conditions are likely to continue into the future, but climate change also has the potential to result in longer and hotter summers, decreases in overall precipitation, more extreme shifts in weather patterns, intensified droughts, and both increased flooding and decreased average streamflows (Garfin et al. 2013). All of these anticipated changes in regional weather will impact the Cibola National Forest.

One of the particularly challenging aspects of regional climate change, from the perspective of forest management, is the likely impact on distribution and size of specific forest ecosystem types. Studies of ecosystem response to climate over thousands of years in the Southwest indicate that "montane plant communities . . . are moving higher in elevation in step with climate warming" and "the area occupied by montane woodland and conifer forests . . . is likely to decrease" (Brusca et al. 2013). Climate modeling suggests that savanna, grassland, and Southwest desert ecosystems are likely to increase, due to changes in amount and timing of precipitation (Joyce and Birdsey 2000: 23-28). While the same study found that southwestern mixed pine ecosystems may increase throughout the United States, such increases would come due to a general migration of these ecosystems north, not through greater distribution in the southwest.

Climate change has and will also exacerbate the negative impacts from current and historical mismanagement of the Cibola National Forest by the Forest Service. Specifically, management that has allowed the following to occur: widespread livestock grazing resulting in introduction of invasive species, disruption of grassland fire regimes, and erosion; livestock grazing within sensitive habitats, such as in riparian areas and wetlands; off-road vehicle use off roads and trails; uranium mining within sensitive habitats and without regard to the impact on water quality and availability, as well as human health; suppression of naturally-caused fire; and logging. Human activities such as these, which are permitted and overseen by the Forest Service, have disrupted native ecosystems and are the primary causes of the decline in abundance and diversity of native species. The Forest Service must use this plan revision process to revise current management direction that has prioritized human activities over native species habitat needs and requirements for recovery of at-risk and listed species. Such revised management direction must be crafted through a precautionary approach that aims to restore habitats, mitigate or prevent likely impacts associated with climate change, and prevent further negative impacts to species by

significantly minimizing the scope and impacts of permitted human activities within the Cibola National Forest.

In order to adequately address the current degraded state of forest ecosystems, the needs of listed and at-risk species, the widespread and general impacts associated with climate change, and historical mismanagement of forest resources, the Forest Service must look at the entire landscape of the Cibola National Forest and identify the overall desired conditions, standards, guidelines, and objectives that should drive the development of more specific plan components.

These plan components must be broad, but they should lead to the development of other more specific plan components for specific forest resources and uses that will facilitate ecosystem-level planning and forest restoration work, prevention of further habitat and ecosystem degradation, and long-term sustainability and recovery of all forest ecosystems and habitat.

Recommended Forest-Wide Management Approach:

In general, management of the Cibola National Forest should prioritize the protection and recovery of species and habitat. Focusing on the protection of and restoration of species' habitat and ensuring recovery and viability of species is not at odds with the Forest Service's multiple-use mandate. Instead, it recognizes that many wildlife species, including both native plants and animals, are currently at-risk and must be managed appropriately to ensure their future survival. The Forest Service has the responsibility to manage public lands for the benefit of all Americans, which includes limiting or mitigating permitted and allowable human activities in a responsible manner that protects natural resources.

Recommended Forest-Wide Plan Components:

Desired Conditions

- Natural fire regimes are functional and assist in the recovery of ecosystems and habitats that have been altered and are departed from reference conditions.
- Natural disturbances, such as fire, disease, and insect outbreaks, occur within the Cibola National Forest at regular intervals similar to historical conditions and promote habitat diversity.
- Habitat corridors within the Cibola National Forest are well-defined and free from human obstructions and barriers to movement.
- Native plant and animal species are abundant, diverse, and found throughout the forest.
- Water resources are free of pollution and blockages.
- Large spaces of diverse forest habitat are maintained in a natural state.

Standards

- Projects and permits must be designed to provide buffer zones and avoid impacts to identified habitat corridors.
- Permitted activities and projects must not impair stream flows, water quality, or structure.
- Invasive species removal projects can only use pesticides and other chemical methods of control as a last resort, and such use must be limited in scope and applied through on-the-ground application, rather than through aerial dispersal or other large-scale application methods.
- Motorized recreation is not allowed off designated roads and trails, as identified in district level travel management plans.

Guidelines

- Natural disturbances such as insect outbreaks, disease, and fire, are managed with the goal of restoring natural disturbance processes and cycles to promote ecosystem restoration.

- Projects designed to restore natural ecosystems are prioritized and created using best available science.

Objectives

- Habitat corridors for migratory, wide-ranging, and other species are assessed and mapped.

III. Wildlife Management Information and Recommendations

a. General Species Viability and Habitat

As discussed above, the 2012 Rule requires the Forest Service to ensure species diversity and viability through specific plan components. Ecosystem-level plan components are appropriate to manage ecosystems, watersheds, and species habitat. Specifically, such plan components must be developed to maintain or restore “structure, function, composition, and connectivity” of ecosystems and watersheds.²³ However, in many cases, these top-level plan components will be insufficient to ensure the recovery of listed species or the viability of species of conservation concern. In these cases, the Forest Service must develop species-specific plan components, including standards and guidelines, to ensure ecological conditions will support recovery and viability.²⁴

The assessment identified a number of risks to both listed species and species of conservation concern within the Cibola National Forest. With few exceptions, the assessment noted that all Ecological Response Units (ERUs), which are general classifications that correlate to common habitat types, within the Cibola National Forest are departed from reference conditions. Specifically, the Cibola National Forest identified the following widespread problems plaguing most ecosystem types: disruptions of fire regimes, an increase in younger and smaller vegetation, and prolonged drought.²⁵ Along with general threats to ecosystem types, the assessment also laid out a number of general threats to species, which included: harassment, invasive species introduction and spread, disease, parasitism, obstruction of habitat, and predation.²⁶ There is a need to change current management in order to address these general problems, on both the ecosystem and species-specific levels.

Not specifically mentioned, but nonetheless important to consider for each of the threats identified, is climate change’s likely intensification of all stressors on plant and animal populations. When faced with stress, species respond through changes in behavior in an attempt to avoid or mitigate potential negative impacts. One way of avoiding or mitigating stress is to migrate to areas free of the stressor. Research has demonstrated that increased migration, specifically northward and to higher elevations, is indeed a direct effect of climate change in the United States. For instance, 58 percent of observed bird species have permanently migrated north, on average 35 miles north of their original home range, over the past four decades, most likely due to climate change.²⁷ Because of the inter-dependence of species within an ecosystem, migration of one species is likely to lead to migration of other species.

Fortunately, the Forest Service has the ability to mitigate both the impacts from climate change on species and habitat and stressors other than climate change that may make species adaptation unlikely. Numerous studies have shown that “intact ecosystems that retain their full complement of species are more likely to

²³ 36 C.F.R. § 219.9(a).

²⁴ *Id.* § 219.9(b).

²⁵ Assessment Report of Ecological / Social / Economic Conditions, Trends, and Risks to Sustainability, Cibola National Forest Mountain Ranger Districts, Volume I. February 9, 2015 at 204-205.

²⁶ *Id.* at 207-208.

²⁷ National Audubon Society, Inc. Birds and Climate Change: Ecological Disruption in Motion (Feb. 2009), pg. 3, available at http://www.audubon.org/sites/default/files/documents/bacc-ecologicaldisruptioninmotion_feb2009.pdf.

be buffered from the effects of climatic change” (Gillson et al. 2013). Two key strategies that scientists recommend be employed to facilitate protection of intact ecosystems and viability of species in light of climate change are: (1) “including the widest possible altitudinal range within protected areas” and (2) increasing the connectivity and permeability of protected areas, for instance by creating buffer zones (Gillson et al. 2013: 138).

While some mapping of habitat corridors has been done in NM, there is a lack of data about species-specific corridors, either for annual migration or for inter- and intra-forest movement within ranges for predators, native ungulates, or other wide-ranging species. The Center recommends the Forest Service start their analysis and identification of habitat corridors using the information provided by the New Mexico Game and Fish Department, as found at <http://nmchat.org/map/> (for Wildlife Corridors). This mapping was done through modeling of cougar corridors, applied as a surrogate for other wildlife. At the very least, this mapping shows that movement between ranger districts on the Cibola is occurring and that such movement is normal behavior for predator species. Such information should be used in both the plan revision process, including during NEPA analysis of the impacts on wildlife from proposed management actions, as well as at the project level.

In addition to these general habitat protection strategies, top-level forest-wide management direction to eliminate or limit to the extent feasible the stressors for species identified by the Forest Service must be a top priority of this plan revision. The stressors identified by the Forest Service are ultimately symptoms of larger problems, namely permitted human activities such as livestock grazing, mining, logging, widespread off-road vehicle use, and water diversion projects. The Forest Service must eliminate or minimize to the extent possible these activities in order to adequately address the stressors facing at-risk species.

The incorporation of plan components that address these issues also follows neatly from the needs for change identified for general wildlife management during the assessment process:

- “There is a need to develop plan components to contribute to the recovery and conservation of federally recognized species, maintain viable populations of the species of conservation concern, and maintain common and abundant species within the plan area.”
- “There is a need for the revised plan to address the sustainability of habitat(s) for plant and animal species important to tribes and other traditional communities.”
- “There is a need for the revised plan to provide for aquatic passage and terrestrial connectivity.”

Recommended Management Approach for General Species Viability and Habitat:

Many of these general threats and needs can be addressed by forest-wide, ecosystem-level plan components. In fact, for some activities and management prescriptions, such direction is necessary and appropriate. Forest-wide planning that eliminates or mitigates permitted activities with documented negative effects is essential. The Center also recommends that the Forest Service address climate change in a comprehensive way through this plan revision process. This means developing all plan components to mitigate the effects of decreased water supplies, species migration, and the continued threat posed by invasive species that benefit from stress and disturbance of native ecosystems. Habitat corridors should be identified, mapped, and protected, roads and trails should be minimized, critical habitat should be afforded special protections called for in species recovery plans, and a robust monitoring program should be developed to better document current species levels and allow for better on-going identification of problems that need to be addressed by shifts in management.

Recommended Plan Components for General Species Viability and Habitat:

Desired Conditions

- Species have the ability to move within corridors connecting habitat, which are generally free of obstructions and human activity.
- Threatened and endangered species are trending toward recovery, supporting the goal of eventual delisting.
- Native plant and animal species are abundant and face little or no competition from non-native invasive species.
- Migration pathways, both to higher elevations and northward, are available to assist species adaptation to climate change.
- Habitat types historically found on the forest are in good condition and support a wide array of native species that have traditionally relied on such habitat.

Standards

- Road density within the forest (calculated at the 6th HUC Watershed level excluding Inventoried Roadless Areas, Wilderness Areas, and other designated non-roaded areas) shall be maintained below 1 mile of road per square mile of land.
- Guidelines and recommend recovery actions from listed species recovery plans must be incorporated into applicable projects and plan amendments.
- Occupied threatened and endangered species habitat will be protected as a first priority.
- Cibola National forest land within riparian areas, on steep slopes (>30 percent), or in areas with sensitive or high-erosion soils or grasslands found to be altered from reference conditions, shall not be deemed suitable for livestock grazing.

Guidelines

- All projects authorized or considered within the Cibola National Forest will include specific mitigation strategies designed to protect species and habitat.
- All projects authorized or considered within the Cibola National Forest will provide buffer zones for species' movements around disturbed areas.
- Critical habitat is managed as a wildlife priority zone, in which human activities are minimal and strict constraints are placed on habitat modification or disturbance.

Objectives

- Complete mapping of habitat corridors and identify opportunities for inter-agency cooperation to protect habitat corridors on public lands within the first 5 years the plan is in place.
- Complete surveys for listed species and species of conservation concern once every 3 years, and publish such surveys for public review.

b. Threatened and Endangered Species

The following threatened and endangered species are found on the Cibola National Forest: Mexican gray wolf (endangered), western yellow-billed cuckoo (threatened), southwestern willow flycatcher (endangered), northern aplomado falcon (endangered), Mexican spotted owl (threatened), Zuni bluehead sucker (endangered), Chiricahua leopard frog (threatened), Alamosa springsnail (endangered), and Zuni fleabane (threatened). Additionally, critical habitat has been designated either on or within close proximity to the Cibola National Forest for the following species: Mexican spotted owl, Chiricahua leopard frog and Zuni bluehead sucker.

With regards to listed species, the Forest Service has a responsibility both to follow the requirements within the 2012 Rule to ensure plan components support recovery of these species and to follow the requirements of the Endangered Species Act (ESA). Under section 7 of the ESA, the Forest Service must “insure that any action authorized, funded, or carried out [by the Forest Service] is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [critical habitat].”²⁸

Recommended Management Approach for Threatened and Endangered Species:

In general, the Forest Service should create species-specific plan components for all threatened and endangered species. Without such specific plan direction, it is likely that viability and recovery of listed species will warrant no additional priority than any other management goal for the forest. The threat of species extinction, or extirpation from the Cibola National Forest, is something the Forest Service needs to take seriously and address with increased specificity within the forest plan. Ecosystem-level guidance, while helpful for forest habitat recovery generally, cannot ensure recovery of listed species. A more detailed and nuance approach is necessary, and recovery plans created by the FWS should be the baseline for the Forest Service’s approach.

i. Mexican Spotted Owl

The Mexican spotted owl is a well-studied species that occupies a fairly wide range within the Southwest, but is hindered in overall species recovery by the widespread threats to its habitat and viability, as well as the small number of current breeding pairs and lack of connected populations. Habitat for this species was historically numerous in the Southwest, but has since declined drastically. This habitat includes “mixed conifer habitats, proximity to riparian areas, standing snags for roosting and nesting, and typically rocky outcrops.”²⁹ Unfortunately, almost all of these habitat types are impacted in some way by human activity on the Cibola National Forest. While the Forest Service does have a multiple-use mandate, that mandate does not require the Forest Service to permit all activities in all areas of the forest, and the Center strongly advocates for the protection of Mexican spotted owl habitat within the Cibola from human activities that threaten this native and iconic species.

The U.S. Fish and Wildlife Service (FWS) has documented threats to this species, all of which are related to human activities, both current and historic. These include “domestic and wild ungulate grazing, recreation, fuels reduction treatments, resource extraction (e.g. timber, oil, gas), and development” and historic timber harvesting and fire suppression activities.³⁰ All of these, in the words of the FWS, “have the potential to reduce the quality of owl nesting, roosting, and foraging habitat, and may cause disturbance during the breeding season.”³¹

While uncharacteristically widespread or unseasonal high-severity fire is indeed a significant problem throughout the Southwest, we caution the Forest Service to not over-rely on intensive forest restoration projects with sometimes unforeseen negative consequences to ameliorate this threat. Rather, we suggest the Forest Service acknowledge this general threat to Mexican spotted owl habitat and make a commitment to work to restore natural fire regimes using the least invasive means possible, including prioritizing prescribed fire. This is especially important in light of the accumulating evidence that fire scarred areas are an important part of Mexican spotted owl habitat and are used extensively by owls, as

²⁸ 16 U.S.C. § 1536(a)(2).

²⁹ Cibola National Forest Assessment, vol. I, at 210.

³⁰ U.S. Fish and Wildlife Service. 5-Year Review Short Form Summary: Mexican spotted owl (August 2013), pg. 5, available at http://www.fws.gov/southwest/es/documents/r2es/mexicanspottedowl_5-yrreview_aug2013.pdf.

³¹ *Id.*

well as evidence that forest restoration projects can affect prey animals for owls, potentially having the unintended consequence of decreasing food availability.

Monitoring of owl wintering habitat in burned areas within New Mexico resulted in the finding that prey was 2-6 times greater in abundance within previously burned areas and that Mexican spotted owls relied on these areas for prey capture and habitat to make it through the winter season, when the owls are under greater stress (Ganey et al. 2014, *Ornithology*). Other research into southwest frequent-fire adapted landscapes has shown that prey species relied upon by raptors such as owls also benefit from heterogeneous forest structures, including the presence of snags, large-diameter trees, and downed debris (Kalies et al. 2012). Such heterogeneous forest structure is easier to attain and more likely to benefit species when created through natural or prescribed fire, rather than intensive thinning and logging projects.

Recovery of Mexican spotted owls will require more than forest restoration projects alone – it will take a fundamental reorientation of management priorities and directives for Mexican spotted owl habitat. There are many management activities beyond forest restoration that the Forest Service can adapt and mitigate to support recovery of this species. One of the primary methods of doing this is by developing plan components for all projects within Mexican spotted owl critical habitat that closely follow recommendations and best available scientific information for the needs of owls. Due to extensive research into the needs of this species, we know that the critical elements of Mexican spotted owl habitat include the following³²:

- A range of tree species, including mixed conifer, pine-oak, and riparian forest types, composed of different tree sizes reflecting different ages of trees, 30 to 45 percent of which are large trees with diameter at breast height ([dbh]) 4.5 ft above ground)) of 12 inches or more;
- A shade canopy created by the tree branches covering 40 percent or more of the ground and;
- Large, dead trees (snags) with a dbh of at least 12 inches;
- High volumes of fallen trees and other woody debris;
- A wide range of tree and plant species, including hardwoods; and,
- Adequate levels of residual plant cover to maintain fruits and seeds, and allow plant regeneration.

Retention of these habitat components, regardless of the project or plan, is crucial to meeting the requirements of the ESA, NFMA, and 2012 Rule for threatened species within the plan area. Moreover, recent scientific studies have documented that areas and habitat components protected as critical habitat for this species are indeed used, relied upon, and critical for Mexican spotted owls.

A study published in 2014, which documented the use of protected activity centers (PACs) within the Sacramento Mountains found that Mexican spotted owls extensively used and relied upon designated PACs and that vacant PACs were routinely re-colonized, indicating the importance of this habitat conservation concept (Ganey et al. 2014, *Raptor*). Important to forest management planning, the study found that owls also routinely colonized and used habitat outside of PACs, meaning that protection of PACs alone is not a sufficient management tool to provide for the needs and recovery of Mexican spotted owls (Ganey et al. 2014, *Raptor*: 7). Landscape-scale planning and protection of owl habitat components is necessary, including the protection of critical habitat from specific activities that have been identified as detrimental to the recovery of owls.

Recommended Management Approach for Mexican Spotted Owl:

³² U.S. Fish and Wildlife Service. August 2013. *5-Year Review Short Form Summary: Mexican spotted owl* Arizona Ecological Services Office at pg. 6, available at http://www.fws.gov/southwest/es/documents/r2es/mexicanspottedowl_5-yrreview_aug2013.pdf.

The Forest Service should develop species-specific plan components for the Mexican spotted owl. This species is iconic and has been at-risk in the southwest for many decades. The previous forest plan incorporated specific guidance from the owl's recovery plan, and while guidance from recovery plans may change over time, the Forest Service should ensure that plan components require adherence to the most-recent recovery plan for any projects proposed. Additionally, more recent analysis and information of the owl and its habitat needs should be specifically analyzed to create specific plan components that will guide forest restoration projects, which should be created with the goal to assist in species recovery.

Recommended Species-Specific Plan Components for Mexican Spotted Owl:

Desired Conditions

- Mexican spotted owls are trending toward recovery and populations within the Cibola National Forest maintain key viability factors such as genetic diversity, numerous breeding pairs, and ability to withstand and recover from natural disturbances.
- Critical habitat for Mexican spotted owl is intact and free from most human activities and disturbances.
- Mexican spotted owl prey species are abundant and widespread.
- Mixed conifer, pine-oak, and riparian forest types contain a wide range of native tree and plant species composed of different sizes and ages.
- Mixed conifer, pine-oak, and riparian forest types contain high volumes of fallen trees and other woody debris.
- Habitat outside of existing PACs is managed to allow for and support re-colonization of Mexican spotted owl individuals.

Standards

- Habitat restoration projects within Mexican spotted owl habitat must incorporate standards, guidelines, and recommendations from the most recent recovery plan developed by the U.S. Fish and Wildlife Service.
- Before initiation of any forest restoration project, Mexican spotted owl surveys must be conducted and the results included as part of the publically accessible project record.
- Projects within mixed conifer, pine-oak, and riparian forest types occupied by Mexican spotted owl must incorporate the following management prescriptions:
 - Large trees with diameter at breast height of 12 inches or more are retained, unless removal is necessary documented potential for destruction of Mexican spotted owl occupied habitat;
 - Large, dead trees (snags) with a dbh of at least 12 inches are retained;
 - Adequate levels of residual plant cover must be maintained to allow for plant regeneration.
- Pre- and post-treatment monitoring must be conducted in all protected activity centers treated for fire risk abatement.
- Forest restoration and other human activities will not take place during Mexican spotted owl breeding season (March 1-August 31).
- Livestock grazing shall not be permitted within riparian habitat designated as Mexican spotted owl critical habitat or that Mexican spotted owls are known to occupy.

Guidelines

- Prescribed fire is the primary method of forest restoration used within Mexican spotted owl habitat, except in cases where best available science and on-the-ground surveys indicate that mechanical or hand thinning must occur to avoid destruction of occupied habitat.

- Road or trail building in protected activity centers should be avoided.

Objectives

- Complete a forest-wide Mexican spotted owl population survey within 5 years of plan implementation to guide future management decisions.
- Develop a species-specific monitoring program that includes specific timelines and trigger points that would require additional analysis of or changes in management.

ii. Mexican Gray Wolf

In January 2015, the Fish and Wildlife Services (FWS) issued a final rule listing the Mexican gray wolf (*Canis lupus baileyi*) as an endangered subspecies under the ESA.³³ This listing decision highlights the perilous position of the Mexican wolf within the United States. The only current known living members of the species stem from the population of reintroduced wolves, as the species was previously extirpated within the United States. Mexican wolves are native to New Mexico and historically were present within the boundaries of the Cibola National Forest. Additionally, the Cibola National Forest's proximity to the Gila National Forest (where Mexican wolves are already present), means that the Cibola is likely to be one of the first forests re-inhabited by wolves under the new recovery regime.

The FWS has stated that the reintroduced population of Mexican wolves, at least one pack of which previously inhabited the Cibola, is “fundamentally necessary” for Mexican wolf recovery.³⁴ Under a new rule regarding the experimental population of wolves that is managed by the FWS, the Magdalena Ranger District of the Cibola National Forest is now designated as Zone 1 area where initial releases of Mexican wolves into the wild can occur.³⁵ Other ranger districts within the Cibola fall within Zone 2 of the reintroduction program, which means wolves are “allowed to naturally disperse and occupy” and can be translocated into these ranger districts.³⁶

The Forest Service has a responsibility to tailor land management plans to support recovery of endangered species, even if those species are controversial or only partially impacted by management within a particular forest. Recovery of the Mexican wolf in Southwest will “depend on establishment of a metapopulation or several semi-disjunct but viable populations spanning a significant portion of its historic range in the region” (Carroll et al. 2006). The US Supreme Court held in *TVA v. Hill* 437 U.S. 153 (1978) that the Endangered Species Act is the highest priority for all federal agencies, and Forest Service guidance, as well as NEPA requires the agency to use the best science available when making its decisions.³⁷ Establishment of packs and lone individuals within the Cibola National Forest must be supported and planned for as part of this plan revision process, particularly because the Cibola is itself a disjunct forest whose non-contiguous units can help support a metapopulation including the permeability to wolf genetic exchange that is fundamental to conservation of Mexican wolves, which suffer from inbreeding.

Within the Cibola National Forest the threats to wolf establishment and population growth are the same as elsewhere: Illegal shootings and management (government) killings and live-removals on behalf of the livestock industry or, as permitted under the final rule, on behalf of hunting interests. The incidence of

³³ 80 Fed. Reg. 2488 (Jan. 16, 2015).

³⁴ 78 Fed. Reg. at 35732-35733 (June 13, 2013).

³⁵ 80 Fed. Reg. at 2523.

³⁶ *Id.* at 2559.

³⁷ See Forest Service Handbook 1909.12, 42.1 (2013), see also National Environmental Policy Act 40 C.F.R. § 1500.1(b); See also Executive Order 13563 (2011), affirming Executive Order 12866 (1993); See also Endangered Species Act 16 U.S.C. 1533 (b)(1)(A).

illegal shootings can be lessened in part through lowering road access and density. Management removals, at least those responding to wolf depredations, can be greatly lessened through preventing depredations rather than removing the wolves as scapegoats. Many means have been found to be effective in preventing depredations, and a suite of preventative measures should be required on the Cibola. For example, seasonal, chronologically “pulsed” calving along with a year-round regular human presence can make cattle less vulnerable to predators and assist early detection of cattle mortality from a variety of causes (Breck et al. 2011). Scavenging on livestock carcasses often brings wolves into close proximity with live domestic animals that are in poor shape and vulnerable to predation; scavenging on livestock may also cause wolves to seek out stock in lieu of natural prey.³⁸ Killing or removing live Mexican wolves for the purposes of remediating livestock depredations is unnecessary and unproductive (Harper et al. 2008), and is acutely inhumane given wolves’ intelligence, understanding, and close social ties. Management removals have also played a significant role in retarding recovery of the Mexican wolf. Within our national forests where the grazing of livestock is subsidized by American taxpayers, the Forest Service should prioritize the interests of all Americans and support recovery of endangered native animals such as the Mexican wolf over the pecuniary interests of the local livestock industry.

The Forest Service’s current approach to permitting and authorizing livestock grazing operations does not incorporate planning or requirements for using best practices or maintain operating flexibility to minimize wolf-livestock interactions. The Forest Service has the authority to adapt Annual Operating Instructions to respond to conditions on the ground, which includes the presence of wolves within an allotment or pasture. Working with state and federal wildlife agencies, the Forest Service could take a proactive approach to addressing the needs of both wolves and livestock permittees before conflicts arise, rather than after. Part of this will be placing restrictions on permitted operations, but another component will be to retain management flexibility to respond to and prevent conflicts.

Ultimately, it is the responsibility of the Forest Service to ensure that policy and practice in the permitting and management of livestock do not threaten the existence of native wildlife. Placing reasonable requirements on the activities and permits of livestock grazers is appropriate and necessary. Specifically, the 3-year review for Mexican grey wolves recommended requiring livestock owners to take responsibility for carcass removal disposal.³⁹ Failure to take management action to prevent a significant threat the Mexican grey wolf on our public lands would be unacceptable.

Recommended Management Approach for Mexican Wolf:

The Forest Service should develop species-specific plan components for the Mexican wolf that address the primary problem within national forests that results in the death of wolves – livestock grazing that is not done using best available science regarding how to minimize livestock depredation by wolves. This requires both grazing permit restrictions and also incorporation of strategies to prevent wolf conflicts into operating instructions.

Also, road closures and road density standards should be developed to ensure wolf persistence. Studies of roads impacts on wolf habitat in the northern Great Lakes region are likely to be applicable to the Mexican wolf, as well. Mladenoff et al. (1995) found that few portions of any wolf pack territory throughout this region were located in areas of road density greater than 0.45 km/km². Core areas (defined as 40 percent use) did not exceed road densities of 0.23 km/km² and no portion of any pack area was in an area of road density greater than 1.0 km/km² (Mladenoff et al. 1995). Thiel (1985) reported

³⁸ Paquet, P.C., J. Vucetich, M.L. Phillips, and L. Vucetich. 2001. *Mexican wolf recovery: three year program review and assessment*. Conservation Breeding Specialist Group, International Union for the Conservation of Nature. Report to the U.S. Fish and Wildlife Service, Albuquerque, NM. Pages 67-68.

³⁹ *Id.* at 69.

that wolves in Wisconsin could not survive in areas with road densities higher than 0.6 km/km². Jensen et al. (1986) documented a maximum road density for wolf occupancy of 0.6 km/km² on the Ontario-Michigan border. Mech et al. (1988) found wolves absent in northern Minnesota areas with road densities above 0.58 km/km². Mech (1989) later reported that wolves persisted in areas with road densities greater than 0.58 km/km² if they were adjacent to extensive roadless areas. In the Gila and Apache National Forests where Mexican wolves have lived since reintroduction in 1998, all or almost all of the dozens of wolves that are known to have been illegally killed were killed in areas with road access.⁴⁰

Recommended Species-Specific Plan Components for Mexican Wolf:

Desired Conditions

- Mexican grey wolves establish wide-ranging and viable populations within the Cibola National Forest.
- Conflicts between livestock permittees and wolves are prevented and when they occur, wolves are permitted to stay on the forest instead of being removed.
- Re-establishment of wolves into the Cibola National Forest results in the restoration of natural food webs and ecosystem interactions, facilitating the improvement of all habitat types.
- Local economies are boosted by the increase in visitors to the Cibola National Forest who wish to see and experience wolves in the wild.

Standards

- Owners of livestock must remove or render inedible (through lime, fire, explosives or other authorized means consistent with public safety) in a timely manner the carcasses of stock that are not killed by wolves.
- Feeding of wolves or attracting them with food is prohibited.
- Livestock permittees that impermissibly leave carcasses on grazing allotments or are found to be baiting wolves will have their permit revoked.
- Annual Operating Instructions (AOIs) for grazing allotments and permits shall acknowledge the potential presence of wolves and shall outline specific adaptive management strategies to prevent or minimize wolf depredations on livestock.

Guidelines

- Incidents of wolves in the vicinity of or scavenging or having scavenged on attractants shall be recorded and maintained.
- Grazing permit terms and conditions should include measures designed to place the responsibility for locating and removing or rendering inedible livestock carcasses on permittees.

Objectives

- Working with wildlife experts and state and federal agencies, the Forest Service shall develop a program to train livestock permittees in non-lethal and preventative methods for protecting livestock from wolf depredation.

iii. Zuni Fleabane

⁴⁰ Just one wolf, as far as we are aware was illegally killed within the Gila Wilderness, and that animal was within half a mile of the wilderness area's northern boundary which is bordered near where the animal was killed by a spur of Forest Road 142.

The Zuni fleabane is a rare endemic flowering plant species found in very few locations within the Southwest, one of which in the Magdalena Ranger District, specifically Mt. Taylor. It has evolved to specialized habitat on nearly bare shale outcrops.

One of the primary threats to this species throughout its range is historical, current, and proposed uranium mining. As the 5-year review for this species put it, “removing the threat of uranium mining from occupied Zuni fleabane habitats is the most salient criterion for recovery of this species.”⁴¹ Additional concerns for this species stem from off-road vehicle use on sensitive soils and slopes where the Zuni fleabane is known to thrive, however, that concern is primarily historical.⁴²

Recommended Species-Specific Plan Components for Zuni Fleabane:

Desired Conditions

- Zuni fleabane habitat is protected from human disturbance.
- Zuni fleabane is found throughout its historical range within the Cibola National Forest.

Standards

- No uranium mining activity, or other activities associated with uranium mining, can occur in areas occupied by Zuni fleabane.
- No motorized or recreational activity shall be allowed within occupied Zuni fleabane habitat.

iv. Riparian Dependent Species

The following needs for change related to riparian habitat management were identified during the assessment process:

- “There is a need for the revised plan to provide updated management direction for the protection, maintenance, and restoration of riparian vegetation and channel morphology in the plan area.”
- “There is a need for the revised plan to provide direction on the sustainable management of groundwater, springs, wetlands, riparian areas, and perennial waters and their interconnections.”
- “There is a need for the revised plan to provide direction on establishing widths for riparian management zones around all lakes, perennial and intermittent streams, and open water wetlands.”

The 2012 rule provides clear guidance on the Forest Service’s responsibilities regarding riparian areas. “The plan must include plan components, including standards and guidelines, to maintain or restore the ecological integrity of riparian areas in the plan area, including plan components to maintain or restore structure, function, composition, and connectivity.”⁴³ Such components must take into account “aquatic and terrestrial habitats” and “ecological connectivity.”⁴⁴ Additionally, within the plan, the Forest Service must “establish widths for riparian management zones . . . , giving special attention to land and vegetation for approximately 100 feet from the edges of all perennial streams and lakes.” And plan components

⁴¹ U.S. Fish and Wildlife Service. 2005. *Zuni Fleabane 5-Year Review: Summary and Evaluation*. New Mexico Ecological Services Field Office. Albuquerque, NM at pg. 4, available at <http://www.fws.gov/southwest/es/arizona/Documents/SpeciesDocs/ZuniFleabane/Zuni%20fleabane%205-year%20review.pdf>.

⁴² *Id.* at 10.

⁴³ 36 C.F.R. § 219.8(a)(3).

⁴⁴ *Id.*

must be created to ensure that actions contributing to changes in temperature or chemical composition to water, blockage of waterways, or sediment deposits are not occurring within the riparian buffer zone.⁴⁵

Riparian areas in the southwest are incredibly important for the maintenance of species diversity in the region, as riparian ecosystems are characterized by higher numbers of plant and animal species and highly dynamic conditions (Kuglerova et al. 2014: 74-76). They are also incredibly rare and, unfortunately, have been and will continue to be severely impacted by climate change. The documented effects of climate change on riparian ecosystems include water losses, contraction in the size of riparian ecosystems, susceptibility to invasion by nonnative plants, and disruption of natural wildlife communities.

The benefits of riparian buffers in grazing management are numerous and include: “stabilization of streambanks, the filtering of runoff, the reduction of peak floods, and the enhancement of habitat by controlling water temperatures and providing shelter to wildlife” (Agouridis et al. 2005: 598). While many studies and researchers have questioned the effectiveness of fixed-width boundaries in achieving the most desired function and structure for riparian ecosystems, the general premise of maintaining vegetation and impact buffers for sensitive riparian areas remains grounded in science and the most easily achievable management strategy given budget limitations and uncertainties related to best management practices (Richardson et al. 2012; Kuglerova et al. 2014). The Center believes that management approaches, especially in areas with numerous imperiled species and that have a high-likelihood to be significantly affected by climate change, should be managed following the precautionary principle. In other words, the Forest Service should impose management buffers around riparian areas, while implementing an adaptive management and monitoring plan that measures key riparian functions and wildlife trends to determine future course of action and even more effective management strategies.

Recommended Management Approach for Riparian Ecosystems:

The Forest Service should develop riparian ecosystem plan components that protect sensitive riparian areas through the use of a firm buffer in which restoration is prioritized and damaging activities, such as motorized use or livestock grazing, are prohibited. Riparian ecosystems are incredibly rare, host a diverse array of specialized species, and are highly at-risk from the impacts of climate change. Additionally, within the southwest, riparian areas are a popular destination for recreation. Given this reality, the Center recommends that the Forest Service maintain and mitigate impacts from existing recreational sites within riparian areas, while protecting species and habitat through the use of firm standards and guidelines for riparian resources forest-wide.

We also request that the Forest Service assess loss of riparian habitat that was originally on the Cibola National Forest, and develop plans to restore and recover riparian ecosystems in areas where such restoration is feasible. Riparian restoration that is proposed or undertaken should be based on the best available science. It is also critical that riparian areas that are restored or recovered as thereafter maintained in their natural state, meaning human stressors and habitat-disrupting activities are removed from the area.

Recommended Plan Components for Riparian Ecosystems:

Desired Conditions

- Stream ecosystems, riparian corridors and associated stream courses are functioning properly and are resilient to natural disturbances (e.g., flooding) and climate change, promote the natural movement of water, sediment and woody debris and provide habitat for native aquatic species

⁴⁵ *Id.*

- Dominant vegetation within riparian zones consists of existing, naturally regenerated, or seeded/planted native trees and shrubs suited to the soil and hydrology of the site.
- Excessive sheet-rill and concentrated-flow erosion is not occurring.

Standards

- A riparian buffer zone of 100 ft from all edges shall be imposed around all perennial and intermittent streams, springs, wetlands, and washes. Motorized activity, vegetation removal, trail-building, livestock grazing, and mining shall be prohibited unless necessary to protect human health and safety.
- In riparian areas occupied by or suitable for habitation by federally-listed species or species of conservation concern, a 350 ft buffer shall be imposed. Motorized activity, vegetation removal, trail-building, livestock grazing, and mining shall be prohibited unless necessary to protect human health and safety.
- Fence to exclude livestock from riparian areas when alternative means are not feasible.
- New road construction within riparian areas shall be avoided.
- Existing roads and trails within riparian areas should be maintained to minimize effects to natural waterflow and native vegetation communities.

Guidelines

- Periodic removal of some forest products such as high value trees, medicinal herbs, nuts, and fruits is permitted provided the intended purpose is not compromised by the loss of vegetation or harvesting disturbance.
- Maintain natural shade over water surfaces in fish bearing streams to the maximum extent possible, in keeping with reference conditions and native species capacity.
- Riparian buffer areas have special management direction and are deemed generally unsuitable for timber production, minerals extraction, and motorized recreation.
- Land management projects and plans that affect riparian areas must be preceded and informed by watershed analysis.
- Management should retain all age classes of riparian vegetation species.

Objectives

- The riparian forest buffer will be inspected periodically over the course of the plan to determine riparian vegetation and habitat conditions and as part of an ongoing monitoring program for riparian areas that includes triggers for changes in management.
- Identify “key watersheds” that receive the highest priority protection from degradation.
- During the first 3 years of plan implementation, identify priority riparian area based on relative degradation and need for restoration treatments and implement projects in priority riparian areas within 5 years of plan implementation.

IV. Grazing Management Information and Recommendations

Under the 2012 Rule, multiple uses, including livestock grazing, on the Cibola National Forest must be managed using standards and guidelines that apply integrated resource management.⁴⁶ Integrated resource management means “multiple use management that recognizes the interdependence of ecological resources and is based on the need for integrated consideration of ecological, social, and economic factors.”⁴⁷ The factors considered in creating and evaluating plan components that apply this type of management must include species and habitat needs, dominant ecological processes and other system

⁴⁶ 36 C.F.R. § 219.10(a).

⁴⁷ *Id.* § 219.19.

drivers, and foreseeable risks, among other things.⁴⁸ In other words, the Forest Service must take a holistic approach to managing livestock grazing, rather than merely continuing to allow current use or ignoring the very real risks that grazing poses to other forest resources.

The Forest Service must also analyze and identify the suitability of lands for livestock grazing as part of this plan revision process. The suitability of lands for grazing is based on the desired conditions identified for those lands.⁴⁹ In addition to identifying desired conditions, the Forest Service needs to present, discuss, and evaluate the likely environmental impacts associated with the method it uses to determine suitability and capability of rangelands for livestock grazing. For a determination of livestock grazing capability to be legally sufficient it must meet NFMA, NEPA, and the APA by: (1) explaining the method used to change the capability determination from the old Plan; and (2) present information on which the capability determination is based. *See W. Watersheds Project v. United States Forest Serv.*, CV-05-189-E-BLW (D. ID., Feb. 7, 2006).

The ecological costs of livestock grazing exceed those of any other use of national forest land in the American Southwest. In this arid region subject to chronic and intensifying drought (Seager et al. 2007, Seager and Vecchi 2010, Williams et al. 2012), livestock grazing is the most widespread cause of species endangerment, lost soil productivity, and degradation of the human environment (Beschta et al. 2012, Fleischner 1994). Reduction of vegetation and ground cover by livestock reduces carbon and nitrogen stocks and holding capacity of public lands (Carter et al. 2011). Grazing destroys vegetation, displaces soil, and consumes enormous quantities of water to the detriment of native species and the ecosystems on which they depend (Belsky and Blumenthal 1997). It is important to note that one of the identified needs for change for this plan revision is the need to address invasive species on the Cibola – it will be impossible to do so without addressing and mitigating livestock contribution to the introduction and spread of invasive plants.

Livestock grazing also degrades water quality by increasing water temperatures in several ways. It elevates water temperature via the loss and suppression of riparian vegetation that provides stream shade increases (Kondolf et al. 1996; Kattelman 1996; Beschta et al. 2013). Livestock grazing also widens channels due to bank damage from trampling and sedimentation, which also contributes to water temperature increases (Kondolf et al. 1996; Kattelman 1996; Beschta et al. 2013), even in the absence of shade loss (Rhodes et al. 1994). This is a serious impact because elevated water temperature adversely affects numerous aquatic species.

Recent studies into livestock grazing management have identified ways to reduce negative impacts, primarily through changes in agency management of forage resources and grazing to reflect best available science. Recommended management changes include: (1) eliminating areas with sensitive or high-erosion soils from capacity, suitability, or stocking rate calculations; (2) updating stocking rates based on conservative forage utilization rates (25-30 percent); (3) managing livestock by herding rather than fencing or water developments; (4) provide for rest, in some cases, several years, to allow for recovery of vegetation within allotments; (5) closure of areas with degraded soil or plant communities (Carter et al. 2011).

The Center acknowledges that the Forest Service operates under a multiple-use mandate and that livestock grazing is a legal use of public land. However, this does not mean that livestock grazing must take place on all lands of the Cibola National Forest, or that new and better restrictions on grazing practices cannot be implemented through this plan revision process. Given the significant impacts to grasslands, riparian ecosystems, and species from historical grazing and climate change, the Forest

⁴⁸ *Id.* § 219.10.

⁴⁹ *Id.* § 219.7(e)(1)(v).

Service must re-evaluate its current approach to livestock grazing on the Cibola National Forest and implement plan components to protect species and habitat. It is unlikely that rangelands in the planning area ever will return to historical norms that supported forage production capacity over the past century.

Updated management direction for grazing has also been identified as a need for change during the assessment process: “The revised plan needs to provide management direction to the livestock grazing program that incorporates adaptive management toward ecosystem-based desired conditions, with particular emphasis on management in times of drought or other extreme weather-related events.”

Recommended Plan Components for Grazing Management:

Desired Conditions

- The composition, structure, and function of vegetation ensure resistance and resilience to disturbances, are within or expeditiously moving toward historic conditions, that historically characteristic disturbances resume a natural role in the function of the ecosystem, and that risk of loss of key ecosystem components (e.g. native species and soil) to uncharacteristic disturbance is low.
- Invasive species of plant and animals do not become established on the Cibola National Forest.
- Native ungulate species are maintained in natural patterns of abundance and distribution
- Natural fire regimes are functional throughout the Cibola National Forest, including on grasslands and within grazing allotments.
- Soils and biological crusts are intact and contribute to functioning watersheds and ecosystems. Sedimentation and soil run-off is limited and subject only to natural processes.
- Wolves and wolf dens are present throughout the landscape and contribute to overall species recovery.
- Riparian vegetation is intact and dominated by native grasses, shrubs, and trees. Streambanks are functional, stream morphology is intact, downcutting and erosion is rare and caused only by natural processes.

Standards

- Fencing is designed to allow for passage of native ungulates and to minimize to the maximum extent possible restrictions in movement by native wildlife species.
- Forage utilization rates are maintained at or below 30%.
- When negative impacts to native species are documented through monitoring, livestock shall be removed from the affected area.
- Areas containing steep slopes (>30 percent), perennial or intermittent streams, springs, or wetlands shall be deemed unsuitable for livestock grazing.
- Allotments or pastures with degraded vegetation or soil resources shall be closed and rested to allow for recovery.
- Each allotment and pasture shall have an identified rest period as part of its long-term management.
- Annual Operating Instructions (AOIs) for grazing allotments and permits shall acknowledge the potential presence of wolves and shall outline specific adaptive management strategies to prevent or minimize wolf depredations on livestock.
- Livestock permittees may elect to remove pastures or allotments from grazing on a voluntary basis, such allotment or pastures shall be held vacant to allow for increased flexibility in range management.
- Livestock grazing shall not be permitted within 300 ft. from riparian areas, wetlands, or seasonally present water, except as necessary to allow for continued use of state-issued water rights as allowed under state law.

- Salting shall not occur within one quarter of a mile of water, riparian areas or stream channels.
- Permittees with allotments with recurring conflicts will be given the opportunity to place livestock in a vacant allotment with decreased likelihood for conflicts with wolves as these allotments become available.

Guidelines

- Damage to riparian vegetation, stream banks and channels should be prevented, not mitigated or rehabilitated.
- Degraded riparian vegetation should be moved toward good condition during the life of the proposed term grazing permit, not over multiple decades.
- Allotment and pasture management (as outlined in AOIs) shall identify livestock herding as the primary means of management livestock movement, rather than placement of fencing or water developments.

V. Water Management Information and Recommendations

The following needs for change related to water resources were identified during the assessment process:

- “There is a need for the revised plan to provide direction to restore priority watersheds.”
- “There is a need for the revised plan to provide direction on the sustainable management of groundwater, springs, wetlands, riparian areas, and perennial waters and their interconnections.”
- “There is a need to update plan direction on providing a sustainable water supply for multiple uses (wildlife, livestock, recreation, mining) and public water supplies.”

Historical and predicted changes in precipitation, water use and demands, and climate are important to consider when evaluating current and potential management direction and conditions for water resources on the Cibola National Forest. Williams and others (2012) noted that while average winter precipitation totals in the Southwest have not been exceptionally low in the recent past, average summer-fall evaporative demand since 2000 is the highest in the past 1,000 years. Forest drought stress over much of the past 13 years, including in 2011 and 2012, matched or exceeded the recorded “megadroughts” of the 13th and 16th centuries. The only other 13-year periods when similar conditions occurred with such frequencies in the past 1,000 years were during the megadroughts themselves. Model projections indicate that megadrought-level stresses on water availability and vegetation production will be regularly exceeded by the mid-21st century, and even the wettest and coolest years of the late-21st century will be more severe than the driest, warmest years of the past millennium (Williams et al. 2012).

Recommended Plan Components for Water Resources:

Desired Conditions

- Aquatic ecosystems are high-functioning and support an abundance of native species.
- Rivers and streams provide habitat connectivity and corridors for all native species.
- River and streams are free of pollution and meet all state and federal water quality standards.

Standards

- New road construction in riparian buffer zones, stream, washes, meadows and wetlands shall be avoided.
- Water quality, quantity, and habitat features at natural springs and seeps shall be protected or enhanced.

- Management activities shall not impair soil moisture recharge at outflows of natural water sources.

Objectives

- Assess risks and conditions of all watersheds during the first year of plan implementation and create a 10 year plan to restore watersheds throughout the forest.
- Identify, catalogue and evaluate all water rights held within the Cibola National Forest. In cases where the right is no longer in use, seek water rights from the state for purposes of securing federally held rights to water resources.

VI. Vegetation Management Information and Recommendations

The following needs for change related to vegetation management were identified during the assessment process:

- “There is a need for the revised plan to provide direction for achieving sustainability, resiliency, and for minimizing risks to vegetation and its composition and structure (including snags and downed woody material). This includes restoring natural disturbance cycles (fire, insects, disease) where appropriate.”
- There is a need for the revised plan to provide plan direction for restoration treatments for those Geographic Areas and Ecological Response Units (ERUs – vegetation types) that are most outside of the natural range of variability while considering capability of local infrastructure, contractors, and markets.
- A need “to include plan direction addressing potential climate change impacts such as fire size severity, flooding, and changes in water resources and vegetation (composition and structure).”
- A need “for the revised plan to provide direction for an integrated resource approach to prescribed fire activities, and to address fuel accumulations in the Wildland Urban Interface (WUI).”

The 2012 Rule mandates that the Forest Service “identify lands within the plan area as not suited for timber production if . . . [it] would not be compatible with the achievement of desired conditions and objectives established by the plan for those lands.”⁵⁰ In the Cibola National Forest, conditions are such that logging should only be allowed in those rare instances where it is needed “to protect other multiple use values[, including] improving wildlife or fish habitat, thinning to reduce fire risk, or restoring meadow or savanna ecosystems where trees have invaded.”⁵¹ Any timber suitability analysis or logging allowances made within this plan revision process must be documented and supported by best available science, including a detailed explanation of the method used to calculate such suitability.

Forest restoration work with the intent to restore natural disturbance regimes, including fire, should be the overall vegetation management strategy utilized by the Forest Service in the Cibola National Forest. Such restoration work should be completed under standards and guidelines designed to protect and enhance wildlife species and habitat. Under the 2012 Rule, the forest plan must provide “information reflecting proposed and possible actions that may occur on the plan area,” including “the proportion of probable methods of forest vegetation management practices expected to be used.”⁵² The Forest Service must also

⁵⁰ *Id.* § 219.11(a).

⁵¹ *Id.* § 219.11(c).

⁵² *Id.* § 219.7(f)(iv).

incorporate ecosystem-level standards and guidelines into this plan, which should be used to guide forest restoration work.

According to the assessment, “[v]egetation of all ERUs on the Cibola is at risk in all Geographic Areas.”⁵³ In nearly all cases, disruption of natural fire regimes and loss of large trees were identified as a primary cause of departure from reference conditions for ERUs.⁵⁴ In the cases of tree-dominate ecosystem types, the Assessment identifies the following as the primary reason for reference condition departure: “historical timber harvest . . . , active fire suppression . . . , passive fire suppression (roads, excessive removal of fine fuels by improper grazing, community development, etc.).”⁵⁵ In particular, Mixed Conifer-Frequent Fire, Mixed Conifer with Aspen, Ponderosa Pine Forest, and Spruce-Fir ecosystems within the Cibola have all seen significant and devastating decreases in large, old trees⁵⁶ – one of the primary functional components for these ecosystems.

Additionally, besides directly leading to a decrease in fire and, therefore, disruption of all natural fire regimes, livestock grazing has led to a significant degradation of native grasslands. According to the Assessment, reference conditions in Colorado Plateau/Great Basin Grassland ecosystem types in the Cibola National Forest were characterized by 70% high seral grass cover (ungrazed), 30% low-mid seral cover, and 0% of low seral cover.⁵⁷ Currently, however, 75% of grass cover is characterized as either low-mid or low seral, while only 25% is high seral.⁵⁸ These trends mirror those for Montane/Subalpine Grasslands and Semi-Desert Grassland ecosystems, the former also being significantly more at-risk for tree invasion as well. These significant changes have had the direct result of reducing cover for prey-species, decreasing habitat quality and quantity for native ungulates, and disrupting fire patterns and return intervals. There can be no doubt that this grassland habitat requires restoration and that a key component of such restoration must be a reduction in livestock grazing and associated AUMs, rest and closure of allotments and pastures, and a re-evaluation of grazing capacity and suitability throughout the Cibola.

Ultimately, fire regimes and forest structure must be restored in an integrated way. Climate change, landscape fragmentation, and presence of invasive species often preclude forest ecosystems from realizing settlement-era structural or compositional patterns even with active restoration that intends to re-create an historic range of variability (HRV) in forest structure, composition or disturbance regime (Harsch et al. 2009, Noss et al. 2006). Johnson and Duncan (2007) proposed updating the HRV concept to a “future range of variability” that accounts for inevitable ecological change as disturbance regimes and vegetation pattern track climate. Understanding how forests adapt to climate over longer timescales than are commonly used in an HRV-focused approach can inform management strategies that support adaptation to uncertain future conditions imposed by changes in climate and landscape pattern (Choi et al. 2008, Millar et al. 2007).

In the case of tree-dominated ecosystems like those mentioned above, conservation of large trees is fundamentally important to restoration. Large ponderosa pine trees possess autecological characteristics such as relatively thick bark and insulated buds that promote resistance to heat injury (Weaver 1951). Mature ponderosa pines have a high capacity to survive and recover from crown scorch (McCune 1988). Thus, the existence of large tree structure enhances forest ecosystem resilience to wildland fire (Arno 2000, Pollett and Omi 2002). Moreover, large trees are the most difficult of all elements of forest

⁵³ Cibola National Forest Assessment, vol. I at 219.

⁵⁴ *Id.* at 23-27.

⁵⁵ *Id.* at 30.

⁵⁶ *Id.* at 32, 33, 38, and 39.

⁵⁷ *Id.* at 42.

⁵⁸ *Id.*

structure to replace once they are removed (Agee and Skinner 2005). This scientific background underscores the need to approach forest restoration with the intent of retaining large, old trees, while reintroducing fire and maintaining heterogeneity to benefit the complete host of species that rely on our forested ecosystems.

For ponderosa pine and dry mixed conifer forests, this means focusing on the landscape-scale reintroduction of fire as the primary self-sustaining regulatory mechanism that will naturally promote adaptation and resilience to unplanned fires and the effects of climate change—and then scaling down to coordinated project-level actions that accomplish landscape-level objectives.

In the case of grasslands, including those invaded by pinyon, juniper, or other woody species, fire should also be the primary restoration tool used. Areas restored with fire have far more productive understories and avoid a problem created by chaining whereby large old trees are killed but younger, smaller trees remain to resprout, and fire is cheaper (Aro 1971). Moving forward, the Forest Service should rely on natural disturbances to facilitate functioning ecosystems. “Periodic drought and fire are important processes for limiting woody encroachment into grasslands” (Joyce and Birdsey 2000: 21).

Recommended Plan Components for Vegetation Management

Desired Conditions

- All ERUs, ecosystems, and habitat types are functional and resilient to long-term changes in climate and water availability.
- Old growth occurs throughout the landscape, generally in small areas as individual old growth components, or as clumps of old growth.
- Fire is recognized as a natural process in fire-adapted ecosystems and is used to achieve objectives for other resources.
- Natural stressors and disturbances are managed to meet restoration objectives.
- Ponderosa pine stands should include a mosaic of tree patches of variable ages, sizes and densities, a robust and diverse herbaceous understory, and rare stand-replacing fires generally isolated to small patches (*i.e.*, occasional torching).

Standards

- Utilize and enhance existing forest structure by retaining the largest trees and groups of larger trees with interlocking crowns. Larger diameter trees, in VSS 4, 5, and 6 should be retained to replace the structure and function of old growth trees that were removed by logging.
- Retain co-dominants in the larger diameter groups present on a site to maintain greater canopy retention with the goal of creating groups that function more like pre-disturbance groups.
- When creating openings focus on the removal of small, young trees (12” dbh) from the spaces and openings between groups.
- Identify and retain areas that would be best left unthinned as wildlife cover areas and for travel corridors.
- Retain trees with nests in them, and surrounding trees providing associated habitat, wind protection or shading.
- Preserve all snags.
- Downed logs with a diameter greater than 10” should be preserved.
- Use prescribed fire and management of natural ignitions to reduce ground fuels and to reintroduce fire to the ecosystem.
- Defer livestock grazing after the initial fire treatment to allow for understory recovery and change grazing management to allow for function of natural processes.
- Decrease road densities to enhance stand integrity.

- Chaining is not used as a restoration tool.

Objective

- A fire management plan is developed which relies on a landscape assessment of where natural fires can acceptably and beneficially burn. Fire is managed to accomplish multiple objectives—including community protection, wildlife habitat protection, and the restoration of ecological processes.

VII. Recreation and Roads Information and Recommendations

The substantive requirements of the 2012 Rule require the Forest Service to comprehensively address the road system in this plan revision. Given 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, the Forest Service cannot satisfy the rule’s substantive requirements without providing 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.⁵⁹ Those requirements simply cannot be met absent integrated plan components directed at making the road system considerably more sustainable and resilient to climate change stressors. 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.”⁶⁰ 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.”⁶¹

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.”⁶² 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. 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.

A robust NEPA analysis of the forest road system and its environmental and social impacts is also critical because they constitute “major Federal actions significantly affecting the quality of the human environment,” forest plan revisions require preparation of an environmental impact statement (EIS) under

⁵⁹ 36 C.F.R. § 219.8(a).

⁶⁰ Forest Service Handbook (FSH) 1909.12, ch. 20, § 23.231.

⁶¹ *Id.* § 23.231(1)(b); *see also id.* § 23.231(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”).

⁶² 36 C.F.R. § 219.2(b)(1); *see also id.* § 215(e) (site-specific implementation projects, including travel management plans, must be consistent with plan components); *see id.* § 219.1(f) (“Plans must comply with all applicable laws and regulations . . .”, including the Clean Water Act, Clean Air Act, Endangered Species Act, and other federal environmental laws relevant to the road system and its environmental impacts).

NEPA.⁶³ Management of the forest road system and its significant environmental impacts on a range of forest resources undoubtedly qualifies as a significant issue that must be analyzed in the plan revision EIS.⁶⁴

Importantly, adequate analysis of the forest road system cannot be provided in a piecemeal fashion under other, individual resource topics in the EIS. That approach would preclude comprehensive analysis of the significant impacts associated with the road system and could result in fragmented and conflicting management direction that fails to satisfy the substantive mandates of the 2012 Planning Rule and subpart A of the Travel Management Rule.

a. Minimum Road System

National forests provide a range of significant environmental and societal benefits, including clean air and water, habitat for myriad wildlife species, and outdoor recreation opportunities for millions of visitors and local residents each year.⁶⁵ The Forest Service's extensive and decaying road system, however, poses a principle threat to the future ability of the national forests to provide critical environmental, ecosystem, and recreation services. Collectively, the national forests contain over 370,000 miles of system roads (excluding tens of thousands of additional miles of unclassified, non-system, temporary, and user-created roads). That is nearly eight times the length of the entire U.S. Interstate Highway System. This road system is primarily a byproduct of the era of big timber; as such, it often is convoluted, unmanageable, and ineffective at meeting 21st-century transportation needs. Much of the system is also in a state of serious disrepair: as of 2013, the national forest road system had a 3.2 billion dollar maintenance backlog.⁶⁶

The CNF is no exception, with 3,129 miles of system roads requiring over \$3.9 million in total annual maintenance costs.⁶⁷ Yet the forest's average road maintenance budget in recent years covers only about 19% of those costs, resulting a significant backlog of deferred maintenance needs. While the Forest Assessment Report states that extent of deferred maintenance needs "is not accurately known," it does identify "the progressive decline in appropriated funding for road maintenance" as the most significant trend affecting the condition of the transportation system and acknowledges that that trend "is not expected to change significantly for the better in the foreseeable future."⁶⁸ Accordingly, the Forest Assessment Report concludes that the current transportation system is not sustainable and that "difficult decisions will have to eventually be made to bring the maintenance needs of the transportation system in line with available funding and to ensure this balance is maintained."⁶⁹

⁶³ 42 U.S.C. § 4332(2)(C); 36 C.F.R. § 219.5(a)(2)(i). The EIS must analyze in depth all "significant issues related to [the plan revision]." 40 C.F.R. § 1501.7; *see also id.* § 1502.1 (an EIS "shall provide full and fair discussion of significant environmental impacts" and "shall focus on significant environmental issues and alternatives").

⁶⁴ NEPA analysis as part of a previous travel management planning process under subpart B does not satisfy the Forest Service's duty to comprehensively analyze the impacts of its road system in the EIS for the plan revision. As explained above, the purpose of the TMP is to designate existing roads and trails available for off-road vehicle use, not to identify and provide a framework for a sustainable road system.

⁶⁵ *See generally* 36 C.F.R. § 219.1(c) ("range of social, economic, and ecological benefits [of National Forests] . . . include clean air and water; habitat for fish, wildlife, and plant communities; and opportunities for recreational spiritual, educational, and cultural benefits"); 66 Fed. Reg. 3244, 3245-47 (Jan. 12, 2001) (Preamble to Roadless Area Conservation Rule describing key ecosystem and other services of roadless National Forest lands).

⁶⁶ USDA, Forest Service, National Forest System Statistics FY 2013, *available at* <http://www.fs.fed.us/publications/statistics/nfs-brochure-2013.pdf>.

⁶⁷ Cibola National Forest Assessment, vol. II, p. 214.

⁶⁸ Cibola National Forest Assessment, vol. II, pp. 214-15.

⁶⁹ Cibola National Forest Assessment, vol. II, p. 215.

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 also 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.

Climate change intensifies the adverse impacts associated with roads. For example, as the warming climate alters species distribution and forces wildlife migration, landscape connectivity becomes even more critical to species survival and ecosystem resilience.⁷⁰ Many National Forest roads, however, were not designed to any engineering standard, making them particularly vulnerable to these climate alterations. And 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.⁷¹

Road-related degradation of watersheds and riparian areas on the CNF is also significant, with the assessment identifying road-stream crossings and roads located in riparian areas as the two most significant stressors on forest watershed health.⁷² “Riparian habitats are among the most critical elements of biodiversity within the landscape and they provide key ecosystem services available from no other resource. . . . [W]here riparian areas have degraded or been lost, these services are missing or at risk.”⁷³ Yet the Forest Assessment Report finds that “[m]ost riparian areas on the Cibola are currently at risk, and completely missing in some places . . . largely [as] a function of legacy issues, including roads (authorized or otherwise).”⁷⁴ And according to the “roads and trails” indicator of the Forest Service’s Watershed Condition Framework (WCF), 106 of the CNF’s 166 watersheds are functioning in a poor/impaired condition due to road-related impacts, with another 36 functioning in a fair/at-risk condition due to those impacts.⁷⁵ Overall, the assessment concludes that “[m]ost of the water resources on the Cibola are at risk” due in significant part to roads-related impacts such as sedimentation, increased runoff, loss and degradation of aquatic habitat, impairment of riparian areas, wetlands, and soil conditions, and increases in invasive species.⁷⁶

b. Motorized Travel Only on Designated Roads and Trails

Subparts B and C of the travel management rule at 36 C.F.R. 212 require that motorized travel occur only on a designated system of routes and areas in the summer and winter, respectively. It also establishes two exceptions to the ban on cross-country driving in the summer time; 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.⁷⁷ Forest Service policy instructs forests to use the exceptions sparingly.⁷⁸

⁷⁰ See USDA, Forest Service, *National Roadmap for Responding to Climate Change*, at 26 (2011), available at <http://www.fs.fed.us/climatechange/pdf/Roadmapfinal.pdf> (recognizing importance of reducing fragmentation and increasing connectivity to facilitate climate change adaptation).

⁷¹ See USDA, Forest Service, *Water, Climate Change, and Forests: Watershed Stewardship for a Changing Climate*, PNW-GTR-812, at 72 (June 2010), available at http://www.fs.fed.us/pnw/pubs/pnw_gtr812.pdf.

⁷² Cibola National Forest Assessment, vol. I, p. 128, Fig. 41.

⁷³ Cibola National Forest Assessment, vol. I, pp. 119-20.

⁷⁴ Cibola National Forest Assessment, vol. I, p. 123.

⁷⁵ Cibola National Forest Assessment, vol. I, p. 130, Figure 43.

⁷⁶ Cibola National Forest Assessment, vol. I, pp. 125-27, 140.

⁷⁷ 36 C.F.R. § 212.51(b). (“In designating routes, the responsible official may include in the designation the limited use of motor vehicles within a specified distance of certain forest roads or trails where motor vehicle use is allowed,

Executive Orders 11989 and 11644 establish that off-road vehicle trails and areas must be located to minimize damage to forest resources and existing and potential recreation uses.⁷⁹ The Executive Orders establish specific criteria for minimization, which are echoed in the travel management rule. Specifically, the Executive Orders require that when designating areas or trails available for off-road vehicle use, agencies must locate them to:

- (1) minimize damage to soil, watershed, vegetation, or other resources of the public lands;
- (2) minimize harassment of wildlife or significant disruption of wildlife habitats; and
- (3) minimize conflicts between off-road vehicle use and other existing or proposed recreational uses of the same or neighboring public lands.⁸⁰

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 create a Forest Service duty to 1) periodically monitor the effects of off-road vehicle use, and based on the data amend or rescind the off-road vehicle designations⁸¹; and 2) to 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 he determines that such adverse effects have been eliminated and that measures have been implemented to prevent future recurrence.”⁸²

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 and routes for motorized use, these allocations are subject to the minimization criteria established in the Executive Orders.

The planning rule requires the plan to include plan components, including standard and guidelines, to provide for...[s]ustainable recreation, including sustainable...opportunities, and access...”⁸³ Sustainable opportunities are those that will not erode ecological integrity as well as support social and economic benefits for the present and future generations. The plan must have plan components, including standards and guidelines, that ensure that opportunities are compatible with (and ideally enhance) the desired settings and recreational niche. In addition, to the extent that the provision or sustainable opportunities

and if appropriate within specified time periods, solely for the purposes of dispersed camping or retrieval of a downed big game animal by an individual who has legally taken that animal.”

⁷⁸ FSM 7703.11(4). This issue has been addressed in a recent appeal decision as well: “[A] broad designation allowing dispersed camping along all or most designated routes is not consistent with long-term objectives for travel management. Direction from the Chief of the Forest Service indicates that the allowance of dispersed camping by general designation along roads and trails should be used sparingly.” (Reviewing Officer Recommendation, Sawtooth National Forest, Travel Plan Revision, Appeals #08-04-14-0035-A215, #08-04-14-0038-A215, and #08-04-14-0039-A215 at 17; *see also* accompanying Appeal Decision at 1, adopting recommendation and directing Sawtooth National Forest to modify decision (“Include designations for motor vehicle use for dispersed camping on the initial motor vehicle use map only to the extent that they reflect conditions where motor vehicle use for dispersed camping is practicable without causing unacceptable resource damage.”).

⁷⁹ Exec. Order No. 11,644, 37 Fed. Reg. 2877 (Feb. 8, 1972), *as amended by* Exec. Order No. 11,989, 42 Fed. Reg. 26,959 (May 24, 1977).

⁸⁰ *Id.* § 3(a).

⁸¹ *Id.* § 8.

⁸² *Id.* § 9

⁸³ 36 C.F.R. § 219.10(b)(1)(i)

rely on infrastructure such as roads, trails, bathrooms, trailheads, parking lots, and picnic areas, the plan must contain standards and guidelines that ensures infrastructure is sited appropriately (e.g., maintain ecological integrity and viewsheds, and enable consistent flow of benefits into the future), compatible with the desired setting, and capable of being adequately maintained with predicted capacities, including implementing best management practices for water quality. Practically, this means that recreation infrastructure should be the minimum necessary to maintain and enhance the desired settings and recreation objectives while not compromising ecological integrity.

c. Sustainable Recreation

In providing direction for the siting and management of off-road vehicle use (summer and winter), the plan components must ensure compliance with Executive Orders 11989 and 11644.⁸⁴ Specifically, the plan must include *standards* that establish the following:

- 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. The aggregate system includes cross-country driving zones for dispersed camping or game retrieval enabled under the travel management rule.
- The Forest Service will 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.⁸⁵ The strategy, if relevant, should also address 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.

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 Executive Order provisions to include motorized recreation road designations. Specifically, standards and guideline should ensure that: all motorized designations minimize impacts⁸⁶; are periodically monitored, reviewed, and modified as needed; and, are modified immediately when considerable adverse damage is occurring.

Lastly, the plan should have 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. The direction should be compliant with the travel management rule and applicable policy directives.

⁸⁴ Exec. Order No. 11,644, 37 Fed. Reg. 2877 (Feb. 8, 1972), *as amended by* Exec. Order No. 11,989, 42 Fed. Reg. 26,959 (May 24, 1977).

⁸⁵ 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.

⁸⁶ 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.

Recommended Management Approach for Motorized Recreation and Road and Trail Network

To integrate the approaches described above and satisfy the substantive mandates of the 2012 Planning Rule and subpart A, we recommend the following plan components and elements, which are supported by best available science, as the building blocks of a framework for sustainable management of forest roads and transportation infrastructure:

- *Clearly and comprehensively articulate all regulatory requirements applicable to transportation infrastructure.*

This could be accomplished in a background section that explains the requirements of subpart A, related implementing memoranda, and other regulatory requirements related to roads management (e.g., U.S. Fish & Wildlife Service critical habitat and other Endangered Species Act requirements; requirements under Executive Order and associated adaptation plans; applicable best management practices; Roadless Area Conservation Rule requirements; etc.). The explanation of subpart A must make clear that the Forest Service (if it has not already) is required to complete a science-based analysis to identify a minimum road system and unneeded roads for decommissioning or conversion to other uses, and to implement those findings. Ideally, plan components will provide direction for expeditiously identifying and implementing the minimum road system through a subsequent NEPA process and future project-level actions, as described below.

- *Desired Future Condition includes achievement and maintenance of an appropriately sized and environmentally and fiscally sustainable minimum road system.*

The Forest Service's current roads management policy framework is generally aimed at shrinking the agency's vast and decaying road system and its host of adverse environmental and social impacts. Accordingly, the desired future condition for transportation infrastructure should include a well-maintained system of needed roads that is fiscally and environmentally sustainable and provides for safe and consistent access for the utilization and protection of the forest. That forest road system is designed and maintained to withstand future storm events associated with climate change and to prioritize passenger vehicle access to major forest attractions. The road system reflects long-term funding expectations. Unneeded roads, including temporary and non-system roads, are decommissioned and reclaimed as soon as practicable to reduce environmental and fiscal costs. Reclamation efforts are prioritized in roadless and other ecologically sensitive areas to enhance ecological integrity and connectivity and to facilitate climate change adaptation. The system meets density standards, based on the best available science, for all motorized routes in important watersheds and wildlife habitat, migratory corridors, and general forest matrix, and for relevant threatened and endangered species and species of conservation concern. Road construction, reconstruction, decommissioning, and maintenance activities are designed to minimize adverse environmental impacts. Passenger vehicle roads are maintained to standard to ensure reliable access to popular developed recreation sites.

- *Objectives provide a concise, measurable, and time-specific statement of a desired rate of progress towards achieving a sustainable minimum road system.*
 1. Over the life of the plan, decommission all roads identified as likely not needed for future use in the TAP. 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.).

2. Over the life of the plan, implement the minimum road system.
 3. Within 10 years of plan approval, address all roads within at-risk and impaired watersheds according to the WCF roads and trails indicator, and within watersheds contributing to sediment or temperature impairment of under section 303(d) of the Clean Water Act.
- *Standards ensure that roads do not impair ecological integrity and otherwise satisfy the substantive requirements of the 2012 Planning Rule and subpart A.*
 1. To ensure ecological integrity and species viability, establish density standards based on the best available science for all motorized routes:
 - a. In important watersheds, wildlife habitat, migratory corridors, and general forest matrix; and
 - b. For relevant species or resources present on the forest, including but not limited to threatened and endangered species and species of conservation concern.
 2. 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.
 3. The forest shall make annual progress toward achieving the minimum road system and motorized route density standards, including but not limited to decommissioning 5% of roads identified as unneeded each year.
 4. The forest shall identify and update as necessary its road management objectives for each system road and trail.
 5. With respect to temporary roads, the forest shall:
 - a. 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.
 - b. “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. The plan must define the road design, who are responsible parties and their roles in construction, maintenance and decommissioning, the funding source, a schedule for construction, maintenance and decommissioning, the method(s) for

- decommissioning, and post-decommissioning monitoring requirements for determining decommissioning success.”⁸⁷
- c. All temporary roads will be closed and rehabilitated within a reasonably short time following completion of the use of the road.
 - d. Over the life of the plan, all unaddressed temporary roads will be decommissioned.
6. All roads, including temporary roads, will comply with applicable and identified Forest Service best management practices for water management.
 7. With respect to riparian management zones, the forest shall:
 - a. Establish widths for riparian management zones around all lakes, springs, perennial and intermittent streams, and open-water wetlands.
 - b. Ensure that all management practices and project-level decisions with road-related elements in riparian management zones do not cause detrimental changes in water quality or fish habitat.
 8. Watershed restoration action plans address road-related impacts identified in the TAP.
- *Guidelines are designed to achieve a sustainable minimum road system.*
 1. Project-level decisions with road-related elements implement TAP recommendations and advance implementation of the minimum road system and motorized route density standards.
 2. Routes identified for decommissioning through the TAP or other processes will be closed, decommissioned, and reclaimed to a stable and more natural condition as soon as practicable.
 3. Prioritize road decommissioning to enhance landscape connectivity and ecological integrity based on:
 - a. Effectiveness in reducing fragmentation, connecting un-roaded and lightly-roaded areas, and improving stream segments, with a focus on inventoried roadless areas, important watersheds, and other sensitive ecological and conservation areas and corridors;
 - b. Benefit to species and habitats;
 - c. Addressing impaired or at-risk watersheds;
 - d. Achieving motorized route density standards; and
 - e. Enhancement of visitor experiences.
 4. Prioritize maintenance of needed routes based on:
 - a. Storm-proofing needs and opportunities (e.g., relocating roads away from water bodies, resizing or removing culverts, etc.);

⁸⁷ San Juan National Forest Land and Resource Management Plan, Standard 2.13.22, p. 101.

- b. Reducing landscape-scale fragmentation and enabling landscape-scale processes;
- c. Restoring aquatic and terrestrial habitats and habitat connections; and
- d. Increasing resilience.

VIII. Conclusion

In summary, the Center recommends the Forest Service take a species and habitat protection and restoration approach within the revised Cibola National Forest land and resource management plan. This includes incorporating both ecosystem-level and species-specific planning components, and inclusion of specific and binding standards and guidelines for all management actions. There are numerous problems and negative impacts occurring due to current management, as well as significant progress and knowledge that has been made in the field of natural resource, wildlife, and forest management since the last plan was developed. The Forest Service has an incredible opportunity to create a more sustainable, science-based, and restoration-focused plan, and we look forward to working with you to do so.

Sincerely,



Katherine Davis, Public Lands Campaigner
Center for Biological Diversity
P.O. Box 710
Tucson, AZ 85702
kdavis@biologicaldiversity.org

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