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M. Earl Stewart, Coconino National Forest Supervisor
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Sent Via Email: objections-southwestern-regional-office@fs.fed.us

Re: Four-Forest Restoration Initiative FEIS and Draft ROD, Coconino and Kaibab National Forests, Responsible Officials M. Earl Stewart and Michael R. Williams, Forest Supervisors

Dear Mr. Joyner:

Pursuant to 36 CFR 218 regulations, this is an objection to the Final Environmental Impact Statement and Draft Record of Decision for the Four-Forest Restoration Initiative on the Kaibab and Coconino National Forests. The Responsible Officials are Forest Supervisors **M. Earl Stewart and Michael R. Williams**. This objection is filed on behalf of the Sierra Club Grand Canyon (Arizona) Chapter.

Sierra Club is one of America's oldest, largest and most influential grassroots environmental organizations. The Sierra Club has more than 2.1 members and supporters nationally, including more than 35,000 members and supporters as part of the Grand Canyon Chapter. Inspired by nature, we work together to fulfill the Sierra Club mission "...to explore, enjoy and protect the wild places of the earth; to practice and promote the responsible use of the earth's ecosystems and resources; and to educate and enlist humanity to protect and restore the quality of the natural and human environments." Our members have a significant interest in the 4FRI, as we have long been involved in advocating for protection of these forests and we use these areas for hiking, camping, backpacking, bird watching, wildlife viewing, astronomy, photography, and more. We have been involved in the planning process for the 4FRI, as well.

Sierra Club has been participating in stakeholder meetings and helping to guide the direction of the Four-Forests Restoration Initiative (4FRI) for more than four years. We participated in working groups that developed the Large Tree Retention Strategy and the stakeholder comments to the Draft Environmental Impact Statement. On May 29, 2013, we submitted comments in collaboration with the Center for Biological Diversity, Grand Canyon Wildlands Council, Great Old Broads for Wilderness, and White Mountain Conservation League. Our members have a significant interest in the 4FRI project, as we have long been involved in advocating for protection of these forests and we use these areas for hiking, camping, backpacking, bird watching, wildlife viewing, astronomy, photography, and more.



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We appreciate the effort by the Forest Service to participate in a collaborative process with a large number of diverse stakeholders. However, the Forest Service failed to address several key issues or respond to comments, and feel that the project in its current form will not fully protect our forests.

Forest Service Must Acknowledge Cumulative Effects of 4FRI and Grazing

In our letter dated May 29, 2013, we submitted the following comments describing our concerns about the cumulative effects of 4FRI implementation and ongoing unchanged grazing practices:

Livestock grazing and fire suppression continue to encourage unnaturally dense stands of small trees, resulting in elevated competition for available sunlight, water and soil nutrients, decreased abundance and diversity of understory grasses and forbs, and increased density of hazardous fuels. (Letter submitted to USFS 5/29/13, p. 2)...

Significant cumulative effects to the environment may result from the proposed action in combination with past, ongoing and foreseeable management activities within and around the project area. The Forest Service is required to take a hard look at such impacts rather than merely list potential causes or mention that some risk may result from a catalogue of activities. Appendix F in the DEIS contains little information describing cumulative effects on various resources. The DEIS itself is not consistent across resources, and in many cases, it renders conclusions as opinion without supporting information. This is most evident in the analysis of vegetation.

Livestock grazing may cause significant cumulative effects for several reasons. First, grazing directly contributes to fire hazard by impairing soil productivity and altering plant composition, which indirectly contributes to delayed fire rotations, increased forest density, and reduced forage for herbivorous species. In addition, livestock grazing combined with proposed mechanical thinning and prescribed fire treatments may spread exotic plants and reduce the competitive and reproductive capacities of native species. Once established, exotic species may displace natives, in part, because natives are not adapted to ungulate grazing in combination with fire. The DEIS lists many grazing allotments in the project area, but it fails to take a hard look at significant cumulative impacts that may result from the project together with continued grazing. (Letter submitted to USFS 5/29/13, p. 4)

The letter went on to identify our concerns with grazing and the Forest Service's attempt to evade the issue, when discussing the Large Tree Retention Strategy:

Another specific example of difference between the collaborative Strategy and the DEIS implementation plan for large trees relates to treatments in aspen forest and woodland habitats. The Strategy states on page 17, "Other factors contributing to gradual aspen decline over the past 140 years include reduced regeneration from browsing by livestock and introduced and native wild ungulates in the absence of natural predators like wolves []." However, the Forest Service unilaterally modified this statement in the DEIS: "Other factors contributing to gradual aspen decline over the past 140 years include reduced regeneration from browsing ungulates []." DEIS at 650. In fact, the DEIS omits all mention of "natural predators like wolves" as being beneficial to aspen, and omits mention of livestock as detrimental to aspen. This is problematic because wolf reintroductions are among the only cases that resulted in improved aspen recruitment and survival (Ripple and Beschta 2011, Ripple and Beschta 2007). When large predators, particularly wolves, were reintroduced to Yellowstone National Park, USA, and Banff National Park, Canada, the wolves brought elk populations to manageable levels, and as a result of the decrease in grazing pressure, aspen populations near wolves rebounded (Hebblewhite et al. 2005, Ripple and Beschta 2007). What is the Forest Service's rationale for removing those words from its background information on Aspen Forest & Woodland? The Forest Service should return the statement to its original, scientifically defensible, and stakeholder-constructed form. (Letter submitted to USFS 5/29/13, p. 8)

Again, we express our concern when discussing old growth:

Old growth forests are the preferred habitat of many threatened and sensitive wildlife species and provide a host of ecological services including watershed function, clean water, soil retention, and storage of greenhouse gasses. As noted above, most of the former old growth forests throughout the ponderosa pine and mixed conifer formations in northern Arizona were destroyed by logging and continue to be degraded by livestock grazing and fire suppression. (Letter submitted to USFS 5/29/13, p. 8)

We repeat our concern again when discussing aspen:

According to pages 76-77 of the Water Quality and Riparian Areas Specialist Report supporting the DEIS, “Although there are no quantifiable data regarding the impacts that vertebrate herbivores and OHV traffic have on aspen stands and springs of the KNF and CNF, it is generally accepted that adverse effects to aspen stands and spring habitats from these activities are occurring.” The Forest Service intends to rely on approximately 82 miles of aspen fencing to control for these risks to aspen forests. It should explain why it will rely on fencing instead of taking proactive measures to limit motorized vehicle traffic, reintroduce natural predators, and limit livestock damage to aspen. When large predators, particularly wolves, were reintroduced to Yellowstone National Park, USA, and Banff National Park, Canada, the wolves brought elk populations to manageable levels, and as a result of the decrease in grazing pressure, aspen populations near wolves rebounded (Hebblewhite et al. 2005, Ripple and Beschta 2007). How will the costs of fencing construction and maintenance for years into the future compare with the costs of removing artificial water supplies that occur within several miles of aspen stands, or with the costs of removing roads that pass through aspen stands and allow vehicle trespass? (Letter submitted to USFS 5/29/13, pp. 14-15)

Our comments were not the only ones to bring up these issues. According to *Appendix I – Summary of Response to Comments on the DEIS*, the following also asked for the Forest Service to explain how future livestock management would differ from the past practices that helped lead to unhealthy forests in the first place:

Coconino Natural Resource Conservation District: Pages 573-575 Rangeland Management section: We are surprised to read the statement that “Restrictions in grazing of livestock would primarily occur after prescribed fire in a pasture.” We are not surprised by post-fire restrictions, but by the omission of pre-burn grazing prescriptions to allow for sufficient fine fuels accumulation to support a prescribed burn. (Appendix I, p. 945)

Eastern Arizona Counties Organization:

Appendix F Cumulative Effects does not include a discussion of what the cumulative effects of all the projects are, and only includes a brief synopsis of Authorized Livestock Management; Timber Harvest; and, Post-1996 Vegetation Treatments – Uneven-aged Management, Fire Risk, Restoration summarized from the Specialists’ reports. (Appendix I, pp. 982-983)

We recognize that the goals of the Coconino Natural Resource Conservation District and Eastern Arizona Counties Organization differ in many ways from our own, both groups make it clear in their comment letters that more predictability would be helpful to them, and if the Forest Service is to manage grazing differently in the future, it should be made clear to them now.

Yet, the Forest Service makes not one mention in Appendix I about future grazing management. We do not see any mention in the Draft Record of Decision about altering future grazing management. In the *Four-Forest Restoration Initiative DEIS Individual Response to Comments, Published on Web on December 10, 2014*, we are told, “The authorization of livestock grazing is also outside the scope of the proposed vegetation manipulation (p. 693) and we are reminded that fencing will be the method chosen to protect aspen from being consumed by elk or livestock (p. 693).

The Forest Service is about to engage in the largest forest “restoration” project ever undertaken, and it is not addressing a root cause of the problem. Acknowledgement and references to livestock grazing as a cause of unhealthy forests are not absent from the document. In fact, they are abundant in *Appendix D – Alternative B through E Implementation*

Plan (i.e., pp. 735, 737, 738, 740), including this statement on p. 738: “Pine tree removal, restoration of fire, and complementary reductions in livestock grazing pressure are all necessary to restore structure and function of native grasslands.” Yet, the Forest Service is not willing to take a strong position suggesting *what* changes are necessary. In Appendix C – Design Features, BMPs, and Mitigation, we see several measures aimed to “Minimize disruption to grazing (i.e. p. 649). We see notes about adding fencing if grazing is a problem (p. 661).

We do not see a real analysis of the cumulative effects of this project with ongoing livestock grazing (DEIS volume 2, p. 857). The Forest Service is setting our forests up to repeat a cycle of depleted understory and overcrowding. The Forest Service must disclose the cumulative effects of ongoing grazing and 4FRI.

The Cumulative Effects analysis in the Final Environmental Impact Statement must examine the full potential for interactions between mechanical vegetation treatment, prescribed fire, climate trends, and livestock grazing. The Forest Service must acknowledge the debate and controversy over grazing in ponderosa pine forests, and explore the potential for ecologically significant interactions. The Forest Service is not naïve to the potential interactions. For example, research conducted by the US Department of Agriculture found:

For all reburn treatments, including unburned areas, five growing seasons of cattle grazing exclusion 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... We document several potentially chronic impacts of cattle grazing in both burned and unburned areas... understory release from a long history of cattle grazing caused a greater degree of change than the initial reintroduction of fire. If a goal of ecological restoration in these forests is increased cover of native perennial plants, and the potential for increased native perennial grass reproduction, then cattle grazing exclusion, or a change in cattle management, could provide critically important options in restoration plans. (Kerns et al. 2011)

There is abundant peer-reviewed literature that documents the connection between livestock grazing and unhealthy forests (i.e., Belsky and Blumenthal 1997, Cooper 1960, Madany and West 1983, Savage and Swetnam 1990, Arnold 1950) and reviews of this research link are available (Stade and Salvo 2009, Center for Biological Diversity year unknown). The Forest Service cannot claim that it has no information with which to predict cumulative effects, nor can it claim that it is unaware of this information. The Forest Service should disclose the best available information on this topic.

Sierra Club objects to the grazing provisions in the FEIS and draft ROD due to the failure of the Forest Service to address the best available science, as required by law and noted above, and failure to evaluate the cumulative impacts as the National Environmental Policy Act requires.

The Forest Service Should Acknowledge All Causes of Aspen Decline

The Forest Service intends to build and maintain “up to 82 miles” of aspen fencing (Draft Environmental Impact Statement volume 1 p.46). We do not see any response or modification made in response to the following comment:

Another specific example of difference between the collaborative Strategy and the DEIS implementation plan for large trees relates to treatments in aspen forest and woodland habitats. The Strategy states on page 17, “Other factors contributing to gradual aspen decline over the past 140 years include reduced regeneration from browsing by livestock and introduced and native wild ungulates in the absence of natural predators like wolves [.]” However, the Forest Service unilaterally modified this statement in the DEIS: “Other factors contributing to gradual aspen decline over the past 140 years include reduced regeneration from browsing ungulates [.]” DEIS at 650. In fact, the DEIS omits all mention of “natural predators like wolves” as being beneficial to aspen, and omits mention of livestock as detrimental to aspen. This is problematic because wolf reintroductions are among the only cases that resulted in improved aspen recruitment and survival (Ripple and Beschta 2011, Ripple and Beschta 2007). When large predators, particularly wolves, were reintroduced to Yellowstone National Park, USA, and Banff National Park, Canada, the wolves brought elk populations to manageable levels, and as a result of the decrease in grazing pressure, aspen populations near wolves rebounded (Hebblewhite et al. 2005, Ripple

and Beschta 2007). What is the Forest Service's rationale for removing those words from its background information on Aspen Forest & Woodland? The Forest Service should return the statement to its original, scientifically defensible, and stakeholder-constructed form. (Letter submitted to USFS 5/29/13, p. 8)

We see only the following:

The lack of fire as a natural disturbance regime in southwestern ponderosa pine forests since European settlement has caused much of the aspen dominated lands to cede to conifers (Bartos 2001). Other factors contributing to gradual aspen decline over the past 140 years include reduced regeneration from browsing ungulates (Pearson 1914, Larson 1959, Martin 1965, Jones 1975, Shepperd and Fairweather 1993, Martin 2007). More recently, aerial and ground surveys indicate more rapid decline of aspen, with very high mortality occurring in low and mid-elevation aspen sites. Major factors thought to be causing this rapid decline of aspen include frost events, severe drought, and a host of insects and pathogens (Fairweather et al. 2008) that have served as the “final straws” for already compromised stands. (Implementation Plan, p. 739)

What is the reason for the Forest Service rejecting even a mention of the best available science regarding aspen protection? This omission, just like the complete lack of acknowledgement of cumulative effects of forest treatment and grazing, indicates that the Forest Service is ignoring scientific research in a way that can set it up and this project for failure.

Sierra Club objects to the above provisions as the Forest Service has again failed to consider the best available science as is mandated by the National Environmental Policy Act.

Forest Service Must Properly Monitor Mexican Spotted Owl (MSO)

The Forest Service discloses that:

Amendment 1: The amendment would affect 6,906 acres or 18 percent of Mexican spotted owl PAC habitat on the Coconino NF. (Appendix I, p. 1002).

We submitted extensive comments regarding Mexican spotted owl (Letter submitted to USFS 5/29/13, pp. 11-13). We do not see the 4FRI plan as complete without an element explaining how the Forest Service will detect and respond to negative impacts on this threatened species' population.

Reducing canopy cover beyond unknown thresholds can damage MSO populations on the KNF. According to a report prepared for the 4FRI team, median canopy cover for Mexican spotted owls foraging and roosting in mixed conifer forests is greater than 60 percent. Note, “75% of stands used for roosting had canopy cover >60%.” (Ganey et al. 2011, fig. 3). The Upper Gila Mountains Recovery Unit is an important unit for MSO populations, where management decisions can affect MSOs outside the Recovery Unit (Ganey et al. 2011). Further:

“Current data indicate that owls within the UGM RU are most common in mixed-conifer and ponderosa pine–Gambel oak stands with high basal area and canopy cover. These stands frequently have a prominent hardwood component and numerous large trees and snags. Most are uneven-aged, with variable age-and size-classes of trees and snags and considerable volumes of down logs. These are not the kinds of stand structures that forest managers typically try to create in restoration activities in ponderosa pine and mixed-conifer forests that evolved with relatively frequent fire (for example, Cooper 1960, Dieterich 1983, Covington and Moore 1994, Fulé and others 1997, 2002, 2003, 2004, 2009, Cocke and others 2005, Kaufmann and others 2007; see also Beier and Maschinski 2003). The conditions typical of owl nesting and roosting habitat therefore are frequently viewed as “unsustainable” and unnatural in these systems (Johnson 1994). How then did Mexican spotted owls, which apparently occurred historically in these forest types (for example, Ligon 1926, Steele 1927, Bailey 1928, Huey 1930), come to specialize on these types of forest stands (for example, Hutto and others 2008)? Were such stands (or perhaps patches smaller than stands) present historically in these landscapes, for example in fire refugia

(Camp and others 1997) such as north-facing slopes or rocky canyon slopes? If so, is there a minimum size to suitable patches for nesting and/or roosting owls? Or were spotted owls able to exist and persist in stands with lower basal area, canopy cover, and fuel loads?... **The problem is that we do not know where potential thresholds may lie, or how far we can reduce stand conditions before those stands no longer provide habitat for spotted owls.**" (Ganey et al. 2011 and references within, pp. 81-82, bold emphasis added)

In light of the fact that thresholds for Mexican spotted owl-occupied stand density have not been determined, the Forest Service should not risk destroying the habitat for this threatened species. The Forest Service should have a strong monitoring plan in place with clearly defined thresholds, trigger points for action, and a contingency plan in case those trigger points are met.

We find the so-called monitoring plan proposed in *Appendix E – Four Forests Restoration Initiative Adaptive Management, Biophysical and Socioeconomic, Mexican Spotted Owl and Arizona Bugbane Monitoring Plan* to be insufficient. In fact, it is not a monitoring plan at all. According to that plan, "Three treatment PACs and 3 paired reference PACs will be selected for Group 1 comparisons... Three treatment PACs and 3 paired reference PACs will be selected for Group 2 comparisons." (Appendix E, p. 838). Four potential statistical tests are identified to analyze the data, even though the number of samples will be very limited (Appendix E, p.839). The power to identify differences in your samples will be very low.

The Forest Service and US Fish and Wildlife Service must create a supplemental monitoring plan or replace the monitoring plan presented in Appendix E with a plan capable of detecting negative impacts of 4FRI on the Mexican spotted owl. The supplemental plan should identify the techniques that will be used to analyze data, and based on those techniques, should tell the public how many data points are needed and how they will be collected. All information to be collected should be identified, along with the number of predicted observations. Any replication that could affect statistical power should be identified, along with the sources of predicted uncertainty. The Forest Service must identify all thresholds, trigger points for action, and contingency plans in case those trigger points are met. The Forest Service should make clear how the data it collects and how the statistics it performs will inform its decisions regarding Mexican spotted owls.

We object to these provisions because, (1) the USFWS biological opinion for the project does not contain any monitoring plan, either, (2) Amendment 1 would eliminate any binding requirement to monitor MSO, and (3) the FEIS fails to explain how USFS will meet its obligations to conserve and recover MSO without first preparing an operable and repeatable monitoring plan.

Thank you for your consideration of these important issues.

Sincerely,



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