Data Submitted (UTC 11): 9/30/2024 6:00:00 AM
First name: Brian
Last name: Nowicki
Organization: Center For Biological Diversity
Title:
Comments: Center for Biological Diversity, New Mexico Wilderness Alliance, New Mexico Sportsmen, Defenders of Wildlife, Gila Conservation Coalition, Gila Resources Information Project, Heart of the Gila, Rio Grande Indivisible-NM, Sierra Club Rio Grande Chapter, Upper Gila Wilderness Alliance, White Mountain Conservation League, WildEarth Guardians

30 September 2024 Objection Reviewing Officer

USDA Forest Service, Southwest Region ATTN: Objection Reviewing Officer 333 Broadway Blvd. SE

Albuquerque, NM 87102

Electronic Submission: https://cara.fs2c.usda.gov/Public//CommentInput?Project=51887

RE: Objection to the Revision of the Land Management Plan for the Gila National Forest

Reviewing Officer:

Pursuant to 36 C.F.R. [sect] 219.54, the Center for Biological Diversity, New Mexico Wilderness Alliance, New Mexico Sportsmen, Defenders of Wildlife, Gila Conservation Coalition, Gila Resources Information Project, Heart of the Gila, Rio Grande Indivisible-NM, Sierra Club Rio Grande Chapter, Upper Gila Wilderness Alliance, White Mountain Conservation League, WildEarth Guardians provide the following objection to the revised Land Management Plan for the Gila National Forest. The responsible official for the revised Land Management Plan for the Gila National Forest is Forest Supervisor Camille Howes, Gila National Forest. The responsible official for the list of species of conservation concern is Michiko Martin, Regional Forester, USDA Forest Service Southwestern Region.

Pursuant to 36 C.F.R. [sect] 219.62, the lead objector is:

Brian Nowicki, Center for Biological Diversity

P.O. Box 710, Tucson, AZ 85702-0710

(505) 917-5611, bnowicki@biologicaldiversity.org

Other objectors:

Sally Paez, Staff Attorney, New Mexico Wilderness Alliance Oscar Simpson, State Chair, New Mexico Sportsmen

Bryan Bird, Defenders of Wildlife

Allyson Siwik, Executive Director, Gila Conservation Coalition Sally Smith, President, Gila Resources Information Project Patrice Mutchnick, Board Chair, Heart of the Gila

Oscar Simpson, Conservation Chair, Rio Grande Indivisible-NM Diane Reese, Chapter Chair, Sierra Club Rio Grande Chapter

Carol Ann Fugagli, Executive Director, Upper Gila Wilderness Alliance Thomas Hollender, President, White Mountain Conservation League Andrew Rothman, Wild Places Program Director, WildEarth Guardians

Statement Of Issues And / Or Parts Of The Plan Revision To Which Objection Applies

Our objection addresses the following aspects of the Forest Plans, Final Environmental Impact Statement (FEIS), and associated documents:

* Livestock grazing components, especially with respect suitability, riparian areas, wildlife habitat, and federally threatened and endangered species;
* Riparian area and watershed components;
* Rare plant components;
* Components relating to wildlife and plant components, including Mexican spotted owl, Mexican wolf, and species of conservation concern
* Monitoring components
* Road system components

This objection seeks principally to address conservation of the wildlife and plants present in the Gila National Forest, to ensure that plan components provide ecological conditions consistent with the evolutionary environment of the Gila National Forest's native biological diversity, and to ensure that plan components provide for the survival and recovery of imperiled species and do not further contribute to their decline, extirpation, or extinction. To that end, we object to, and suggest changes to, the standards, guidelines, and other components of the Final Plan. Further, the Plan, FEIS, and ROD violate NFMA, NEPA, ESA, and APA for the reasons described below and in our previous comments.

Link Between Prior Comments And Objection Content

Objecting organizations have participated in the plan revision process since its inception, including with submission of extensive written comments at both the scoping and DEIS stages regarding the above issues with respect to scoping, assessment, need for change, desired conditions, proposed action, draft list of species of conservation concern, the draft plan, the draft environmental impact statement, and other associated documents. Objectors provided copies to the Forest Service of documents referenced in those comments. Except for those documents listed as new information below, all references in this objection were provided to the Forest Service in previous submissions. We incorporate those comments and submissions by reference here.

Objectors additionally provide the following documents to the Forest Service that involve new information and concerns that have arisen since the last comment opportunity:

Appendix 1. Rapid Assessment of Cattle Impacts in Riparian Exclosures and Critical Habitat on the Gila National Forest, Center for Biological Diversity, January, 2020.

Appendix 2. Rapid Assessment of Cattle Impacts in Riparian Critical Habitat on the Gila National Forest, Center for Biological Diversity, August, 2021.

Appendix 3. Rapid Assessment of Cattle Impacts in Riparian Critical Habitat on the Gila National Forest, Center for Biological Diversity, August, 2022.

Appendix 4. Rapid Assessment of Cattle Impacts in Riparian Critical Habitat on the Gila National Forest, Center

for Biological Diversity, September, 2023.

Appendix 5: Livestock Production Adversely Modifying Majority of Drought-Stricken Western Yellow-Billed Cuckoo Critical Habitat on Public Lands in Arizona and New Mexico, Center for Biological Diversity, June 2024.

Appendix 6: A Dilapidated Web of Roads - The USFS's Departure From a Sustainable Forest Road System, WildEarth Guardians, January 2021.

Legal Framework

A. National Forest Management Act

The National Forest Management Act directs the Secretary of Agriculture to issue regulations "that set out the process for the development and revision of the land management plans, and the guidelines and standards prescribed by this subsection."1 The Secretary "shall[hellip]incorporate the standards and guidelines required by this section in plans for units of the National Forest System[hellip]"2

In 2012, the Forest Service finalized regulations implementing NFMA. These regulations, commonly referred to as the "2012 Planning Rule," establish a process for developing and updating forest plans, and set conservation requirements that forest plans must meet.3 The 2012 Rule addresses many aspects of forest planning, including:

Best Available Science (Section 219.3)

The 2012 Planning Rule requires the use of the best available scientific information and requires the Forest Service to justify how it has met this mandate.4

Ecological Sustainability (Section 219.8)

Ecological sustainability is the capability of ecosystems to maintain ecological integrity.5 Plans "must include plan components, including standards or guidelines, to maintain or restore the ecological integrity of terrestrial and aquatic ecosystems and watersheds in the plan area[hellip]"6 These components must consider contributions of the plan area to ecological conditions within the broader landscape influenced by the plan area and conditions in the broader landscape that may influence the sustainability of resources and ecosystems within the plan area.7 The Rule also references "[s]ystem drivers, including dominant ecological processes, disturbance regimes, and stressors, such as natural succession" and wildland fire.8

Ecosystem Integrity and Diversity (Section 219.9(a))

Rule 219.9(a) requires plan components to include standards or guidelines to maintain or restore the ecological integrity of terrestrial and aquatic ecosystems and watersheds in the plan area, including plan components to maintain or restore their structure, function, composition, and connectivity.9 Rule 219.9(a) further mandates that Plans contain "components, including standards or guidelines, to maintain or restore the diversity of ecosystems and habitat types throughout the plan area[hellip]includ[ing] plan components to maintain or restore: (i) Key characteristics associated with terrestrial and aquatic ecosystem types; (ii) Rare aquatic and terrestrial plant and animal communities; and (iii) The diversity of native tree species similar to that existing in the plan area."10

Recovery of listed species, conservation of proposed and candidate species, and maintaining viable populations of species of conservation concern (Section 219.9(b)).

The 2012 Planning Rule also includes a distinct set of substantive requirements for management of wildlife. To protect Forest wildlife and plants, section 219.9(b) requires the Forest Service to "determine whether or not the

plan components[hellip]provide the ecological conditions necessary to contribute to the recovery of federally listed threatened and endangered species, conserve proposed and candidate species, and maintain a viable population of each species of conservation concern within the plan area."11 If the Plan components do not unequivocally achieve that mandate, then section 219.9(b) requires "additional, species-specific plan components, including standards or guidelines[hellip] to provide such ecological conditions in the plan area."12

Wildlife Protection and Timber (Section 219.11)

Section 219.11 of the Planning Rule specifically requires that logging "be carried out in a manner consistent with the protection of soil, watershed, fish, wildlife, recreation, and aesthetic resources," and that "[w]here plan components will allow clearcutting, seed tree cutting, shelterwood cutting, or other cuts designed to regenerate an even-aged stand of timber, the plan must include standards limiting the maximum size for openings that may be cut in one harvest operation, according to geographic areas, forest types, or other suitable classifications."13

Monitoring Program (Section 219.12)

Section 219.12 of the Planning Rule requires the development of "a monitoring program for the plan area" that "should enable the responsible official to determine if a change in plan components or other plan content that guide management of resources on the plan area may be needed."14 This monitoring is important as it is "designed to inform the management of resources on the plan area, including by testing relevant assumptions, tracing relevant changes, and measuring management effectiveness and progress toward achieving or maintaining the plan's desired conditions or objectives."15 To that end the program's "questions and associated indicators" must address the "status of select ecological conditions including key characteristics of terrestrial and aquatic ecosystems," "status of focal species to assess the ecological conditions required under 219.9," and "status of a select set of the ecological conditions required under

219.9 to contribute to the recovery of federally listed threatened and endangered species, conserve proposed and candidate species, and maintain a viable population of each species of conservation concern."16 They must also address "measurable changes on the plan area related to climate change and other stressors that may be affecting the plan area."17 The program must be developed as "part of the planning process for a [hellip]plan revision."18

B. National Environmental Policy Act

The National Environmental Policy Act ("NEPA") is America's "basic national charter for protection of the environment."19 NEPA ensures that federal agencies "will have available, and will carefully consider, detailed information concerning significant environmental impacts" and that such information "will be made available to the larger [public] audience."20 To this end, NEPA requires federal agencies to prepare a detailed Environmental Impact Statement (EIS) for any "major federal action significantly affecting the quality of the human environment."21NEPA "ensures that the agency, in reaching its decision, will have available, and will carefully consider, detailed information concerning significant environmental impacts."22 The statute's bedrock principles are "informed decision-making and informed public participation."23

The EIS must describe (1) the "environmental impact of the proposed action," (2) any "adverse environmental effects which cannot be avoided should the proposal be implemented," (3) alternatives to the proposed action, (4) "the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity," and (5) any "irreversible or irretrievable commitment of resources which would be involved in the proposed action should it be implemented."24 The Council on Environmental Quality ("CEQ") has promulgated regulations to implement NEPA, and all federal agencies must comply with the CEQ NEPA regulations.25

As part of the EIS, each federal agency 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."26 An agency must "rigorously explore and objectively evaluate all reasonable alternatives."27 When conducting an alternatives analysis, "[t]he stated goal of a project necessarily dictates the range of 'reasonable' alternatives and an agency cannot define its objectives in unreasonably narrow terms."28

NEPA further requires that federal agencies take a "hard look" at the environmental consequences of their actions and do so while addressing reasonably foreseeable, direct, indirect, and cumulative impacts to the natural and physical environment.29 "Taking a 'hard look'[hellip]should involve a discussion of adverse impacts that does not improperly minimize negative side effects."30 It also means "provid[ing] full and fair discussion of significant environmental impacts[hellip]General statements about possible effects and some risk do not constitute a hard look absent a justification regarding why more definitive information could not be provided."31 Cumulative impacts are impacts that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over time.32

Moreover, "[a]gencies shall insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements. They shall identify any methodologies used and shall make explicit reference by footnote to the scientific and other sources relied upon for conclusions in the statement."33 Agencies must also disclose and discuss opposing viewpoints.34 Furthermore, the agency cannot give "short shrift" to public concerns and instead must respond "objectively and in good faith."35

Federal agencies have a continuing obligation to gather and evaluate new information relevant to the environmental impact of its actions. "An agency that has prepared an EIS cannot simply rest on the original document. The agency must be alert to new information that may alter the results of its original environmental analysis, and continue to take a 'hard look' at the environmental effects of [its] planned action, even after a proposal has received initial approval."36

C. Endangered Species Act

Congress enacted the ESA in 1973 "to provide a program for the conservation of[hellip] endangered species and threatened species" and to "provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved."37

Section 7 of the ESA requires all federal agencies, including the Forest Service, to "carry[] out programs for the conservation of endangered species and threatened species."38 The ESA defines "conservation" to mean "the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary."39

The ESA establishes strict standards that require the Forest Service to carefully evaluate and/or mitigate the impacts of its actions. When a species has been listed or critical habitat designated under the ESA, all federal agencies, including the Forest Service, must ensure through consultation with FWS that their programs and activities comply with the ESA.40

If a federal project may affect a listed species, the action agency must engage in "consultation" with the U.S. Fish & Wildlife Service under Section 7 of the ESA. Section 7 is the central enforcement provision that operates to prohibit federal agencies from authorizing, funding, or otherwise carrying out any action that is likely to "jeopardize" the continued existence of an endangered species or result in the destruction or adverse modification of the species' critical habitat.41

Forest Plans are recognized as important programmatic documents that set out guidelines for resource management. Section 7 consultation is required for forest plans, and the 2012 Planning Rule requires Plans to "provide the ecological conditions necessary to: contribute to the recovery of federally listed threatened and endangered species."

D. Administrative Procedure Act

The Administrative Procedure Act prohibits "arbitrary and capricious" decision-making,42 and provides an important layer of legal oversight to agency actions such as the Forest Plan process. The Forest Service must demonstrate a rational connection between the facts found and choices made.43

Objections

1. Objections Relating to Livestock Grazing

The Final Plan and FEIS is unlawful for failing to identify livestock grazing as an unsuitable use, failing to analyze unauthorized livestock grazing and plan components to correct it, and by failing to analyze the direct, indirect, and cumulative impacts of authorized grazing.

Meanwhile, impacts from livestock grazing to riparian areas and critical habitat remain widespread and often severe on the Gila National Forest, and the Forest Service has proven unable to prevent that damage through implementation and enforcement alone.

The Forest Plan must include plan components and analysis to correct the problem. As the U.S. Department of Justice has concluded, "it's well settled that cattle and riparian areas do not mix"44 on the Gila National Forest.

The Center for Biological Diversity objects to the Final Plan and FEIS for failing to provide legally required suitability determinations, analysis, and plan components to stop livestock grazing damage to riparian areas, aquatic ecosystems, and critical habitat, and asks that the following shortcomings be addressed and changes accordingly made.

Objection: Failure to analyze unauthorized livestock grazing, or plan components or alternatives to prevent unauthorized livestock grazing, violates NFMA, NEPA, ESA, and APA.

Unauthorized livestock is "any cattle, sheep, goat, hog, or equine not defined as a wild free- roaming horse or burro by 36 CFR 22.20(b)(13), which is not authorized by permit (or bill for collection) to be upon the land on which the livestock is located, and which is not related to use authorized by a grazing permit."45

Unauthorized livestock grazing is the most widespread, longstanding, and severe ongoing cause of adverse modification to riparian critical habitat on the Gila National Forest.

Unauthorized livestock grazing has impacted the Gila National Forest's riparian areas and critical habitat for decades. A Center for Biological Diversity lawsuit in 1997 challenged the Forest Service's failure to consider the effects of grazing on Southwestern Willow Flycatcher, Mexican Spotted Owl, Spikedace, and Loach Minnow, resulting in a settlement46 in 1998 that required the removal of cattle from hundreds of stream miles regionally, including on 23 allotments in the Gila National Forest. The settlement yielded extensive fencing of riparian exclosures on the Gila National Forest from which livestock were removed and, in ensuing years, critical riparian habitat therein began to recover. By 2015, much of the exclosure fencing was in disrepair or being disregarded. Trespass and feral livestock began moving into critical habitat and damaging primary constituent elements, including soil, streambanks, water quality, and woody shrub and tree regeneration across hundreds of riparian miles.

Center for Biological Diversity surveys of cattle impacts in riparian critical habitat provide information, including new information(some of the surveys post-date the DEIS), showing the persistence, extent, and effects of unauthorized grazing impacts on the Gila National Forest.

These surveys were completed for 27 allotments in 2017, 9 allotments in 2018, and 30 allotments in 2019. In 2017, 72.5% of the 105 miles surveyed were moderately or significantly impacted; in 2018, 61% of the miles surveyed were moderately or significantly impacted,47 and in 2019, 65% of the 134 miles surveyed were

moderately to significantly impacted.48 Despite Forest Service commitments to improve enforcement of exclosures, surveys in 2021 of 117 stream miles on 22 allotments found 96.7 miles (83%) to be moderately to significantly impacted by livestock; unauthorized livestock were documented on over half of the allotments surveyed.49 In 2022, a new legal settlement was put in place, and 98.7 miles on 27 allotments were surveyed. In five of the six districts, moderate to significant negative cattle impacts persisted on 42.6% of designated critical habitat.50 Surveys in 2023 of 148.6 miles on 29 allotments showed 44.4 miles, or 30% of critical habitat, with moderate or significant impacts; unauthorized livestock were located and reported in riparian critical habitat in 11 of the 29 allotments.51

Unauthorized livestock grazing on the Gila National Forest also contributes to significant range- wide adverse modification of critical habitat for certain species. For example, a recent Center for Biological Diversity report summarizing riparian critical habitat survey data showed that livestock grazing, including unauthorized livestock grazing, has adversely modified at least 57% of designated critical habitat of western yellow-billed cuckoo within public lands grazing allotments in Arizona and New Mexico. In those states the U.S. Fish and Wildlife Service has designated 55,550 acres of critical habitat for cuckoo within grazing allotments managed by the

U.S. Forest Service and Bureau of Land Management. From 2021-2023, Center for Biological Diversity field biologists surveyed 39,170 (70%) of those acres for adverse modification from livestock grazing immediately prior to, or during, the cuckoo nesting and breeding season. Surveys found moderate to significant impacts and adverse modification across 31,509 acres, which is 80% of critical habitat surveyed, and 57% of the critical habitat within public lands grazing allotments in Arizona and New Mexico.52

The FEIS states that "[hellip]there are many resource impacts occurring due to this issue [unauthorized grazing][hellip]" and that unauthorized grazing is "expected to be an ongoing challenge over the next several years."53 The Final Plan states that unauthorized livestock grazing "is prohibited by law, regulation, and policy," "is not compliant with [the] forest plan," and "is a threat to [the Forest Service's] ability to maintain, make progress toward and achieve desired conditions for ecological sustainability."54 The Biological Opinion states, "some species' listed threats are 'unmanaged grazing,' which is the same as unauthorized grazing and is not legal on the Gila NF," but that "there are no plan components to address illegal activities in the Forest."55

To justify omitting plan components and analysis relating to the problem of unauthorized grazing, the FEIS states that, "Unauthorized domestic livestock grazing is not addressed in the plan because non-compliance is not a planning issue, it is an implementation and enforcement issue,"56 and that, "The purpose of the EIS is to disclose the effects of plan direction and explore trade-offs between alternatives. Compliance with the plan is a necessary assumption that keeps the analysis focused and relevant to the decisions to be made, which are the plan's desired conditions, objectives, standards, and guidelines.57 Unauthorized, unmanaged grazing is not compliant with plan direction under any alternative and is an implementation issue, not a planning issue.58

Presuming "compliance with the plan" predicates the EIS on a patently false assumption that belies the Gila National Forest's multi-decade failure to prevent trespass and feral livestock grazing and damage to riparian and critical habitat via "implementation and enforcement." But it also has the effect of unlawfully shielding the EIS and Final Plan from analysis to (1) more clearly understand the nature, location, extent, and causes of unauthorized livestock grazing, (2) more clearly understand its effects across resource categories, and, critically, (3) develop and compare plan components to address those effects and correct those problems.

The FEIS should have identified the Forest Service's failure to prevent unauthorized grazing as an issue to drive the development of responsive plan components and alternatives. That is especially so given the long-standing historical and ongoing failure of the Forest Service to address the problem of unauthorized grazing. This is not a new issue and the impacts to riparian areas, aquatic ecosystems, and at-risk species from unauthorized grazing must be addressed, including via corrective plan components, hard look analysis, and analysis of alternatives.

The Gila National Forest's ongoing inability to prevent unauthorized livestock grazing and its extensive, significant, and ongoing impacts to riparian, aquatic, occupied and critical habitats is a relevant factor to the NEPA analysis of the new Forest Plan. The Forest Service's failure to consider this relevant factor will render its record of decision arbitrary and capricious, and in violation of NEPA. Motor Vehicle Mfrs. Ass'n v. State Farm, 463 U.S. 29, 43 (1983) (an agency's decision is arbitrary and capricious where it entirely fails to consider an important aspect of the problem); Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 349 (1989) ("NEPA ensures that important effects will not be overlooked or underestimated... ").

In response to public DEIS comments urging the exclusion of livestock grazing from riparian management zones, the FEIS states that, "this suggestion was considered but not analyzed in detail because standards, guidelines and allotment management plans would direct the use of best management practices and adaptive management to move toward the plan's desired conditions for riparian and aquatic ecosystems. Livestock grazing that impaired riparian areas would not be compliant with the plan."

Here, too, the FEIS is arbitrary and capricious because it is again predicated on the false assumption that livestock grazing does and will comply with the Forest Plan. As discussed above, unauthorized grazing precludes plan compliance, is a longstanding, widespread, and ongoing problem on the Gila National Forest, and, as the FEIS states, is reasonably foreseeable, where, "[hellip]there are many resource impacts occurring due to this issue [unauthorized grazing][hellip]" and that it is "expected to be an ongoing challenge over the next several years."59 The FEIS provides no evidence that these problems won't persist, and provides no plan components to otherwise ensure it won't.

The FEIS specifically fails to analyze (1) how authorized livestock grazing results in unauthorized livestock grazing, (2) resulting impacts to threatened and endangered species, and (3) plan components to prevent it.

The Forest Service's failure to provide or analyze plan components to prevent unauthorized livestock grazing, in an alternative and otherwise, violates NEPA's requirements to "study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources,"60 to "rigorously explore and objectively evaluate all reasonable alternatives,"61 and to take a "hard look" at the environmental consequences of their actions and do so while addressing reasonably foreseeable, direct, indirect, and cumulative impacts to the natural and physical environment.62 Here, the FEIS concedes that impacts from unauthorized livestock grazing are reasonably foreseeable (and currently existing), noting that"[hellip]there are many resource impacts occurring due to this issue [unauthorized grazing][hellip]" and that it is "expected to be an ongoing challenge over the next several years."63"Taking a 'hard look'[hellip]should involve a discussion of adverse impacts that does not improperly minimize negative side effects."64 It also means "provid[ing] full and fair discussion of significant environmental impacts[hellip]General statements about possible effects and some risk do not constitute a hard look absent a justification regarding why more definitive information could not be provided."65

Failure to provide or analyze plan components to prevent unauthorized livestock grazing and damage to riparian areas and designated critical habitat runs also afoul of the Forest Service's affirmative duties to conserve listed species, as set forth in the Endangered Species Act. Section 7 of the ESA requires all federal agencies, including the Forest Service, to "carry[] out programs for the conservation of endangered species and threatened species."66 The ESA defines "conservation" to mean "the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary."67 Here, the Forest Plan and its components are "programs," "methods," and "procedures" that the Forest Service must "carry out[hellip] for the conservation of endangered species and threatened species" who the record shows have been, and continue to be, impacted by unauthorized grazing. In the absence of these methods and procedures, and without mechanisms in place for ensuring that any Plan objectives are actually carried out, the Forest Service is in violation of its obligation under section 7(a)(1) to adopt a program for the conservation of endangered and threatened species.

Failure to provide or analyze plan components to prevent unauthorized livestock grazing and further damage to riparian areas, ecological sustainability, and designated critical habitat also violates the National Forest Management Act and its requirements "to include standards or guidelines to maintain or restore the ecological integrity of terrestrial and aquatic ecosystems and watersheds in the plan area, including plan components to maintain or restore their structure, function, composition, and connectivity,"68 to contain "components, including standards or guidelines, to maintain or restore the diversity of ecosystems and habitat types throughout the plan area[hellip]includ[ing] plan components to maintain or restore: (i) Key characteristics associated with terrestrial and aquatic ecosystem types; (ii) Rare aquatic and terrestrial plant and animal communities,"69 and to "provide the ecological conditions necessary to contribute to the recovery of federally listed threatened and endangered species, conserve proposed and candidate species, and maintain a viable population of each species of conservation concern within the plan area."70 Because unauthorized livestock grazing has a particularized impact on riparian areas, where livestock congregate, and because unauthorized livestock grazing is known to be an ongoing problem causing widespread damage to riparian areas and critical habitat therein, failure to include preventative plan components violates the requirement that Forest Plans "must include plan components, including standards or guidelines, to maintain or restore the ecological integrity of riparian areas in the plan area, including plan components to maintain or restore structure, function, composition, and connectivity[hellip]"71

For those reasons, failure to provide or analyze plan components to prevent unauthorized livestock grazing is "arbitrary and capricious" decision-making.72 Also, the FEIS states that plan components to prevent unauthorized grazing were excluded from detailed analysis because, "this is a legal compliance issue, not a planning issue. Unauthorized use by feral or estray cattle is not compliant with the law or any of the plan alternatives." 73 But elsewhere, the FEIS justifies plan components for the precise purpose of legal compliance. For example, "[A]ll action alternatives contain an objective for decommissioning at least 50 miles of closed roads every 10 years until the need is met[hellip] Decommissioning motorized travel routes reduces the risk of ground disturbance and unauthorized collection and vandalism at structures, sites, and areas near those motorized routes[hellip]"74And, "Resources at greatest risk from ground disturbance, vandalism and unauthorized collecting are generally within a few hundred meters of motorized travel routes." Here, the Plan should have also provided enforceable standards rather than just objectives. But, just as the Forest Service provides plan components to prevent "unauthorized collecting," so too should it provide standards and other plan components to prevent unauthorized grazing. Failure to do so, particularly given significant, ongoing impacts, is arbitrary and capricious.
Objection: Failure to require monitoring to detect and prevent unauthorized livestock grazing violates NFMA, NEPA, and ESA.
The Forest Service won't find and remove unauthorized livestock unless it looks for them, and the Forest Service won't look for them unless it's required to do so. By failing to require monitoring to detect unauthorized livestock grazing, the Final Plan and FIES lack components and analyses necessary to prevent unauthorized grazing and its ongoing damage riparian areas, aquatic ecosystems, threatened and endangered species, and their occupied and critical habitat.

To the contrary, information in the record and new information75 before the Forest Service indicates that, without plan components to detect and prevent it, unauthorized livestock grazing will continue, as will adverse modification to critical habitat on the Gila National Forest for species including but not limited to loach minnow, spikedace, western yellow-billed cuckoo, southwest willow flycatcher, narrow-headed gartersnake, and northern Mexican gartersnake.

By failing to provide plan components to detect and prevent livestock grazing, the Final Plan and FEIS do not "provide the ecological conditions necessary to contribute to the recovery of federally listed threatened and endangered species, conserve proposed and candidate species, and maintain a viable population of each species of conservation concern within the plan area,"76 in violation of NFMA. This also violates NFMA's requirement that Forest Plans "must include plan components, including standards or guidelines, to maintain or restore the ecological integrity of riparian areas in the plan area, including plan components to maintain or restore

structure, function, composition, and connectivity[hellip]"77 Further, because monitoring to detect and prevent unauthorized livestock grazing and its impacts to riparian, aquatic, occupied and critical habitats is a relevant factor to the NEPA analysis of the new Forest Plan, the Forest Service's failure to consider this relevant factor will render its record of decision arbitrary and capricious, and in violation of NEPA. Motor Vehicle Mfrs. Ass'n v. State Farm, 463 U.S. 29, 43 (1983) (an agency's decision is arbitrary and capricious where it entirely fails to consider an important aspect of the problem); Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 349 (1989) ("NEPA ensures that important effects will not be overlooked or underestimated ...").

Finally, failure to provide plan monitoring components to detect and therefore prevent unauthorized livestock grazing and damage to riparian areas and designated critical habitat violates the Forest Service's affirmative duties to conserve listed species, as set forth in the Endangered Species Act. Section 7 of the ESA requires all federal agencies, including the Forest Service, to "carry[] out programs for the conservation of endangered species and threatened species."78 The ESA defines "conservation" to mean "the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary."79 Here, the Forest Plan and its components are "programs," "methods," and "procedures" that the Forest Service must "carry out[hellip] for the conservation of endangered species and threatened species" who the record shows have been, and continue to be, impacted by unauthorized grazing. In the absence of these methods and procedures, and without mechanisms in place for ensuring that any Plan objectives are actually carried out, the Forest Service is in violation of its obligation under section 7(a)(1) to adopt a program for the conservation of endangered and threatened species.
Objection: The FEIS violates NEPA by failing to analyze legacy, ongoing, and foreseeable impacts of livestock grazing in the context of NFMA's ecological sustainability requirements for riparian area management.
The Forest Service is obligated by the 2012 planning rule to provide plan direction for achieving ecological sustainability, which consists of the maintenance and restoration of ecological integrity, the maintenance and restoration of air, soil, and water, and the maintenance and restoration of riparian areas. The 2012 planning rule declares that all forest plans "must include plan components, including standards and guidelines, to maintain or restore the ecological integrity of riparian areas in the plan area[hellip]."80 The rule defines ecological integrity as "the quality or condition of an ecosystem when its dominant ecological characteristics[hellip]occur within the natural range of variation and can withstand and recover from most perturbations imposed by natural environmental dynamics or human influence."81

The Forest Service's land management planning directives explain that natural range of variation is "the pre-European influenced reference period" and "should be sufficiently long, often several centuries, to include the full range of variation produced by dominant natural disturbance regimes such as fire and flooding and should also include short-term variation and cycles in climate."82 Therefore, ecological integrity is understood in the context of historic ecological conditions, and the impetus of planning is to maintain or restore systems so that they fall within the historic range of variation ("natural range of variation") for that system.83

Livestock grazing is currently authorized on almost the entire Gila National Forest. The FEIS and Final Plan make no indication that plan direction would restrict the physical extent of grazing, and in fact there are numerous suggestions that grazing would be expanded in the future, like on vacant allotments that are re-allocated to new permittees. Clearly, the Forest Service has not given much consideration to the ecological integrity requirements of the 2012 planning rule or the allowance within the Multiple Use Sustained Yield Act for using some areas for less than all resources and avoiding impairment of the land, violating both of these laws.

Experts at New Mexico Department of Game and Fish have stated: "Where multiple consumptive biological uses occur (e.g. national forests), concerns persist regarding the ability to maintain habitats in the condition, connectivity, and quantity necessary to sustain viable and resilient populations of resident [Species of Greatest Conservation Need]. Whether or not national forests can host a variety of land uses without heightened resource conflicts is a serious question."84

In a Forest Service climate vulnerability assessment of the middle Rio Grande ecosystem, Friggens and colleagues provided a much-needed context for the degraded baseline condition that is currently prevalent in southwestern riparian systems. They state that "[e]xtensive and irreversible degradation of western riparian zones occurred in the late 19th and early 20th century due to severe overgrazing[hellip] [and] affected riparian zones in the Southwest have never recovered from this intense period of use." 85

The 2012 planning rule and the current planning process provide the framework for addressing the legacy effects of livestock grazing damage to ecosystems, and an opportunity to eliminate grazing in areas where uses are simply incompatible or not suitable, like riparian areas. This will not be the case, however, if the Forest Service refuses to heed the best available science and acknowledge the ongoing cumulative effects of grazing on riparian systems and obligate wildlife.

These requirements of the 2012 rule impose substantive legal constraints on the Forest Service's traditional discretion under the MUSYA. According to the Multiple Use Sustained Yield Act, not all forest resources are likely to be available and suitable for use in every management area.

Federal code states that "[i]n the administration of the national forests due consideration shall be given to the relative values of the various resources in particular areas."86 A number of limitations must be considered as the Forest Service attempts to balance the production of forest products and services for a given management area. The Multiple Use Sustained Yield Act clearly establishes that "some land will be used for less than all of the resources" and that the national forests are utilized in such a manner that does not impair the productivity of the land.87

The FEIS fails to analyze or disclose the basic question of whether and how the presence and permitting of domestic livestock is consistent with the "the pre-European influenced reference period"88 or "range of natural variation" 89 for riparian and aquatic ecosystems and native species therein. The FEIS also fails to analyze in this same NFMA context the cumulative effects of livestock grazing, including legacy impacts of livestock grazing on riparian and aquatic ecosystems and species in combination with ongoing and foreseeable authorized and unauthorized livestock grazing. Because the cumulative impacts of livestock grazing to riparian, aquatic, occupied and critical habitats is a relevant factor to the NEPA analysis of the new Forest Plan, the Forest Service's failure to consider this relevant factor will render its record of decision arbitrary and capricious, and in violation of NEPA. Motor Vehicle Mfrs. Ass'n v. State Farm, 463

U.S. 29, 43 (1983) (an agency's decision is arbitrary and capricious where it entirely fails to consider an important aspect of the problem); Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 349 (1989) ("NEPA ensures that important effects will not be overlooked or underestimated... ").
Objection: Failure to identify livestock grazing as not suitable for riparian areas, aquatic ecosystems, and occupied and critical habitat therein is arbitrary, capricious, and violates NEPA, NFMA, and APA.
The Final Plan violates NFMA by failing to identify lands[mdash]riparian areas, aquatic ecosystems, and threatened and endangered species habitats therein[mdash]as not suitable for uses[mdash]livestock grazing[mdash]that are not compatible with the desired conditions for those lands[mdash]namely, their conservation, recovery, and improving condition, and the survival and recovery of native, threatened, and endangered species therein.

Regulations implementing NFMA provide that plans will identify lands within the plan area that are not suitable for certain uses: "Specific lands within a plan area will be identified as suitable for various multiple uses or activities based on the desired conditions applicable to those lands. The plan will also identify lands within the plan area as not suitable for uses that are not compatible with desired conditions for those lands. The suitability of lands need not be identified for every use or activity. Suitability identifications may be made after consideration of historic uses and of issues that have arisen in the planning process."90

Objectors' DEIS comments were careful to provide context for NFMA's requirement for identifying lands that are not suitable for certain uses. It stems from one of NFMA's most important provisions, its wildlife diversity mandate,91 which requires that forest plans "provide for a diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet overall multiple-use objectives."92 According to Wilkinson and Anderson's authoritative history of NFMA's development, the diversity provision was meant to require "Forest Service planners to treat the wildlife resource as a controlling, co-equal factor in forest management. "93

The Final Plan's failure to identify riparian areas, aquatic ecosystems, and threatened and endangered species habitat therein as not suitable for livestock grazing runs afoul of NFMA's requirement to do so, just as it runs afoul of NFMA's intent to treat the wildlife resource as a controlling, co-equal factor in forest management.

On the Gila National Forest, there is no higher need to treat wildlife as a controlling, co-equal factor in forest management than in riparian areas, aquatic ecosystems, and threatened and endangered species habitats therein. In these areas, decades of ongoing damage from livestock grazing is widespread, severe, and well-documented[mdash]it is a factor common to all ESA-listed species' imperilment therein[mdash]and shows clearly that livestock grazing is unsuitable to their conservation and recovery.

The FEIS rejects calls by objectors and other commentors to provide suitability analysis for uses other than timber. It states, "Comments were received requesting that planning staff conduct suitability analyses for mineral and energy development, restoration-focused vegetation management, motorized vehicle use, energy development, road building, and other forest uses or activities. These suitability studies were considered, but not undertaken at the discretion of the forest supervisor because suitability determinations in forest plans are a coarse analysis indicating a general compatibility with desired conditions. Because plans prepared under the 2012 Planning Rule have explicit desired conditions, a determination for whether an activity is suitable in a particular location is best conducted at the project-level."

The FEIS incorrectly identifies 36 C.F.R. [sect] 219.7 as discretionary. But the requirement for a plan to identify lands as not suitable for certain uses when those uses are not compatible with desired conditions is not discretionary. In this case, the abundant information on the record and new information94 before the agency provides ample evidence of historical and ongoing damage from livestock grazing to riparian areas, aquatic ecosystems, and native, threatened, and endangered species and their habitats therein.

This information available to the Forest Service should have compelled an analysis of suitability in the context of the FEIS, and that analysis should have compelled the Final Plan to identify riparian areas and aquatic ecosystems as not suitable for livestock grazing because overwhelming evidence indicates that livestock grazing the Gila National Forest is not compatible with desired conditions for those lands, and because no evidence exists demonstrating that livestock grazing is compatible with desired conditions for those lands.

The Forest Service Handbook also provides that "a plan may not identify a use or activity as being suitable in the plan area or relevant part of the plan area, and should identify the area as not suitable for that use or activity, if any of the following conditions apply":

1. A law, regulation, Executive Order, or Forest Service directive prohibits the use; or
2. The use would result in substantial and permanent impairment of the productivity of the land or renewable resources; or
3. The use is not compatible with the desired conditions and objectives for the plan area, or relevant portion thereof.95

Relevant here is desired condition number 8(a), which states:

Riparian and aquatic habitat provides for self-sustaining populations of native fish, amphibians, reptiles, and other aquatic and semi-aquatic species within their historical and future distribution. Habitat is resilient to long-term climate variability and extreme events. Streams and rivers provide a variety of habitats for aquatic species, including deep pools and overhanging banks, structure provided by large wood, off-channel areas, and protective cover within the potential of each fine-scale unit.96

Improving riparian and aquatic habitat conditions sufficient for species to resume historic distributions can only result from excluding livestock, not continuing grazing livestock. Livestock grazing, as of now, contributes to 60% on the Gila National Forest riparian areas being in not properly functioning or impaired condition, and causes moderate to significant impacts to 30 to 83% of riparian critical habitat that the Center for Biological Diversity has surveyed since 2016. 97 Meeting desired condition 8(a) requires a radical and extensive improvement of riparian and aquatic ecological conditions sufficient for "self-sustaining populations of native fish, amphibians, reptiles, and other aquatic and semi-aquatic species within their historical[hellip] distributions." As the U.S. Fish and Wildlife Service concludes, "We are not aware of any science or data that support the statement that livestock grazing improves the ecological condition of riparian systems."98 Similarly, the FEIS provides no data indicating that livestock grazing can or will improve the ecological condition of riparian areas. An assumption otherwise unlawfully ignores baseline conditions and ongoing causes thereof, and is arbitrary and caprious.

Also relevant is livestock grazing's contribution to species imperilment and extirpation on the Gila National Forest. Imperilment and extirpation represent "substantial and permanent impairment of the productivity of the land[hellip]"99 Northern Mexican gartersnake, for whom livestock grazing is a threat, has likely been recently extirpated from the Gila National Forest in the past decade,100 owing almost certainly to degraded riparian habitat conditions resulting in at least part from livestock grazing. One known population of New Mexico Meadow Jumping Mouse remains on the Gila National Forest. Rates of population extirpation make persistence of the subspecies "severely compromised;" among principle threats is loss of riparian habitat to livestock grazing."101 Recognizing the incompatibility of livestock grazing with habitat of threatened and endangered fish, the U.S. Fish and Wildlife Service recommends that the Gila National Forest "implement grazing plans that exclude livestock from areas occupied by listed fish species"102 for the Chihuahua chub, Gila chub, Gila trout, loach minnow, and spikedace.

Recognizing the incompatibility of livestock grazing with riparian endangered bird habitat, the U.S. Fish and Wildlife Service recommends that the Gila National Forest the Forest "exclude livestock and maintain fences in grazing areas to protect large portions of the San Francisco and Gila Rivers and improve riparian function103" for yellow-billed cuckoo and Southwest willow flycatcher.

The record and new information before the Forest Service overwhelmingly demonstrate that livestock grazing is not compatible with desired conditions for riparian and aquatic ecosystems or threatened, and endangered species and their habitats therein, and that it is therefore not a suitable use for those ecosystems and habitats. The Forest Service violates NFMA by failing to "identify lands within the plan area as not suitable for uses that are not compatible with desired conditions for those lands,"104 by failing to "provide for a diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet overall multiple-use objectives,"105 and by failing to "provide the ecological conditions necessary to contribute to the recovery of federally listed threatened and endangered species, conserve proposed and candidate species, and maintain a viable population of each species of conservation concern within the plan area."106 Because suitability determination is a relevant factor to the NEPA analysis of the new Forest Plan, the Forest Service's failure to adequately consider this relevant factor will render its record of decision arbitrary and capricious, and in violation of NEPA. Motor Vehicle Mfrs. Ass'n v. State Farm, 463 U.S. 29, 43 (1983) (an agency's decision is arbitrary and capricious where it entirely fails to consider an important aspect of the problem); Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 349 (1989) ("NEPA ensures that important effects will not be overlooked or underestimated... ").

Instead of analyzing whether, where, and how livestock grazing is compatible with desired conditions, the FEIS arbitrarily presumes, absent data or analysis, that it is and will be compatible. Instead of analyzing potential livestock grazing impacts against desired conditions, the FEIS analyzes the effects of the desired conditions themselves, and then unlawfully defers environmental analysis to the project-, or allotment-level, for which the Forest Service discloses that there is "no schedule for renewal or revision of Allotment Management Plans" and that "they are renewed or revised based on the need to reflect changed conditions and new information resulting from the most current allotment-level National Environmental Policy analysis and decision."107

This is a remarkable scheme. It subjects plan implementation relating to livestock grazing effects to (1) uncertain timing, where the schedule of piecemeal allotment management plan (AMP) revisions, and (2) inadequate AMP-level analysis, he adequacy of AMP revisions to do not ensure the provision desired conditions or the survival and recovery of threatened and endangered species. Despite the fact of a new Forest Plan, implementation of plan elements relating to livestock grazing may be delayed by years, forestalling changes to livestock management promised by the new plan's desired conditions, and further undermining FEIS's effects analysis by subjecting plan implementation, and any resultant actual changes to management, to a non-existent and unenforceable schedule of allotment plan renewals.

This has the effect of altogether avoiding and piecemealing analysis of the Final Plan's livestock grazing effects, in violation of NEPA. Because plan implementation is subject to non-existent schedule of allotment management plan renewals or revisions, and because plan implementation is a relevant factor to the NEPA analysis of the new Forest Plan, the Forest Service's failure to consider this relevant factor is arbitrary and capacious, and violates NEPA. Motor Vehicle Mfrs. Ass'n v. State Farm, 463 U.S. 29, 43 (1983) (an agency's decision is arbitrary and capricious where it entirely fails to consider an important aspect of the problem); Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 349 (1989) ("NEPA ensures that important effects will not be overlooked or underestimated ").
Objection: The Final Plan's monitoring and adaptive management scheme does not protect threatened and endangered species habitat from damage from livestock grazing. Forage utilization monitoring measures do not accurately assess effects to habitat for threatened and endangered species' habitat. The Final Plan lacks mechanisms that require changes to livestock grazing in response to monitoring of riparian or aquatic ecosystems and critical habitat. The Final Plan's failure to provide plan components to monitor and protect riparian and aquatic ecosystems and critical habitat from livestock grazing damage is arbitrary, capricious, and violates NEPA, NFMA, ESA, and APA.
Forage utilization typically used to monitor livestock grazing effects does not accurately assess effects on riparian or aquatic habitat for threatened and endangered species because it does not measure impacts to the Primary Constituent Elements (PCEs) of those species' occupied or designated critical habitats. The Forest Service therefore cannot rely on forage utilization monitoring for assessment of livestock grazing impacts to PCEs or threatened and endangered species' habitats, or to riparian and aquatic ecosystems. The Forest Service therefore cannot rely on forage utilization monitoring for assessment to justify livestock grazing in threatened and endangered species' habitats, or in riparian and aquatic ecosystems.

The Final Plan's Minimum Required Monitoring for riparian and aquatic ecosystems is inadequate because it (1) does not require a minimum frequency or spatial extent of monitoring or reporting frequencies108 sufficient to detect and immediately correct damage from livestock to riparian and aquatic habitat for endangered species habitat, (2) does not specify metrics by which ecological attributes (or "Indicators" in Watershed Condition Classification parlance) will be measured, and, (3) most critically, the Final Plan does not provide plan components that require or specify how monitoring results will result in changes to livestock grazing in order to prevent impacts to riparian or aquatic habitat for threatened and endangered species.

It is not enough for the Forest Service to allege that AMP revisions or AOIs will be responsive to monitoring data and in turn prevent impacts to riparian or aquatic habitat for threatened and endangered species, because (1) livestock grazing under existing APMs and past revisions and AOIs has caused rather than prevented such

impacts across significant portions of riparian critical habitat, as shown in Center for Biological Diversity surveys and reports,109 and the FEIS provides no evidence that this will change in the future, and (2) because, as the Forest Service states, there is "no schedule for renewal or revision of Allotment Management Plans" and that "they are renewed or revised based on the need to reflect changed conditions and new information resulting from the most current allotment-level National Environmental Policy analysis and decision."110

The Forest Service cannot arbitrarily predicate plan implementation and the protection of threatened and endangered species habitat on AMPs or revisions that have in the past reliably resulted in degradation,111 rather than protection, of riparian and aquatic threatened and endangered species habitat, and for which there "is no schedule for renewal or revision."

Failure to provide or analyze plan components to prevent livestock grazing and damage to riparian areas and designated critical habitat runs also afoul of the Forest Service's affirmative duties to conserve listed species, as set forth in the Endangered Species Act. Section 7 of the ESA requires all federal agencies, including the Forest Service, to "carry[] out programs for the conservation of endangered species and threatened species."112 The ESA defines "conservation" to mean "the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary."113 Here, the Forest Plan and its components are "programs," "methods," and "procedures" that the Forest Service must "carry out[hellip] for the conservation of endangered species and threatened species" who the record shows have been, and continue to be, impacted by unauthorized grazing. In the absence of these methods and procedures, and without mechanisms in place for ensuring that any Plan components are actually carried out, the Forest Service is in violation of its obligation under section 7(a)(1) to adopt a program for the conservation of endangered and threatened species.

Given the ubiquity and severity of livestock grazing impacts to riparian and aquatic critical habitat and threatened and endangered species on the Gila National Forest, the failure to provide plan monitoring components to quickly detect and correct livestock grazing damage to those habitats and species violates the National Forest Management Act and its requirement that monitoring be "designed to inform the management of resources on the plan area, including by testing relevant assumptions, tracing relevant changes, and measuring management effectiveness and progress toward achieving or maintaining the plan's desired conditions or objectives."114By failing to provide mechanisms for monitoring to quickly detect and correct livestock grazing damage, the Final Plan lacks "components, including standards or guidelines, to maintain or restore the diversity of ecosystems and habitat types throughout the plan area[hellip]includ[ing] plan components to maintain or restore: (i) Key characteristics associated with terrestrial and aquatic ecosystem types; (ii) Rare aquatic and terrestrial plant and animal communities,"115 and lacks components to "provide the ecological conditions necessary to contribute to the recovery of federally listed threatened and endangered species, conserve proposed and candidate species, and maintain a viable population of each species of conservation concern within the plan area."116 Because livestock grazing has a particularized impact on riparian areas, where livestock congregate, and because livestock grazing is known to be an ongoing problem causing widespread damage to riparian areas and critical habitat therein, failure to include preventative plan components violates the requirement that Forest Plans "must include plan components, including standards or guidelines, to maintain or restore the ecological integrity of riparian areas in the plan area, including plan components to maintain or restore structure, function, composition, and connectivity[hellip]"117

For those reasons, failure to provide or analyze plan components to prevent unauthorized livestock grazing is "arbitrary and capricious" decision-making.118

Objection: The FEIS fails to otherwise analyze the effects of livestock grazing, in violation of NEPA, NFMA, and APA.

The FEIS also fails to quantify the amount of water consumed and removed by cows from streams, and the effects of that water use on riparian areas, aquatic ecosystems, and the native, threatened, and endangered species that depend upon them. This too violates NEPA.

The FEIS also fails to analyze the synergistic effects of livestock grazing in combination with other ecological stressors, including regional warming, aridification, declining streamflow, water withdrawals, elk herbivory, and other factors. As noted in DEIS comments, Forest Service ecologists have established that livestock grazing has exacerbated riparian ecosystem decline and stream down cutting associated with multiple concurrent factors.119 Likewise, New Mexico Department of Game and Fish has recognized that the effects of livestock grazing are compounded by extended drought and altered hydrological function.120 Additionally, the Forest Service has written on this issue in a climate assessment of the middle Rio Grande in New Mexico, stating:

"For many species, reducing non climate-related threats during restoration is important. For example, herbicides pose high risks to amphibians (USACE 2001). Grazing may exacerbate disturbance related to restoration treatments. Warming conditions and increased variability to river flow will reduce the capacity of the riparian habitats and individual species to recover from disturbances. Decisions on land use and conversion should consider the overall effect of human activities plus potential consequences of climate change for habitat loss."121

As Smith and Keinath wrote regarding the northern leopard frog, synergistic effects of climate change and drought are exacerbated by grazing, as depleted water sources cause grazers to congregate on remaining water sources, "especially by introduced grazers like cattle."122 Likewise, regarding Arizona Willow, Decker wrote that "[a]n important consideration in the evaluation and management of grazing impacts is the additive effect of herbivory from a variety of sources. Although S. arizonica certainly evolved with native herbivores, the effect of domestic livestock in combination with increasing pressure from wildlife means that the plants may frequently be exposed to levels of herbivory beyond their presumed tolerance."123 Forest Service ecologists have cautioned against analyses that ignore synergistic and additive effects. Poff and colleagues concluded, in GTR 269, that "[i]n most cases, it is difficult to deal with isolated threats as most occur in combination with other threats. Land managers need to be aware of the multiple threats and their interactions in order to successfully manage riparian ecosystems in the western United States."124 Because the FEIS, like the DEIS, still fails to analyze these synergistic impacts of livestock grazing, it violates NEPA's requirement to analyze and disclose cumulative impacts of agency actions.125

We note that, upon review of the FEIS, it fails to analyze, or simply ignores, information relating to livestock grazing impacts provided to the Forest Service by objectors in DEIS comments. For example, Dr. Tom Fleischner has argued that the ecological costs of livestock grazing exceed that of any other western land use.126 This is especially true for riparian areas. Aldo Leopold wrote in 1923 that "the lesson is that under our peculiar Southwestern conditions, any grazing at all, no matter how moderate, is liable to overgraze and ruin watercourses." By consuming vegetation and moving around the landscape in a manner markedly different than native wildlife, livestock can damage wildlife habitats and disrupt natural processes. In the arid Southwest, livestock grazing is documented to cause acute stress to riparian areas, rivers, deserts, grasslands and forests alike [mdash] causing significant harm to species and the ecosystems on which they depend.

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

By selectively removing grasses and herbs, cattle grazing is a major factor in converting New Mexico's landscapes to dense shrubs and doghair thickets of young, spindly trees, while increasingerosion and furthering the spread of invasive grasses which fuel uncharacteristic fires, which can eradicate sensitive native plants, like the fire-killed yuccas that can be seen northwest of Silver City.127 Although grazing has been shown in distant regions to decrease fine fuels that promote fire ignition,128 grazing in the southwest increases the severity of fires by promoting higher densities of trees and shrubs. In fact, several decades of forest restoration research

and publications have verified that livestock grazing and fire suppression in the arid Southwest are directly responsible for the uncharacteristically large and volatile wildfires that now threaten communities, forests, and deserts.

The current approach to public lands grazing often leads to impaired water quality, vistas, and recreational opportunities. Today more than ever, with drought and climate change stressing ecosystems, and with an increasing urban population seeking quality outdoor experiences, the Forest Service must come to terms with the true costs of livestock grazing on our public lands, and provide plan components that move the Gila in a new direction of resiliency and sustainability as required by the 2012 planning rule.

More than a century of livestock grazing in western riparian ecosystems has led to a decline in insect, fish, reptile, amphibian, bird, mammals, ground cover, biomass, and native vegetation,129 making grazing the most enduring and widespread impact to western rivers and watersheds since the arrival of American settlers. Decades of scientific research comparing grazed and ungrazed areas have documented that livestock grazing in the arid west negatively affects water quality and quantity, stream channel morphology, hydrologic function, soil stability, streambank vegetation, and aquatic and riparian wildlife - proving that livestock grazing often damages ecological integrity.130

US Forest Service scientists have concluded that grazing is the most studied threat to riparian areas in the American West131 and that livestock use is incompatible with maintenance of habitat for wetland and riparian wildlife.132 Livestock grazing effects have contributed to the listing of many threatened and endangered species, including the yellow-billed cuckoo,133 spikedace and loach minnow,134 Northern Mexican and narrow-headed gartersnakes,135 and others Southwestern species. A 1998 study concluded that grazing has "contributed to the demise of [hellip] 22%" of the endangered species studied and "is particularly harmful to plants, affecting 33% of endangered plant species compared to 14% of endangered animals."136

Grazing impacts on riparian areas fall into four categories: impacts on streamside vegetation, stream channel morphology, water quality/quantity, and streambanks.137 Collectively, these impacts to vegetation, soils, and water lead to losses of wildlife habitat, reduced stream flow, increased pollution, and eradication of plant and animal species.138 Grazing on riparian plants reduces vegetative cover and exposes soil to erosion, which in combination with streambank trampling leads to increased erosion and turbidity.139 Grazing animals congregating in riparian areas feed on native tree and shrub regeneration, disrupting their reproductive cycle and leading to destabilized streambanks,140 increased water temperatures, loss of hiding and breeding cover, and defecation and urination directly in the water. Reduced rainfall infiltration into soil141 and increased sediment loads combine to exacerbate riparian ecosystem decline and increase stream down-cutting.142

A Forest Service review and assessment of grazing impacts on terrestrial wildlife in Region 3143 found that grazing has multiple negative effects on native species. This very useful and regionally specific document (GTR-142) assessed the ecological interactions among native wildlife species of the Southwest and grazing and range management practices, and was designed to provide an informational tool for the region's land managers and biologists.

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

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

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

In addition to GTR-142, we also request that the planning team review Poff et al (2012) - GTR- 269 - "Threats to western United States riparian ecosystems."144 In this comprehensive review and bibliography of threats to riparian areas, the Forest Service authors reviewed "453 journal articles, reports, books, and book chapters addressing threats to riparian ecosystems in western North America were analyzed to identify, quantify, and qualify the major threats to these ecosystems as represented in the existing literature."145 Poff and colleagues write (page 8) that "most of the publications in this bibliography that address a single threat discuss grazing" and on page 11 "the two topics with the most individual references are grazing and invasive species."

Astonishingly, neither of these Forest Service technical reports were cited in the Draft Plan or DEIS.

Researchers realized decades ago that habitat loss driven by livestock grazing is a primary threat to native fish. As much as fifty years ago, Behnke and Zarn146 and Behnke147 concluded that livestock grazing on National Forests was harming native trout populations. They wrote:

"Livestock grazing in riparian areas has contributed to the decline in quality of many aquatic habitats and in some instances has been a major factor in eliminating native fishes from portions of their historic ranges. Livestock trample and consume vegetation that maintains stream bank integrity, hoof action destroys undercut banks and accelerates erosion, and feces elevate nutrients unnaturally, particularly in spring habitats[hellip] Livestock grazing has contributed to increased erosion in many watersheds and thus elevated sediment loads in virtually all river systems."148

Other prominent fish scientists have concluded that "habitat degradation as a result of excessive grazing pressure can most easily be reversed by excluding livestock from the riparian area."149

Here are some other important examples germane to the Gila National Forest:

* Parson and Wilson (1991) determined that Apache trout were ten times more abundant on ungrazed streams on the nearby Apache- Sitgreaves National Forest and other areas in the White Mountains, AZ than on grazed streams. Similar impacts should be expected in the Gila.
* Rinne and LaFayette (1991) found that ungrazed streams on the Tonto and Santa Fe National Forests had twice as many trout, trout populations, and trout biomass than grazed streams.150
* Propst and McInnis (1975) found that Santa Fe National Forest streams with riparian habitat and erosion problems, such as degraded banks or sign of rapid run-off, sustained few or no cutthroat trout.151
* Platts (1991) reviewed 21 studies, finding only one that did not conclude that cattle degrade trout populations and habitat.152

* Chaney et al. (1990) reported that:

1. degraded cutthroat spawning habitat in Mahogany Creek, ID recovered when cattle were removed from the riparian area;
2. that populations of cutthroat trout in Huff Creek, Wyoming, increased from 36 per mile to 444 per mile when cattle were excluded from the stream area, as a result of better in- stream cover, lower water temperature, and decreased sedimentation, and;
3. that cattle exclusion from the riparian zone of Bear Creek in Oregon converted an ephemeral reach of the stream into a permanent flow supporting a wild trout population.153

* Similarly, twenty years of cattle exclosure on Camp Creek in central Oregon turned an ephemeral wash into permanent stream capable of supporting redband trout.154

Similar impacts to fish have occurred across the Gila.

Grazing in adjacent uplands and river terraces has similarly severe impacts to biological soil crusts, vegetation, soils, and wildlife.155 A comprehensive review of grazing impacts in the Southwest concluded that no current grazing management system used by land managers is appropriate for the Sonoran Desert.156 Livestock grazing is a primary driver of fire regime disruption. Livestock grazing decreases understory biomass and density, reducing competition with conifer seedlings and reducing the ability of the understory to carry low-intensity fire, contributing to dense forests with altered species composition.157 Livestock grazing directly contributes to fire hazard in the planning area by impairing soil productivity and altering vegetation communities, which indirectly contribute to delayed fire rotations, increased forest density, and reduced forage opportunities for herbivorous species and predators. Cattle grazing also negatively impacts high elevation montane riparian meadows and creeks through hydrologic changes, soil compaction, erosion, bank instability, and siltation.158 Often, these impacts can have greater effects on wildlife than do wildfires.159

Continued livestock grazing risks post-treatment invasion of exotic plants. Livestock facilitate the spread of exotic species, particularly in combination with fire, and reduce the competitive and reproductive capacities of native species.160 Exotic plant species, once established, can displace native species, in part, because native grasses are not adapted to frequent and close grazing in combination with fire disturbance.161,162,163

As briefed here, scientific literature documenting livestock grazing impacts on ecosystems is extensive, and the large majority of studies report severe and lasting negative impacts.164 Livestock removal, on the other hand, leads to a rapid regrowth of riparian willow shrub communities165 and reestablishment of high-quality habitat166 and avian populations.167 But full recovery of mature deciduous forests and the diversity that comes with them takes decades of cattle exclusion,168 meaning monitoring, enforcement, and maintenance of riparian exclosures are crucial. Many Western rivers and their exceptionally diverse native wildlife have endured abuse and neglect for too long. Complete exclusion of livestock animals from riparian areas and sensitive habitats is urgently needed to protect critical habitat and ensure the recovery and viability of the full range of native species.

Continued livestock grazing threatens the success of restoring diverse wildlife habitats and improving watershed conditions. Grazing of the most nutritious plants by livestock results in a loss of forage for native species and can alter habitat or insect prey base.169,170 A decrease in prey base inevitably leads to a decrease in carnivores in the area, which are also eliminated by the government at the request of the livestock community. "The productivity, diversity, and species richness of native grasslands are threatened by competition from noxious and invasive weeds/grasses. Productivity is threatened by other factors including drought, soil erosion, fire suppression, and improper livestock management practices."171 Grazing also has negative effects on songbirds, reptiles and other mammals especially if their habitat is close to the ground.172

Rosenstock and Van Riper reported that "Livestock grazing and fire suppression commonly are cited as causes of woodland expansion."173

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

* An example of where removal of cattle for 35 years led to the disappearance of rabbitbrush from previously shrub-dominated communities - and native grasses regained dominance;174 (this is especially significant to the Gila National Forest, which recently proposed the use of herbicides on thousands of acres of rabbitbrush as part of the Luna Restoration Project.)

* An example of where Forest Service scientists at the Intermountain Forest and Range Experiment Station found that protection of an Idaho range from grazing increased grass and forb production by 30% and decreased shrub production by 20%.175
* An example of where U. of Idaho range scientists documented a 20-fold increase in perennial grass cover after 25 years of grazing exclusion while shrub cover only increased by 1.5-fold, attributing the grass response to "the availability of seeds as formerly depleted populations increase in size." 176
* An example of where in a southeastern Arizona rangeland excluded from cattle grazing for 14 years, grass cover was 45% higher, the grass community was more heterogeneous, herb cover was higher, and rodent and bird numbers were higher than grazed comparison areas.177
* USDA research has found that excluding cattle from a landscape for five growing seasons "significantly increased: (1) total vegetative cover, (2) native perennial forb cover, (3) grass stature, (4) grass flowering stem density, and (5) the cover of some shrub species and functional groups."178

When maintained, grazing exclosure fencing protects riparian areas and leads to rapid recovery of vigorous native vegetation179 which is critical to maintain streambank stability and provide habitat to riparian and aquatic wildlife.180 Prominent fish scientists have concluded that livestock grazing has been a major factor in eliminating native fishes from portions of their historic ranges181 and that habitat degradation is most easily reversed by excluding livestock from the riparian area.182 Furthermore, removal of livestock from sensitive ecosystems such as arid-lands riparian areas is a critical component of adapting to climate change.183 Again, the only widely accepted way to eliminate the impacts described here and restore stream and upland ecosystem health is the exclusion of domestic grazers like cattle.

The FEIS' failure to acknowledge, discuss, or otherwise consider this science, all of which was provided in full publication form to the Forest Service in DEIS comments, violates NEPA's hard look requirement to analyze direct, indirect, and cumulative impacts.

Resolution to Livestock Grazing Objections

The Forest Service must provide an analysis and determination pursuant to 36 C.F.R. [sect] 219.7 and FSH 1902.12 that livestock grazing is unsuitable for riparian areas, aquatic ecosystems, and native aquatic, semi-aquatic, threatened, and endangered species habitats therein.

The Forest Service must provide supplementary NEPA analysis to take a hard look at alternatives and plan components that prevent authorized and unauthorized livestock grazing and associated impacts to riparian areas, aquatic ecosystems, and ESA-listed species and habitats therein.

We suggest these standards:

Livestock grazing is prohibited in riparian management zones, aquatic ecosystems, and occupied and designated critical habitat therein. Livestock shall be excluded from these areas with fenced exlosures. Pastures or allotments that intersect these areas but lack fenced exlosures shall be closed

The seasonal commencement of livestock grazing in any pasture or allotment that intersects riparian areas with riparian exlosures, or that shares a fence with any pasture or allotment that intersects riparian areas, shall be subject to the Forest Service first verifying the intactness of its fences.

Unauthorized livestock, if attributed to a permittee or owner, shall be removed from unauthorized locations by the permittee or owner within one week of detection. If after one week unauthorized livestock are not so removed, the Forest Service shall commence operations to impound unauthorized livestock pursuant to 36 C.F.R. 262.10.

A grazing permit shall be revoked if a permittee's livestock are documented as unauthorized twice in any five-year period.

A grazing allotment shall be closed if a permittee's livestock from that allotment are documented as unauthorized thrice in any five-year period.

Monitoring and adaptive management standards:

The Forest Service shall monitor riparian management zones within the Forest for evidence of unauthorized livestock grazing twice annually and publish an annual report of the locations, numbers, and where possible, specify attribution to trespass or estray livestock. This monitoring shall include use of repeat photography at permanent photo points.

The Forest Service shall conduct and report monitoring of riparian and aquatic ecosystems annually. Monitoring reports shall segregate results specific to designated critical habitat. Monitoring reports shall be made available to the public on the Gila National Forest website.

2. Objections Relating to Water Quality

Objection: Failure to analyze or provide plan components to maintain or restore water quality and meet or exceed state water quality standards violates NFMA, NEPA, and APA.

The 2012 Planning Rule requires that the Gila Forest Plan "must include plan components, including standards or guidelines, to maintain or restore [hellip] [w]ater quality [hellip] [and] [w]ater resources in the plan area, including lakes, streams, and wetlands; ground water; public water supplies; sole source aquifers; and other sources of drinking water (including guidance to prevent or mitigate detrimental changes in quantity, quality, and availability)."184 Furthermore, the Plan "must [hellip]maintain or restore the ecological integrity of terrestrial and aquatic ecosystems and watersheds in the plan areas, including plan components to maintain or restore structure, function, composition, and connectivity[hellip]"185 Ecosystems are defined as spatially explicit units that are commonly described in terms of their "different levels of biological organization, from genes and species to communities[hellip]"186 Water is the basis for aquatic and riparian communities, and as such the Forest Plan must address impairments to water quality in a robust and integrated manner.

Objectors in DEIS comments requested that the Forest Service provide standards, guidelines, and objectives to comply with NFMA and "assure the public that the Forest Service has a cohesive, or at the very least conceptual, plan to move forwards desired conditions." Ignoring this comment, the Gila National Forest's Final Plan also lacks standards, guidelines, or objectives to address water quality.187

Unchanged since draft, the Final Plan provides a single desired condition for water quality and no corresponding plan components to ensure that plan implementation provides those conditions:

Water quality meets or exceeds state water quality standards and provides for the attainment of designated uses. Water quality is sustained at a level that retains the biological, physical, and chemical integrity of aquatic systems, and benefits the survival, growth, reproduction, and migration of native aquatic and riparian species (see also Soils, Watersheds, Riparian and Aquatic Ecosystems plan components and related content).188

The Water Quality section provides no standards or guidelines; it instead references "Soils, Watersheds, Riparian and Aquatic Ecosystems" plan components. Starting with the Watersheds standard section, below, none of those plan components involve state water quality standards.

Decision's authorizing uses and activities in riparian management zones must provide preferential consideration to riparian and aquatic resources. Project-specific best management practices will be developed, identified in the proposed action, and followed as the principal mechanism for demonstrating preferential consideration and controlling nonpoint source pollutants to protect beneficial uses and riparian and aquatic ecosystem values (see Best Management Practices Resources in the Soils section).189

Here, as discussed in DEIS comments, it is unclear what "preferential consideration" means, and, like the Water Quality desired conditions, references plan components from the Soils section, which includes the following two plan components relating to water quality but not state water quality standards, and then only by referencing a glossary definition of "best management practices" that is not and will not be specified otherwise until some unspecified later date.

Best management practices identified in the project proposal or decision documentation will be followed to mitigate negative impacts to water quality and the long-term productivity of the land (see Related Plan Content).190

(Related Plan Content) Glossary

Best management practices are site- and project-specific methods or measures to prevent or mitigate potential adverse impacts to environmental quality, especially water quality. They include protection measures to address potential detrimental changes in water temperatures, blockages of water courses, deposits of sediment in streams, streambanks, shorelines, lakes, wetlands, and other bodies of water that are likely to affect water quality or aquatic habitat seriously and adversely.191

Remarkably, under this scheme, the Final Plan's components and adaptive management framework to "meet or exceed state water quality standards" funnels down to rely on a single glossary definition of "best management practices." This is arbitrary and capricious.

Critically, too, the Final Plan requires no water quality monitoring. Without monitoring, it lacks data to assess and improve water quality and land management at any scale. It provides no water quality triggers, or benchmarks for water quality improvement at any scale that would require changes to management, or even affirmations thereof.

The Final Plan is effectively devoid of mechanisms to actually ensure that "Water quality meets or exceeds state water quality standards" through monitoring, assessment, and changes to management. This belies the "adaptive management and monitoring" promise that the Final Plan makes at its outset at page 10, where it promises:

Forest planning is a continuous process that includes (1) assessment; (2) plan development, amendment, and revision; and (3) monitoring. The intent of this framework is to support adaptive management. An adaptive forest plan recognizes there is always uncertainty about the future of ecological, social, and economic systems and the timing and cause of change. Given the guarantee of uncertainty and change, the plan's monitoring program must be capable of detecting change and, with the support of research, narrowing the contributing causes to those that plan direction can address.

Monitoring, with the support of research, may also detect when conditions have exceeded what was anticipated in this iteration of the planning process and identify a broader need for change in public land management planning.192

The backdrop to these inadequate plan components, as discussed in more detail in the following objection, is water quality on the Gila National Forest that remains impaired and appears to be declining. The Forest Service needs to get this right.

The Final Plan's failure to provide "plan components, including standards or guidelines, to maintain or restore [hellip] [w]ater quality[hellip] in the plan area[hellip]" and to "meet or exceed state water quality standards" violates NFMA. 193 So too does its failure to provide "a monitoring program for the plan area" that "should enable the responsible official to determine if a change in plan components or other plan content that guide management of resources on the plan area may be needed."194 Because water quality, and corresponding plan components and monitoring to "meet or exceed state water quality standards" are relevant factors to the NEPA

analysis of the new Forest Plan, the Forest Service's failure to consider this relevant factor is arbitrary and capricious, and violates NEPA. Motor Vehicle Mfrs. Ass'n v. State Farm, 463 U.S. 29, 43 (1983) (an agency's decision is arbitrary and capricious where it entirely fails to consider an important aspect of the problem); Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 349 (1989) ("NEPA ensures that important effects will not be overlooked or underestimated...").

Resolution

The Forest Service shall undertake supplementary NEPA analysis to design plan components that, through monitoring, data collection, assessment, and an "adaptive management" framework, can reliably ensure that plan implementation that provides for water quality that "meets or exceeds state water quality standards." 195

The Forest Service shall adopt in the Final Plan the following standard for Water Quality, Watershed, and Soils:

Standard: Permitted uses of the Forest that impair water quality, or that are likely contributing to water quality impairment, shall be discontinued in watersheds that do not meet state water quality standards. Pending compliance with state water quality standards, permitted are only allowed in places, times, and intensities that can be demonstrated to not contribute to water quality pollution, degradation, or impairment.

Objection: Failure to analyze water quality impairment from livestock, including from feces and E. Coli, and failure to analyze plan components to prevent it, violates NFMA, NEPA, and APA.

Despite extensive DEIS comments requesting analysis and plan components relating to livestock impacts to water quality, the effects analysis, Volume 1 of the FEIS, makes no mention E. coli, and makes no mention otherwise analyze of state water quality standards or impairment thereof from livestock grazing. This violates NEPA.

In fact, the only mention of E. coli in the entire FEIS is found in Volume 2, where the Forest Service, in response to comments, explains that it will not undertake required analysis:

Fecal matter is the likely culprit of E. coli contamination in many rivers and streams. However, DNA testing would be required to definitively determine the relative contribution of cattle, wildlife, and humans and that has not been done for any streams in the forest. For example, recent testing in California revealed birds and other wildlife were the primary sources of contamination in the Lower American River (https://www.waterboards.ca.gov/press_room/press_releases/2021/pr11162021-dna- testing-ecoli.pdf).

Regardless, cattle can certainly contribute to water quality issues, and it isn't just a forest management issue. There are private property inholdings along many of the streams in the San Francisco River basin, over which the agency has no jurisdiction. Nevertheless, the purpose of the plan is to provide direction, not discuss probable causes of water quality impairment. The purpose of the environmental analysis is to evaluate the effects of plan direction. The effects of livestock grazing depend on how it is managed.

Under all alternatives, livestock grazing would be managed to maintain or move toward desired conditions for water resources and riparian and aquatic ecosystems.196

This response is problematic because (1) it is not requisite environmental analysis, (2) it is not requisite plan components, (3) owing to E. Coli, temperature, and other sources attributable at least in part to livestock, water quality impairment on the Gila National Forest is extensive and, apparently, worsening and (4) the Final Plan, for lack of required suitability analysis for livestock grazing under NFMA, presumes that nearly the entire Gila National Forest is suitable for livestock grazing going forward under the new plan, and (5) as discussed in the objection immediately above, the Final Plan lacks plan components necessary to "meet or exceed state water quality standards" 197and (6) regardless of attribution, state water quality standards involve amounts of water pollution, of which, among birds, wildlife, private property, and livestock, the Forest Service can (and should) control only cows.

The Forest Service's response and lack of analysis is further problematic because the Gila National Forest permits large numbers of cows which in turn produce large volumes of manure containing E. Coli. The FEIS estimates for Alternative 4 that Forest-wide stocking will exceed by up to 1% current annual stocking of 245,697 animal unit months198, which, given a conservative estimate of 50 lbs/day per 1000-lb animal unit,199 deposit 6,142 tons of manure on the Gila National Forest each month, and 73,709 tons of manure on the Forest each year. Given heavy livestock use on the Gila National Forest where E. Coli contamination impairs water, it is almost certainly true that livestock is a primary cause of E. Coli contamination, and it is, among possible sources of contamination, the source that the Forest Service can control; the FEIS provides no data to refute such a conclusion.

As provided in DEIS comments, various studies have linked livestock[mdash]particularly cattle[mdash]to E. Coli contamination in water and streams.200,201,202 According to a study by T. A. McAllister and

E. Topp from the Agriculture and Agri-Food Canada, Lethbridge Research Centre,203 "Livestock manure can harbor a wide range of bacterial, viral, and parasitic pathogens." As Table 1 from McAllister and E. Topp's report demonstrates, enterohemorrhagic E. Coli is among these pathogens. E. Coli's pathogen survivability in the water[mdash]such as the impaired waters in the Gila's San Francisco River region[mdash]is greater than 365 days. These livestock-based microbial pathogens (such as E. Coli) found in land-applied manure can flow towards surface water via runoff or groundwater via leachate. Or, in fact, as we have stated, cattle can defecate directly into water and streams.

As provided in DEIS comments, the State of New Mexico Clean Water Act 303(d)/305(b) Integrated List and Report at that time included E. Coli as the cause of water impairment for four water stream segments in the Gila Forest[mdash] Centerfire Creek (San Francisco R to headwaters), San Francisco River (NM 12 at Reserve to Centerfire Creek), San Francisco River (Willow Springs Cyn to NM 12 at Reserve), and Tularosa River (San Francisco R to Apache Creek).

DEIS comments and materials listed in total 31 impaired waters and their sources of impairment in DEIS "Attachment 5: Impaired Waters of the Gila National Forest."204

New information published in the 2024-2026 State of New Mexico Clean Water Act 303(d)/305(b) Integrated List and Report205 shows that, since the DEIS, water quality impairment on the Gila National Forest continues, and appears to have worsened. E. Coli continues to be a cause of impairment for water stream segments totaling 85 miles. This includes the San Francisco River (6.15 miles from Box Canyon to Whitewater Creek, 10.86 miles from Willow Springs Canyon to NM 12 at Reserve); the South Fork of Negrito Creek (17.6 miles from Negrito Creek to headwaters); and the Tularosa River (23.34 miles from the San Francisco River to Apache Creek). Nutrients impair 97.18 miles of stream segment, including portions of Mule Creek, Center Fire Creek, Mangas Creek, Taylor Creek, the Gila River, and Canyon Creek.

Turbidity is a cause of impairment across 73.8 miles of creek, including Canyon Creek, Centerfire Creek, the San Francisco River, and the Tularosa River.

Temperature is a source of impairment across 593.7 miles of creek. This includes portions of Beaver Creek, Black Canyon Creek, several sections of the Gila River, Gilita Creek, Iron Creek, Little Creek, the Middle Fork of the Gila River, Taylor Creek, Turkey Creek, the West Fork of the Gila River, Willow Creek, and Bear Creek. We suspect that much of this impairment traces in part of livestock grazing removing and preventing the growth of herbaceous and woody vegetation that would otherwise shade and cool creeks and rivers, and that would otherwise provide for deeper, narrower, colder channel conditions.

The FEIS' failure to analyze livestock grazing impacts to water quality, and, specifically, E. coli from manure, but also temperature, and other sources of exceedance of state water quality standards, violates NEPA for failing to

describe the "environmental impact of the proposed action," and "adverse environmental effects which cannot be avoided should the proposal be implemented."206 It also violates NEPA's requirement that federal agencies take a "hard look" at the environmental consequences of their actions and do so while addressing reasonably foreseeable, direct, indirect, and cumulative impacts to the natural and physical environment.207 "Taking a 'hard look'[hellip]should involve a discussion of adverse impacts that does not improperly minimize negative side effects."208 The Final Plan's failure to provide plan components relating to livestock grazing, E. coli, temperature, nutrients, turbidity, and other sources of water impairment, violates NFMA's requirement that plans, "must include plan components, including standards or guidelines, to maintain or restore [hellip] [w]ater quality [hellip] [and] [w]ater resources in the plan area, including lakes, streams, and wetlands; ground water; public water supplies; sole source aquifers; and other sources of drinking water (including guidance to prevent or mitigate detrimental changes in quantity, quality, and availability)."209 Because water quality, and corresponding plan components to "meet or exceed state water quality standards" 210are relevant factors to the NEPA analysis of the new Forest Plan, the Forest Service's failure to consider this relevant factor is arbitrary and capricious, and violates NEPA. Motor Vehicle Mfrs. Ass'n v. State Farm, 463 U.S. 29, 43 (1983) (an agency's decision is arbitrary and capricious where it entirely fails to consider an important aspect of the problem); Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 349 (1989) ("NEPA ensures that important effects will not be overlooked or underestimated ").

Resolution

The Forest Service shall undertake supplementary NEPA analysis of livestock grazing impacts to water quality on the Gila National Forest, and specifically as relates to sources of impairment and exceedance of state water quality standards, including E. coli, temperature, nutrients, and other sources of water impairment, to ensure water quality that "meets or exceeds state water quality standards." 211

The Forest Service shall adopt in the Final Plan the following standards for Riparian Management Zones:

Standard: Permitted uses of the Forest that impair water quality, or that are likely contributing to water quality impairment, are prohibited in Riparian Management Zones.

The Forest Service shall adopt in the Final Plan the following standards for Water Quality, Watershed, and Soils:

Standard: Permitted uses of the Forest that impair water quality, or that are likely contributing to water quality impairment, shall be discontinued in watersheds that do not meet state water quality standards. Pending compliance with state water quality standards, permitted are only allowed in places, times, and intensities that can be demonstrated to not contribute to water quality pollution, degradation, or impairment.

3. Objections Relating to Integrated Pest Management, Herbicides, and Pesticides

Objection: The FEIS fails to analyze direct, indirect, and cumulative effects of pesticide use, in violation of NEPA. The FEIS and Final Plan do not analyze or provide an Integrated Pest Management framework to guide project-level management, in violation of NEPA, NFMA, and the Food Quality and Protection Act.

Objectors recognize the threats posed by invasive non-native species to native biological diversity. For that, we support very limited applications of pesticides in the context of an Integrated Pest Management (IPM) framework that (1) identifies and where possible corrects causes of invasion, that (2) relies on herbicides and pesticides as a measure of "last resort," following surveying, monitoring, mechanical removal, replanting native species and other less toxic methods and (3) limits the amount, extent, and toxicity of applications to the absolute minimum.

While we appreciate that the Final Plan prohibits aerial applications and applaud this decision, the Final Plan still lacks an IPM framework sufficient to guide project-level management, and it remains heavily skewed toward reliance on pesticides and herbicides as an option of first rather than last resort. With few exceptions, it allows for use of pesticides across the Gila National Forest

The Final Plan defines integrated pest management as, "the process by which one selects and applies a

combination of management methods or techniques to control a particular pest species with minimal adverse impacts to non-target species," and states that, "prevention, control, containment, and eradication of invasive species will be designed and implemented using integrated pest management to maintain or improve ecosystem and watershed function and minimize treatment impacts on native species and human health."212

But the Final Plan lacks plan components, such as a framework to guide project-level decision- making, as is necessary to define "the process by which one selects and applies a combination of management methods or techniques to control" invasive species, to guide how and why a manager would "select and apply" different management methods, techniques, or herbicides at the project scale, or to guide how a manager would address or prioritize among "prevention, control, containment, and eradication." In this way, the Final Plan is starved of plan components most central to the Final Plan's purpose - which is to provide a coherent framework to guide project-level management.

For example, the Final Plan provides no IPM framework to identify non-chemical management alternatives, to target the application so that only the intended pest is affected, to ensure that causes of invasive species introduction or spread are addressed, to prioritize, or deprioritize pesticides and herbicides based on their toxicity, severity, and persistence of effects, or to deploy pesticides as measure of last resort, minimizing the extent, severity, and frequency of their application.

The lack of such an IPM framework starves the Final Plan of its central, critical function of guiding project-level management, and doing so in a way an integrated way that considers and minimizes both the causes of invasive non-native species establishment and spread, and the effects of and reliance on herbicides and pesticides. This also run afoul of the Forest Service's duty to implement IPM, where under the Food Quality and Protection Act of 1996, all federal agencies are required to "use Integrated Pest Management techniques in carrying out pest management activities and shall promote Integrated Pest Management through procurement and regulatory policies, and other activities." 7 U.S.C. [sect] 136r-1. See also, Xerces Soc'y for Invertebrate Conservation v. Shea, 3:22-cv-00790-HZ (D. Or. Aug. 1, 2024). Despite its mandate to comply with the principles of IPM, the Forest Service, in the FEIS and in the Final Plan, does not consider an actual IPM approach.

In this context, we are specifically concerned about FEIS's failure to analyze or provide plan components to eliminate the sources of non-native invasive species introduction and spread. For example, despite extensive discussion of Class A and B noxious weeds and the threats those weeds pose to displacement of native species and conversion of ecological systems, the FEIS provides no analysis of the contribution of near-ubiquitous livestock grazing to those weeds' introduction and spread. In scoping, and again in DEIS comments, we said that "The EIS and plan design must analyze [hellip] [e]ffects of domestic livestock, feral horse and ungulates on the distribution and spread of exotic species. Control measures for feral livestock [hellip] [and the] [e]ffects of pesticide/herbicide use in integrated pest management, particularly potential effects of chemical to at-risk species."213 We noted that livestock grazing is the most likely way that noxious weeds will become introduced into the Gila and spread into native ecosystems.214

Livestock grazing as a vector for the introduction of alien plants is not addressed in this forest plan and is consistently downplayed as a threat in forest plans throughout the West. Weeds can travel to the Gila in multiple ways, but livestock have by far the largest reach because they are allowed to range freely, carrying seeds in their hair, on their hooves, and in their guts.215 In addition, horses and elk move weed seeds around the landscape in an unquantified amount. Livestock also aid the spread of alien plants by degrading native plant communities through trampling and selective grazing,216 especially along riparian corridors. We noted that developing a noxious weed plan without considering the impact of livestock is inconsistent with NEPA's "hardlook" mandate, and with the holistic principles of IPM, and commits the Gila National Forest to spending more money on less effective mitigation through suppression. The Forest Service's refusal at all stages of the NEPA to undertake analyses of livestock grazing as a cause of non-native species and noxious weed introduction and spread violates NEPA's hard look requirement, where NEPA analysis "shall serve as the means of assessing the

environmental impact of proposed agency actions, rather than justifying decisions already made,"217 and the failure to analyze it the particular context of Integrated Pest Management also violates the Food Quality and Protection Act. This also violates NFMA's requirement to use the best available scientific information and requires the Forest Service to justify how it has met this mandate.218

The FEIS also fails to analyze the direct, indirect and cumulative effects of each pesticide that would be used. Remarkably, the FEIS lacks entirely an analysis of effects on pollinators. The Gila is home to countless species of native bees and other pollinators, yet there is no analysis of how the use of various pesticides will effect those populations of pollinators, despite the widely known fact that pollinator populations are in decline throughout the country, and the serious consequences of pollinator declines on whole ecosystems. There is no analysis or discussion of how herbicide use will effect rare and imperiled plants, including those relied on by pollinators or other imperiled species. There is no analysis of the cumulative effects of pesticide use, such impacts to pollinators in the context of regional or continental-scale pollinator declines, or analysis of pesticides in combination with other impacts that are directly foreseeable, such as grazing, OHV use, wildfire, logging, road maintenance, climate change, etc. The FEIS lacks an analysis of the effects of different pesticides across different ERUs, seasons, or drought and climate conditions. The FEIS lacks analysis of how pesticide use, or different IPM frameworks for it, may impact rare or at-risk plants and animals. This too violates NEPA's hard look requirement and, in an IPM context, the Food Quality and Protection Act. It also violates NFMA's requirement to use the best available scientific information and requires the Forest Service to justify how it has met this mandate.219

Finally, the lack of an IPM framework in the Final Plan, and the FEIS' failure to analyze one or a range of IPM frameworks, violates NEPA's requirement for agencies to "[s]tudy, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources."220

Resolution for Objections Relating to Integrated Pest Management

The Forest Service must undertake NEPA review to analyze the direct, indirect, and cumulative impacts of pesticide use on the Gila National Forest, it must do so in the context of a robust Integrated Pest Management framework, and it must analyze a range of Integrated Pest Management frameworks that address, among other things, causes of non-native invasive species introduction and spread.

The Forest Service should develop an Integrated Pest Management framework for project-level implementation.

It should include, at a minimum, these standards:

1. Herbicide and pesticide use will not be authorized except for targeting invasive non- native species.
2. Causes of invasive non-native species introduction and spread shall be identified and, if addressable by changes in forest management, eliminated or substantially reduced, prior to or in conjunction with applications of pesticides.
3. Pesticides are a management option of "last resort." All non-chemical management options for preventing, controlling, containing, and eradicating invasive non-native species shall be considered and determined infeasible prior to use of herbicides and pesticides.
4. Herbicide and pesticide application shall be limited to the absolute minimum amounts, toxicities, and extents necessary.

4. Objections Relating to Rare and Endemic Plants

Objection: The FEIS and Final Plan do not analyze or provide plan components sufficient to protect rare and endangered plants, in violation of NFMA and NEPA.

If land managers do not know which plants are rare or endemic, or if they do not know where those rare or endemic plants occur, those rare and endemic plants will not be protected in project-level management.

This management scheme is precisely what the FEIS and Final Plan provide. By abandoning plan components delineation the locations of rare and endemic plants, such as the Rare and Endemic Vegetation Management Areas221 considered in the DEIS, the Final Plan is devoid of

(1) a list of rare and endemic plants, (2) information about their locations, and (3) a spatial delineation, as a plan component, to alert project managers of presence of rare and endemic plants in project areas and the need to actually implement protective plan components.

Critically, protective plan components apply only to "known" populations of rare and endemic plants in the Final Plan; by providing no list of species that are classified as rare or endemic, and by abandoning plan components that delineate and alert managers to their location, the Final Plan creates conditions wherein those populations remain unknown to project managers, thereby precluding the application of protective plan components like these:

Where there are known populations of rare and endemic plants, no new permanent roads or motorized trails will be constructed unless it is to provide legal access to private property. Temporary motorized routes that facilitate management activities are acceptable provided appropriate avoidance or mitigation measures are incorporated.

Temporary motorized routes are closed when no longer needed.

Where there are known populations of rare and endemic plants, the use of non-selective herbicides or herbicides that may have activity on the species will not be authorized unless it is to control or eradicate noxious weeds, and other integrated pest management efforts have failed or are unlikely to succeed.222

Thus, the practical effect of the Final Plan's abandonment of Rare and Endemic Vegetation Management Areas from the DEIS, or any other management designation delineating the location of rare and endemic plants, is to subvert project-level management by starving it of the information required to easily and consistently know where to apply protective plan components. The FEIS's failure to analyze or disclose how the abandonment of plan components delineating rare and endemic plant populations likely precludes the application of relevant standards violates NEPA. Because this is highly relevant to the Forest Plan, whose purpose is to provide a framework for project-level management, the abandonment of plan components delineating the location of rare and endemic plants also violates NFMA, which requires that plans "must include plan components to maintain or restore[hellip] Rare aquatic and terrestrial plant and animal communities[hellip],"223 and that the Forest Service "use the best available scientific information to inform the planning process."224

To be clear, we recognize and appreciate the fact that, in the Final Plan, plan standards have been expanded to be protective of rare and endemic plants Forest-wide. We welcome that change.

However, without also providing plan components that specify where known populations are located, project-level management will be compromised by a Forest Plan that does not readily inform managers of where rare and endemic plant populations are located, or therefore where protective plan components need to be applied.
Resolution to Objections Relating to Rare and Endemic Plants
We recommend the Forest Service retain Forest-wide standards and guidelines for rare and endemic plants, but undertake supplementary NEPA analysis, if needed, to amend the Final Plan to:

1. Designate as Botanical Areas the Rare and Endemic Vegetation Management Areas from DEIS Alternative 5 spanning 150,590 acres; or
2. Designate as Botanical Areas each of the nine New Mexico Rare Plant Conservation Strategy Important Plant Areas that occur in whole or part on the Gila National Forest; or
3. Include a standard requiring rare and endemic plant surveys as part of project planning for, and in advance of, any ground disturbing activity; and

4. Include a list in the Final Plan of all rare and endemic plants that are known to occur on the Gila National Forest; and
5. Include these guidelines:

* Protect rare and endemic plant populations from new ground disturbing activity.
* Protect rare and endemic plant populations from being eaten by domestic livestock.
* Minimize exposure of rare and endemic plant populations to the establishment and spread of non-native plants.
* Manage camping to prevent impacts to rare and endemic plants.
* Maximize opportunities for visitor education about unique plant populations of the Gila National Forest.

5. Objections relating to rare plant components.
Objection: The Final Plan fails to designate Species of Conservation Concern status for two rare plants that need protections and species-specific plan components.
Erigeron scopulinus
The 2020 comments submitted by the Gila Coalition in response to the DEIS stated that the best available science was not used to develop the list of species on conservation concern, leading to the removal of Erigeron scopulinus from that list.225 Those comments pointed out that the information used from the New Mexico Rare Plant Technical Council was not the most current information and is more than 15 years old. Furthermore, no current research or data is given that would warrant removing this species and the only justification given in the final assessment report is that "current land uses pose no threat to the species because habitat is relatively inaccessible." According to the Gila's own location records, there are only seven known populations on the forest, the species is considered rare by the New Mexico Rare Plant Technical Council, is a New Mexico Rare Plant Conservation Strategy Species, and is listed as vulnerable by NatureServe (G3). It is significantly rarer than Adenophyllum wrightii and Pedicularis angustifolia, both of which are listed as at-risk. Those comments recommended that the New Mexico Rare Plant Conservation Strategy Scorecard be used as the source for the most up-to-date information on species considered rare and at-risk in New Mexico.

The FEIS states that Erigeron scopulinus was evaluated for inclusion on the initial species of conservation concern list but was not selected, due in part to a lack of response from the New Mexico State Botanist.226 The FEIS states that Erigeron scopulinus was not added to the revised species of conservation concern list, despite a NatureServe ranking of G3 (vulnerable), the threats identified to its persistence, and the nature and location of its habitat on the Gila National Forest because the plant's "persistence is not considered at risk on the Gila National Forest." However, the FEIS fails to explain how such a determination was made, and what evidence the determination was based on.
Rumex orthoneurus
Our comments in response to the DEIS stated that the decision to exclude Rumex orthoneurus from the list of species of conservation concern is based on speculative assumptions, rather than monitoring data.227 The data do not support the statement in the final assessment report that this plant is "relatively well distributed." Those comments also note that the assessment report lists the habitat as "riparian" with an associated low departure from historical conditions, but this species is actually found in high elevation wet meadows[mdash]a much more specific habitat that gives the plant a considerably narrower range. Those comments stated that the best available science on rare plant status in New Mexico comes from the New Mexico Rare Plant Council, which considers this species imperiled because of rarity and the forest's own data show only 12 populations of this plant.

The FEIS states that Rumex orthoneurus does not warrant inclusion on the list of species of conservation concern, despite its NatureServe ranking (G3-Vulnerable), its limited distribution, and restricted habitat conditions on the Gila National Forest.228 However, the FEIS fails to explain how such a determination was made, and what evidence the determination was based on.
Resolution to Objections Relating to Rare Plant Components
The Forest Service must provide an analysis for determining that these rare plant species do not warrant

inclusion on the list of species of conservation concern, and the protections that inclusion on the list would provide. The Forest Service must use the best available science in evaluating Species of Conservation Concern. The conservation community has repeatedly presented valuable and accurate data and information to the Forest Service which has been ignored or underutilized. The two species discussed here, Rumex orthoneurus and Erigeron scopulinus, badly need protection and study. Exclusion from the list of Species of Conservation Concern should be based on adequate information that is collected and disclosed to the public pursuant to NEPA and Forest Service planning regulations.

6. Objections relating to at-risk species, including species of conservation concern

The comments submitted by the Gila Coalition in response to the DEIS indicated that the DEIS failed to take a hard look at the draft plan's effects on at-risk species and recommended that the effects analysis be improved to properly characterize what the plan components direct management to do and how specific plan components affect each ecological condition needed by each at-risk species individually.229

Those comments included five specific recommendations for improving the effects analysis with respect to specific impacts to at-risk species.

At-risk Species Analysis 1:Comprehensively analyze the effects of the plan components on at-risk species and the conditions necessary for the recovery of threatened and endangered species, conservation of federally proposed or candidate species, and viability of species of conservation concern. Provide an analysis that demonstrates that the aggregate plan components contribute to the recovery of each threatened and endangered species and maintain viability for each SCC. Analyze the effects of plan components on each at-risk species, individually.

At-risk Species Analysis 2: Revise the crosswalk to distinguish plan components applicable to all at-risk species separately to help serve as documentation supporting such an analysis.

At-risk Species Analysis 3: incorporate our recommendations for additional plan standards and guidelines are necessary to achieve 36 CFR 219.9 requirements for several species.

At-risk Species Analysis 4: Clearly and consistently articulate the key characteristics and threats associated with each at-risk species individually.

At-risk Species Analysis 5: The implications for needed revisions to the Draft Plan derived from the case studies and examples should be applied to threatened and endangered species and all species of conservation concern, which would require revision of the effects analyses of at-risk species. The best available scientific information must be used to develop species-specific plan components.

The FEIS states, in its response to comments, that the level of analysis provided in the DEIS and FEIS is appropriate for the programmatic nature of the plan, and stated that the FEIS includes substantial reorganization and revisions for clarity, to incorporate the outcomes of consultation with the U.S. Fish and Wildlife Service and better connect the Wildlife, Fish, and Plants analysis with the Upland Vegetation, Fire Ecology and Fuels analysis, and to make a distinction between coarse- and fine-filter components.230

Resolution

The Forest Service must provide an analysis that identifies the effects of specific plan components on the specific ecological needs of each at-risk species.

7. Objections relating to the protection and conservation of Mexican spotted owl Objection: The Forest Plan fails to ensure the protection of the Mexican spotted owl.

There are 309 delineated Mexican Spotted Owl ("MSO) Protected Activity Centers ("PACs") and approximately 1,125,958 acres of designated critical habitat within the boundaries of the Gila National Forest.231 A little less than half of the crucial habitat in the Gila NF[mdash] approximately 517,811 acres[mdash]is located within wilderness areas. The Gila National Forest contains about a quarter of the total 1,324 PACs listed in the MSO

Recovery Plan.

The Forest Plan does not specify the number of PACs or the amount of MSO critical habitat that would be subject to mechanical treatment and prescribed burning under the plan, or the timeline under which MSO PACs and critical habitat would be treated, and indicates that forest vegetation growth modeling was used to estimate the seral state departure from desired conditions over time.232 Such vegetation growth modeling assigns estimated values to specific acres in the modeled area. Therefore, there is presumably a similar estimation of the number and location of MSO PACs expected to be treated in each forest type. Indeed, the Biological Opinion includes statements that imply that the Forest has analyzed both the locations of treatments in MSO PACs, and the specific prescriptions to be used.

Overall, there would be an abundance of nest/roost habitat across the forest between all ERUs used for nesting/roosting. The Forest will also use mechanical treatments in owl habitat to ensure that the ERUs discussed above would maintain characteristics required for MSO nesting/roosting. Those characteristics would not be reduced below the recommended habitat abundance needed for recovery, as is outlined in the most recent recovery plan.233

However, the FEIS fails to provide either these data or the results of this analysis, nor does the FEIS analyze the short- and medium-term impacts of the expected treatments, despite the clear understanding that treatments can have short-term impacts.234

In any case, the Forest Plan presents the entirety of MSO critical habitat in the Gila National Forest as falling under various treatment options over the life of the Forest Plan, including all of the MSO PACs and critical habitat therein, and the requirements for MSO habitat will be evaluated and designed at the project scale.

Similarly, the Forest Plan does not enumerate specific protections or criteria to be incorporated into future projects implemented under the Forest Plan. Instead, it is understood that the Forest Service, in consultation with the Fish and Wildlife Service, will incorporate into future projects treatment components that will benefit MSO. This approach is described in the Forest Plan.

Mexican spotted owls would benefit primarily from plan components that move moderately to highly departed ERUs required for nesting and roosting (PPF, MCD, and MCW) toward desired conditions. The objectives and effects differ across the action alternatives and the total amount of ecological condition moved toward desired conditions over the 15-year life of the plan varies across alternatives.235

Coarse-filter plan components that would benefit Mexican spotted owls that depend on Forested Ecosystems include desired conditions for PPF, MCD, and MCW ERUs to maintain appropriate structure, composition, and function at the landscape-, mid-, and fine-scales while reducing fire risk through vegetation management and fuels reduction projects. Desired conditions that incorporate varying structural stages, including uneven- aged forest with openings and occasional even-aged structure with large snags and abundant understory (such as coarse woody debris and logs), and old-growth components would guide the implementation of forest management activities that would move these ERUs toward a more favorable departure and trend from that which currently exists.236

Current silvicultural treatments are no longer considered threats to Mexican spotted owls as they are planned and implemented to modify forest structure to promote Mexican spotted owl habitat. There may be short-term impacts due to disturbance but that does not contribute to habitat loss. The Timber, Forest, and Botanical Products resource area would ensure that silvicultural treatments are used as a restoration tool and desired conditions for this resource (DC 1a-c) would ensure these types of activities are done in a way that enhances Mexican spotted owl ecological condition requirements.237

The Biological Opinion confirms this approach.

The entirety of the Proposed Forest Plan provides for the ecological conditions needed for the MSO on the Gila NF and promotes the conservation and recovery of MSO on the Forest. Plan components provide the primary needs for MSO and critical habitat in ERUs, specifically the Desired Conditions for MCW, MCD, and PPF, wildfire, fuels, and the livestock grazing program areas.238

The Gila NF conducts mechanical and prescribed fire treatments following MSO Recovery Plan recommendations.239

Rather than enumerating the specific requirements to be incorporated into mechanical and prescribed fire treatments, both the FEIS and the Biological Opinion for the Forest Plan point to various Desired Conditions listed in the Forest Plan that are assumed to benefit MSO.

Desired conditions mentioned previously for vegetation ERUs would also contribute toward improving Mexican spotted owl habitat, particularly with regard to snags and dying trees (MCW Landscape DC 3 and 4, Mid-scale DC 3 and 4, MCD Landscape DC 3 and 4, Mid-scale DC 4 and 5, and PPF Landscape DC 4 and 5, and Mid-scale DC 4 and 5).240

Plan components provide the primary needs for MSO and critical habitat in ERUs, specifically the Desired Conditions for MCW, MCD, and PPF, wildfire, fuels, and the livestock grazing program areas. A complete list of plan components that would benefit the MSO are listed in Appendix A, attached to this document.241

However, those plan components are often very general, with no detail on the specific vegetation structure necessary to benefit MSO. For example, Appendix A of the Biological Opinion indicates that "Interlocking canopy, old growth, and denser stands" are "Key ecosystem characteristics or ecological conditions" needed for: Mexican Spotted owl, Southwestern Willow Flycatcher, and Yellow-billed cuckoo, and which are potentially impacted by "Potential Stressor/Threats" such as "Logging, large-scale wildfire, forest treatments (prescribed

fire, thinning), fuelwood.242 The table in Appendix A then identifies various "Coarse and Fine Filter Plan Components, which address Key Ecosystem Characteristics, Ecological Conditions, or Potential Stressors." In this example, the referenced Forest Plan components include:

All Upland ERUs - DCs 1-3b, 7, & 8, Guideline 1

MCW ERU - Landscape Scale DCs 1-5, Mid-scale DCs 2-4, & 6, Fine-scale DC 1. MCD ERU - Landscape Scale DCs 1-4, Mid-scale DCs 2, 4, 5, & 7, Fine-scale DC 1.

PPF ERU - Landscape Scale DCs 1-5, Mid-scale DCs 2, 4, 5, & 7, Fine-scale DC 1.243

A review of these referenced Desired Conditions and Guidelines shows that these are very general guidelines, with few or no specific criteria.

Upland ERU Landscape-scale Desired Conditions (1,000 to 10,000+ acres)

1. Natural disturbances (for example, insects, disease, wind, and fire), and human activities that mimic the effects of natural disturbances, maintain fully functioning ecosystems and native vegetation communities that contain the full range of characteristic components, processes, and conditions.
2. The adaptive capacity of the native vegetation communities to disturbances of varying frequency, extent, and severity, including long-term drought and climatic variability is high, with adaptive capacity measured by the area where structure, composition, process, function, and connectivity are restored and maintained.

3. The characteristic full range of natural variability in composition, structure, and pattern, reflective of each individual ecological response unit, topographic characteristics, and soil properties are expressed (see terrestrial ecological unit). a. Overstory and understory plant species composition are each at least 66 percent similar to site potential as measured by each particular terrestrial ecological unit but can vary considerably at fine- and mid-scales owing to a diversity of seral conditions.

b. All seral states are present. The relative proportions of seral states are at least 66 percent similar to the reference proportions as described in the most recent Region 3 Seral State Proportion Supplement.

1. Ecological conditions support habitat quality, distribution, abundance, and connectivity to self-sustaining populations of all native and desirable non-native plant and animal species that are healthy, well distributed, and genetically diverse, including federally listed species, species of conservation concern, and rare and endemic species. Conditions provide for life history requirements, predator-prey interactions, and natural population fluctuations of all species within the capability of the landscape.
2. Habitat availability, configuration, and connectivity allow wildlife populations to adjust their movements (seasonal migration, foraging, et cetera) in response to long-term trends in climate and human land use. Populations of rare and endemic species that rely wholly on ecological response units with high or very high vulnerabilities are known, and conservation measures are in place.

Guideline 1. Vegetation treatments should be designed to recruit under-represented seral states and thereby promote continuous recruitment of old-growth characteristics across the landscape over time

Ponderosa Pine Forest

Landscape-scale Desired Conditions (1,000 acres to 10,000+ acres)

1. The Ponderosa Pine Forest is composed of trees from structural stages ranging from young to old. Forest appearance is variable but is generally uneven-aged and open; occasional areas of even-aged structure are present.
2. The forest arrangement is in individual trees, small clumps, and groups of trees interspersed within variably sized openings of grasses, forbs, and shrubs like historical patterns. The size, shape, number of trees per group, and number of groups per area are variable across the landscape. Denser tree conditions exist on northerly aspects, steep slopes, toe slopes, and in canyon bottoms.
3. In the Gambel oak subtype, all sizes and ages of oak trees are present.
4. Old growth occurs throughout the landscape, generally in small areas as individual old- growth components, or as clumps of old growth. Old-growth components include old trees, standing dead trees (snags), downed wood (coarse woody debris), and structural diversity. The location of old growth shifts on the landscape over time because of natural growth, death, and disturbance.
5. The Ponderosa Pine Forest is composed predominantly of vigorous trees, but declining trees provide snags and coarse woody debris; downed logs (larger than 12 inches diameter at mid-point, over 8 feet long) and coarse woody debris (over 3 inches diameter). Snags and coarse woody debris are well distributed. The number of snags and amount of coarse woody debris vary by seral state.

Mid-scale Desired Conditions (10 to 1,000 acres)

2. Tree density generally ranges from an average of 22 to an average of 89 square foot basal area per acre depending on disturbance history, topographic characteristics, and soil properties (see terrestrial ecological unit). Denser tree conditions exist on northerly aspects, steep slopes, toe slopes, and in canyon bottoms.

4. Snags are typically 18 inches or larger diameter at breast height and average one to two per acre. In the Gambel oak subtype, large oak snags (more than 10 inches diameter at mid-point) are a well-distributed

component.

5. Downed logs average three per acre. Average coarse woody debris, including downed logs ranges from 5 (Graham et al. 1994, Brown et al. 2003) to 10 tons per acre.

1. Forest conditions in goshawk post-fledging family areas are similar to general forest conditions except these forests typically contain 10 percent or greater basal area than goshawk foraging areas and the general forest. Nest areas have forest conditions that are multi-aged but are dominated by large trees with relatively denser canopies than other areas.

Fine-scale Desired Conditions (less than 10 acres)

1. Trees typically occur in irregularly shaped groups and are variably spaced with some tight clumps. Crowns of trees in the mid- to old-age groups are interlocking or nearly interlocking. Groups in the mid-to old age groups consist of 2 to approximately 40 trees per group. Size of tree groups is typically less than one acre, but average half an acre. Trees within groups are of similar or variable ages and may contain species other than ponderosa pine.244

The most specific of these Desired Conditions and Guidelines, with respect to subsequent project treatment components, is Ponderosa Pine Forest, Mid-scale Desired Conditions 2: "Tree density generally ranges from an average of 22 to an average of 89 square foot basal area per acre depending on disturbance history, topographic characteristics, and soil properties (see terrestrial ecological unit)."245 Underline added. This is a wide range of basal areas, allowing for a very wide range of tree removal, including reduction of canopy cover and basal area far below the conditions recommended in the Recovery Plan.

The Recovery Plan recommends that recovery nesting/roost habitat is managed for a minimum basal area of 110 square feet per acre in ponderosa pine and 120 square feet per acre in mixed- conifer for the Upper Gila Mountains, and further recommends that a minimum of 30% of the basal area be comprised of trees larger than 18 inches in diameter.246 The Recovery Plan also proposes a minimum canopy cover of 40% in pine-oak and 60% in mixed conifer.247 The recovery Plan also explicitly encourages the retention of large trees within recovery nest/roost habitat.248 These Recovery Plan components are not included in the Forest Plan and are in fact contradicted by the Desired Conditions for basal area in the Forest Plan.

The Forest Plan does not include any specific requirements for monitoring of MSO PACs in planned vegetation management project areas, despite the regional guidance that explicitly requires the collection of pre-treatment and post-treatment data.249 More specifically, the Mexican spotted owl Leadership Forum has established that restoration projects require the collection of data in MSO PACs at least two years pre-treatment and five years post-treatment.250 However, this requirement is not reflected in the Forest Plan.

Resolution of Objections Related to Mexican Spotted Owl

The FEIS must analyze the Forest Plan's impacts to Mexican spotted owl at the short-term and long-term, at a scale relevant to the location and sequencing of future vegetation treatment projects implemented under the Forest Plan.

The Forest Plan must include specific protections or criteria to be incorporated into future projects within Mexican spotted owl PACs, critical habitat and recovery habitat, including the recommendations from the MSO Recovery Plan with respect to minimum basal areas and canopy cover. The Forest Plan should include the recommendations of the Recovery Plan to retain trees larger than 18 inches diameter in Foraging/Non-Breeding Habitat.

The Forest Plan should include requirements for pre-treatment and post-treatment monitoring of Mexican spotted owl PACs in forest restoration projects.

8. Objections relating to At-Risk Species and Species of Conservation Concern.
Objection: The Final Plan fails to take a hard look at the plan's effects on at-risk species and species of conservation concern.

In order to contribute to the recovery of threatened and endangered species, to conserve species proposed or candidate for listing under the ESA, and maintain the viability of species of conservation concern, a Forest Plan must have significant beneficial effects and minimize adverse effects to the greatest extent possible. Nowhere is this mandate more important than with at-risk species, for which impacts from human uses can drive them closer to extinction, where recovery might become impossible. A full disclosure of the impacts on these species is critical to ensuring that measures can be applied and management can be directed to facilitate their maintenance and recovery on the landscape.

Under the CEQ Regulations governing application of NEPA, agencies must, "to the fullest extent possible":

"Use all practicable means, consistent with the requirements of the Act and other essential considerations of national policy, to restore and enhance the quality of the human environment and avoid or minimize any possible adverse effects of their actions upon the quality of the human environment."251

In order to meet the Planning Rule's requirements it is necessary for the Forest Service to provide a logic trail for each species, from its 1) necessary ecological conditions, to 2) specific plan components, to 3) conditions that would result from the plan components, to the 4) legal sufficiency of those conditions. The documentation must show that the plan components meet the regulatory criteria for each at-risk species. For example, for SCC viability, the documentation must show that the SCC will 1) continue to persist over the long term, 2) with sufficient distribution to be 3) resilient and 4) adaptable to stressors and likely future environments, as per the definition of a viable population in 36 CFR 219.19.

The EIS must make a clear connection between NEPA procedures and NFMA requirements to satisfy 36 CFR 219.14, which obligate the responsible official to explain how plan components meet the planning rule's diversity requirements. NEPA requires procedures, including the analysis of effects of plan components on at-risk species. However, NFMA requires that those effects meet a substantive threshold, and that determination should be based on documented analysis found in the EIS. The eventual Record of Decision (ROD) must address compliance with the viability requirement.252

The coalition comments in response to the DEIS recommended several changes to enhance the analysis of the specific plan components on specific ecological conditions needed by each at-risk species individually. These recommendations include: 1) Analyze the effects of the plan components on at-risk species and the conditions necessary for the recovery of threatened and endangered species, conservation of federally proposed or candidate species, and viability of species of conservation concern. 2) Provide an analysis that demonstrates that the aggregate plan components contribute to the recovery of each threatened and endangered species and maintain viability for each SCC. 3) Analyze the effects of plan components on each at-risk species, individually, even for species where species-specific plan components may not be necessary to address their conservation needs. 4) Revise the crosswalk to distinguish plan components applicable to all at-risk species separately to help serve as documentation supporting such an analysis. 5) Clearly and consistently articulate the key characteristics and threats associated with each at-risk species individually.

Without such improvements, the Forest Plan and FEIS fails to take a hard look at the effects of the Forest Plan on at-risk species, in violation of 40 CFR 1502.16; the determination that the Forest Plan will not adversely affect these species is arbitrary and capricious; The FEIS does not demonstrate the plan components meet the diversity requirements of 36 CFR 219.9 for at-risk species, which is required to support meeting the requirements of 36 CFR 219.14; and the Forest Plan lacks some essential species-specific (fine-filter) plan components required to meet 36 CFR 219.9(b)(1) for federally threatened and endangered species and species of

conservation concern.

In response to these recommendations, the Forest Service revised several analyses and Appendix G, to distinguish between coarse- and fine-filter components.

Response: The level of analysis provided in the draft and FEIS is appropriate for the programmatic nature of the plan. The final analysis includes substantial reorganization and revisions in response to comments, for clarity, to incorporate the outcomes of consultation with the U.S. Fish and Wildlife Service and better connect the Wildlife, Fish, and Plants analysis with the Upland Vegetation, Fire Ecology and Fuels analysis.

Appendix G to the FEIS has also been reorganized and revised in response to comments, for clarity, and to reflect changes in plan components made between draft and final. It now makes a distinction between coarse- and fine-filter components.253

However, these revisions fail to resolve the fundamental problem that the Forest Plan and FEIS do not connect individual Forest Plan components with specific ecological conditions needed by individual species.

Appendix G provides many examples of this failure, in a series of tables that purport to identify plan components that address ecological conditions and threats for various species. For example, Table G-8 is described as "Plan components (coarse- and fine-filter) that address ecological condition and threats for birds of conservation concern."254 However, that table conflates all three birds of conservation concern[mdash]Gila woodpecker, Lewis's woodpecker and Pinyon jay[mdash] and fails to identify the condition or threat that each plan component (objective, standard, guideline) is expected to address.

Table G-8 lists Air Quality Desired Condition 8 as a coarse-filter Desired Condition. "8. Atmospheric deposition of pollutants does not negatively impact water quality and other ecosystem components (see also Water Quality)."255 However, Table G-8 does not indicate which species this would benefit, and in what way. Furthermore, Air Quality Desired Condition 8 identifies no action that can be taken to benefit the species, and no specific criteria that can be monitored with respect to threats to those species.

Furthermore, in response to the recommendation that the Forest Plan identify specific plan components to address specific ecological needs, the FEIS states "The plan incorporates approved U.S. Fish and Wildlife Service recovery plans by reference (Wildlife, Fish, and Plants draft G3 and final S4). Those recovery plans provide direction about primary constituent habitat elements, special management considerations and protections."256

However, this approach fails to provide meaningful protection to at-risk species and species of conservation concern. Incorporating a recovery plan by reference does not provide for an analysis of the effects of the Forest Plan on at-risk species and species of conservation concern, and the Forest Plan's ability to achieve recovery plan objectives. To name one specific example highly relevant on the Gila National Forest, merely incorporation by reference the recovery plan for the New Mexico Meadow Jumping Mouse does not identify specific Forest Plan components to achieve the riparian vegetation growth to 24 inches as specified in the Recovery Plan, nor does incorporation by reference result in Forest Plan components that trigger corrective action when the Forest fails to meet Recovery Plan criteria, as in the case of the riparian vegetation growth.

Relying on the incorporation of Recovery Plans by reference also fails because there is not a recovery plan available for all at-risk species. Even among federally listed species on the Gila National Forest, at least four have no associated recovery plans to incorporate by reference.

These include three threatened species[mdash]narrow-headed garter snake, Northern Mexican gartersnake, and western yellow-billed cuckoo[mdash]and one candidate species[mdash]Rio Grande cutthroat trout. In addition,

the at-risk species and species of conservation concern that are not federally listed as threatened or endangered would generally not have a recovery plan. For these many species, there is no recovery plan to incorporate by reference and, as a result, the Forest Plan would fail to identify any specific actions needed to conserve those species.
Resolution to objections relating to the analysis of the Forest Plan's effects on at-risk species and species of conservation concern.
In order to satisfy the requirements of NEPA, NFMA, the ESA, and the Planning Rule, the Forest Plan must identify specific components to address specific needs of specific species, and the FEIS must analyze the effects of those actions. Those analyses should include the following:

1) Analyze the effects of the plan components on at-risk species and the conditions necessary for the recovery of threatened and endangered species, conservation of federally proposed or candidate species, and viability of species of conservation concern. 2) Provide an analysis that demonstrates that the aggregate plan components contribute to the recovery of each threatened and endangered species and maintain viability for each SCC. 3) Analyze the effects of plan components on each at-risk species, individually, even for species where species-specific plan components may not be necessary to address their conservation needs. 4) Revise the crosswalk to distinguish plan components applicable to all at-risk species separately to help serve as documentation supporting such an analysis. 5) Clearly and consistently articulate the key characteristics and threats associated with each at-risk species individually.
9. Objections Relating to Roads
Our organizations remain concerned that the Draft Plan and supporting analysis fail to sufficiently consider and analyze, or include forest plan components that provide for an ecologically and economically sustainable forest road system, thereby failing to meet planning rule requirements. Part of our concerns stem from a history of Congress failing to provide adequate road maintenance funding, which for the Gila NF has resulted in a deferred maintenance backlog totaling $272,265,429. FEIS at 310. The lack of proper road maintenance is a significant issue affecting watershed conditions and viability for a range of species, particularly fish and riparian-dependent species. We also remain concerned that the Gila NF has yet to identify and implement a minimum road system, and that the Draft Plan lacks plan components that ensure it will do so over the life of the plan. It appears the agency remains confused about the Travel Management Rule's subpart A and B requirements, and its intersection with 2012 NFMA Planning Rule.
Objection: The DEIS fails to take a hard look at the road system and its effects under the alternatives.
We raised a number of concerns in our comments urging the Forest Service to address significant inadequacies in its analysis. These and additional concerns persist in the FEIS. For example, we asked that the FEIS disclose how system and unauthorized roads affect inventoried roadless area characteristics. This is especially important given the allowance for existing roads to persist within these areas, and the agency's disclosure that "Existing open roads would continue to be managed consistent with their maintenance level and no new permanent roads would be constructed." FEIS at 367. Given the Forest Service intends to retain existing roads, both system and non-system, and that it failed to disclose the miles of those existing roads within each IRA or how such roads affect its roadless character, the Forest Service cannot reasonably state the Revised Plan maintains roadless character. Moreso, closed roads often are subject to unauthorized motorized use and therefore they must be considered, especially if they have an ineffective closure device or remain passable by a motor vehicle.

Our comments also raised concerns about the watershed analysis, specifically failing to include each attribute for the Watershed Conditions Framework's Road & Trail indicator. Here the agency failed to consider mass wasting, even while the analysis explained "... in steep watersheds, where geological erosion rates are already high and soils are naturally unstable, even low-severity fire can accelerate water, nutrient and sediment delivery to streams." FEIS at 153. Further, we acknowledge that "Between 64 and 67 percent of subwatersheds are functioning properly with respect to road density and proximity to water," (FEIS at 312), this does little to explain each subbasin's rankings or how only the Carrizo Wash subbasin is the only one with a Road/Trail Indicator score with a 60 percent functioning properly. In fact, out of 11 subbasins, the analysis shows 8 of them are under 25 percent, two of which are at zero percent. The analysis fails to disclose the actual attribute scores, or provide

a list of subwatersheds that have impaired or functioning at risk rankings with respect to road density or proximity to water. When responding to our comments, the Forest Service acknowledges the importance of the three attributes it considered and the outsized influence from the lack of maintenance capacity:

We agree that road density, proximity to water, and road maintenance are all consequential attributes of the Watershed Conditions Classification's roads indicator. This paragraph [referencing our excerpt from the Assessment] does not state that road density or proximity to water are more, or less, consequential than road maintenance. It states that road maintenance is more often the case of impairment, on the Gila National Forest, than density or proximity to water. Thus, road maintenance is more frequently a concern.

FEIS Vol. 2 A-238. While we readily acknowledge that the lack of adequate road maintenance is the largest factor contributing to low indicator scores, the agency has little control over the amount of funds Congress provides, and therefore must provide a Revised Plan that will improve the other attribute rankings, including by reducing road densities particularly where the attribute ranking is listed as "poor." However, the Forest Service does not disclose those rankings or provide the actual road densities as we requested. Rather, the agency states in its response to our comments that "The level of analysis the commenters would like to see can be found in the FEIS supporting the 2014 travel management decision (USDA FS 2014b)." The response is inadequate for a few central reasons. First, the 2014 travel management FEIS (hereafter, "TMP FEIS") is 10 years old and the WCF analysis is even older, "The condition classification of each 6th-code watershed is considered a result of cumulative watershed effects up to 2011." TMP FEIS at 196. Next, the analysis discloses that of the 202 6th-code watersheds that intersect the forest only

180 watersheds were assessed for Watershed Condition Classification, with the overall findings that 98 classified as "functioning properly," 81 classified as "Functioning at Risk" and 1 classified as "Impaired Function." TMP FEIS at 193, Table 50. In other words, the Road and Trail Indicator scores were not listed, let alone the road density attribute rankings. It appears the Forest Service is relying on incomplete and outdated information to assert that the Revised Plan analysis need not take a hard look at its road densities.

Furthermore, when looking at the 2014 TMP FEIS, we found the following table: SEE PDF

2014 TMP FEIS at 48. This is notable because Revised Plan FEIS failed to include OML 1 roads entirely and provided the following:

FEIS at 310. Here the Forest Service fails to disclose the amount of ML 1 roads in its analysis and omits any discussion about how the road system has changed since the 2014 TMP ROD, which is particularly important for ML 2 roads which shows a reduction of 1,264.7 miles. But were all of these road reductions through physical decommissioning or administrative closure? How has the agency ensured closed roads are not subject to unauthorized use? The Revised Plan FEIS provides no answers. In fact, one has to look at the Revised Plan itself to learn the following:

The forest's most current motor vehicle use map (2023) shows approximately 3,330 miles of National Forest System roads open for motorized use by the public. An additional 330 miles of routes are designated for administrative use or by written authorization only, and approximately 910 miles are closed.

Revised Plan at 211. Adding these numbers together totals approximately 4,564 miles of system roads, and we expect there are unauthorized roads the agency fails to disclose or consider in its analysis. Put another way, since the 2014 Travel Management Plan decision, the Gila National Forest has reduced its road system by approximately 49 miles over 10 years. It is unclear how this small reduction has helped achieve the identified minimum road system since the Revised Plan FEIS lacks any mention of the agency's requirements under subpart A of the Travel Management Rule. 36 CFR 212.5(b)

Further, the Revised Plan analysis still explains it cannot maintain the current road system:

The forest is completing basic custodial maintenance such as grading the road surface, maintaining ditch lines, select sign replacement, and minor brushing of roadside vegetation on approximately 300 miles, or roughly 9 percent of the total open road miles on an annual basis; approximately 75 percent of miles maintained are maintenance level 3, 4, and 5 roads. The remaining 25 percent are maintenance level 2 roads.

FEIS at 309. Again, we are sympathetic to the lack of maintenance capacity, and at the same time we recognize there are significant environmental consequences from having a deferred maintenance backlog totaling $272,265,429. FEIS at 310. Those consequences were not adequately addressed in the Revised Plan's analysis.
Resolution
Supplement the FEIS with sufficient analysis to address these and other shortcomings we discussed in our comments, including more detailed discussion of the Watershed Condition Framework's Road and Trail Indicator and each attribute ranking for all subwatersheds across the Gila NF, especially road densities. This, in addition to, disclosing the miles and types of roads with Inventoried Roadless Areas, and how they affect roadless characteristics.
Objection: Forest plan components for roads infrastructure fail to comply with the 2012 Planning Rule and Forest Service Directives.
Our comments explained the substantive requirements of the 2012 Planning Rule, the implementing Forest Service Directives, and how the Forest Service must comprehensively address the road system in its plan revision. We explained that the significant aggregate impacts of that system on landscape connectivity, ecological integrity, water quality, species viability and diversity, and other forest resources and ecosystem services, necessitates that the Forest Service satisfy the rule's substantive requirements by providing sufficient management direction for

transportation infrastructure. As described in our comments, plans must provide standards and guidelines to maintain and restore ecological integrity, landscape connectivity, water quality, and species diversity. Those requirements simply cannot be met absent integrated plan components directed at making the road system considerably more sustainable and resilient, especially given changing climate conditions.

In response, the Forest Service explained the following:

The final plan includes components to support future project-level decisions and that allow for management of designated roads (those included on the motor vehicle use map) and unneeded roads. Unneeded roads are decommissioned to reduce impacts to ecological resources and connectivity (Roads O1).

--

Roads DC6 was added to provide direction related to vulnerability assessments and a climate-resilient transportation system. We also added a guideline to the final plan requiring temporary roads to be restored to more natural vegetative conditions upon project completion.

FEIS Vol. 2 at A-238. We appreciate the Forest Service included the additional plan components, but these additions fail to address our comments or concerns as we explain below.
A. Failure to include direction to identify and implement a minimum road system
Our comments explained the need for the Forest Service to address its unsustainable and deteriorating road system by ensuring the Revised Plan includes components to meet requirements under subpart A of the Travel Management Rule (TMR). We explained that the regulatory history of the Roads Rule makes clear that the Forest Service intended that forest plans would address Subpart A compliance. In response to comments on the proposed Roads Rule, the Forest Service stated:

The planning rule provides the overall framework for planning and management of the National Forest System. The road management rule and policy which are implemented

through the planning process must adhere to the sustainability, collaboration, and science provisions of the planning rule. For example, under the road management policy, national forests and grasslands must complete an analysis of their existing road system and then incorporate the analysis into their land management planning process.257

The Revised Plan fails to analyze its existing road system, precluding the agency from incorporating it in the land management planning process or providing specific plan components necessary to provide the overall framework for planning and management of the national forest road system. The Forest Service attempt to refute this in its response to comments:

The Gila National Forest completed a travel analysis and plan in compliance with Subpart A of the Travel Management Rule with the decision signed in 2014 (USDA FS 2014a and 2014b). The travel analysis plan identified the minimum road system needed for safe and efficient travel and for administration, utilization, and protection of National Forest System lands (36 CFR 212.5(b)(1).

FEIS Vol. 2 at 238. Our comments explained the Forest Service Washington Office issued direction clarifying that identification of the minimum road system must be completed through a NEPA-level analysis and decision, and that an internal pre-NEPA Travel Analysis Report is insufficient to demonstrate compliance with subpart A of the TMR. Our comments further explained that while the Gila National Forest completed its travel analysis process in 2009, it did not identify the MRS in its 2014 travel management planning record of decision, instead focusing specifically on designating motorized roads and trails for public use. In fact, the Forest Service acknowledges that it did not consider meeting subpart A direction to identify an MRS that reflects long-term funding expectations by explaining the, "[a]nalysis in the FEIS shows that none of the action alternatives identify a road system that can be fully maintained with current or projected funding levels." As such, the Forest Service cannot rely on its 2014 travel management plan decision to satisfy Subpart A requirements, especially since the supporting FEIS did not consider the entire road system, instead narrowing its focus to only changes to existing designations at the time of the analysis. Further, it is unreasonable for the agency to assert that results from an analysis completed in 2009 are still relevant and applicable for the Revised Plan decision some 14 years later. Moreso, WildEarth Guardians released a detailed report that illustrates the travel analysis process itself was often fundamentally flawed,258 which supports our comments that the Forest Service should include these additional Roads Objectives:

* Within 3 years of plan adoption, the forest shall identify its minimum road system and an implementation strategy for achieving that system that is consistent with forest plan direction and relevant regulatory requirements

* Over the life of the plan, implement the minimum road system (pursuant to 36 C.F.R. [sect] 212.5(b)).
B. Failure to provide direction that properly manages temporary roads
We urge the Forest Service to provide consistent direction regarding the construction and removal of temporary roads. The Revised Plan includes the following Roads Guideline:

1. Construction of temporary roads in areas with desired recreation opportunity spectrum classifications of semi-primitive non-motorized should be avoided unless required by a valid permitted activity or management action. If authorized, roads should be constructed and maintained at the lowest maintenance level needed for the intended use and then obliterated or naturalized when the permitted activity or management action is completed.

Revised Plan at 212 (emphasis added). We support direction to obliterate or naturalize temporary roads, if the latter means removing any engineered components. In other words, any temporary road removal must ensure

there are no physical remnants that may be utilized in the future as a temporary road or added to the transportation system. We urge the Forest Service to clarify what is meant by "naturalize" or simply strike it to make clear that temporary roads should be obliterated. Further, the Forest Service is now authorizing projects for numerous years, sometimes 10, 15 and even 20 years or more, making "upon project completion" an unreasonable time frame to remove temporary roads. We urge the Forest Service to revise this guideline as follows:

1. Construction of temporary roads in areas with desired recreation opportunity spectrum classifications of semi-primitive non-motorized should be avoided unless required by a valid permitted activity or management action. If authorized, roads should be constructed and maintained at the lowest maintenance level needed for the intended use and then obliterated within 3 years after construction. or naturalized when the permitted activityor management action is completed.

In addition, we urge the Forest Service to adopt this direction for other guidelines as well, particularly the following:

Roads Guideline

1. Temporary roads that support adaptation and restoration activities, fuels management, or other projects should be restored to more natural vegetative conditions upon project completion to assist in moving toward desired conditions for watersheds and habitats and to discourage illegal motorized use. Revised Plan at 213.

It is unclear why the Forest Service would direct temporary roads be obliterated or "naturalized" in Guideline #4 and not include the same direction for Guideline #5. Restoring temporary roads to a "more natural vegetative conditions" risks these roads persisting on the ground where they could be utilized in the future, which is essentially expanding a network of unauthorized roads. All temporary roads must be fully removed from the ground within a reasonable timeframe (3 yrs) if they are truly going to be temporary.

Such direction should also be added where road construction may occur in the Riparian Management Zone:

Riparian Management Zone Guideline

1. To minimize sediment delivery to streams, new construction or realignment of roads and motorized routes, recreation sites or other infrastructure should not be located within the 100-year floodplain or within 300 feet of a riparian management zone. Exceptions for stream crossings are made where determined necessary by site-specific analysis to reduce potential long-term investments in maintenance or adverse impacts (a downward trend or movement away from desired conditions) to floodplains and water resource features. Revised Plan at 119.

Given this is a guideline and there is a likely scenario where temporary road construction may occur within the RMZ since there is no standard prohibiting such activity, the Forest Service should clarify that any temporary roads constructed will be obliterated within 3 yrs after construction.

The same direction must also be including in the section directing management for plants, specifically the following:

Wildlife, Fish and Plants

1. Where there are known populations of rare and endemic plants, no new permanent roads or motorized trails will be constructed unless it is to provide legal access to private property. Temporary motorized routes that facilitate management activities are acceptable provided appropriate avoidance or mitigation measures are

incorporated. Temporary motorized routes are closed when no longer needed.

Revised Plan at 133 (emphasis added). Foremost, temporary roads are anything but temporary if they are simply closed. Not only are closure devices often circumvented or ignored, but the road template will persist on the ground long after they are "no longer needed." As written, this standard is woefully inadequate and must be revised to ensure they are obliterated after 3 yrs of their construction.

B. The Draft Plan and DEIS does not consider or incorporate motorized route density standards

Our comments urged the Forest Service to consider and adopt an alternative that establishes motorized route density standards, based on the long history of established science that demonstrates high road densities harm fish and wildlife species. There is little difference between a motorized trail and a road in its effects on sensitive, threatened and endangered species. In response, the Forest unreasonably and arbitrarily dismissed our request for such an alternative stating:

This standard was considered, but not analyzed in detail because while road density measures may be useful condition indicators, they make poor management standards. This is because the effects of roads on habitat connectivity also depends, at least, on traffic volume, the species, and sometimes the sex of the species. Road density standards are also ineffective management standards for water quality because the effects of roads on watershed condition and water quality depend on many other factors, including road location and design features, maintenance, the size and topography of the watershed, and vegetative cover over the rest of the watershed.

FEIS at 17. Certainly we agree that other road-related factors affect watershed conditions, water quality, and habitat connectivity, yet the Revised Plan lacks standards that address those other factors, and the agency does not provide a rationale as to why it couldn't include road density standards in addition to others that it listed in its response. In fact, road or motorized route density standards provide clear direction that can be easily operationalized during project development and implementation. The assertion that other factors preclude their adoption in the Revised Plan is without merit and scientific studies show limiting road densities has a direct benefit to fish and wildlife habitat.259

Further, though the 2009 Gila Travel Analysis Report needs a crucial update, it did include relevant and timeless rationales that support the benefits of motorized route density thresholds:

The Forest considered that calculating road density by watershed as an appropriate method to display the scale of a road system in a watershed. Road density is used as an indicator of the system's general potential to impact water quality or modify the surface hydrology of an area. It can also be used in cumulative effects analysis to estimate the magnitude of disturbance that roads may be having on a watershed in conjunction with other land management activities.

The Forest also used road density at a watershed scale to assess impacts to wildlife. Impacts include such things as: displacement, home range modification, creating barriers to movement, and increased fragmentation. Road densities at varying scales may also be used to determine cumulative impacts to wildlife.

2009 Gila National Forest Travel Analysis Report at 12. In addition, the Forest Service use of the Watershed Condition Framework (WCF) to inform the Revised Plan analysis includes the Road and Trail Indicator that relies in part on road densities. Here it is important to note that the WCF utilized an expansive road definition that the Forest Service should have used in its Revised Plan analysis:

For the purposes of this reconnaissance-level assessment, the term "road" is broadly defined to include roads and all lineal features on the landscape that typically influence watershed processes and conditions in a manner similar to roads. Roads, therefore, include Forest Service system roads (paved or nonpaved) and any temporary roads (skid trails, legacy roads) not closed or decommissioned, including private roads in these categories. Other

linear features that might be included based on their prevalence or impact in a local area are motorized (off-road vehicle, all-terrain vehicle) and nonmotorized (recreational) trails and linear features, such as railroads. Properly closed roads should be hydrologically disconnected from the stream network. If roads have a closure order but are still contributing to hydrological damage they should be considered open for the purposes of road density calculations.260

Clearly road or motorized route densities provide useful tools for analyzing their environmental impacts, and there is no justifiable rationale that they should not be used as Revised Plan standards. However, the Forest Service did provide an additional explanation for excluding them in any alternative:

Additionally, road densities and their effects on species, habitats and watersheds were addressed by the 2014 travel management decision (USDA FS 2014a) and its supporting environmental analysis (USDA FS 2014b), which have been incorporated into the project record for plan revision.

FEIS at 17. We explain in our comments and here in our objection that the 2014 travel management decision does not disclose or properly address road densities, and after 10 years implementing the decision, the subwatersheds on the Gila National Forest still have high road densities that contribute to degraded conditions.
Resolution
Acknowledge that the Gila NF has yet to comply with subpart A of the TMR, and include specific road objectives as explained herein and listed in our comments. Address the Revised Plan inconsistencies regarding standards and guidelines related to the removal of temporary roads as we explain herein. Finally, supplement the FEIS analysis with an alternative that considers appropriate motorized route densities, and include those densities as standards in the final Revised Plan.
10. Objections Relating to Mexican Wolf
Objection: Failure to adequately regulate livestock grazing and to adequately analyze the authorized and unauthorized livestock grazing's effects on the endangered Mexican gray wolf violate NFMA, NEPA, ESA, and APA.

Section 7(a)(1) of the Endangered Species Act includes this requirement:

All other Federal agencies shall, in consultation with and with the assistance of the Secretary, utilize their authorities in furtherance of the purposes of this chapter by carrying out programs for the conservation of endangered species and threatened species listed pursuant to section 1533 of this title.

Moreover, the National Forest Management Act requires the Forest Service to include standards or guidelines to "provide the ecological conditions necessary to contribute to the recovery of federally listed threatened and endangered species."261

The Forest Service should require terms and conditions in livestock grazing permits and/or annual operating instructions to permittees to protect Mexican wolves. Those terms and conditions should at a minimum include the following requirements: (1) the timely, proper disposal of the carcasses of livestock that die of non-wolf causes before wolves scavenge on such carrion; (2) a human presence in the vicinity of livestock that are calving/birthing; and (3) planned chronologically-pulsed birthing of livestock to limit the span of time that newborn domestic animals are available to wolves and other predators.

Notwithstanding that more Mexican gray wolves inhabit the Gila National Forest than they do any other jurisdiction, the forest plan does not address the overarching threat to Mexican wolves, which is posed by the plan itself and specifically its unfettered authorization of widespread and intensive stocking of livestock. The Forest Service is failing to carry out a program for the conservation of the Mexican wolf and is failing to provide the ecological conditions necessary to contribute to the recovery of the Mexican wolf. The forest plan would perpetuate these failures.

The Forest Service's issuance of livestock grazing permits and the absence in those permits of meaningful standards or guidelines to protect wolves undermines and subverts conservation of the Mexican wolf and directly destroys the ecological conditions necessary to contribute to their recovery. The end effects of these failures are evidenced in the deteriorated genetic condition of the Mexican wolf population in the U.S., which resides primarily on the Gila National Forest.

This can be seen in each of four metrics by which geneticists measure the health of animal and plant populations. For example, in 2008 the founder genome equivalents in the wild Mexican wolf population stood at 2.36 animals, meaning that the population contained the genetic diversity equivalent to having that number of founding animals. By 2023, the wild population's founder genome equivalents had been reduced to 2.09 - a reduction of over 8%. In 2008, the gene diversity that had been retained in the wild population, as a proportion of the genetic diversity stemming from the original seven founding animals of the captive population from which the wild population emanates, was 78.81%. In 2023, that number had decreased to 76.09 - a reduction of over 3%. While those positive metrics have been heading down, two negative metrics have been heading up. The mean inbreeding in the population increased from 0.1517 in 2005 to 0.2114 - a more-than 39% increase. Lastly, the mean kinship of the population increased from 0.2119 in 2008 to 0.2391 - an increase of almost 13%.262

A significant reason for that negative trend in genetic diversity is the removals of wolves by the U.S. Department of Agriculture's Wildlife Services agency, at the behest of the U.S. Fish and Wildlife Service. USDA WS and other agencies removed 209 wolves from the wild from 1998 through 2019,263 and many more in the ensuing five years. Some of the wolves who were captured alive among those hundreds, were later released back to the wild. But 30 wolves intended to be captured alive - many for having predated on livestock grazed on the Gila and Apache national forests - died inadvertently as a consequence of their intended live-captures (for example through capture myopathy). In addition, since 2003 USDA WS has shot and killed 20 Mexican wolves in response to the wolves' predations on cattle, including those grazed on the Gila National Forest. Both the live-captures (including those that end with the wolves' unintended deaths) and the purposeful and planned killings have directly resulted in losses of genetic diversity. For example, on July 11, 2004 USDA WS shot and killed the adult male of the Saddle Pack, AM574, for having preyed on livestock on national forest lands. On April 6, 2024, Fish and Wildlife Service wolf biologist Colleen Buchanan had written to colleagues that AM574 is "the most genetically valuable wolf in the wild" and, even counting the captive wolves, "not . . . 'genetically redundant."264 That did not dissuade the Fish and Wildlife Service from having the wolf killed. This and numerous other incidents and legal violations have led the Fish and Wildlife Service to lose three separate lawsuits filed by the Center for Biological Diversity and other conservation organizations, since 2012, over its successive Mexican wolf experimental population rules; additional such litigation is ongoing. The Forest Service has no basis in depending on the Fish and Wildlife Service and its wolf management as any sort of defense to our assertion that Forest Service management has caused the losses of genetic diversity in Mexican wolves and that the final forest plan will cause additional such losses and prevent effective introgression of vital genetic diversity from the captive population, through wolf releases to the wild, in the future.

The Forest Service should require livestock permitees to properly dispose of carcasses of stock that die from non-wolf causes before wolves scavenge on them, and thereby prevent scavenging and ensuing predation on live cattle, horses or sheep. Livestock die from a variety of causes, including illness; malnutrition; pathological parturition; eating poisonous plants; predation by mountain lions, black bears and coyotes; falls from cliffs; vehicle collisions; and lightning. Once wolves scavenge on carrion from domestic animals, they are more likely to later prey on those same types of animals. That is in part due to proximity. Wolves who find and feed on a carcass are more likely to stay in the same area and make it part of their home territory. Often, where such carcasses exist, other cattle (or sheep or horses) may be unhealthy or otherwise vulnerable to predation.

The Fish and Wildlife Service's 2001 Mexican Wolf Three-Year Review recommended that the wildlife agency require livestock owners to take responsibility for carcass removal or disposal, noting that at least three packs

had been removed from the wild because they first scavenged on dead livestock left on national forest land.265 The American Society of Mammalogists reiterated this recommendation in 2007.266 Nevertheless, the Fish and Wildlife Service has not adopted this recommendation and no such protections have ever been afforded Mexican gray wolves.

The Forest Service should include such a requirement in its issuance of grazing permits.

The Forest Service should also include terms and conditions in livestock grazing permits that require a human presence in the vicinity of livestock that are calving/birthing, and should require that planned calving occur in a defined time. The latter is the recommendation of a 2011 study of Mexican wolf predation on livestock, which found that "predators selected for younger/smaller calves" inluding those shortly after birth and recommended "changing livestock husbandry practices so that birthing of calves occurred as a pulse instead of continuously throughout the year." 267 A 2023 study on Mexican wolf recovery determined that "Recovering and maintaining carnivore populations in shared landscapes may require greater tolerance of conflict and more emphasis on effective conflict prevention strategies and compensation programs for affected stakeholders" (emphasis added).268

Failure to include in the Forest Plan a requirement that grazing permits and/or annual operating instructions include mandatory provisions to protect Mexican wolves, as described above, and failure to fully study the obstacles to wolf recovery presented by livestock grazing on the Gila National Forest, violates NFMA, NEPA, ESA, and APA.

Resolution

The Forest Plan should require terms and conditions in livestock grazing permits and/or annual operating instructions to permittees to protect Mexican wolves. Those terms and conditions should at a minimum include the following requirements: (1) The timely, proper disposal of the carcasses of livestock that die of non-wolf causes before wolves scavenge on such carrion; (2) a human presence in the vicinity of livestock that are calving/birthing; and (3) planned chronologically-pulsed birthing of livestock to limit the span of time that newborn domestic animals are available to wolves and other predators.

CONCLUSION

Thank you for considering the information and concerns raised in our comments and highlighted in this objection.

We request a meeting to discuss potential resolution of issues raised in this objection, pursuant to 36 C.F.R. [sect] 218.11(a). We hope that the Forest Service will use the objection process and such a meeting as opportunities to engage with stakeholders, including the objectors here, to develop a project that is legally and ecologically sound.

Sincerely,

Brian Nowicki
Center for Biological Diversity
P.O. Box 710, Tucson, AZ 85702-0710

bnowicki@biologicaldiversity.org, (505) 917-5611

Sally Paez, Staff Attorney
New Mexico Wilderness Alliance
PO Box 25464, Albuquerque, NM 87125

sally@nmwild.org, (505) 843-8696

Oscar Simpson, State Chair

New Mexico Sportsmen
3320 12th St NW, Albuquerque, New Mexico 87107 oscarsimpson3@yahoo.com, 505-345-0117, c 505-917-2134

Bryan Bird, Southwest Director
Defenders of Wildlife
Santa Fe, NM

bbird@defenders.org, 505-395-7332

Allyson Siwik, Executive Director
Gila Conservation Coalition
Sally Smith, President
Gila Resources Information Project
Patrice Mutchnick, Board Chair Heart of the Gila heartofthegila@gmail.com

Oscar Simpson, Conservation Chair
Rio Grande Indivisible, NM
3320 12th St NW, Albuquerque, New Mexico 87107 oscarsimpson3@yahoo.com, 505-345-0117, c 505-917-2134

Diane Reese, Chapter Chair
Sierra Club Rio Grande Chapter
2215 Lead Ave. SE Albuquerque, NM 87106

Carol Ann Fugagli, Executive Director Upper Gila Wilderness Alliance director@ugwa.org

Thomas Hollender, President
White Mountain Conservation League
PO Box 72, Nutrioso, AZ 85932

twhollender@ gmail.com, 928-245-77

Andrew Rothman, Wild Places Program Director
WildEarth Guardians
301 N. Guadalupe St., Ste. 201, Santa Fe, NM 87501 arothman@wildearthguardians.org; 303-501-5815

FOOTNOTES

1 16 U.S.C. [sect]1604(g)

2Id. at [sect] 1604(c)

3 36 C.F.R. [sect] 219

4 36 C.F.R. [sect] 219.3

5 36 C.F.R. [sect] 219.19

6 36 C.F.R. [sect] 219.8

7Id.

8Id.

9 36 C.F.R. [sect] 219.9(a)

10Id.

11 36 C.F.R. [sect] 219.9(b)

12Id.

13 36 C.F.R. [sect] 219.11

14 36 C.F.R. [sect] 219.12(a)(1)

15 36 C.F.R. [sect] 219.12(a)(2)

16 36 C.F.R. [sect] 219.12(a)(5)

17 36 C.F.R. [sect] 219.12(a)(5)(vi)

18 36 C.F.R. [sect] 219.12(c)

19 40 C.F.R. [sect] 1500.1(a)

20Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 349 (1989)

21 42 U.S.C. [sect] 4332(2)(C)

22Friends of the Clearwater v. Dombeck, 222 F.3d 552, 557 (9th Cir. 2000)

23League of Wilderness Defenders/Blue Mts. Biodiversity Project v. U.S. Forest Serv., 689 F.3d 1060, 1075 (9th Cir. 2012)

24 42 U.S.C. [sect] 4332

25 40 C.F.R. [sect] 1507.1

26 42 U.S.C. [sect] 4332(2)(E)

27 40 C.F.R. [sect] 1502.14(a)-(c)

28City of Carmel-By-The-Sea v. U.S. Dept. of Transp., 123 F.3d 1142, 1155 (9th Cir. 1997)

29See 40 C.F.R. [sect][sect] 1502.16, 1508.7, 1508.8; see also Blue Mountains Biodiversity Project v. Blackwood, 161 F.3d (9th Cir. 1998); Earth Island Institute v. U.S. Forest Serv., 442 F.3d 1147 (9th Cir. 2006)

30League of Wilderness Defenders/Blue Mountains Biodiversity Project v. U.S. Forest Serv., 689 F.3d at 1075

31Conservation Cong. v. Finley, 774 F.3d 611, 616 (9th Cir. 2014)

32 40 C.F.R. [sect] 1508.7

33 40 C.F.R. [sect] 1502.24

34 40 C.F.R. [sect] 1502.9

35W. Watersheds Project v. Kraayenbrink, 632 F.3d 472, 493 (9th Cir. 2011)

36Marsh v. Oregon Natural Res. Council, 490 U.S. 360, 373-74 (1989)

37 16 U.S.C. [sect] 1531(b)

38 16 U.S.C [sect] 1536(a)(1).

39Id. [sect] 1532(3).

40 16 U.S.C. [sect] 1536(a)(2).

41Id. [sect] 1536(a)(2)

42 5 U.S.C. [sect] 706

43Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co., 463 U.S. 29, 43 (1983)

44 Environment and Natural Resources Division Senior Trial Attorney Andrew A. Smith. New Mexico Cattle Growers' Association, et al. v. United States Forest Service, et al., Case 1:23-cv-00150-JB-GBW, Albuquerque, NM, February 1, 2024, page 126; Hearing Transcript.

45 Final Plan at 200.

46Southwest Center for Biological Diversity v. U.S. Forest Service (D. Ariz. CV-97-TUC-JMR).

47 Rapid Assessment of Cattle Impacts in Riparian Exclosures on the Gila National Forest Rapid, Center for Biological Diversity, March, 2018.

48 Rapid Assessment of Cattle Impacts in Riparian Exclosures and Critical Habitat on the Gila National Forest, Center for Biological Diversity, January, 2020.

49 Rapid Assessment of Cattle Impacts in Riparian Critical Habitat on the Gila National Forest, Center for Biological Diversity, August, 2021.

50 Rapid Assessment of Cattle Impacts in Riparian Critical Habitat on the Gila National Forest, Center for Biological Diversity, August, 2022.

51 Rapid Assessment of Cattle Impacts in Riparian Critical Habitat on the Gila National Forest, Center for Biological Diversity, September, 2023.

52 Grazed to Death: Livestock Production Adversely Modifying Majority of Drought-Stricken Western Yellow-

Billed Cuckoo Critical Habitat on Public Lands in Arizona and New Mexico. Center for Biolotical Diversity. June, 2024. Available at: https://biologicaldiversity.org/species/birds/yellow-billed_cuckoo/pdfs/Cuckoo-Adverse-Modification-Report_CBD_2024.pdf

53Id.

54Id

55 BO at 71.

56 FEIS Vol. 2. at A-25.

57 FEIS Vol. 2 at A-22.

58 FEIS Vol. 2 at A-98.

59Id.

60 42 U.S.C. [sect] 4332(2)(E)

61 40 C.F.R. [sect] 1502.14(a)-(c)

62See 40 C.F.R. [sect][sect] 1502.16, 1508.7, 1508.8; see also Blue Mountains Biodiversity Project v. Blackwood, 161 F.3d (9th Cir. 1998); Earth Island Institute v. U.S. Forest Serv., 442 F.3d 1147 (9th Cir. 2006)

63Id.

64League of Wilderness Defenders/Blue Mountains Biodiversity Project v. U.S. Forest Serv., 689 F.3d at 1075

65Conservation Cong. v. Finley, 774 F.3d 611, 616 (9th Cir. 2014)

66 16 U.S.C [sect] 1536(a)(1).

67Id. [sect] 1532(3).

68 36 C.F.R. [sect] 219.9(a)

69Id.

70 36 C.F.R. [sect] 219.9(b)

71 36 C.F.R. 219.8(a)(3).

72 5 U.S.C. [sect] 706

73 FEIS Vol. 1 at 17.

74 FEIS Vol. 1 at 268.

75 Rapid Assessment of Cattle Impacts in Riparian Critical Habitat on the Gila National Forest, Center for Biological Diversity, September, 2023.

76 36 C.F.R. [sect] 219.9(b)

77 36 C.F.R. 219.8(a)(3).

78 16 U.S.C [sect] 1536(a)(1).

79Id. [sect] 1532(3).

80 36 CFR [sect] 219.8(a)(3).

81 36 CFR [sect][sect] 219.8 and 219.9.

82 FSH 1909.12, sec. 05.

83 Steinhoff, G. 2018. Biodiversity Conservation in the National Forests, and the 2012 Planning Rule. Washington Journal of Environmental Law & Policy 8(1).

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

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

88 FSH 1909.12, sec. 05.

89 36 CFR [sect][sect] 219.8 and 219.9.

90 36 C.F.R. [sect] 219.7

91See generally Courtney A. Schultz et al., 2013. Wildlife Conservation Planning Under the United States ForestService's 2012 Planning Rule. J. Wildlife Mgmt. 71: 428-444.

92 16 U.S.C. 1604(g)(3)(B).

93 Wilkinson, C.F., and H.M. Anderson. 1985. Land and Resource Planning In the National Forests.Oregon Law Review 64(1 & 2).

94 Rapid Assessment of Cattle Impacts in Riparian Critical Habitat on the Gila National Forest, Center for Biological Diversity, September, 2023.

95 FSH 1902.12

96 Final Plan at 117.

97 Rapid Assessment of Cattle Impacts in Riparian Critical Habitat on the Gila National Forest, Center for Biological Diversity, September, 2023.

98 Determination of Threatened Status for the Western Distinct Population Segment of the Yellow-billed Cuckoo

(Coccyzus americanus). Fed. Reg. Vol. 79 No. 192 at 160012.

99 FSH 1902.12

100 Biological Opinion at 71.

101 FEIS Vol. 1 at 173.

102 Biological Opinion at 87.

103Id at 86.

104 36 C.F.R. [sect] 219.7

105 16 U.S.C. 1604(g)(3)(B).

106 36 C.F.R. [sect] 219.9(b)

107 FEIS Vol. 2. At A127.

108 Minimum Required Monitoring for Watershed Condition Classification at Final Plan pages 274 and 275 provide reporting frequencies of 2-6 years and are silent on the frequency of actual monitoring.

109 Rapid Assessment of Cattle Impacts in Riparian Critical Habitat on the Gila National Forest, Center for Biological Diversity, September, 2023.

110 FEIS Vol. 2. At A127.

111 Rapid Assessment of Cattle Impacts in Riparian Critical Habitat on the Gila National Forest, Center for Biological Diversity, September, 2023.

112 16 U.S.C [sect] 1536(a)(1).

113Id. [sect] 1532(3).

114 36 C.F.R. [sect] 219.12(a)(2)

115 Id.

116 36 C.F.R. [sect] 219.9(b)

117 36 C.F.R. 219.8(a)(3).

118 5 U.S.C. [sect] 706

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

120 New Mexico Department of Game and Fish. 2006. Comprehensive Wildlife Conservation Strategy for New Mexico. New Mexico Department of Game and Fish. Santa Fe, New Mexico. 526 pp + appendices.

121 Friggens et al. 2013 at 58.

122 Smith and Keinath 2007 at 3.

123 Decker 2006 at 29.

124 Poff et al. 2012 at 11.

125 40 C.F.R. [sect] 1508.7

126 Fleischner, T. 1994. Ecological Costs of Livestock Grazing in Western North America. Conservation Biology

8(3): 629-644.

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

128https://ucanr.edu/blogs/blogcore/postdetail.cfm?postnum=29569

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

130 Belsky, A.J., A. Matzke, and S. Uselman. 1999. Survey of Livestock Influences on Stream and RiparianEcosystems in the Western United States. Journal of Soil and Water Conservation 54: 419-431.

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

132 Zwartjes, P.W., J.E. Cartron, P.L.L. Stoleson, W.C. Haussamen, and T.E. Crane. 2005. Assessment of NativeSpecies and Ungulate Grazing in the Southwest: Terrestrial Wildlife. Gen. Tech. Rep. RMRS-GTR-142. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 74 p. plus CD. 13360 Fed. Reg. at 10707 ("Overuse by livestock has been a major factor in the degradation and modification of

riparian habitats in the United States [hellip] Livestock grazing in riparian habitats typically results in reduction of plant species diversity and density, especially of palatable plants like willow and cottonwood saplings.")

13477 Fed. Reg. at 10,818 ("Impacts associated with roads and bridges, changes in water quality, improper livestock grazing, and recreation have altered or destroyed many of the rivers, streams, and watershed functions in the ranges of the spikedace and loach minnow.")

13579 Fed. Reg. at 38718 ("We found numerous effects of livestock grazing that have resulted in the historical degradation of riparian and aquatic communities that have likely affected northern Mexican and narrow-headed gartersnakes.")

136 Wilcove, D. et al. 1998. Quantifying Threats to Imperiled Species in the United States. BioScience, 48(8): 607- 615.

137 Kauffman, J.B., and W.C. Krueger. 1984. Livestock impacts on riparian plant communities and streamsidemanagement implications-a review. Journal of Range Management 37(5): 430-438.

138 Armour, C.L., D.A. Duff, and W. Elmore. 1991. The effects of livestock grazing on riparian and streamecosystems. Fisheries 16(1): 7-11.

139 Trimble, S.W., and A.C. Mendel. 1995. The cow as a geomorphic agent - a critical review. Geomorphology

13(1995): 233-253

140 Patten, D.T. 1998. Riparian ecosystems of Semi-Arid North America: Diversity and Human Impacts. Wetlands

18(4): 498-512.

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

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

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

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

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

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

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

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

149 Pritchard and Crowley 2006 at 50.

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

151 Propst, D.L. and M.A. McInnis 1975. An analysis of streams containing native Rio Grande cutthroat in the

Santa Fe National Forest. WICHE Report for the Santa Fe National Forest, Region 3, Albuquerque, NM.

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

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

154 Hunter, C.J. 1991. Better Trout Habitat. Island Press, Washington, D.C.

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

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

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

158Federal Register Vol. 57 No. 225, November 20, 1992, Endangered and Threatened Wildlife and Plants; Proposed Endangered Status for the Plant "Salix arizonica" (Arizona willow), with Critical Habitat.

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

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

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

162 Melgoza, G., R.S. Nowak and R.J. Tausch. 1990. Soil water exploitation after fire: competition between Bromustectorum (cheatgrass) and two native species. Oecologica 83:7-13.

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

164 Fleischner, T.L. 1994. Ecological costs of livestock grazing in western North America. Conservation Biology

8(3): 629-644.

165 Holland, K.A., W.C. Leininger, and M.J. Trlica. 2005. Grazing History Affects Willow Communities in aMontane Riparian Ecosystem. Rangeland Ecology and Management 58: 148-154.

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

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

168 Szaro, R.C., and C.P. Pase. 1983. Short-term Changes in a Cottonwood-Ash-Willow Association on a Grazedand an Ungrazed Portion of Little Ash Creek in Central Arizona. Journal of Range Management 38(3): 382-384. 169 Donahue, D. 1999. The Western Range Revisited: Removing Livestock from Public Lands to Conserve Native Biodiversity. Norman, OK: University of Oklahoma Press. 338 pages.

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

171 Central Arizona Grasslands Conservation Strategy, page 21.

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

173 Rosenstock, S. S. and Van Riper [Iota][Iota][Iota], C. (2001) Breeding Bird Responses to Juniper Woodland Expansion.

Journal of Range Management, 54:226-232.

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

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

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

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

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

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

180 Sarr, D.A. 2002. Riparian Livestock Exclosure Research in the Western United States: A Critique and SomeRecommendations. Environmental Management 30(4): 516-526.

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

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

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

184 36 C.F.R. 219.8(a)(2)

185 36 C.F.R. [sect] 219.8(a)(1).

186 36 C.F.R. [sect] 219.19.

187 Forest Plan at 105.

188 Id.

189 Final Plan at 119.

190 Final Plan at 102.

191 Final Plan at 102.

192 Final Plan at 10.

193 36 C.F.R. 219.8(a)(2)

194 36 C.F.R. [sect] 219.12(a)(1)

195 Id.

196 FEIS Vol. 2 at A-330.

197 Id.

198 FEIS Vol. 1 at 402.

199 According to the USDA Natural Resources Conservation Service, one high-forage diet beef cow produces 59.1 lbs/day/1000-lb animal unit; one lactating dairy cow produced 80 lbs/day/1000-lb animal unit.

200 Rice DH, Hancock DD, Besser TE. "Faecal culture of wild animals for Escherichia coli O157:H7." Vet Rec. 2003;152:82-3. PubMedExternal Link

201 P. Money, A. F. Kelly, S.W. J. Gould, J. Denholm-Price, E. J. Threlfall and M. D. Fielder. "Cattle, weather and water: mapping Escherichia coli O157:H7 infections in humans in England and Scotland." https://sfamjournals.onlinelibrary.wiley.com/doi/abs/10.1111/j.1462-2920.2010.02293.x

202 Lois Wolfson, Tim Harrigan. "Cows, Streams, and E. Coli: What everyone needs to know" Michigan StateUniversity Extension.

203 T. A. McAllister and E. Topp. "Role of livestock in microbiological contamination of water: Commonly the blame, but not always the source." [Note: the article mainly focused on livestock's causation of human disease outbreaks; hence, the title's wariness to assign blame for human diseases to livestock. Nonetheless, this article relevantly delineates livestock's contribution of E. Coli into water streams, and outlines best livestock management practices to reduce water contamination.]

204 Submitted via US Postal Mail separately as "Attachment 5: Impaired Waters of the Gila National Forest." We

request that this information be used as Best Available Science and as baseline conditions to develop plan components and monitoring plans to ensure the Forest Plan moves towards the desired condition of meeting or exceeding State water quality standards.

205 Available at: https://www.env.nm.gov/surface-water-quality/303d-305b/ and https://www.env.nm.gov/surface-water-quality/wp-content/uploads/sites/18/2024/02/2024-2026_Cat-4-or-5_Impairments.xlsx

206 42 U.S.C. [sect] 4332

207See 40 C.F.R. [sect][sect] 1502.16, 1508.7, 1508.8; see also Blue Mountains Biodiversity Project v. Blackwood, 161 F.3d (9th Cir. 1998); Earth Island Institute v. U.S. Forest Serv., 442 F.3d 1147 (9th Cir. 2006)

208League of Wilderness Defenders/Blue Mountains Biodiversity Project v. U.S. Forest Serv., 689 F.3d at 1075

209 36 C.F.R. 219.8(a)(2)

213 Defenders of Wildlife et al., 6/12/2017, plan revision scoping comments to Gila National Forest.

214 A J Belsky, A Matzke, and S Uselman, "Survey of Livestock Influences on Stream and Riparian Ecosystems in the Western United States," J. Soil Water Conserv. 54, no. 1 (1999): 9-10.

215 Belsky, Matzke, and Uselman, 9.

216 Belsky, Matzke, and Uselman, 12-13.

217 40 C.F.R. [sect] 1502.02(g); see id. [sect] 1500.1(c) ("NEPA's purpose is not to generate paperwork[mdash]even excellent paperwork[mdash]but to foster excellent action").

218 36 C.F.R. [sect] 219.3

219 36 C.F.R. [sect] 219.3

220 42 U.S.C. [sect] 4331(2)(E).

221 DEIS, p. 390.

222 Final Plan at 133.

223 36 C.F.R. [sect] 219.9(a)(2).

224 36 C.F.R. [sect] 219.3. NEPA also requires the Forest Service to use "the best available scientific information."

225 Gila Coalition comments in response to the Draft Plan and DEIS

226 FEIS, Volume 2, Response to Comments, at A-458

227 Gila Coalition comments in response to the Draft Plan and DEIS.

228 FEIS, Volume 2, Response to Comments, at A-459.

229 FEIS Vol 2, Response to Comments, at A-455 to A-456

230 FEIS Vol 2, Response to Comments, at A-456.

231 BO at 54.

232 See, for example, Table 13, FEIS at 71, which estimates 7,404 acres of ponderosa pine forest type to be mechanically treated per decade.

233 Mexican spotted owl Biological Opinion at 76.

234 Forest Plan at 204.

235 Forest Plan at 203.

236 Forest Plan at 204.

237 Forest Plan at 204.

238 Mexican spotted owl Biological Opinion at 54.

239 Mexican spotted owl Biological Opinion at 75.

240 FEIS, Volume 1, at 204.

241 Mexican spotted owl Biological Opinion at 54

242 Mexican spotted owl Biological Opinion, Appendix A at 106.

243 Mexican spotted owl Biological Opinion, Appendix A at 106.

244 Forest Plan at 79-80.

245 Forest Plan at 80.

246 Mexican spotted owl Recovery Plan Table C.3 at 278.

247 Mexican spotted owl Recovery Plan Table C.2 at 276.

248 Mexican spotted owl Recovery Plan Table C.3 at 278.

249 Region 3 Step-by-Step Mexican Spotted Owl Habitat Treatment and Implementation Guidance

250 MSO Leadership Forum Workgroup, June 17 and 26, 2020, Workshop Notes.

251 40 CFR 1500.2(f).

252 36 CFR 219.14(a)(2) and (b).

253 FEIS, Volume 2, Response to comments, at A-456

254 FEIS, Volume 3, Appendix G at G-21.

255 Forest Plan at 148.

256 FEIS, Volume2, Response to Comments, at A-455.

257 66 Fed. Reg. at 3209 (emphasis added).

258 See "A Dilapidated Web of Roads - The USFS's Departure From a Sustainable Forest Road System_Jan 2021_WildEarth Guardians."

259 See WildEarth Guardians. 2020. The Environmental Consequences of Forest Roads and Achieving a Sustainable Road System - Literature Review.

260 Potyondy, J.P. and T.W. Geier. 2011 at 26.

261 36 C.F.R. [sect] 219.9(b)

262 Email and attachment from Maggie Dwire, deputy Mexican Wolf Recovery Coordinator, U.S. Fish and Wildlife Service, to Michael J. Robinson of Center for Biological Diversity, June 5, 2020. Mexican Wolf Interagency Field Team. 2023. Mexican Wolf Experimental Population Area 2024 Initial Release and Translocation Proposal, p. 9.

263 Fish and Wildlife Service chart previously posted on FWS Mexican wolf webpage: "Outcomes of Mexican wolf management removals from the Mexican Wolf Experimental Population Area, Arizona and New Mexico, 1998- 2019."

264 Email of Colleen Buchanan (FWS) to Susan MacMullin (FWS), "San Carlos wolf M574" (April 6, 2004).

265 Paquet, P. C., Vucetich, J., Phillips, M. L., and L. Vucetich. 2001. Mexican wolf recovery: three year program review and assessment. Prepared by the Conservation Breeding Specialist Group for the United States Fish and Wildlife Service; pp. 67-68.

266 Reintroduction and Conservation of the Mexican Gray Wolf, 88 J. of Mammalogy 1573 (2007).

267 Breck, S.W., B.M. Kluever, M. Panasci, J. Oakleaf, T. Johnson, W. Ballard, L. Howery and D.L. Bergman. 2011. Domestic calf mortality and producer detection rates in the Mexican wolf recovery area: Implications for livestock management and carnivore compensation schemes. Biological Conservation, 144:930-936

268 Breck, S.W., A.J. Davis, J.K. Oakleaf, D.L. Bergman, J. deVos, J.P. Greer and K. Pepin. 2023. Factors affecting the recovery of Mexican wolves in the Southwest United States. Journal of Applied Ecology, 00:1-11.