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Via Web

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Michael Williams, Forest Supervisor
Kaibab National Forest
ATTN: Jacob Ryan
800 South Sixth Street
Williams, Arizona 86046
appeals-southwestern-kaibab@fs.fed.us

APPEAL OF JACOB RYAN TIMBER SALE
DECISION NOTICE AND FINDING OF NO SIGNIFICANT IMPACT

Pursuant to 36 C.F.R. Part 215, the Center for Biological Diversity ("Center") and the Grand Canyon Chapter Sierra Club (collectively, "appellants") appeal the latest Decision Notice ("DN") and Finding of No Significant Impact ("FONSI") for the "Jacob Ryan Vegetation Management Project" in the North Kaibab Ranger District of the Kaibab National Forest. Legal notice of the decision published in the *Arizona Daily Sun* on January 8, 2012, making this appeal timely per 36 C.F.R. § 215.15. Appellants provided the Forest Service with substantive comments on several versions of the Environmental Assessment ("EA"), including the most recent version issued in June 2011, and have standing to appeal the decision. *Id*. § 215.13.

The most recent EA is the third that the Forest Service has prepared for the Jacob Ryan timber sale since 2008. Even as the purpose and need statement remains consistent over time, each analysis has a different story to tell about the planning area, desired conditions, action alternatives, mitigation measures, current conditions, and predicted effects. Shifts in agency position require it to explain why certain factors previously considered important are no longer so. Where the agency invents entirely new analysis out of whole cloth regarding previously assessed resources, it must provide a reasoned explanation. The Forest Service attempts to sever the administrative record for the decision at appeal from all prior planning activities for the same project that pre-date June 2, 2010. *See* EA Appendix D-21 and 22. However, the modified proposed action and decision to implement it are supported by a voluminous administrative record for the appeal deciding officer to consider.

The position of appellants regarding the Jacob Ryan timber sale has not changed since the Forest Service initially proposed it more than a decade ago. We stated in an administrative appeal dated March 30, 2009, which you upheld, that we would not have appealed the February 5, 2009 Decision Notice if it avoided irretrievable loss of larger trees that support habitat for sensitive wildlife and offer the best recruitment potential for mature and old growth forest in an

emerging ecological era of climate-impaired tree regeneration and growth. Removal of large trees, which we have consistently defined with ample supporting analysis as 16-inches diameter at breast height (16" dbh), may cause significant cumulative effects to mature and old growth forest structure at a landscape scale. Logging activity of this type is highly controversial, and poses uncertain risks to northern goshawk, Kaibab squirrel, Allen's lappet-browed bat, and other sensitive species. The Forest Service responded in the current round of planning by studying and describing an action alternative that would conserve trees larger than 16" dbh in the Jacob Ryan timber sale. However, the responsible official did not select that alternative, and instead decided to implement the proposed action, which closely resembles the initial proposed action of 1998.

Many of the same issues and comments put forward in response to prior assessments and impact statements on the Jacob Ryan project, such as old growth forest, fire and fuels, invasive species, and economics remain relevant today. Therefore, we incorporate by reference our prior input on this project dating back to 1998. The March 30, 2009 administrative appeal referenced above and subsequent comments dated November 19, 2009 and July 19, 2011 highlighted these points:

- The purpose and need to reduce fire hazard and improve forest health in the project area is clearly documented and justified.

- Some elements of the proposed action, including management-ignited prescribed fire and mechanical thinning of small trees to raise canopy base heights and reduce competition will meet the purpose and need. If the responsible official selected Alternative 3 then we would not appeal.

- Mature and old growth forests are severely diminished at regional and landscape scales, including on the Kaibab Plateau, and must be retained and recruited wherever possible to meet forest plan goals, objectives, and desired conditions.

- Removal of mature and old growth forest in the Jacob Ryan project will cause significant cumulative impacts to ecosystem function, wildlife habitat, species viability, and scenery.

Appellants have always maintained that the Jacob Ryan project could benefit fire-adapted forests of the Kaibab Plateau if it facilitates active functioning of naturally adapted fire disturbance processes in ponderosa pine and mixed conifer forest (Falk et al. 2006). The EA and underlying specialist reports make clear that the Forest Service intends to accomplish this objective. Therefore, we continue to support the purpose and need for action and welcome implementation of strategically located fuel treatments that would manage the volume, density, and arrangement of surface and ladder fuels to limit the likelihood that severe wildland fires may occur over broadly contiguous areas. We also support active forest restoration that conserves existing large tree structure in recognition of its extreme scarcity and ecological importance at site, landscape and regional scales.

However, for reasons explained *infra*, the Forest Service ignored reasonable alternatives related to conservation of wildlife habitat, and discounted potentially significant direct, indirect and cumulative effects to the environment that may result from this timber sale. In addition, the

decision to implement the proposed action as described in the EA violates the amended Kaibab National Forest Land and Resource Management Plan ("forest plan"). This appeal is intended to remedy violations of law and policy, and to improve the likelihood that the project, when it is implemented, will accomplish the purpose and need for action.

TITLE OF DECISION: Decision Notice and Finding of No Significant Impact for the Jacob Ryan Vegetation Management Project.

DATE DECISION PUBLISHED: January 8, 2012.

RESPONSIBLE OFFICIAL: Timothy Short, North Kaibab District Ranger.

DESCRIPTION: Logging and prescribed fire treatments on 25,297 acres. *See* DN at 2; EA at 3.

LOCATION: The Jacob Ryan timber sale is located on national forest lands near Jacob Lake in Coconino County, Arizona, in the North Kaibab Ranger District. The legal location is T. 38 and 39 N., R. 1 and 2 E., Gila and Salt River Baseline and Meridian.

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APPELLANTS' INTERESTS

The Center for Biological Diversity is a nonprofit organization headquartered in Tucson, Arizona, with field offices located in Flagstaff, Arizona and Albuquerque, New Mexico. Its mission is to protect and promote recovery of imperiled fauna and flora and their habitats through science, education, policy, and law. The Center has approximately 312,000 members and activists nationwide, many of whom reside in Arizona and maintain long-standing interests in management of the Kaibab National Forest. Its members and activists regularly use and enjoy, and will continue to use and enjoy the forest, grasslands, and riparian habitats located in the Jacob Ryan project area and for observation, research, aesthetic enjoyment, and other recreational, scientific, and educational activities. Members and activists of the Center have and shall continue to research, study, observe, and seek protection for at-risk species associated with natural habitats found in the North Kaibab Ranger District because they derive scientific, recreational, conservation, and aesthetic benefits from the existence of the full complement of native biological diversity found in the wild places of Arizona, including on the Kaibab Plateau and the north rim of Grand Canyon. Forest Service violations of law and policy in the Jacob Ryan project may cause significant adverse impacts to threatened, sensitive and/or indicator species, and contribute to the degradation of native vegetation and the habitats, food resources, and populations of species whose viability the Forest Service is obligated to ensure. These direct, indirect and cumulative impacts to the environment harm the interests of the Center, its members and activists in the conservation of nature and the recovery of imperiled wildlife. The Center demonstrated specific interest in the project with multiple field visits and detailed comments at every opportunity for public input. Therefore, the Center may appeal under 36 C.F.R. § 215.13.

The Sierra Club is one of the nation's oldest and most influential grassroots organizations whose mission is "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." The Sierra Club's Grand Canyon (Arizona) Chapter has more than 12,000 members. Our members have long been committed to protecting and enjoying our national forests, including lands on the North Kaibab, through various types of recreation including hiking, backpacking, wildlife viewing, and more. Our staff and members have a substantial interest in continuing to use the area where the Jacob Ryan project is planned, and are adversely affected and aggrieved by the Forest Service failure to protect the land and comply with the law. The Sierra Club has commented on this project in its various iterations, including the most recent, and may appeal.

MOTION FOR STAY

An automatic stay of implementation is in effect per 36 C.F.R. § 215.9. Appellants move to stay implementation of all actions authorized by the Decision Notice. A stay of actions subject to this motion is needed to prevent irretrievable commitment of environmental resources, harm to appellant's interests, and expenditure of public funds in violation of federal law. A stay will maintain the status quo.

RELIEF SOUGHT

1. Withdraw the Decision Notice and Finding of No Significant Impact authorizing the Jacob Ryan project.

2. Respond to issues described in the statement of reasons below by modifying the environmental analysis and decision as appropriate.

3. Prepare an environmental impact statement to disclose potentially significant effects that may result from implementation of Alternative 1 as described in the EA.

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STATEMENT OF REASONS

I. Failure to consider reasonable alternatives.

Informed consideration of alternatives is the "heart" of the National Environmental Policy Act ("NEPA") because it allows sharp definition of relevant issues for environmental analysis and provides a clear basis for choice among options by the decision maker and the public. 40 C.F.R. § 1502.14. NEPA requires that federal agencies consider alternatives to proposed actions whenever those actions "involve[] unresolved conflicts among alternative uses of available resources." 42 U.S.C. § 4332(2)(E). A "rule of reason" guides both the choice of alternatives as well as the consideration of "reasonable alternatives." *City of Carmel-by-the-Sea v. U.S. Dept. of Transportation*, 123 F.3d 1142, 1149 (9th Cir. 1997). Further, the requirement to consider alternatives applies equally to environmental assessments as to environmental impact statements. "'[A]ny proposed federal action involving unresolved conflicts as to the proper use of resources triggers NEPA's consideration of alternatives requirement, whether or not an EIS is also required." *Bob Marshall Alliance v. Hodel*, 852 F.2d 1223, 1229 (9th Cir. 1988); *see also Environmental Protection Information Center v. U.S. Forest Service*, 234 Fed. Appx. 440, 442 (9th Cir. 2007) ("NEPA requires an agency to consider a reasonably full range of alternatives to its project action, even when an [EIS] is not required").

The EA eliminates from detailed study an alternative proposed by appellants in scoping comments dated July 2, 2010 and further described in comments dated July 19, 2011 that would conserve the largest remaining trees in even-aged forest, generally larger than 12" dbh, which would have the effect of retaining large seed trees infected by dwarf mistletoe in even-aged stands created by past shelterwood logging. It dismisses as "clearly unreasonable" the idea that large woody structure should be retained to anchor the restoration of uneven-aged forest, consistent with forest plan direction. EA at 17. However, the Forest Service provides no explanation why seed tree retention or conservation of the largest remaining trees in even-aged stands is counter to the purpose and need. It overlooks the utility of management-ignited prescribed fire to control stand-scale mistletoe infections.[1] Dwarf mistletoe only becomes a problem when land managers attempt to create highly productive forests or grow timber in

[1] Conklin, D.A. and B.W. Geils, 2008, Survival and sanitation of dwarf mistletoe-infected ponderosa pine following prescribed underburning, *Western Journal of Applied Forestry* 24(4): 216-22; Conklin, D.A. and W.A. Armstrong, 2001, *Effects of Three Prescribed Fires on Dwarf Mistletoe Infection in Southwestern Ponderosa Pine*, USDA For. Serv. Res. Pap. R3-01-02: Albuquerque, N.M., 19 pp.

excess of natural production rates at highly localized point-scales.[2] The Forest Service shows a "timber-centric" view of dwarf mistletoe by presenting it only as a disease to be sanitized from "healthy" forests. Damaging effects of mistletoe on tree growth can be minimized, and their ecological benefits maximized, by restoring dormant ecological processes in fire-adapted forests to attain age, size and density distributions compatible with the natural range of variability. Agency research explains that dwarf mistletoe contributes to desired conditions for the Jacob Ryan project area.[3] Desired conditions include large woody debris, which is currently deficient in even-aged stands. *See id.* at 13 and 15 (Table 3). The Forest Service's failure to study, develop and describe this reasonable action alternative is arbitrary and capricious.

Although the Forest Service may limit its study of alternatives to those meeting the purpose and need for action, courts have also reprimanded the Forest Service for formulating a purpose and need that is so narrow as to exclude reasonable alternatives. *See Environmental Protection Information Center*, 234 Fed. Appx. at 443 ("USFS did not adequately consider alternative courses of action in this case because USFS defined the objectives of the project so narrowly that the proposed project was the only alternative that would serve those objectives."); *City of Carmel-by-the-Sea*, 123 F.3d at 1155 ("The stated goal of a project necessarily dictates the range of 'reasonable' alternatives and an agency cannot define its objectives in unreasonably narrow terms"); *Sierra Club v. Robertson*, 845 F. Supp. 485, 500 (S.D. Ohio 1994) ("An agency may not define the objectives of its action in terms so unreasonably narrow that only one alternative ... would accomplish the goals of the agency's action, and the EIS would be a foreordained formality"); *also see Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 196 (D.C. Cir. 1991), *cert. denied* 502 U.S. 994, 112 S. Ct. 616 (1991). As explained by the Seventh Circuit:

> No decision is more important than that delimiting what these "reasonable alternatives" are ... One obvious way for an agency to slip past the structures of NEPA is to contrive a purpose so slender as to define competing "reasonable alternatives" out of consideration (and even out of existence) ... If the agency constricts the definition of the project's purpose and thereby excludes what truly are reasonable alternatives, the EIS cannot fulfill its role.

Simmons v. U.S. Army Corps of Eng'rs, 120 F.3d 664, 660 (7th Cir. 1997). This case is exactly on point with those cited above because the Forest Service interprets the purpose and need for the Bonito project more narrowly than it is actually written. The agency frames its proposed action as the only "reasonable" alternative, and thus prevents informed consideration of other alternatives that also would meet the purpose and need.

Available data, cited above, suggests that an alternative conserving large trees would meet the purpose and need by thinning small trees to restore historical forest density, spatial heterogeneity, and composition on approximately 90 percent of the project area, if not more of it,

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[2] M.M. Pollock and K. Suckling, 1995, *An Ecologically Integrated Approach to Management of Dwarf Mistletoe* (Arceuthobium) *in Southwestern Forests*, Southwest Forest Alliance: Silver City, N.M., 16 pp.

[3] Hawksworth, F.G. and D. Wiens, 1996, *Dwarf Mistletoes: Biology, Pathology, and Systematics*, USDA For. Serv. Agric. Hndbk. 709: Washington, D.C.

if thinning is followed by application of management-ignited and/or unplanned fire. However, the actual extent to which this reasonable alternative may meet the purpose and need remains unknown because the Forest Service arbitrarily assumes that alternatives must meet the purpose and need on every acre that it initially proposed for management, even though the agency never located specific locations in the project area where large tree cutting is required to meet the purpose and need. A detailed comparison of alternatives would afford the decision maker and the public insight regarding implications of logging versus conserving large trees, and help the agency to locate site-specific needs for removing large trees in order to meet the purpose and need. This was the intent of the Center's proposal of a large tree conservation alternative. Instead, the Forest Service offers only general prescriptions in one proposed action that could fairly be described as a "one-size-fits-all" approach to forest restoration.[4]

In addition, the Forest Service goes out of its way to present Alternative 3 as contrary to the purpose and need and the forest plan. *See* DN at 4. The agency's bias in favor of its proposed action is perfectly clear, but its supporting analysis is based on a selective presentation of relevant data. The EA supplies two reasons why Alternative 3 cannot be selected by the decision maker: (1) it does not meet target conditions for basal area or stand density, and (2) it does not realize the distribution of Vegetative Structural Stages ("VSS") prescribed by the forest plan.

The Forest Service has repeatedly shifted its target conditions for basal area and stand density in the Jacob Ryan project area. For example, the October 2009 Revised EA (page 34 (Table 14)) identified a desired condition for basal area in uneven-aged foraging areas of 64 ft²/acre. Alternative 1 in the current EA would not have met that desired condition (87 ft²/acre in year 0 – *see* EA at 37 (Table 8)). The Forest Service changed the desired condition to a range of basal area values (70-90 ft²/acre) that only Alternative 1 can meet. *Id.* In contrast, the February 2009 EA (page 32 (Table 18)) stated a desired condition for basal area in uneven-aged strata (foraging areas and PFA) as 100 ft²/acre. Alternative 3 in the current EA would have met the February 2009 desired condition (100-106 ft²/acre in year 0 – *see* EA at 37 (Table 8)) if the agency had chosen to carry it forward.

Likewise, the desired condition for stand density has shifted over time. The October 2009 Revised EA identified a desired stand density index ("SDI") value for uneven-aged foraging areas to be 200 SDI (page 34 (Table 14)). Now it is 112-180 SDI in the same stratum – *see* EA at 37 (Table 8). Alternative 3 would come reasonably close to meeting the October 2009 desired condition (206 SDI in year 0 – *id.*), but it cannot meet the new desired condition.

In the newest EA, only Alternative 1 results in a VSS distribution that falls within three percentage points of the forest plan desired condition each stage in uneven-aged forest. *See id.* at 34 (Table 5) and 5 ("The specified percentages are a guide and actual percentages are expected to vary + or – up to 3%."). However, that presentation of data is based on definition of VSS in

[4] Noss and others (2006: 7) distrust a "one-size-fits-all" restoration strategy in dry ponderosa pine and mixed conifer forests and state, "Although cutting of old trees always should be avoided, because they have been severely depleted since European settlement (Allen et al. 2002), it should be recognized that stands differ in their history (e.g., the date when fire exclusion began) and site conditions. Thus, a diameter cap that is sensible in one stand may not be in another" [emph. added; citation original].

uneven-aged strata as "groups." *Id.* at 33 ("…groups are categorized into vegetative structural stages by the plurality of basal area within the group."); *see also id.* at xii ("Group refers to a cluster of two ore more trees with interlocking crowns at maturity surrounded by an opening."). This definition of VSS is contrary to the amended Kaibab Forest Plan and Reynolds and others (1992) whose management recommendations form the basis of standards and guidelines in the plan.[5] The Forest Service appropriately defines VSS "as a whole-stand" in the even-aged strata at Jacob Ryan. *Id.* at 29; *see also id.* at 79 ("stands average 50-100 acres").

The agency failed to specify any site-specific location where large tree removal is required to meet the purpose and need for action. It elected to implement the proposed action that it initially proposed, without any modification, creating a "blank check" that agency staff may use to justify removing trees of any size, for any reason, and at any location in ponderosa pine forest. The agency refused to take a hard look at unresolved conflicts regarding use of large trees in forest restoration, and dismissed alternatives with arbitrary and capricious reasoning. "The purpose of NEPA is to require disclosure of relevant environmental considerations that were given a 'hard look' by the agency, and thereby to permit informed public comment on proposed action and any choices or alternatives that might be pursued with less environmental harm." *Lands Council v. Powell*, 395 F.3d 1019 (9th Cir. 2005). Therefore, the decision to implement the proposed action for the Jacob Ryan project violates NEPA.

II. An environmental impact statement is required for old growth logging.

The Center encouraged the Forest Service to consider and analyze an action alternative that meets the purpose and need for action while conserving trees larger than 16-inches diameter. The Forest Service responded to this comment by developing and describing Alternative 3 in the Jacob Ryan EA. *See* EA at 21. A size threshold of 16-inches consistently defines "large" trees in the literature on southwestern ponderosa pine forests (Abella et al. 2006, Friederici 2003). Large trees are extremely rare in the project area and at larger spatial scales. Trees >16" dbh comprise approximately three percent (3%) of live ponderosa pines in Arizona and New Mexico, according to Forest Inventory and Analysis data (USDA 1999, 2007a). More than eighty-two percent (82%) of ponderosa pine trees in the region are smaller than 11" dbh; approximately ninety-six percent (96%) of ponderosa pines are smaller than 15" dbh; and less than one-tenth of one percent (.01%) are larger than 21" dbh (Table 1). Clearly, the size distribution of trees in ponderosa pine forests is heavily skewed toward small-diameter stems, which is dramatically different from historical conditions (Fulé et al. 1997). Large tree conservation in the Jacob Ryan project would:

- Achieve the purpose and need of fire hazard reduction more effectively than the proposed action.

[5] Reynolds, R.T., R.T. Graham, M.H. Reiser, R.L. Bassett, P.L. Kennedy, D.A. Boyce, G. Goodwin, R Smith, and E.L. Fisher. 1992. *Management Recommendations for the Northern Goshawk in the Southwestern United States*. USDA For. Serv. Gen. Tech. Rep. RM-GTR-217. Fort Collins, CO.

- Promote recovery of historically degraded old growth forest structure and function by avoiding cumulative impacts that result from large tree removal.

- Mitigate short-term adverse impacts to sensitive wildlife.

Table 1. Tree size class distribution in southwestern ponderosa pine forests.

Size class	Distribution
< 11 inches dbh	82%
< 15 inches dbh	96%
> 16 inches dbh	3%
> 21 inches dbh	0.1%

Source: Forest Inventory and Analysis National Program
Forest Inventory Data Online (FIDO). http://www.fia.fs.fed.us/tools-data/

Direct management of the arrangement and volume of surface fuels and small trees that supply "ladders" connecting surface fuels vertically with canopy fuels is more effective at minimizing potential fire intensity than large tree removal emphasizing management of canopy bulk density (Fiedler and Keegan 2002, Graham et al. 1999, Omi and Martinson 2003, Perry et al. 2004). Some advocates have asserted that removing large trees reduces canopy bulk density and lessens fire resistance-to-control in extreme weather conditions (Abella et al. 2006). However, to assess fuel treatment effects on canopy fire initiation and spread, one also must consider (1) surface fuel loading and arrangement, (2) canopy base height, and (3) local topography (Graham et al. 2004, Hunter et al. 2007, Van Wagner 1977). The former two factors have been actively managed in ponderosa pine forests to significantly decrease the likelihood of crown fire initiation and spread without resort to large tree removal (Fielder and Keegan 2003, Omi and Martinson 2002, Perry et al. 2004).

Research demonstrates no advantage in short-term fire hazard mitigation resulting from "comprehensive" thinning treatments that remove trees in all size classes compared to treatments that retain large trees (Fiedler and Keegan 2002). Indeed, thinning treatments that only removed trees smaller than 16" dbh were more effective at reducing long-term fire hazard than so-called "comprehensive" treatments (Fiedler and Keegan 2002). Thinning small trees and pruning branches of large trees to increase their crown base height also significantly decreases the likelihood of canopy fire initiation (Graham et al. 2004, Perry et al. 2004). Low thinning and underburning to reduce surface fuels and increase canopy base height at strategic locations relative to local topography and modeled 90th percentile weather conditions can effectively reduce fire hazard and meet the purpose and need for action (Finney 2001).

Conservation of large trees in fuel treatments is fundamentally important to restoration of fire-adapted forest ecosystems (Brown et al. 2004, DellaSala et al. 2004). Large ponderosa pine trees possess autecological characteristics such as relatively thick bark and insulated buds that promote resistance to heat injury (Weaver 1951). In addition, self-pruning mature ponderosa pines feature high branch structure and open canopies, which discourage torching (Keeley and Zedler 1998). Finally, mature ponderosa pines have a high capacity to survive and recover from crown scorch (McCune 1988). Thus, the existence of large tree structure enhances ecosystem fire resilience, particularly where fire effects to soil and understory vegetation are severe (Arno 2000, Pollett and Omi 2002). The record contains no analysis supporting the removal of large diameter trees in order to achieve the purpose and need for action.

Large tree conservation avoids significant cumulative effects

Large trees are the most difficult of all elements of forest structure to replace once they are removed (Agee and Skinner 2005). Further, large trees are not particularly abundant at any spatial scale in the Southwestern Region (USDA 1999, 2007a). The proposed action will remove forest structure that otherwise would contribute to future recruiting of old growth forest, as defined by the amended Kaibab Forest Plan, by "regenerating" VSS 5 and 6 tree groups. *See* Vegetation Report at 14. The EA admits that "previous management" is the source of the existing deficiency of old growth forest in the planning area. Therefore, removal of large forest structure in the instant action presents a potentially significant cumulative effect to old growth resources in the long-term.

The ecological significance of old-growth forests and large trees is amply documented, whereas a scientific basis for logging large trees for purposes of fuel reduction or forest restoration is lacking (Friederici 2003, Kaufmann et al. 1992). Large tree removal is not necessary or beneficial to fire hazard reduction or restoration in ponderosa pine forests (Allen et al. 2002, Falk et al. 2006, Fiedler and Keegan 2002, Perry et al. 2004), but their conservation is centrally important to meet the purpose and need for action to restore historical fire regimes (Brown et al. 2004, DellaSala et al. 2004).

In addition to their general rarity within the project area and across the landscape, a variety of factors other than logging threatens the persistence of remaining large trees in southwestern conifer forests. Prescribed fire treatments can injure exposed tree roots that have migrated into accumulated duff layers and cause high levels of post-treatment mortality among large trees (Sackett et al. 1996). Burning of pine stands with high surface fuel loading also can produce high fireline intensities and result in large tree mortality due to cambial injury by heat (Hunter et al. 2007). Prescribed fire treatments also may render large trees susceptible to delayed bark beetle infestation (Wallin et al. 2003). In addition, large tree mortality has indirectly resulted from mechanical thinning activities (Hunter et al. 2007). Large snags and downed logs that supply critical habitat for primary and secondary cavity-nesting species also may be destroyed by fuel treatments (Hunter et al. 2007). Prescribed fire may create new coarse woody structure by killing live trees, but any gain in new snags or downed logs as a result of fire treatments generally does not offset their loss, as existing coarse wood is irretrievably lost (Randall-Parker and Miller 2002).

McHugh and Kolb (2003) describe unplanned and prescribed fire effects on ponderosa pine forest structure in northern Arizona. They describe a "U-shaped" mortality curve in which mortality was lowest among trees sized 30 – 60 centimeters ("cm") (approx. 12" – 24") dbh, and highest among the smallest trees as well as in the 75 – 80 cm (~29.5" – 31.5") dbh. Resistance to fire-induced mortality was greatest among trees sized 35 – 75 cm dbh. Mortality effects occurred despite relatively uniform "crown damage" across tree size classes, indicating that cambial injury and root scorch fire effects were most significant among the smallest and largest trees, whereas intermediate-sized trees were relatively uninjured and may have benefited from the disturbance (McHugh and Kolb 2003 – Fig. 3). The large tree conservation alternative would best maintain trees that are most likely to survive fire injury and supply recruitment structure that will support deficient old growth forest structure in the future.

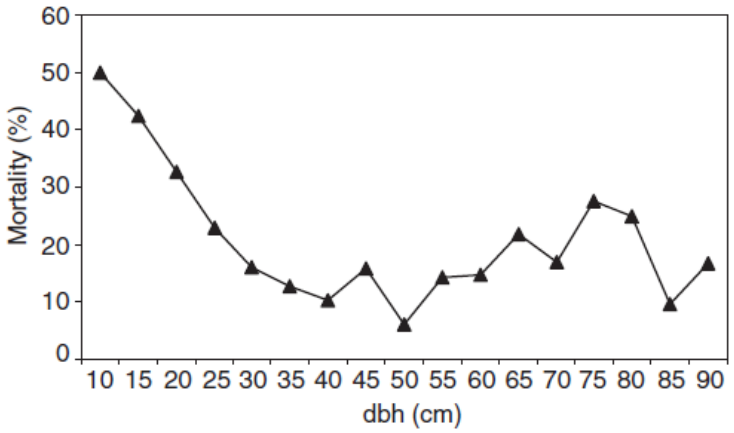


Fig. 3. Observed percent mortality of ponderosa pine 3 years after fire by 5 cm dbh class for data combined over three fires in northern Arizona. Data are not shown for dbh classes with <3 trees.

Persistence of large trees, snags, and coarse downed wood essential to sustain adapted ecological functions in ponderosa pine forests is by no means assured. Considering its scarcity at local and landscape scales, existing large woody structure should be conserved whenever possible as a precautionary measure in forest restoration. Removal of large trees cannot be justified on ecological grounds (Allen et al. 2002).

Logging in the Jacob Ryan may retard or preclude recruitment of old growth forest over time. Modeling and other lines of scientific evidence show that logging significantly reduces the number of live trees, which unavoidably reduces the pool from which future dead trees are recruited. Logging may increase the vigor of retained trees, which sounds good to foresters and lay observers, but enhanced tree vigor diminishes important ecological processes such as tree mortality and insect activity that function to develop and maintain old growth forest over time. As shown in numerous analyses conducted by the Forest Service and others, logging effects on recruitment of coarse wood and old growth are significant (Quigley et al. 1996, Spies 2004, van Mantgem et al. 2009). The EA fails to consider these facts, which were made known to the Forest Service in comments. Lost recruitment potential of old growth forest due to removal of existing large trees and coarse woody structure presents a potentially significant cumulative effect to the planning environment that must be studied in an EIS.

III. Failure to obey forest plan guidelines for sensitive wildlife.

a. Canopy cover

The Center has repeatedly expressed concern to the Forest Service regarding its interpretation of forest plan standards and guidelines for northern goshawk habitat described in a white paper titled, "*Implementation and Interpretation of Management Recommendations for the Northern Goshawk*" ("I&I" - USDA 2009a). The I&I document is a unique creation of the Kaibab National Forest that changes the spatial scale at which canopy cover guidelines are to be applied from the "stand" or "site" scale to the smaller tree "group" scale. Canopy retention in logging operations at the smaller group scale "has the potential to significantly reduce the amount of forest cover within treated areas" compared to what was anticipated by the amended Kaibab forest plan (AGFD 2007).[6] For example, assuming a residual canopy cover within groups of 50 percent, and if groups occupy 50 percent of the stand, canopy cover at the stand scale will be 25 percent (Table 2). To prevent this outcome across the project area, the forest plan requires maintenance of canopy cover in northern goshawk habitat at stand scales.

Table 2. Prescription intensities and canopy cover percentages measured at stand and group scales.

Prescription Intensities: % of Stand in Interspace / Groups	Stand-scale Canopy Cover at 50% Canopy Retention "Within Groups Only	Stand-scale Canopy Cover at 40% Canopy Retention "Within Groups Only	Stand-scale Canopy Cover at 50% Canopy Retention "Within VSS 4, 5 and 6 Groups Only"	Stand-scale Canopy Cover at 40% Canopy Retention "Within VSS 4, 5 and 6 Groups Only"
100 / 0	0	0	Cannot Predict	Cannot Predict
90 / 10	5	4	Cannot Predict	Cannot Predict
80 / 20	10	8	Cannot Predict	Cannot Predict
70 / 30	15	12	Cannot Predict	Cannot Predict
60 / 40	20	16	Cannot Predict	Cannot Predict
50 / 50	25	20	Cannot Predict	Cannot Predict
40 / 60	30	24	Cannot Predict	Cannot Predict
30 / 70	35	28	Cannot Predict	Cannot Predict
20 / 80	40	32	Cannot Predict	Cannot Predict
10 / 90	45	36	Cannot Predict	Cannot Predict
0 / 100	50	40	Cannot Predict	Cannot Predict

Prescription Intensities: % of Stand in Interspace / Groups	% of Area in VSS1 (Plan Direction is 10%)	% Area in VSS2 (Plan Direction is 10%)	% Area in VSS3 (Plan Direction is 20%)	% Area in VSS4 (Plan Direction is 20%)	% Area in VSS5 (Mature Forest, Plan Direction is 20%)	% Area in VSS6 (Old Forest, Plan Direction is 20%)
100 / 0	100	0	0	0	0	0
90 / 10	91	1	2	2	2	2
80 / 20	82	2	4	4	4	4
70 / 30	73	3	6	6	6	6
60 / 40	64	4	8	8	8	8
50 / 50	55	5	10	10	10	10
40 / 60	46	6	12	12	12	12
30 / 70	37	7	14	14	14	14
20 / 80	28	8	16	16	16	16
10 / 90	19	9	18	18	18	18
0 / 100	0	10	20	20	20	20

[6] Comments of the Arizona Game and Fish Department regarding the Forest Service's shift in implementation of canopy cover guidelines for northern goshawk have been supplied to the Kaibab National Forest and are contained within the administrative record for the Jacob Ryan timber sale. Those comments are attached to this appeal for convenience.

Forest plan canopy cover guidelines for northern goshawk habitat apply to VSS 4-6 stands. The guidelines are based on management recommendations of Reynolds and others (1992), which define VSS at the stand scale (Reynolds et al. 1992:14 (Table 5), 22-24, 27-28, 79, 81 ("VSS is a method of describing the growth stages of a stand of living trees."), 90 ("If the majority of stems of a stand … were in the 12-18 inch diameter class, the stand would be classified as a VSS 4."). Outside of post-fledging areas ("PFA"), the plan requires >40 percent canopy cover in VSS 4-6 stands. Within PFA, it demands >60 percent cover on one-third of VSS 4 stands and >50 percent in the remaining two-thirds. VSS 5 and 6 stands in PFA must maintain >50 percent cover. Therefore, canopy cover guidelines applicable to VSS 4-6 in goshawk habitat must be measured at the stand scale. No basis for a different approach has been subject to environmental disclosure or forest planning procedures.

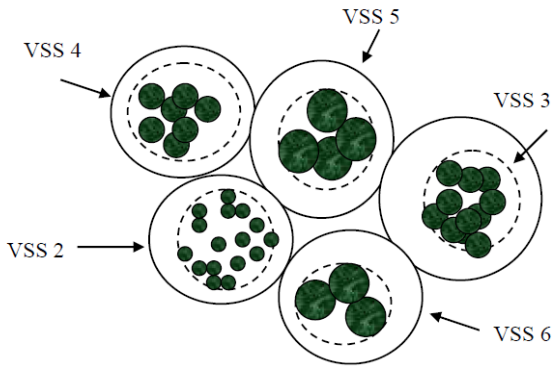
The Jacob Ryan project would apply canopy cover guidelines at the tree group scale, which is significantly more limiting than the larger stand scale. *See* EA at 7 and 9 (prescribing canopy cover retention "at the group level") and 38, 43 and 125 (citing the I&I document); Vegetation Report at 68 ("…[I]t is probably unreasonable to expect canopy densities much higher than 60% over the extent of any group of large ponderosa pine, when the area occupied by its roots is included. This may be considered 'closed' forest conditions in the dry forest environments on the Kaibab.") and 7, 14, 28-29, 46, 63, 66 (citing the I&I document); USDA (2009:10) ("The [forest plan] guides management of mid-aged and old-aged groups of trees toward canopy cover percent (CC%) minimums of 40 to 70 [percent]…"); USDA (2009:21) (quantifying canopy cover on a "group basis," but not at stand scales).

Stands (or "sites," as defined in the forest plan) range in size from 30 to 100 acres (USDA 2006:8 – Table 4) (describing "sites up to 100 acres in size"); *also see* USDA (2009:19) (equating stands with sites); Reynolds and others (1992:90) (linking VSS to "the specific diameter distribution of the stand"). In contrast, tree groups, the smaller scale at which the Forest Service now proposes to apply canopy cover guidelines, range in size from as little as 0.5 to 4 acres, and even smaller "clumps" comprise just 0.1 to 0.5 acres. *See* EA at 27-29 (defining VSS as "groups," and distinguishing groups from sites); Vegetation Report at 19 (tree groups range in size from 0.25 to 4 acres). The distinction in the record of stands or sites from groups and clumps is consistent with forestry literature. Long and Smith (2000:27 – Table 2) define "clumps" as 0.1 to 0.5 acres, and groups as "nonuniform distribution of clumps" ranging in size from two-to-four (2-4) acres.

According to the Forest Service, local projects "have interpreted the measurement of canopy cover differently in the past. Plan Amendment direction is to measure canopy cover as defined above (dripline to dripline of the group)" (USDA 2007b). In its regional planning document interpreting goshawk guidelines (USDA 2007b:9-10), the agency explicitly states an intention to implement forest plan canopy cover guidelines at spatial scales as small as 0.1 acres:

> Spacing and number of trees per and 1/10th acre group by VSS class to meet canopy cover requirements have been developed and may be found in marking guide templates. There are links to the templates at the end of this document in the Tools section. The following diagram shows different VSS class groups and general numbers of trees per group required to meet canopy cover requirements. Generally, smaller VSS size class groups should contain more trees per 1/10th acre equivalent.

Figure 2: VSS and Canopy Cover



The Forest Service relies on the I&I (USDA 2009a) in the Jacob Ryan project. It significantly changes how the Forest Service manages goshawk habitat compared to prior practices under the forest plan, with potentially significant implications for vegetation treatment intensities and retention of forest structure:

> As much as we can, we are adapting current prescriptions to take into account interspaces between groups and we have adjusted these prescriptions to consider group size and how we look at groups … The original analysis and documentation generally looked at how we interpreted the goshawk guidelines in the forest plan in a different manner as are currently looking at them. … This will lead to a much more open forest over time than previous interpretations of the goshawk recommendations in the forest plans would have.

Herron (2006). Clearly, professional opinion within the Forest Service is that the I&I emphasis on managing goshawk habitat within clumps and groups, instead of at stand scales, leads to significantly different outcomes on the ground than what the agency anticipated in the NEPA analysis supporting its amended forest plan.

Despite the significant change to goshawk habitat management proposed in the KNF I&I, the Forest Service did not allow any public input, notice, or participation regarding its new "interpretation and implementation" of goshawk guidelines during their development or prior to their application in the Jacob Ryan project. The Forest Service also did not prepare an EA or EIS regarding the updated goshawk guidelines, and also failed to amend the forest plan to properly adopt the new guidelines before implementing them here.

b. Openings

In addition to shifting implementation of the canopy cover requirement from stand to smaller group scales, resulting in less canopy retention than expected under the forest plan, the I&I document (USDA 2009a) also distinguishes created "openings" from its definition of VSS 1. In the new interpretation to be applied for the first time at Jacob Ryan, "openings" would be considered separate from the entire VSS classification system. As a result, significantly more lands will be excluded from tabulation of canopy cover than anticipated in the forest plan. The Center asked the agency explain how the proposed action and alternatives will implement

canopy cover standards, and quantify changes in cover that will result from proposed treatments at multiple spatial scales. It requested explanation regarding the role of "openings" in landscape- and project-scale calculations of VSS 1 distribution. No such explanation is present in the project record. Instead, the Forest Service clearly distinguishes "openings" from VSS 1-3. *See* EA at 42 ("Both the Uneven-aged stratum with the JR project area and the Ad-hoc area include openings and VSS 1–3 forest, for which canopy cover is not applicable." [emph. added]); Vegetation Report at 19 and 31 (distinguishing openings from VSS 1-3). Openings created in the Jacob Ryan timber sale outside of the VSS classification system may affect 944 acres. *See* EA at 37.

IV. Failure to amend forest plan guidelines for sensitive wildlife.

The Forest Service is required to prepare "one integrated plan" for each national forest incorporating in one document, or one set of documents, available to the public, all the features required by NFMA. 16 U.S.C. §§ 1604(a), 1604(f)(1). The Forest Service may amend an adopted forest plan pursuant to public notice and participation requirements. *Id*. at § 1604(f)(4).

The Jacob Ryan project clearly implements the KNF I&I (USDA 2009a), including its method of canopy cover measurement and exclusion of "openings" from the VSS classification system. The Forest Service has not amended the forest plan to incorporate its new interpretation of guidelines for management of northern goshawk habitat. The agency (1) chooses to implement a *de facto* amendment of the forest plan out of compliance with NFMA procedures, or (2) fails to properly amend the forest plan before implementing the I&I guidelines, without public notice, and in violation of NFMA. *See Oregon Natural Resources Council v. Forsgren*, 252 F.Supp.2d 1088, 1096-97 (D. Or. 2003).

Whether the issue is framed in terms of a failure to properly amend the forest plan before implementing the I&I guidelines, or improperly making a *de facto* amendment to the forest plan without complying with NFMA's public participation requirements, the Center seeks the same relief: the Forest Service must withdraw the Jacob Ryan project, at least in older VSS classes where the forest plan applies binding standards and guidelines to goshawk habitat, until it complies with NFMA regarding these significant changes. *Oregon Natural Resources Council*, 252 F.Supp.2d at 1099.

The Forest Service never allowed public input, notice or participation regarding the I&I (USDA 2009a) during its development over at least three iterations or prior to its implementation in the Jacob Ryan project. The Forest Service also did not prepare an environmental assessment or impact statement regarding the I&I and its significant shift in application of forest plan guidelines. Nor did the agency formally amend the forest plan to adopt the I&I before implementing its guidance in the project.

As with the Revised Lynx Conservation Strategy, the new interpretations of forest plan guidelines for goshawk habitat in the KNF I&I "are substantial additions to the Forest Plan with regard to [goshawk] conservation efforts." *Oregon Natural Resources Council*, 252 F.Supp.2d at 1101. "Whether based on a theory of a *de facto* amendment or a failure to act to amend, . . . the public involvement required by NFMA is warranted as to [this] timber sale." *Id*. The Forest

Service must not implement the I&I at Jacob Ryan until the agency formally amends the forest plan to properly incorporate its novel guidance regarding canopy cover and openings. *Id*.

V. Failure to disclose scientific controversy regarding sensitive wildlife.

Forest plan standards and guidelines for management of northern goshawk habitat are scientifically controversial as a means of ensuring viability of this indicator and sensitive species. Beier and others (2008) studied influences of ponderosa pine forest structure on northern goshawk reproduction. "Production of fledglings decreased as the breeding area's similarity to the goshawk guidelines increased" (Beier et al. 2008:347). The Forest Service stated that this research "sort of rocks the world for the 1996 goshawk guidelines... The authors conclude that the Forest Service should reconsider its decision to apply the guidelines to most of the forested lands in the region. Wow."[7]

Appellants brought this matter to the attention of the Forest Service in comments dated July 19, 2011. The agency responds: "Canopy cover measurements in Biere [sic] observed or measured at stand level versus group level. Stand level measurements differ in results from group level measurements." EA at D-31. The response admits that Beier and others (2008) assessed implementation of forest plan guidelines, not the novel interpretation of those guidelines measuring canopy cover at sub-stand group scales as in the Jacob Ryan project. The response concedes the NFMA violations cited above, and it highlights controversy regarding the agency's interpretation of forest plan guidelines for management of northern goshawk habitat.

VI. An environmental impact statement is required to disclose effects to sensitive wildlife.

The NEPA requires federal agencies to prepare an EIS for any major federal action which may significant impact the quality of the environment. 42 U.S.C. § 4332(2)(C). The agency may first prepare an EA to determine whether an EIS is required. 40 C.F.R. § 1501.4. The KNF I&I document (USDA 2009a) significantly changes application of standards and guidelines for managing northern goshawk habitat. Yet the Forest Service failed to prepare either an EA or EIS, in violation of NEPA.

By changing the way the Forest Service measures canopy cover at group scales and inventories vegetation structural stages to the exclusion of "openings," use of the I&I guidance in the Jacob Ryan project will significantly reduce habitat of northern goshawk and its 13 prey species compared to impacts anticipated by NEPA analysis underlying the amended forest plan. Implementation of the KNF I&I in the Jacob Ryan project is a major federal action that may significantly impact the quality of the environment, which requires an EIS. 42 U.S.C. § 4332(2)(C). At a minimum, the Forest Service should have included in Jacob Ryan EA a discrete analysis of its new interpretation of goshawk guidelines to determine whether an EIS is warranted. 40 C.F.R. § 1501.4; *also see Oregon Natural Resources Council*, 252 F.Supp.2d at 1105 (holding that the Forest Service's revision of regional direction for lynx required the agency to prepare at least an environmental assessment). Instead, the Forest Service pretends

[7] C. Overby email to "pdl r3 forest biologists," 02/26/2008, previously supplied to the Forest Service.

that the I&I is not planning direction or an amendment of the forest plan, even as it explicitly relies on the new guidance for implementation of the Jacob Ryan project.

The Kaibab National Forest reported that the source population of northern goshawk on the Kaibab Plateau is in decline, and the species is "at risk of extirpation or extinction in Arizona."[8] The agency must ensure that the Jacob Ryan project will not contribute to a trend toward listing the bird under the Endangered Species Act.

VII. Failure to take hard look at effects to sensitive wildlife.

Kaibab squirrel strongly associates with "witches' brooms" created by dwarf mistletoe infection of large ponderosa pine trees. EA at 91. The proposed action would remove a significant but undisclosed quantity of large pines that currently supply nesting habitat. The effect would be cumulative because past regeneration logging in the Jacob Ryan project area "had a direct negative effect to Kaibab squirrels…" *Id.* The Warm fire also caused significant cumulative effects to nesting habitat.[9] The proposed action merits a hard look at effects to sensitive wildlife in an impact statement.

Trees infected with dwarf mistletoe directly and indirectly benefit wildlife.[10, 11] Mortality caused by dwarf mistletoe infection creates natural openings and structural heterogeneity, which are desired conditions in the Jacob Ryan project area.[12] The Forest Service makes no provision for natural disturbances, such as pathogens or fire, as a driver of ecological structure, composition, and change. As a result, the project undermines forest restoration.[13]

The Forest Service ignores its own research on contributions of dwarf mistletoe to old growth forest and wildlife habitat and food resources. Agency research (Hawksworth and Wiens

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[8] USDA Forest Service, 2010, *Management Indicator Species of the Kaibab National Forest: An Evaluation of Population and Habitat Trends, v. 3.0*, Kaibab National Forest: Williams, AZ., 256 pp.

[9] Cumulative effects of nesting habitat removal by fire and past and proposed logging may be significant. *See* Beier, P., and J. Maschinski, 2003, Threatened, endangered, and sensitive species, pp. 206-327 in: P. Friederici (ed.), *Ecological Restoration of Southwestern Ponderosa Pine Forests*, Island Press: Washington, D.C.

[10] Filip, G.M., 2005, Diseases as agents of disturbance in ponderosa pine, pp. 227-232 in: M.W. Ritchie, D.A. Maguire and A. Youngblood (tech. coords.), *Proc. Symp. on Ponderosa Pine: Issues, Trends, and Management*, 2004 Oct. 18-21: Klamath Falls, OR., USDA For. Serv. Gen. Tech. Rep. PSW-GTR-198, Albany, CA.

[11] Dodd, N.L., J.S. States and S.S. Rosenstock, 2003, Tassel-eared squirrel population, habitat conditions, and dietary relationships in north-central Arizona, *Journal of Wildlife Management* 67: 622-33.

[12] Hawksworth and Wiens, *op. cit.*

[13] Falk, D.A., 2006, Process-centered restoration in a fire-adapted ponderosa pine forest, *Journal for Nature Conservation* 14: 140-151.

1996: 127-128) shows that dwarf mistletoe significantly contributes to desired conditions for the Bonito project area:

> Effects of dwarf mistletoes on old-growth stands have received relatively little study. Previously, emphasis has been primarily on harvesting old-growth stands and regenerating the areas with mistletoe-free stands. With an increasing emphasis toward preserving old-growth forests, however, information on the effects of pathogens in such stands in becoming more important. By inducing formation of witches' brooms and causing topkill and mortality of host trees, dwarf mistletoes affect the species composition, vertical crown structure, and spacing of trees within infested stands. These direct effects, in turn, have numerous consequences on the physical structure and functioning of the ecosystem. For example, the brooms provide forage, nesting, and cover for birds and mammals, but also increase the likelihood of ground fires becoming crown fires. Canopy gaps caused by mistletoe-induced mortality increase within-stand diversity but also reduce the interior-forest area.

Indeed, tree mortality caused by dwarf mistletoe infection creates natural openings and structural heterogeneity (Nicholls et al. 1984). These are the very conditions desired by the Forest Service for the Jacob Ryan project area. *See* EA at C-8 ("Promote varied, irregular spacing between trees.")

The EA mentions that dwarf mistletoe contributes to nesting habitat of squirrel. EA at 91. However, it otherwise fails to consider the importance of mistletoe as a food source to a number of sensitive and indicator species in the project area, and fails to assess how silvicultural emphasis on mistletoe sanitation will affect food availability or population viability of any species. Trees infected with dwarf mistletoe can directly or indirectly benefit wildlife (Filip 2005). Many vertebrate animal species consume mistletoe shoots and fruits, and use brooms for cover and as nesting sites (Hawksworth and Wiens 1996). Clary and Larson (1971) found that in certain years, ponderosa pine stands with dwarf mistletoe shelter significantly more deer than stands without dwarf mistletoe.

Moreover, tassel-eared squirrel (*Sqiurus aberti*) (Dodd et al. 1998, Dodd and Rosenstock 2003, Dodd 2003), northern goshawk (*Accipiter gentilis*) (Reynolds et al. 1992) and Mexican spotted owl (*Strix occidentalis lucida*) (Grubb et al. 1997) prefer heterogeneous habitat patches that include large trees, relatively dense canopy, and diverse structure including coarse wood and mistletoe brooms. Those animals are threatened by large scale fires and by habitat degradation associated with uneven-aged silvicultural management (Beier and Machinski 2003). The Forest Service failed to give a hard look at effects to wildlife resulting from proposed mistletoe treatments in the Jacob Ryan timber sale.

Allen's lappet-browed bat is found in the Jacob Ryan project area. *See* EA at 91. Females of this species are highly dependent on ponderosa pine snags with sloughing bark for maternity roost habitat.[14] Rabe and others (1998) studied the bat's selection of habitat in

[14] Solvesky, B.G., 2007, *Roosts of Allen's Lappet-Browed Bat* (Idionycteris phyllotis) *in Northern Arizona*, M.S. thesis, Northern Arizona University: Flagstaff, 83 pp.

northern Arizona and questioned forest plan standards for coarse woody debris retention.[15] Ganey (1999) quantified the scarcity of large snags in the Kaibab National Forest despite a lack of historical timber management.[16] Chambers and Mast (2005) described population-scale effects to snag habitat after post-fire salvage logging, as occurred in the Warm fire area just outside of the Jacob Ryan project area.[17] The Forest Service failed to consider this information provided to it, and it failed to disclose direct, indirect and cumulative effects to the sensitive animal as a result. More, the agency failed to ensure continued viability of the species.

VIII. Failure to take a hard look at economic impacts.

"Greater revenues" (EA, p. 26) are not part of the Purpose and Need for Action (EA, pp. 10-16) and therefore should not have been a deciding factor in the preferred alternative. That being said, the economic provisions in the EA are base on assertions and no analysis.

The EA fails to adequately assess and analyze the economic effects of this project. The EA claims that, "Receipts from timber sales would help to offset the cost associated with implementation of the non-commercial thinning and prescribed burns." (EA, p. 108) However, it goes on to report, "Due to fluctuations in timber prices, it is difficult to project the discrete economic effects of the proposed action. Further, the mix of small and large mills in the project area makes it problematic to identify the specific locations where economic effects would be felt the strongest." (EA, p. 108) The EA does report that "a project of this size would have considerable direct, indirect, and induced effects." (EA, p. 108) If a project of this size will have considerable effects, then why must large trees be taken as part of the project? Nowhere does the Forest Service justify the need for a project of this size to include the cutting of large trees. The EA claims that "Economic effects of Alternative 3 would be similar to Alternative 2, except it would generate only about one-quarter of the commercial wood volume." (EA, p. 109) One-quarter of the wood volume should require fewer hours invested, less fuel purchased, and therefore lower costs for the contractors. Nowhere are the costs and estimated revenues of timber extraction actually quantified, and therefore the claims of projected economic revenue are merely assertions with no foundation.

The EA reports that "Tourism and recreation are the main industries for the immediate analysis area and have been expanded almost to their limits" (EA, p. 109). Never does the EA estimate the current value of recreation revenue nor the potential expansion of the tourism or recreation industry for the area. It doesn't analyze the economic impacts to recreation that could come from the project. Instead, the EA goes on to concede that logging revenue would barely affect the regional economy: "The JR Project would provide an economic benefit to the

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[15] Rabe, M.J., T.E. Morrell, H. Green, J.C. DeVos and C.R. Miller, 1998, Characteristics of ponderosa pine snag roosts by reproductive bats in northern Arizona, *Journal of Wildlife Management* 62: 612-21.

[16] Ganey, J.L., 1999, Snag density and composition of snag populations on two National Forests in northern Arizona, *Forest Ecology and Management* 117: 169-78.

[17] C.L. Chambers and J.N. Mast, 2005, Ponderosa pine snag dynamics and cavity excavation following wildfire in northern Arizona, *Forest Ecology and Management* 216: 227-40.

communities; however the effect would likely be small as the total contribution of Kaibab National Forest activities are estimated to be responsible for only about 0.5 percent of the jobs and labor income within the regional economy (USDA Forest Service, 2008b)[18]." (EA, p. 109)

Considering the limited reach of this analysis, the long history of poor financial return from timber sales as well as the current economic climate and depressed timber market, it is unlikely that this timber sale will result in a net gain for the American taxpayers. The White Mountain Stewardship Project as well as the current Four Forest Restoration Initiative confirm that there is sufficient economic interest in small diameter wood and that removing trees greater than 16'' in diameter is not a necessary economic incentive for the timber industry. The restoration efforts listed above as well as the recent *Memorandum of Understanding between Arizona Forest Restoration Products, Inc., the Center for Biological Diversity and the Grand Canyon Trust, to Work Cooperatively to Restore Degraded Ponderosa Pine Ecosystems in Northern Arizona*[19] demonstrate that industry would prefer the guaranteed wood supply from a project providing only small diameter trees (16'' in diameter or less) versus a project that includes large diameter and old growth trees but is then subject to uncertainty which results from opposition by community members and citizen groups. Moreover, including large diameter and old growth trees in this vegetation project is unlikely to offset costs in the longer term. For instance, if the economic analysis included the administrative and legal costs from the numerous times the Forest Service has attempted to implement this project since 1998 we would certainly find that the costs of implementing this project far outweigh the financial returns. The Forest Service failed to adequately analyze the economic impacts of the proposed project in the EA and assertions about economic benefits should be rejected.

IX. Failure to take hard look at impacts to visual resources and recreation.

It is clear that Section 3.2.9, Scenery and Recreation, and the Jacob-Ryan Vegetation Management Project Scenery and Recreation Report ("Specialist's Report") were put together hastily, and these factors could not have been considered when deciding which alternative to choose. Section 3.2.9 lacks any substantial discussion of recreational use of the project area, and the mislabeled subheading "Recreation" (EA, p. 106), which should be labeled "Scenery and Recreation", does not analyze direct and indirect effects on recreation that would be encountered under alternative 3. Further, Alternative 3 is compared to a non-existent "Alternative B" (EA, p. 107). Recreation is again ignored in the discussion of Cumulative Effects (EA, p. 107-108).

The "Alternative Analysis" in the Specialist's Report (Specialist's Report, pp, 11-14) also provides information that could not have been considered when deciding which alternative to choose. Discussion of Alternative 3 (Specialist's Report, pp. 13-14) includes references to a non-existent "Alternative B", and repeatedly compares Alternative 3 *to* "Alternatives 2 and 3" (Specialist's Report, p. 14). For example:

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[18] USDA Forest Service. 2008b. Kaibab National Forest Social and Economic Sustainability Assessment. Supervisors Office, Williams, Arizona http://www.fs.fed.us/r3/kai/plan-revision/forestplan.shtml

[19] http://www.biologicaldiversity.org/programs/public_lands/forests/ecosystem_restoration/pdfs/AZFRP-MOU.pdf

It is anticipated the proposed activities would improve the scenic integrity but the valued landscape character would appears (sic) *only slightly altered over time as compared with Alternatives 2 and 3… Progress will be made toward the desired condition for scenic integrity, although at a slower pace than in Alternatives 2 and 3.*

There is no analysis of the impacts of Alternatives 2 and 3 on recreation. The Cumulative Effects analysis again fails to discuss effects on recreation (Specialist's Report, p. 15).

If the desired condition is to move toward a state where, "Large, older trees would again become a major component of the forest over time." (Specialist's Report, p. 3), then why is Alternative 3 disregarded for its "dominance of trees over 16 inches diameter breast height (DBH)."? (Specialist's Report, p. 14) This is especially confusing in light of the statement in the Desired Condition section (Specialist's Report, p. 7-8), which calls for "maintaining a prominent large tree component", and the problem of "Today many small trees and few large trees" are on the landscape (Specialist's Report, p. 3).

Alternative 1 will not be as effective in achieving healthy aspen stands. Under alternative 1, "further management activities (beyond the scope of this project) would be required to maintain their presence" (Specialist's Report, p. 11). Under alternative 3, "aspen stands would be opened up and competing trees thinned or removed, resulting in more vigorous growth and possibly an increase in the quantity of these species" (Specialist's Report, p. 14). Aspen are identified in the report as important for scenery and recreation, for providing visual contrast, and as a recreational attraction.

X. Failure to take hard look at impacts to specially designated areas.

a. Kaibab Squirrel National Natural Landmark (NNL)

In 1965, the Secretary of the Interior recognized the importance of the Kaibab squirrel, a rare species found only on the Kaibab Plateau. The Secretary also recognized the squirrel's dependency on the Plateau's forest resources, "one of the largest and best examples of a climax [old growth] community," and established the 278,459-acre Kaibab Squirrel National Natural Landmark (NNL) (USDI 1993). Unfortunately, protection of the landmark's values is only voluntary and the future of both the Kaibab squirrel and its old growth habitat remain problematic.

Although the EA claims that the goshawk recommendations "include identification of the special habitat needs for the Kaibab squirrel" and the objective of this project is "to manage for a sustainable ponderosa pine community, including healthy population s of Kaibab squirrels" (EA, p. 97), historical and contemporary research of the Kaibab squirrel has consistently concluded that the species depends on mature ponderosa pine for all phases of its life history and that it can be negatively impacted by the logging of this habitat. The EA should be specific about what is meant by "the design and provisions of this project to provide protection for the squirrel and its habitat by assuring habitat conditions continue for reproduction as provided by the Secretary of the Interior." (EA, p. 97)

The EA acknowledges the importance of interlocking canopy, mature ponderosa pine, older-aged, larger-sized trees, and large (>26" DBH) trees with mistletoe, to the Kaibab squirrel (EA, p. 92 and 95). The analysis of Direct and Indirect Effects on Kaibab squirrel considers the Modified Proposed Action and Alternative 3 together (EA, p. 92), but elsewhere in the document, Alternative 3 is described as leaving higher density forests, and it will leave more large and old trees. Since decreasing canopy closure is predicted to cause a "possible adverse effect" (EA, p. 92), it is unclear how the effects of the two alternatives could be indistinguishable. The EA fails to consider the effects of specific alternatives on the NNL. The EA fails to demonstrate that the agency has taken a thorough and credible examination of the effects of its action.

b. Grand Canyon Game Preserve

The Grand Canyon National Game Preserve (GCNGP) was established by President Theodore Roosevelt on November 28, 1908 to protect game species and their Kaibab Plateau habitats (USDA 2009b). The EA (p. 97) reports that, "The NKRD worked with the Arizona Wildlife Linkages working group to identify important corridors on the Kaibab Plateau. Due to the lack of private property, away from major roads, no corridors were identified. Wildlife movements specifically Kaibab deer is widespread across the District. Cumulatively the short term temporary use of roads and skid trails will not add to any negative impacts to wildlife… The Modified Proposed Action will have no lasting impact on the population or habitat of huntable species on the NKRD within the Grand Canyon Game Preserve." Because corridors haven't been identified, it is unclear how it's known that the proposed action will not affect game species. Also, other aspects of habitat besides corridor should be considered when determining long-term impacts on game species, i.e., understory plant composition (including native grass, forb, and shrub community integrity), soil moisture, forest openings, cover from predators, access to water sources, sound levels, and more. Logging roads can invite off-road vehicle trespass, which can spread exotic plant species; road access can also invite poaching. The Forest Service fails to consider the effects of the different alternatives on the GCNGP in the EA.

XI. Failure to take hard look at effects to forest soil

Soils on approximately 1,394 acres in the Jacob Ryan Project area are considered "impaired" due to compaction or lack of adequate ground cover. February 2009 EA at 48 and 51 (Tables 29 and 31). Another 497 acres feature soils that are in "unsatisfactory" condition for similar reasons. *Id*. Such conditions occur on ecological map units 9, 252, 264, 272, 273, 293, 620 and 624. *Id*. at 48 (Table 29). Of those units, 252, 264, 273 and 620 are currently below "tolerable" levels of ground cover. *Id*. at 49 (Table 30). Map units 293 and 620 also are considered "impaired" for lack of adequate coarse woody debris. *Id*. at 47. The Forest Service must quantify the extent of soil compaction in each map unit and clearly assess what factors account for unsatisfactory or impaired conditions.

Even if project design criteria "minimize soil impacts" to map unit 9, it never was clear to us that effective ground cover would be maintained within "tolerable" limits on those 356 acres, or that "impaired" conditions would be avoided where they are currently "unsatisfactory." The Forest Service previously stated that 20 percent ground cover currently exists on map unit 9

soils, which is double the tolerable limit. *Id.* at 49 (Table 30). This may not be a sufficient margin to prevent proposed logging activities from creating "impaired" conditions on map unit 9 soils: "Assume tree harvest and associated activities (temp road clearing, skid trails, landings, etc.) will result in zero ground cover over 10 percent of each TES Unit cut."[20] A similar concern applies to soils in map units 263, 299 and 625, all of which are currently within 10 percent of "tolerable" limits for ground cover now. *Id.* "All mechanized timber activities remove vegetative ground cover, exposing bare soil in varying degrees and influencing runoff and erosion."[21]

XII. An impact statement is required to disclose significant cumulative effects.

It remains unclear to appellants why the Forest Service chose to undertake another environmental assessment of the Jacob Ryan proposed action. Completion of a full impact statement would settle the matter because:

1. Past iterations of the Jacob Ryan Project have been initiated under the presumption of preparing an EIS in recognition of extensive past management impacts to old-growth forest, wildlife habitat and soil productivity resulting from livestock grazing, fire suppression, and extensive applications of even-aged "shelterwood" timber harvests and associated road construction and log skidding.

2. Significant cumulative impacts to the local environment resulting from the 2006 Warm fire as well as post-fire logging activity approved by the Kaibab National Forest on more than 9,000 acres changed the environmental context of the Jacob Ryan Project and ensure that its proposed intensity will result in significant cumulative impacts to old-growth forest, wildlife habitat and soil productivity.

The Forest Service is required to analyze and disclose cumulative impacts of the Jacob Ryan project. Implementing regulations define cumulative effects as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-federal) or person undertakes such other actions." 40 C.F.R. § 1508.7. In deciding whether to prepare an EIS, the Forest Service must determine the proper "scope" of the project, which must include connected, cumulative and similar actions. 40 C.F.R. § 1508.25. "Cumulative actions" are those "which when viewed with other proposed actions have cumulatively significant impacts and should therefore be discussed in the same impact statement." *Id*. § 1508.25(a)(2). "Similar actions" are those "which when viewed with other reasonably foreseeable or proposed agency

[20] Beck, J., 2003, *Jacob Ryan Soil and Watershed Analysis Rational[e]*, Kaibab National Forest: Fredonia, AZ., November 8, 3 pp.

[21] Cram, D.S., T.T. Baker, A.G. Fernald and B. Rummer, 2007, Mechanical thinning impacts on runoff, infiltration, and sediment yield following fuel reduction treatments in a southwestern dry mixed conifer forest, *Journal of Soil and Water Conservation* 62: 359-66.

actions, have similarities that provide a basis for evaluating their environmental consequences together, such as common timing or geography." *Id*. § 1508.25(a)(3); *also see id*. § 1508.7.

Fig. CBD-1. Jacob Ryan Project area viewed from space. Note extensive forest fragmentation caused by road building and industrial timber extraction. Photo pre-dates 2006 Warm fire and associated post-fire logging activities adjacent to Jacob Ryan Project area. *See also* EA at 28.

The Jacob Ryan Project area is located on the Kaibab Plateau, which hosts ponderosa pine and mixed conifer forest habitat of critical wildlife conservation concern that comprises a unique and irreplaceable wildlife movement corridor and harbors some of the most extensive remaining old-growth forest in Arizona. The Kaibab Plateau also hosts a declining source population of sensitive northern goshawk, and it is the sole habitat of Kaibab squirrel, a critically imperiled sub-species of tassel eared squirrel, which is a management indicator species for late-

seral ponderosa pine forest habitat. The Kaibab Plateau and the project area supply the best opportunity to restore grass-fire-maintained old-growth ponderosa pine forests anywhere in the Southwestern Region. It also is one of the best opportunities in the region available to the agency to extend its historical management emphasis on natural resource extraction to the detriment of old-growth forest, wildlife and soil productivity.

Consideration and disclosure of cumulative impacts associated with the Jacob Ryan Project should have included:

1. All past shelter-wood seed cuts and clear cuts, including their impacts on overall canopy cover, old growth quality and extent, and habitat suitability for canopy dependent species such as and including Kaibab squirrel and northern goshawk.

2. All past crown fires, including the Warm fire, including their impacts on overall canopy cover, old growth quality, quantity and extent, and habitat suitability for canopy dependent species including Kaibab squirrel and northern goshawk.

3. Past changes in forest structure, including those resulting from the Warm Fire and other recent fires, and their impacts on wildlife habitat and populations within the project and across the Kaibab Plateau.

4. Invasive plant populations occurring in past timber sales, along roads and in past fire perimeters, and the potential for the proposed action and/or spatially or temporally concurrent management to introduce and increase invasive plant populations within the project area. This analysis should also evaluate invasive plant population responses to climate, seasonality, soil, slope, aspect, land uses, management activities, timing and interactions therein.

5. Overall fire management goals for the Kaibab Plateau, including and especially Wildland Fire Use and the Forest Service's ability to employ Wildland Fire Use as a management tool in the future. The Forest Service should specifically frame the proposed action in terms of fire management goals. The Forest Service should demonstrate in the context of cumulative effects analysis—using maps, GIS and a Fire Management Plan—how the proposed restoration activities serve as a corrective step that facilitate managing natural fires both within and beyond the project area in the future.

6. Location of the project area and proposed management activities, including roads and skid trails, in relationship to the location of important wildlife habitat, both formally protected habitats and other important habitat, such as wildlife movement corridors.

Conclusion

Appellants support active vegetation management to support ecologically beneficial uses of fire in the Jacob Ryan project area. This appeal makes very clear that we do not oppose small-diameter tree thinning or prescribed burning activities, but we maintain serious concerns for old growth forest retention and recruitment, as well as potentially significant cumulative effects of resulting from the unnecessary removal of habitat for sensitive and indicator wildlife species. We will accept thinning treatments that improve spatial heterogeneity of forest habitat and facilitate restoration of natural fire process – a purpose that agency data shows can be met on approximately 90 percent of the project area simply by thinning trees smaller than 12 inches in diameter. The Forest Service does not demonstrate need to remove trees greater than 16-inches diameter from ponderosa pine forest where trees smaller than that size are the cause of overstocking and unacceptable fire hazard. Given to the issues set forth above, we believe the record is clear that the Forest Service must withdraw its decision and take a hard look at reasonable alternatives, fully disclose potentially significant impacts, and demonstrate compliance with applicable standards and guidelines before implementing this timber sale.

Sincerely,

Jay Lininger, Ecologist
Center for Biological Diversity
P.O. Box 25686
Albuquerque, NM 87125
Tel: (928) 853-9929
Email: jlininger@biologicaldiversity.org

FOR:

Sandy Bahr, Chapter Director
Grand Canyon Chapter Sierra Club
202 E. McDowell Rd, Suite 277
Phoenix, AZ 85004
Tel: (602) 253-8633
Email: Sandy.bahr@sierraclub.org

Att.

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