APPEAL OF THE FINAL ENVIRONMENTAL IMPACT STATEMENT AND RECORD OF DECISION FOR AMENDMENT OF ELEVEN SOUTHWESTERN FOREST PLANS

JULY 23, 1996

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To whom it may concern,

Enclosed please find an appeal of the Record of Decision and Final Environmental Impact Statement on Amendments to Eleven Southwestern National Forest Plans. The appeal is filed pursuant to Forest Service NEPA appeal regulations.

Appellants include the Southwest Center for Biological Diversity, Forest Conservation Council, and the Southwest Forest Alliance and its member groups including the Grand Canyon Chapter of the Sierra Club, Maricopa Audubon Society, Northern Arizona Audubon, White Mountain Conservation League, New Mexico Audubon Society, and Forest Guardians.

Sincerely,

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Kieran Suckling

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Peter Galvin

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John Talberth

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CHAPTER ONE: NORTHERN GOSHAWK

Alternative G was the preferred alternative of the Final Environmental Impact Statement and was selected by the Record of Decision.

Alternative G is said to incorporated the "intent" of a report published by the Rocky Mountain Research Station entitled *RM -217 Management Recommendations for the Northern Goshawk in the Southwestern United States* (Reynolds *et al.* 1992). The report is referred to as RM-217 in this appeal.

Alternative D is a proposal jointly written by Arizona Department of Game and Fish and the New Mexico Game and Fish Department. It was rejected as too conservative by the ROD.

A. NEITHER THE FINAL EIS NOR THE ROD ANALYZE THE EFFECTS OF RM-217 ON NORTHERN GOSHAWKS

Not only do the ROD and FEIS fail to analyze effects on northern goshawks in light of the best available scientific data, they fail to provide any analysis at all. This is no exaggeration,- there is literally no analysis in either of these documents (see Table 1).

The fact that additional information can be found in *Studies in Avian Biology* is meaningless. An adequate EIS must *review* that information and *explain* how it supports or differs from the management proposal. Similarly, stating that the comments of the state agencies and the Goshawk Interagency Implementation Team were "considered" and "taken into account" says nothing at all. How were they considered? What is the Forest Service's understanding of the scientific literature such that it can dismiss the alternative developed jointly by the game and fish agencies as "more conservative than current scientific information warranted" (ROD 6)? The ROD and Final EIS present conclusions only. There is no reasoning, response to criticism, or references to supporting scientific studies.

It is unbelievable that the Forest Service could spend over four years developing an EIS which will impact millions of acres of Northern goshawk habitat on 11 National Forests, yet not refer to a single scientific study. This is especially bizarre given that the Forest Service and Arizona Game and Fish have spent a tremendous amount of time and money studying goshawks in the Southwest. One of the studies (Beier 1994) was even designed to test the assumptions of RM-217.

Our questions are admittedly rhetorical. We submit that the current scientific literature and the Forest Service's own field studies were not used because they directly contradict the selected alternative (see Section D). Their inclusion in the EIS would have exposed selection of Alternative G as the political compromise that it is.

Table 1. Complete Text All Northern Goshawk "Analyses" in the Record of Decision and Final Environmental Impact Statement.

RECORD OF DECISION	FINAL ENVIRONMENTAL IMPACT STATEMENT
"A number of other commentors offered arguments concerning the inadequacy of environmental effects discussions or actual amendment language. Many of those commentors offered up different scientific support for their suggested changes than was offered by regional resources specialists. My specialists evaluated every comment and wrote a response to the process record. Based on a review of my specialists' responses, I choose to rely on information and recommendations they provided for this decision. There was no compelling proof that other information or recommendations offered were better than the science my resources specialists used." (ROD 3) RM-217 "contains the best known information on northern goshawk management in our Region." (ROD 6) "Standards and guidelines for the northern goshawk were developed in early May 1995, and considered all known information from the Goshawk Interagency Implementation Team recommendations, the joint Arizona Game and Fish Department and New Mexico Department of Game and Fish letter that responded to the draft, and experience gained during implementation of the interim direction." (ROD 9) "Refer to USDA Forest Service General Technical Report RM-217 entitled 'Management Recommendations for the Northern Goshawk in the Southwestern United States' for scientific information on goshawk ecology and management which provide the basis for the management guidelines. " (ROD 91)	"The science behind the needs [of the goshawk]...are contained in..'Management Recommendations for the Northern Goshawk in the Southwestern United States' (GTR RM-217, 1992)." (FEIS 21) "A more detailed discussion of the recommendations are contained in, 'Management for the Northern Goshawk in the Southwestern United States'." (FEIS 22) "The guidelines have been developed over several years using the best information and scientific review available." (FEIS 43) "Forest plans themselves do not make any irretrievable or irreversible commitment of resources; therefore, allowable sale quantities can not of themselves 'devastate' the goshawk or owl as several commentors stated." (FEIS 43) "ALTERNATIVE G...The standards and guidelines for ecosystem management in goshawk habitats were developed by an interdisciplinary group of Forest Service scientists and take into account the current manual direction, Goshawk Interagency Implementation Team recommendations, the report Management Recommendations for the Northern Goshawk in Southwestern U.S. (RM-217) and DEIS comments received from both Arizona and New Mexico game and fish agencies." (FEIS 154)

B. THE GOSHAWK RESPONSE DOES NOT UTILIZE THE BEST AVAILABLE SCIENTIFIC KNOWLEDGE

i. OUR COMMENTS WERE NOT CONSIDERED.

The ROD states that all comments on the Final EIS were internally reviewed (see Table 1). Responses to goshawk specific comments are contained in a document by Douglas Boyce Jr. entitled "Response to Public Comments on the FEIS to Amend R-3 Forest Plans, April 1996" (Goshawk Response). This document does not list or respond to our comments on the Final EIS. It does respond to our comments on the Draft EIS, but only in relation to species other than the goshawk (Goshawk Response 34). There is no indication anywhere in the Process Record Index (including the Final EIS and the ROD) that the Forest Service responded to our comments or the scientific evidence presented in our comments.

The Southwest Center, the Southwest Forest Alliance and others submitted extensive comments on the Draft EIS and the Final EIS. These comments comprehensively reviewed the vast body of goshawk scientific literature and detailed the manner in which this literature consistently contradicts the premises and management prescriptions of RM-217.

Failure to consider our comments not only violations NEPA requirements to use the best available scientific information, it also violates NEPA requirements to consider all substantial comments.

ii. THE GOSHAWK RESPONSE DOES NOT USE THE BEST AVAILABLE SCIENCE TO SUPPORT RM-217.

The Goshawk Response contains a short section entitled "What Alternative G does for goshawks and the landscape." The section states that the authors of RM-217

> "considered northern goshawk ecology, prey ecology and forest ecology. In other words, the behavior and habitat needs of a large ranging (about 10 square miles) predator at the apex of the forest food web was developed first, the same was done for each of the major prey species (14 species), and then the growth, structure and pattern of the major vegetation considered." (Goshawk Response 16).

That such issues were "considered" by RM-217 is not disputed. That the foraging behavior of the northern goshawk was adequately assessed or managed for by RM-217, however, has been hotly and consistently disputed by ourselves, Forest Service biologist Cole Crocker-Bedford, the Arizona and New Mexico state game agencies, and the U.S. Fish and Wildlife Service. The Goshawk Response does not attempt to review the adequacy of RM-217 in regard to those critiques or the scientific literature. It does, however, reiterate the central error of RM-217:

> "Since the major consideration for goshawks is the long-term welfare of its food web. Achieving that goal requires a sustained flow of VSS through time." (*sic*, Goshawk Response 17).

We demonstrate below (see Section D) that the scientific literature consistently identifies forest structure, not prey abundance, as the "major consideration" in goshawk management. The only point to be made here, is that no evidence whatsoever is presented to support the above statement, even though it has been roundly and regularly contested by environmentalists, biologists and wildlife agencies.

iii. THE GOSHAWK RESPONSE DOES NOT USE THE BEST AVAILABLE SCIENCE TO RESPOND TO EIS COMMENTORS.

Although our goshawk comments were not

considered by the Goshawk Response, the document does consider comments by Cole Crocker-Bedford which bear upon one of our concerns. Its treatment does not use the best available science, in fact, it uses no goshawk science.

In response to comment #432 (Cole Crocker-Bedford) the Goshawk Response argues that creation of more forest edge by creating very small blocks of habitat, is not a threat to goshawks because the natural structure of southwestern forests is to have such small blocks. A return to natural structures, the response presumes, must *de facto* be good for goshawks. No direct evidence is presented to show that goshawks do actually benefit from forest conditions with a high degree of edge habitat or that they actually use the kinds of habitat blocks which will be created by RM-217. Instead, the Goshawk Response suggests: "It is not unreasonable to expect goshawks to use these habitats frequently." (Goshawk Response 39).

Use of informed speculation is proper in biology when good data is lacking. Data regarding goshawk habitat use in relation to forest edge and habitat block size, however, is not lacking. It includes numerous analyses of forest conditions within goshawk territories, analyses of nesting and hunting success in relation to forest conditions, and at least eight radio-telemetry studies which identify forest conditions actually used by foraging goshawks (see Section D and Table 2). One of these studies (Beier 1994) was conducted in Arizona with the express purpose of testing the validity of RM-217.

While the Goshawk Response cites no goshawk studies to support its speculation, Crocker-Bedford reviews 19 studies which support his contention that goshawks are harmed by forest edges and small habitat blocks. He also refers to the one study known which contradicts his contention, correctly stating that it is valid only under specific conditions (i.e. the interface of agricultural fields and woodlands, a situation which is not relevant to goshawks in the southwestern National Forests). Rather than explaining or justifying the conclusions of RM-217 with reference to goshawk literature, the Goshawk Response tries to call into question two of the 19 studies used by Crocker-Bedford.

It is worth noting that the Goshawk Response adequately cites scientific literature to defend RM-217 against charges that it protects too much habitat for goshawks (Goshawk Response 54). It is easy to use goshawk science to defend RM-217 against charges of being too generous. It is not possible, however, to build a credible scientific argument that it is generous enough.

We will discuss goshawk habitat use in much greater detail below. The points made here, are that the Goshawk Response does not use any goshawk scientific literature to support its claim that RM-217 is consistent with goshawk biology, and that the issues raised by Cole Crocker-Bedford were not refuted or adequately addressed.

Given the failure of the Goshawk Response to address our comments and its failure to cite any scientific studies in support of RM-217 in the face of the numerous contrary studies presented by Crocker-Bedford, the Regional Forester has no basis to state:

> My specialists evaluated every comment and wrote a response to the process record. Based on a review of my specialists' responses, I choose to rely on information and recommendations they provided for this decision. There was no compelling proof that other information or recommendations offered were better than the science my resources specialists used." (ROD 3).

C. RM-217 WAS NOT ANALYZED FOR EFFECTS ON NORTHERN GOSHAWKS

Ultimately, the ROD, Final EIS and the Goshawk Response defer scientific review of the effects of RM-217 to RM-217 itself. To say that RM-217 is itself the best available science is circular reasoning: the entire point of the EIS process is to review the adequacy of the RM-217, not to pre-suppose it.

RM-217 is a highly controversial document. Over the years, it has been comprehensively critiqued by Arizona Game and Fish Department, New Mexico Department of Game and Fish, U.S. Fish and Wildlife Service, Cole Crocker-Bedford, and the appellants. One of the main purposes of the EIS process is to address this long standing controversy so that the public and the deciding officer are informed about the nature of the disagreement and how the various alternatives address it. Yet, there is no review of the many critiques, there is not even a summary of the central points of debate. Instead, RM-217 is baldly presented as the best available science, as if it were not the subject of grave scientific controversy.

The failure to analyze RM-217 in light of its many detractors is particularly perplexing since the critiques are not only comprehensive and scientific, they are also nearly unanimous in identifying the same flaws and raising the same concerns (see Section D). Clearly, this well defined and oft repeated set of scientific criticisms should have been expressly addressed by the EIS. They are the core of the goshawk controversy which makes the EIS necessary in the first place.

The choice to rely on RM-217 is doubly flawed since RM-217 was published in November of 1992. A tremendous amount of goshawk research has been conducted and published since that time, much of it sponsored by the Forest Service and the state game agencies. The new research contradicts the basic presumptions of RM-217 and supports its detractors (see Section D).

D. RM-217 DOES NOT REPRESENT THE BEST AVAILABLE SCIENCE

RM-217 is a good example of bad ecosystem management. In its attempt to transcend single species management by incorporating the "needs" of multiple prey species and the historical range of variability in pre-European forests, RM-217 fails to adequately consider the biology of the sensitive species it set out to protect. As a result, it proposes a speculative large-scale management scheme which contradicts the demonstrated needs of northern goshawks.

This is not an argument against ecosystem management- it is warning that ecosystem management will fail if it too quickly leaps to the prey base/landscape level without first determining the needs of identified sensitive species.

i. SUMMARY: RM-217'S GUIDING PREMISES ARE NOT SUPPORTED BY THE SCIENTIFIC LITERATURE.

There is a consensus in the scientific community that northern goshawks prefer to nest in older, taller trees with high canopy closure and dense stands of large trees. RM-217 agrees with this position. The controversy concerns the proper management of foraging habitat. Management of foraging habitat has a much greater influence on forest conditions than management of nesting habitat since Alternative G will apply the foraging standards and guidelines across the great majority of the Southwest's ponderosa pine, mixed-conifer and spruce-fir forests.

RM-217 assumes that while northern goshawks have strict nesting habitat requirements, they are generalists in their foraging habitat. It assumes goshawks are opportunistic foragers which will hunt wherever prey are present:

> "The goshawk is a forest habitat generalist that uses a variety of forest types, forest ages, structural conditions, and successional stages." (RM-217 1).
>
> "Hunting goshawks evidently use available habitat opportunistically. This opportunism suggests that the choice of foraging habitat by goshawks may be as closely tied to prey availability as to habitat structure and composition." (RM-217 4).
>
> "In North America, the goshawk is a forest habitat generalist, occurring in all major forest types (coniferous, deciduous mixed). " (RM-217 10).

RM-217, therefore, is primarily concerned with managing foraging areas to insure they will support abundant, stable populations of prey species and individuals.

> "Raptor (hawks, falcons, owls) populations are often limited by availability and abundance of their prey." (RM-217 4).
>
> "Two important resources, food and nesting habitat, are frequently the principal factors limiting raptor densities (Newton 1979, 1989, 1991, Village 1990)...In areas where nest sites are readily available, raptor densities are often limited by food abundance (Village 1990, Newton 1991)." (RM-217 11).
>
> "The composition and abundance of species in the diet of a goshawk population may determine population stability." (RM-217 12).

Thus the gloss of the Goshawk Response:

> "the major consideration for goshawks is the long-term welfare of its food web." (Goshawk Response 17).

It is assumed that management prescriptions which favor prey species abundance, will benefit the goshawk as well:

> "Because information on goshawk biology is limited...the development of the 'desired forest conditions' for the goshawk and its prey required certain assumptions:
>
> ...
>
> 2) the availability of abundant, sustainable prey populations reduces the probability that food is limiting,
>
> 3) extreme fluctuations of goshawk populations caused by changes in the abundance of one or more prey will be dampened when a wider variety of prey species are available," (RM-217 1).

RM-217 bases its foraging habitat strategy on the needs of 14 major prey species. Because this variety of species displays a variety of habitat needs, a plan to ensure the abundance of all will necessarily have to provide for a variety of habitat conditions. RM-217, therefore, calls for the creation of many small habitat blocks with different forest structures.

> "We designed foraging areas consisting of forest conditions that would provide a high overall diversity and abundance of prey...Sufficient prey habitats are provided so there is food to support goshawks in all seasons, especially during winter when fewer prey are available." (RM-217 15)

Blocks are 4 acres or less, interspersed with openings of 2-4 acres. Additionally, RM-217 establishes a minimum canopy closure of 40% in mid-to-mature ponderosa pine stands. This is a relatively open canopy (RM-217 18). RM-217 prescribes a highly fragmented landscape with relatively light canopy cover and few areas dominated by canopied stands of tall, old growth trees.

The considerable scientific literature concerning goshawks does not support the assumptions or recommendations of RM-217. Northern goshawks prefer to forage, and are more successful hunters, in relatively large stands of mature trees with high canopy closure. They are not limited by prey abundance, they are limited by old growth forest structures. They will avoid forests

which are abundant in prey number but lacking old growth features, in order to forage in forests with lower prey numbers but more abundant old growth characteristics (see below).

RM-217 will likely harm northern goshawks by degrading the forest structures it requires for foraging. The result will be reduced nesting success, and ultimately, abandonment of the territories. It will also result in the destruction of potential nest sites, thereby limiting the ability of dispersing subadult goshawks and displaced adult goshawks to establish new territories.

ii. THERE IS NO EVIDENCE THAT PREY ABUNDANCE IS LIMITING GOSHAWK POPULATIONS IN THE SOUTHWEST.

Given the centrality of prey production to RM-217's strategy one would expect that there is a known relationship between low numbers of goshawk prey in the Southwest, and low numbers of successfully nesting goshawks. All of RM-217's references to prey abundance problems, however, refer to other raptors or raptors in general. There is not a single reference in all of RM-217 to indicating that northern goshawks in the Southwest actually suffer from lack of prey.

In fact, RM-217 correctly concludes the opposite:

> "In the coterminous United States, there is no evidence that goshawk populations undergo extensive fluctuations. This probably because:
>
> 1) no single prey species in these areas is abundant enough to dominate goshawk diets, and
> 2) the more southerly hawks feed on a wider variety of prey (Reynolds and Meslow 1984, Kennedy 1991).
>
> Thus, even though one or more prey species may undergo population fluctuations, the effects of these fluctuations are more likely to be buffered by populations of other prey species that are not simultaneously affected." (RM-217 12).

iii. THE GOSHAWK'S PREY SPECIES ARE NOT SENSITIVE, AND DO NOT REQUIRE ANY SPECIES MANAGEMENT CONSIDERATIONS

Given RM-217's insistence on managing goshawk foraging habitat for goshawk prey, even though there is no reasons to believe goshawks in the Southwest are limited by prey abundance, one would expect that the prey are themselves in need of special management consideration. Not so.

RM-217 identifies 14 major goshawk prey species and gives a fairly detailed account of the habitat needs of each (RM-17, appendices Two and Three). At the species level, none are listed as Forest Service Sensitive and none are known to be declining. At the subspecific level, one (Mount Graham red squirrel) is listed under the ESA, and one (Kaibab tassel-eared squirrel) is a Forest Service Sensitive species. Ironically, of the 14 main prey, these two are most closely associated with dense, closed canopy forests (RM-217 Appendix Three). They are the prey species most likely to be negatively affected by RM-217. In its review, the Arizona Game and Fish Department specifically warned that RM-217 does not provide enough canopy cover or large stands of trees to maintain healthy population of these two species (AGFD 1993, p. 47)- the very same concerns it has for the goshawk.

iv. RM-217'S CONCLUSION THAT GOSHAWKS ARE FOREST GENERALISTS IS NOT SUPPORTED BY THE SCIENTIFIC LITERATURE.

RM-217's insistence on managing goshawk foraging habitat for goshawk prey, despite being unable to show that goshawks are prey limited or that the prey are in need of special management consideration, would not be objectionable, if it were not for the fact that

the management plan is detrimental to goshawks.

In focusing on the differing habitat affinities of 14 very difference prey species, RM-217 comes up with a management plan which must provide for a great diversity of habitat conditions and seral stages within relatively small tracts of land. The result is a "desired forest condition" with lots of edge, lots of seral stages, lots of interspersion, and many small (1-4 acre) habitat blocks.

The critical question is: how will this affect northern goshawks? RM-217's answer is very unsatisfactory. In essence it says, goshawks may do well, because they might be habitat generalists, even though the scientific literature indicates they are habitat specialists. Given the tenuous nature of this reasoning it is no wonder that the Introduction concludes with the following caveat:

> "As new research information becomes available, and as our understanding of the goshawk and its habitat use and preferences increase, these management recommendations will be refined." (RM-217 9).

The great failure of the current EIS process, is that it should have been the comprehensive review of "new research information." It should have been the impetus for "refinements" foreseen by RM-217. Unfortunately, none of the new research was considered and no refinements were proposed.

RM-217 clearly argues that the goshawk is a foraging habitat generalist:

> "The goshawk is a forest habitat generalist that uses a variety of forest types, forest ages, structural conditions, and successional stages." (RM-217 1).
>
> "Hunting goshawks evidently use available habitat opportunistically. This opportunism suggests that the choice of foraging habitat by goshawks may be as closely tied to prey availability as to habitat structure and composition." (RM-217 4).
>
> "In North America, the goshawk is a forest habitat generalist, occurring in all major forest types (coniferous, deciduous mixed). " (RM-217 10).

The authors admit, however, that they know very little about actual goshawk foraging behavior or habitat use:

> "The forests [used by goshawks], because of natural and man-caused disturbances (fire, diseases, insects, logging), contain a wide variety of forest ages and successional stages. The extent to which goshawks use these different forest conditions is poorly known (Reynolds 1989)." (RM-217 10).
>
> "Although goshawks are wide-ranging predators of more than 50 species of forest birds and mammals (Appendix 2, page 51), little is known about the structure and composition of habitats used by foraging goshawks (Schnell 1958, Reynolds and Meslow 1984, Reynolds 1989, Mannan and Boal 1990, Kennedy 1991)." (RM-217 11).
>
> "It is difficult to identify and describe goshawk foraging habitat because of the size of the home range and the dearth of information on what habitats are preferred." (RM-217 14).

What's more, the authors admit that the scientific literature suggests that the goshawk is a foraging specialists, not a generalist:

> "Radio-telemetry is the most accurate of these estimates...Limited radio-telemetry evidence suggests that goshawk prefer mature forests for foraging. For example Fischer (1986) found that a radio-tagged male in Utah preferentially foraged in 'mature' Douglas-fir/white fire stands. Widen (1989), studying radio-marked goshawks (A.g. gentilis) in winter in intensively managed conifer forests in Sweden, found that both sexes of goshawks preferentially foraged in forests greater than 60 years of age." (RM-217 15).

How then, does RM-217 justify the contention that the goshawk is a foraging habitat generalist and can therefore do well in the highly fragmented forest called for by RM-217? Four lines of reasoning are presented, three without out any scientific references:

1. Because large tracts of forest generally vary in species composition and

structure, foraging goshawks must regularly come across different habitat conditions, and therefore, they must be generalists. (RM-217 11).

2. Their prey exist in a wide variety of habitats, therefore, goshawk must hunt in a wide variety of habitats. (RM 217-15).

3. Goshawks successfully nest in homogeneous forests landscapes of varying types (i.e. tree species) and conditions (i.e. mature or young). (RM-217 11).

4. Direct observations indicate goshawks forage in a variety of forest types and conditions. (RM-217 11).

The first line or reason is merely speculative, since there is no evidence to indicate that goshawks use all portions of their home ranges equally, or at all. It is akin to arguing that because the home range of a specific urban human includes fire stations, expensive restaurants, hot dog stands, and prisons, that human must use each. The telemetry data presented in Table 2 and discussed below, shows the opposite to be true: goshawk prefer to use particular portions of their large home ranges which exhibit consistent characteristics (large, tall, dense trees with heavy canopies).

The second line of reasoning is equally speculative. No evidence is presented to show that goshawks actually hunt in every or any of the preferred habitats of its prey species. The telemetry studies presented in Table 2 which are discussed below, show that goshawks choose to hunt in specific kinds of habitat, and that they are more successful in those habitats.

The third argument also lacks scientific references. It is contrary to the majority of scientific studies which show that goshawks consistently nest and forage in areas with large, tall trees, and high canopy closure (see below).

The fourth argument is the most compelling since it is the only one which is accompanied by scientific references: personal observations by three of RM-217's authors, and three studies (Fischer 1986, Kenward and Widen 1989, and Widen 1989). Unfortunately, two of the studies (Fischer 1986, Widen 1989) contradict do not support the premise that goshawks are foraging habitat generalists. They specifically show that goshawks prefer to forage in mature forests and conclude that the preference is due to forest structure.

The third study (Kenward and Widen 1989) is of limited value to understanding the natural foraging behavior of goshawks in the forested Southwest since it concerned goshawks in pastoral Sweden which had access to artificially high densities of non-forest prey.

It is not possible to comment on the cited personal observations, since they are discussed in any detail.

Forest Type vs. Forest Structure

In general, RM-217 is able to claim the goshawk is a foraging habitat generalist, by confusing forest type and forest structure. It is true that goshawks forage in variety of forest *types* (i.e. aspen, ponderosa pine, mixed-conifer, deciduous hardwoods, etc.). Use of various forest types, however, does not make the goshawk an opportunist or a generalist. Scientific studies show that within each forest *type*, goshawks select for relatively consistent forest *structures* (i.e. large, mature trees, high canopy closures, open understories, and contiguous forest blocks) (see reviews and references in our comments on the Draft EIS, Crocker-Bedford's comments on the Draft EIS, ADGF 1992 & 1993, and USFWS 1992).

Telemetry Studies

Radio telemetry is a powerful tool because it identifies the specific areas of the landscape which are actually utilized by wildlife. It also lessens the influence of observer bias, allowing for more objective analyses. We have reviewed all eight known telemetry studies which track goshawk foraging behavior (see Table 2). RM-217 only uses three of these studies. Note also that four of the eight studies took place after the publication of RM-217, two are from Arizona, and one was expressly designed to test RM-217's assumptions. These studies constitute significant new and valuable information. Had they been available to the authors of RM-217, they would likely have devised a different management strategy. We presented these studies to the Forest Service in our comments on the Draft and Final EIS, yet they have not been accounted for.

Telemetry data clearly show that goshawks do not evenly use all the various habitats which typically occur within their large foraging areas (see Table 2). They consistently selected forest patches with greater canopy coverage, and relatively dense stands of large trees. With one exception prey abundance was not a factor in goshawk foraging area preference.

Using radio-telemetry, Fischer and Murphy (1986), Widen (1989), and Beier (1994) found that goshawks preferred to forage in mature, tall forests. Mannan and Smith (1993) found that, overall, goshawks showed increasing preference as canopy cover increased. They also found some birds to show significant avoidance of forest edges- none preferred edges. Austin (1993) found goshawks to avoid openings and areas of low canopy cover, electing instead to forage where canopy cover exceeded 40% and where there were mature trees. Hargis *et al.* (1991, 1993) found similar results. Widen (1989) found goshawks to prefer mature forests blocks larger than 100 acres over mature blocks smaller than 50 acres by a factor of 10. He also found that the likelihood of a successful hunt was higher in mature forests than in openings or young forests.

Contrary to the conclusions of RM-217, no telemetry studies conclude that goshawks use their foraging areas randomly. Two of the studies cited in RM-217 do show goshawk use of various forest *types* (Fischer 1986, Widen 1989), but within these, they show a preference for a consistent forest *structure*. The third study cited in RM-217 (Kenward and Widen 1989) is the only telemetry study in which goshawks selected for areas with abundant prey rather than mature forest structures. In this study from Sweden, goshawks in an agricultural farm/woodland interface, primarily foraged at the woodland edge and preyed almost exclusively on domestic pheasants, many of which were purposefully released nearby. This agricultural landscape and prey situation is probably of little relevance to goshawk foraging activity in natural landscapes such as the National Forests of Arizona and New Mexico.

The telemetry study by Dr. Paul Beier in the Coconino National Forest in central Arizona (Beier 1994) is of particular interest since it was designed to test the twin hypotheses of RM-217: that goshawks select for prey abundance, and that they do not select for habitat structure. The study supported neither hypothesis. Medium sized prey were less abundant at the foraging area sites used by goshawks than at the sites they did not use. Used sites also differed from unused sites in having more trees overall, more large tree, more tall trees, and greater canopy cover. Approximately seventy percent of the used sites had canopy cover greater than or equal to 40%. According to Beier: "Prey abundance did not seem important in selection of

foraging areas by goshawks...in selecting sites within a home range, goshawks apparently did not pay much attention to prey density."

TABLE 2. RESULTS OF TELEMETRY STUDIES IN NORTHERN GOSHAWK FORAGING AREAS.

LOCATION	FINDING	REFERENCE	USED BY RM-217
Arizona (Kaibab National Forest)	Pooled results of all 11 birds showed increasing preference, on the average, for foraging as canopy cover increased. Three preferred relatively closed canopied forests and avoided relatively open canopied forests. Four birds avoided forest edges. There was no preference for open canopies, forest edges, or diverse areas.	Mannan and Smith, 1993	
Arizona (Coconino National Forest)	Foraging preference was not related to prey abundance. Goshawks foraged in areas with less small and medium sized prey, but with more trees overall, more large trees, more tall trees, and greater canopy closure.	Beier, 1994	
Central Utah	Foraging preference was not related to prey abundance. Both birds foraged preferentially in stands of tall, mature, and overmature trees.	Fischer and Murphy, 1986; Fischer 1986	Y
Northern California	Overall, goshawks avoided openings and sawtimber stands with less than 40% canopy cover. They showed no preference or avoidance of pole forests of sawtimber with more than 40% canopy cover. They preferred stands of mature or old growth trees with greater than 40% canopy closure.	Austin, 1993	
Eastern California	Goshawks selectively foraged in areas with higher basal area, greater canopy closure, more tree overall, and more large trees.	Hargis *et al..*, 1993; Hargis *et al.*, 1991	
Southeast Alaska	Ninety percent of goshawk locations were in old-growth forests, even though such forests comprised only 43% of the landscape.	Titus *et al.*, 1994; Crocker-Bedford 1994	
Central Sweden	Goshawk foraging locations were related to prey species. In 3 highly fragmented farm/woodlands, they preferred edge habitats, especially in the one area where pheasants were released. In the conifer forest area, goshawks avoided edges, preferring to forage in unbroken tracts of mature forest.	Kenward and Widen, 1989	Y
Central Sweden	Forest structure was an important component of foraging areas. In every season, both sexes foraged less than expected in young and middle-aged stands and used mature forest approximately twice as frequently as its availability. Most documented successful foraging attempts were in mature forest. In use of mature forests, there was a significant preference for larger blocks, especially those greater than 100 acres.	Widen, 1989; Widen, 1987 as cited by Widen, 1989	Y

iv. IMPLEMENTATION OF RM-217 WILL DEGRADE GOSHAWK FORAGING HABITAT, THREATENING THE VIABILITY OF NESTING TERRITORIES.

RM-217 establishes three management zones, affording less protection as one moves outward from the nest stands, to the post-fledging area, to the foraging area. The zone strategy rests on

> the assumption that habitat disturbance is less detrimental at greater distances from the nest stands, and that canopy cover requirements lessen at greater distances from the nest stands. According to RM-217 60% of the foraging area is to be comprised of mid-to-old age forest stands, distributed in small blocks of four acres or less. Canopy cover in ponderosa pine blocks will be at least 40%. The remaining portion of the foraging area will be comprised of small blocks of seedlings-to-young trees, which do not have a canopy function. The result will be a forest highly diverse at the stand level (i.e. lots of forest conditions within any given small area), but homogeneous at the landscape level (i.e. each large segment of the landscape will be structurally similar). There will be no large blocks of canopied forest. There will be lots of forest edge.

To achieve this condition, RM-217 allows the foraging area of each goshawk territory to be harvested in a manner which will break large habitat blocks up into a mosaic of small blocks. Canopy cover will generally be reduced. In areas with extensive blocks of mature trees and closed canopies, such as the North Kaibab Ranger District (AGFD 1993, Crocker-Bedford 1990b) large trees will be cut, and the forest canopy will be fragmented.

This "desired" landscape condition of RM-217 will impair the goshawk's ability to hunt efficiently. The northern goshawk has evolved short wings, a long rudder-like tail, and protective eye-guards in order to maneuver deftly between trees in pursuit of prey. It identifies prey by continually moving from perch to perch, obtaining different views through the trees. The goshawk is well adapted morphologically and behaviorly to hunt within forests with dense canopy cover and relatively open understories. These conditions are best represented in mature forest blocks. When canopy is reduced and forest blocks fragmented, the goshawk is more susceptible to competition and predation (see Moore and Henny 1983, Crocker-Bedford 1990). Species such as red-tailed hawks, which are adapted to open forest conditions, will have a competitive advantage. Prey species will be more able to detect goshawks on their exposed perches (Widen 1989). Goshawks are also more likely to be taken as prey themselves since

they are more exposed (Moore and Henny 1983). In landscapes prescribed by RM-217, hunting success will be lower. This is likely to result in low reoccupancy rates, less reproductive success, and ultimately, lower population levels due to abandonment of territories, adult mortality, and lack of recruitment.

Goshawk and Logging on the Kaibab National Forest

Timber harvesting in goshawk foraging areas has significantly decreased nest stand reoccupancy on the Kaibab National Forest, Arizona and in Idaho, even under selective harvesting methods (Crocker-Bedford 1990, 1991; Patla 1991, Ward *et al.* 1992). On the Kaibab, reoccupancy decreased 75% compared to unlogged territories when one-third of the timber was removed. While canopy cover on the North Kaibab Ranger District was formerly very high, reaching 85% in many places, intense logging between the early 1970's and late 1980's virtually eliminated canopy coverage greater than 60% and reduced the amount of forest with canopy cover between 40-60% (Ward *et al.* 1992). The impact on goshawks was clear. Territories which remained in use during this period, had foraging areas with more acres of remaining higher canopy stands, and less acres of canopy cover between 20-40%. Conversely, the foraging areas of the territories which were abandoned, had less of the remaining higher canopy stands, and more of the stands reduced to 20-40% canopy cover.

RM-217's allowance of canopy cover reduction to 40% in ponderosa pine foraging habitat, will allow heavy cutting on the Kaibab and other National Forests to continue, leading to further losses of nesting territory viability.

Selective timber harvesting in goshawk foraging areas has significantly decreased reproduction on the Kaibab National Forest (Crocker-Bedford 1990, 1991, Ward *et al.* 1992, ADGF 1993). Harvesting in 10-39% of the stands in the home range resulted in 50% less reproduction than unlogged or very lightly logged territories. Harvesting in 40-69% of the stands resulted in an 80% reproduction decrease. These logging levels are within the range which have taken place under RM-217 (Crocker-Bedford 1994). No reproduction occurred and occupancy dropped 89% compared to unlogged territories, when harvesting occurred in 70% or more of the stands. That harvesting in the foraging area has such a strong effect, while harvesting in the nest stand had no measurable effect, indicates that preserving goshawk foraging habitat is a critical consideration in maintaining viable goshawk populations.

These results were confirmed when some of Crocker-Bedford's unlogged and lightly logged control plots were later harvested in 1987-1992. Nest occupancy dropped to 40% on the newly logged territories, while it was 89% on the territories which remained unlogged (Boyce et al. *in* Crocker-Bedford 1994). Though the small sample size precluded statistical significance, raw data collected by Mannan and Boal (1990) suggests that nests within territories with a low level of logging disturbance had higher fledging rates than nests within moderately and highly disturbed territories.

Further evidence of the negative effect of logging on goshawks is the difference in demographic patterns on the North and South Kaibab Ranger Districts. The two adjacent Districts have approximately the same amount of productive timberlands (AGFD 1993). Being on the south side of the Grand Canyon and thus readily accessible by railroad, the South Kaibab was cutover at the turn of the century. Continued logging has created a forest with very little overstory canopy or mature trees. The North Kaibab, though heavily cut, has many pockets of canopied old growth left. Of the 11 National Forests in the Southwest, it has the most goshawks and the most old growth ponderosa pine. As pointed out by the Arizona Game and Fish Department in its 1993 review of RM-217 (AGFD 1993), nesting success is significantly higher on the North than the South Kaibab. Successful nests on the North Kaibab also produce significantly more fledglings than successful nests on the South

Kaibab.

The results of goshawk surveys and monitoring on the North Kaibab Plateau between 1993 and 1995 are not encouraging (see Table 3). Although the number of known territories increased from 77 to 100 due to survey efforts, the percentage of occupied, active, and successful nests declined. So did the number of fledged young. These results are particularly disturbing since the North Kaibab Plateau may serve as a population reservoir for the Southwest.

There is absolutely no discussion of local or regional goshawk population or productivity trends in the ROD, Final EIS, Goshawk Response or RM-217. This is astounding since each National Forest produces a yearly goshawk report and Arizona Department of Game and Fish has funded 16 goshawk studies since the publication of RM-216. Not one of these reports or studies is reviewed or cited.

The Apache Goshawk

In the first field assessment of the Apache goshawk (a northern goshawk subspecies limited to the sky island forests of southern Arizona and possibly southern New Mexico) on the Coronado National Forest, Snyder (1995) suggested that the 10 year trend appears to indicate a declining population. Concern for this population and inadequate Forest Service management was previously expressed by the U.S. Fish and Wildlife Service in a letter to the Coronado National Forest (Tibbitts 1994).

Niether of these is reviewed or cited by any of the EIS documents. There is no discussion of the limited distribution of Apache goshawk, its unique habitat situation (steep sloped, isolated mountain ranges), or the well known conflict between expanding recreation facilities and limited goshawk nesting sites.

v. APPLICATION OF RM-217 WILL LIMIT THE ESTABLISHMENT OF NEW NESTING STANDS AND TERRITORIES.

Existing nest stands will eventually become unusable due to fire, windstorm, insects, or other natural events. It is therefore very important that displaced goshawks be able to find new nest stands. Because RM-217 manages the large foraging areas down to such a low canopy and high fragmentation condition, a goshawk will not find suitable nesting stands within forests managed as foraging areas. Over time, as well protected nest stands deteriorate and poorly protected foraging areas are logged, goshawks will find fewer and fewer places in which to nest. Areas outside of goshawk territories with no logging restrictions will presumably offer even fewer nesting sites.

A similar problem faces dispersing juveniles. In order to successfully nest, a juvenile must leave the territory on which it was born and find a suitable nesting territory. Juveniles will be unlikely to compete for good nest sites with displaced adults. As a result, when good sites are rare, they will either not nest, or attempt to nest in poor habitat conditions.

Goshawks will be more susceptible to predation while searching for new territories. They are moving around more in unfamiliar areas and are more exposed when crossing low canopy or unforested areas. The longer it takes to find a suitable nest site, the more likely it is that a goshawk will be killed or die due to physiological stress. This is particularly true of inexperienced juveniles. Shortages in suitable nest sites increase search time, resulting ultimately in decreased recruitment.

Table 3. Goshawk nesting trends, North Kaibab Plateau, 1993-1995

CHAPTER TWO: MEXICAN SPOTTED OWL

The FEIS contains no discussion of MSO biology or conservation needs. It presents no viability analysis. It does not cite a single MSO scientific article or scientist. The FEIS contains no analysis of the effects of the alternatives on the Mexican spotted owl. It defers all analysis to the Mexican spotted owl Recovery Plan, yet the recovery plan is not required to, and does not address any of our comments on the Draft or Final EIS.

If the Forest Service decides to implement the recovery plan, it is required to analyze it to determine what its effects would be on the MSO and other resources. It does not do so, it simply assumes the plan must benefit the owl because it is a recovery plan.

Since the ROD does not refer to, discuss, or in any way appear to incorporate our previous comments, where hereby incorporate them here once again by reference. Although the ROD states that all comments were interanally review and responded to, we did not receive any Mexican spotted owl Response equivalent to the Goshawk Response in response to our Freedom of Information Act request for all internal reviews and responses.

A. THE DEIS FAILS TO CONSIDER THE CUMULATIVE EFFECTS OF LOGGING ON NATIVE AMERICAN NATIONS

The Final EIS does not address MSO habitat loss and landscape level fragmentation associated with logging on Native American Nations. Substantial owl habitat and timber programs exist on the White Mountain Apache, Navajo, Mescalero and other nations. The combined effect of habitat modification on National Forest and Native American lands has, and will continue to greatly influence the forest landscape. The White Mountain Apache Nation, abutting the Apache-Sitgreaves National Forest is particularly important. It has more old growth forest and MSO habitat than all other Indian Nations combined. It also has the largest Native American timber program. Its proximity to rare and extensive tracts of mature forest on the Alpine and Springerville Ranger Districts makes it a key MSO habitat area. The heavily logged Mescalero Nation abuts the heavily logged Lincoln National Forest which is also key MSO area. The Chuska Mountains on the Navajo Nation form a heavily logged sky island that may be a critical stepping stone linking very small, extinction prone northern MSO populations to larger southern populations.

B. THE VIABILITY ANALYSIS IS INADEQUATE.

The viability analysis is sorely lacking. There is no discussion for example, of the level of fragmentation around all or key populations. There is no disclosure or analysis of how much mature forest is found in each Forest or population areas. There is not a single scientific reference. There is no discussion of the color banding studies on the Coronado, the telemetry studies on the Coconino, Apache-Sitgreaves, Gila and Cibola; or the many prey base studies from around the region. There is

no discussion of wintering, dispersal or nursery needs. There is no discussion of population age structures, use of riparian corridors, or competition with other species. There is no discussion of predation threats. There is no discussion of the differing habitat types used or their distribution. In short, the "analysis" is complete bereft of scientific credibility. It simply ignores the voluminous scientific and management literature regarding raptors, owls, spotted owls and Mexican spotted owls. It ignores the basic concepts of conservation biology.

C. THE DEIS FAILS TO USE THE BEST AVAILABLE SCIENTIFIC AND COMMERCIAL INFORMATION

The MSO was listed as a sensitive species in 1983, the MSO Task Force was formed in 1988, and in 1989, the first interim directive ordering direct conservation measures was established. Interim Directive No. 1 was controversial. The core and territory acreages, based on an average of radio-tagged pairs, were too small. The even smaller core on the Lincoln National Forest was even more dangerously inappropriate. Roger Skaggs, MSO biologist and member of the Task Force summed up many of our concerns in his 8/27/89 letter to the Regional Forester He warned that:

- By using averages, "as many as 50% of our known Spotted Owl sites are risk," perhaps more, since two-thirds of the radio-tracked pairs had territories larger than the 2,000 acre average.
- Failure to protect the full foraging area could increase foraging area sizes, hence competition between adjacent pairs, and ultimately lead to reduced occupancy.
- By failing to protect unoccupied habitat, "in just one or two harvest cycles we may create numerous small core-habitat islands that fix population size and distribution for the foreseeable future.
- Without guidance or accountability as to drawing of cores and management territories, District level discretion could allow harvest and road construction to take place too close to nests and roosts.

Mr. Skaggs began his letter with warning that the Management Direction section was "most deficient in providing for the maintenance of viable Spotted Owl populations," and concluded with 5 management recommendations and a plea to change the guidelines. The Regional Forester did not implement his recommendations and in December of 1989, Dr. Robin Silver filed a petition to list the MSO as endangered due to excessive timber harvesting and inadequate conservation guidelines. To this day, the vast majority of Mr. Skaggs' concerns have not been addressed.

ID No. 2 was adopted in June of 1991. While it did increase the Lincoln National Forest core size to 450 acres, it arbitrarily reduced the territory size on both the Gila and Lincoln National Forests to 1,500 acres. These two Forests have the densest owl populations in the Region. Please read the U.S. Fish and Wildlife Service's 1991 Status Review and Federal Register proposal to list the MSO as threatened. The Fish and Wildlife Service's critique of Forest Service management is a virtual repetition of Mr. Skaggs' 1989 letter, only this time with the force of law. The history of owl management in the Southwest is summarized by the fact that critiques and recommendations are ignored until the external force of law is applied.

Despite the Fish and Wildlife Service's concerns and the listing proposal, ID No. 2 was re-adopted without change in December, 1991. The year 1992 saw the ill conceived and ill fated attempt to rush through an E.I.S. on a Conservation Strategy designed to head off the listing of the MSO. A draft was produced which was considerably better than ID No. 2 but the U.S. Fish and Wildlife Service could not concur that the Strategy was sufficient to preclude the need to list the MSO as threatened. On

December 11, 1992 new Interim Management Guidelines implementing the conservation strategy were published in the Federal Register but were hastily withdrawn three days later. The owl was listed as threatened in March, 1993.

We have queried the R.O. several times to find out what happened to the Conservation Strategy because it represents a much better alternative than ID No. 2. We have been told in writing several times by the Regional Forester that the only purpose of the Conservation Strategy was to obviate the need for E.S.A. protection and that since the owl is now listed, there is no need for a Conservation Strategy. This is cynical reasoning at its worst, reminiscent of the Pacific Northwest Region's failed legal argument that since the Northern spotted owl is not a viable species, the Forest Service is not obligated to manage for it under NFMA.

. We are dismayed and disturbed that the Region is continuing this irresponsible, entrenched trajectory. We are very much afraid the Region will continue to require the external force of law in order to change in a biologically significant manner.

RECENT OWL RESEARCH

Recent studies by Ganey and Balda (*Habitat selection by Mexican spotted owls in northern Arizona.* The Auk 111(1):162-169, 1994) and Peter Stacey (pers. comm.), affirm our previous concerns and highlight the need for a major change of direction in owl management.

Ganey and Balda analyzed habitat use by eight radio-tagged owls on the Coconino and Apache National Forests. They determined:

- most roosting sites were in "virgin" mixed-conifer with a smaller number in "virgin" ponderosa pine
- most foraging sites were in "virgin" mixed-conifer and ponderosa pine habitats
- roosting and foraging sites had more big logs, higher canopy closure, and greater densities and basal areas of both trees and snags than random
- roosting sites had more big logs, higher canopy closure, and greater densities of both trees and snags than foraging sites
- more than one type of habitat was used on 157 of 208 nights (75.5%)
- there was a "striking pattern" of avoidance of managed forests

Of particular concern is the avoidance of managed forests, since 75% of the home ranges had been logged on at least 50% of the acreage (see Table 4). Logging has made the majority of home range habitat, for the majority of owls, less suitable for nesting, roosting or foraging. The vast majority of this logging was in ponderosa pine habitats. Unlogged ponderosa pine, by contrast, was used significantly. The current guidelines offer very little protection for ponderosa pine, it is often not even considered suitable habitat.

Four of the six birds with managed mixed-conifer in their home range did not roost in it at all. Five of the eight birds did not roost at all in managed ponderosa pine. Foraging use of managed forests was also very low. Foraging use of managed mixed-

conifer was significantly low in five of the six home ranges with that habitat type. Foraging use of managed ponderosa pine was significantly low in six of the eight home-ranges.

TABLE 4. HOME RANGE HABITAT TYPES OF EIGHT RADIO-TAGGED MEXICAN SPOTTED OWLS BY LOCATION, VEGETATION TYPE AND MANAGEMENT STATUS (from Ganey and Balda (1988, 1994)).

	% OLD GROWTH				% MANAGED FOREST		
Owl (Sex)	Mixed-Conifer	Ponderosa	Pine-Oak	TOTAL	Mixed-Conifer	Ponderosa	Total
Walnut Canyon (M)	17	6	11	34.00	0	65	65.00
Walnut Canyon (F)	17	6	13	36.00	0	62	62.00
Schultz Creek (M)	55	13	6	74.00	4	15	19.00
Schultz Creek (F)	53	13	7	73.00	5	14	19.00
Weatherford Canyon (M)	20	14	0	34.00	7	58	65.00
Weatherford Canyon (F)	32	12	0	44.00	4	50	54.00
Snake Creek (M)	25	9	0	34.00	13	53	66.00

The logging which made these stands unsuitable was not old time, heavy handed even age management. According to Ganey and Balda, "the managed stands on our study areas typically were uneven-aged stands resulting from partial overstory harvests." This indicates that use of even partial removals under uneven age prescriptions away from nest stands in foraging areas can compromise habitat capability for the Mexican spotted owl.

Ganey and Balda concluded their article with following recommendations:

> "The consistent avoidance of logged stands and the use of mature or virgin stands at levels greater than expected argue for retention of virgin (or at least mature) forests in areas occupied by Mexican Spotted Owls. The use of different forest types for different activities suggest that virgin stand of both mixed-conifer and ponderosa pine forest should be retained, so as to provide suitable habitat for both foraging and roosting."

The current and proposed guidelines ROD does not protect the entire MSO foraging area, does not protect all mature mixed-conifer forests and give very little protection to mature ponderosa pine. It relies on Protected Activity Centers which, by design, are smaller than actual home ranges of spotted owls. They also allow logging in unoccupied owl habitat and areas between territories.

Recent research by Peter Stacey, professor of Ecology, Evolution and Conservation Biology at the University or Nevada at Reno, raises further questions about the adequacy of the current and proposed guidelines. Dr. Stacey has documented extensive use of mid-elevation riparian areas as nurseries and juvenile dispersal corridors. These habitats are not even considered by the guidelines,

nevermind protected. Dr. Stacey's research should come as no surprise. Historic use of mid and low elevation riparian areas by MSOs is well documented, especially in southwest New Mexico and southeast Arizona. Riparian habitats are almost certainly the most degraded wide-spread habitat type on Southwestern National Forests. Overgrazing has seriously retarded broadleaf regeneration and succession, and is principly responsible for un-naturally severe and frequent flooding associated with lack of ground cover. Un-natural flooding has damaged stream morphology, further exacerbating long-tern riparian degradation. This politically sensitive habitat correlation was ignored by ID No. 1 and 2, and we are afraid will continue to be ignored.

CHAPTER THREE: THE EIS VIOLATES NEPA NOTIFICATION AND DISCLOSURE REQUIREMENTS

A. THE FOREST SERVICE INTENTIONALLY MISLED THE PUBLIC BY FAILING TO DISCLOSE THAT IT ACTUALLY INTENDED TO DEVELOP AND CHOOSE AN ALTERNATIVE NOT PRESENTED IN THE DEIS

The DEIS makes no mention of an intention to adopt the MSO Recovery Plan as an alternative. At the time the DEIS was prepared and released, however, the Forest Service had already decided to do so. This is a clear violation of NEPA. The DEIS was mailed to the public on August 11, 1994. Notice of its availability was published in the Federal Register on August 23, 1994. Prior to September 5, 1994, however, the Forest Service had already worked out a detailed plan with the U.S. Fish & Wildlife Service whereby the Forest Service would:

- issue a supplemental DEIS in February 1995 incorporating the draft MSO Recovery Plan as an alternative
- close public comment on the SEIS in May 1995
- consult with the Fish & Wildlife Service in July 1995
- issue a ROD in October 1995 choosing the recovery plan alternative

All of this information is presented in a September 5, 1994 memo by USFWS listing biologist Steve Spangle (Spangle 1994).

The Southwest Center and other members of the Southwest Forest Alliance exposed this duplicitousness in our 12/1/94 comments on the DEIS (p. 27). As per the Spangle plan, the Forest Service shortly thereafter published a Revised Notice of Intent announcing that "comments suggested other alternatives need to be considered," that a revised DEIS would be issued. The Revised Notice failed to mention what this "new" alternative might be, even though it was published in the Federal Register four days prior to the release of the Draft Recovery Plan. Two months later, a second Revised Notice was published, this one announcing that the Forest Service would "coordinate the Regional Forester decision with the final Mexican Spotted Owl Recovery Plan." It is clearly established that the Forest Service knew it would take this course of action prior to releasing the DEIS- a grave violation of NEPA.

While violating public disclosure requirements of NEPA, the original plan would at least have allowed

the public to comment on an SEIS incorporating the Draft Recovery Plan. Instead, the Forest Service short-circuited the public involvement process in an attempt to evade a lawsuit over its implementation of the MRNG prior to the completion of the Environmental Impact Statement. It revoked the SEIS plan, and simply issued a FEIS with a brand new alternative: the draft MSO Recovery Plan. This has magnified the Forest Service's NEPA violations, excluding the public to an even greater degree.

Incredibly, the Forest Service proceeded with this shell game even though it knew it was illegal and likely to lead to litigation. Appendix Two is an internal memorandum recieved under the Freedom of Information Act which demonstrates the Forest Service knowingly chose this illegal strategy, rather than open itself up to the possibility of an extended injunction under an ongoing NEPA related lawsuit.

B. THE FOREST SERVICE INTENTIONALLY MISLED THE PUBLIC BY FAILING TO DISCLOSE THAT IT ACTUALLY INTENDED TO CHOOSE AN ALTERNATIVE NOT PRESENTED IN THE FEIS.

Our comments on the Final EIS predicted that the ROD would choose to implement a significantly different Final Mexican spotted owl Recovery Plan has already been completed and internally circulated, but was not desribed in the *Draft* Recovery Plan. "The public will once again have been presented a set of alternatives which do not include the alternative the Forest Service actually intends to choose," we warned. This is exactly what happened.

We did no predict, however, a number of other very significant changes which exist between the ROD decision and Final EIS. Predictably these changes serve to permit more logging of old growth and mature forests than was presented in the Final EIS. The prefered alternative in the Final EIS, in fact, forbids logging of old growth and steep slope logging. While claiming to to choose the prefered alternative, the ROD removes these crucial prohibitions (see Appendix One). The logging of steep slopes and old growth forests, particularly ponderosa pine old growth, has been a central and very contentious public debate for over a decade in the Southwest. To reinstate them without public review in the ROD after presenting the prohibition as the prefered alternative in the Final EIS is a violation of NEPA

The Forest Service should withdraw the ROD, and publish a SEIS giving the public its rightful opportunity to participate in alternative development and analysis.

C. AS THE PREFERRED ALTERNATIVE WAS NOT INCLUDED IN THE DEIS AND SUBSTANTIALLY DIFFERS FROM ALL DEIS ALTERNATIVES, A SDEIS IS REQUIRED.

Preparation of a SDEIS is required when substantial changes are made to the DEIS 40 C.F.R. 1502.9(c)(1). The preferred alternative presented in the FEIS was not included in the DEIS, furthermore, the preferred alternative differs substantially from all alternatives presented in the DEIS. Implementation of the Draft MSO Recovery Plan will have very different environmental effects since it is an entirely new approach to MSO conservation. It incorporates "protected" and "restricted" zones, differing prescriptions and conditions for different vegetative communities, and changes grazing management across all habitats on every National Forest in the Region.

The Forest Service contention that the new alternative was the result of comments on the DEIS, is exactly the scenario presented by the CEQ as a reason for preparing a SDEIS (see Forty Most Asked Questions Concerning CEQ's NEPA Regulations, #29b, 46 FR 10826, as amended, 51 FR 15618.).

The Forest Service's first revised Notice of Intent to prepare an EIS was obviously aware of this fact in its plan to prepare a SDEIS. This plan was withdrawn, however, because the Forest Service was concerned about environmental litigation- a concern that should have no role in the EIS process.

D. AS THE SELECTED ALTERNATIVE WAS NOT INCLUDED IN THE FEIS AND SUBSTANTIALLY DIFFERS FROM ALL FEIS ALTERNATIVES, A SEIS IS REQUIRED.

Appendix One details the differences between the ROD and Alternative G as presented in the Final EIS. The ROD decision is not only significantly different than Alternative G, it is significantly diffrent from all alternatives presented in the Final EIS. As a result of these differences, the ROD should be withdrawn and a SEIS should be prepared.

E. THE NOTICES OF INTENT TO PREPARE AN EIS TO AMMEND THE 10 FOREST PLANS, WERE EXPRESSLY LIMITED TO OWL AND GOSHAWK GUIDELINES. THEY DID NOT INCLUDE CHANGES IN OLD GROWTH MANAGEMENT AND OTHER STANDARDS AND GUIDELINES. THESE LATTER FOREST PLAN CHANGES CAN NOT BE MADE WITHOUT A NEW OR REVISED NOTICE OF INTENT.

The Notice of Intent to ammend the 10 Forest Plans was published on June 24, 1992, revised on March 20, 1995 and revised again on May 15, 1995. The original Notice of Intent and both revisions expressly define the scope of the EIS to only cover amendments to the Forest Plans to include MSO and NG guidelines. They do not announce an intent to change old growth guidelines or other standards and guidelines. The Scoping Report (11/4/93) and the Additional Scoping Package (4/20/94) communicate a consistent, limited scope of the EIS process. In response to requests to broaden the scope, the Package states: "The expressed purpose of this amendment is to incorporate management direction in current Forest Plans for the Mexican spotted owl and northern goshawk" (p. 8). None of these documents identify the changing of old growth guidelines as a "need" or "purpose" of the EIS process.

The fact that the Notice of Intent to ammend the Kaibab Forest Plan *does* expressly include other timber issues is a further indication that the Notice of Intent for the 10 Forest Plans could have, but did not, include such issues.

Changing old growth guidelines suddenly becomes an "objective" in the DEIS and FEIS. The change is presented as being necessary to make old growth management consistent with proposed MSO and NG guidelines. These other changes, however, are clearly *in addition* to the MSO and NG guidelines and can not be construed as being included in, or required by, them. They are treated under different headings in the FEIS and could be deleted from the FEIS with no effect on the MSO and NG guidelines.

Old growth management is a very contentious issue and a matter a great public concern. The failure of the Notices of Intent and the scoping documents to notify the public that changing old growth management is a purpose, goal, and/or objective of the EIS process, is a significant omission very likely to have reduced public participation and to have limited the scope of those that did comment.

The Forest Service should withdraw the FEIS, and publish a new Revised Notice of Intent to Prepare and EIS which fully disclosed its intentions.

F. The FEIS did not include or respond to comments submitted on the two DEISes by members of the Southwest Center and other members of the Southwest Forest Alliance.

A FEIS is required to contain copies of all substantive comments on the DEIS, except when the comments are "exceptionally voluminous" 40 C.F.R. 1503.4(b). The FEIS only contains comments from Federal, State, and local government agencies. It does not contain the comments of the Southwest Center and other members of the Southwest Forest Alliance. The absence of ours, and other substantial comments, is a violation of 40 C.F.R. regulations. The FEIS does attempt to argue that comments were too voluminous. It only states that comments by "individuals" were not printed in deference to the Privacy Act. Clearly the Southwest Center is not an "individual." In fact, the Southwest Center appears on a list with the FEIS which is specifically said to not include individuals (pp. 45-48).

Additionally, our comments have not been responded to in accordance with NEPA regulations. Comments must be considered individually and collectively 40 C.F.R. 1503.4(a). The Forest Service is required to either supplement or modify its analyses, or "explain why the comments do not warrant further agency response" 40 C.F.R. 1503.4(a)(1-5). An adequate explanation must cite "sources, authorities, or reasons which support the agency's position." In other words, the Forest Service is required to directly and specifically confront opposition comments, explain its own position on the disputed issues, and provide coherent reasons or authorities which support its position *vis a vis* the opposing view. The Forest Service is permitted to group responses. However, this does not alleviate its requirement to respond to the specific point raised by each comment. The FEIS's list of 25 issues with very brief responses does not even come close to doing this in regard to the substantial comments submitted by the Southwest Center and others: see Chapters One, Two and Three for more detailed discussion.

G. THE "CORRECTION" NOTICES VIOLATE NFMA AND NEPA.

The "correction" notices redefining the timber schedule as informational only, violate NFMA and NEPA. They represent major changes in Forest Plan direction and will result in increased timber cutting above and beyond that analyzed in the original Forest Plan Environmental Impact Statement. For this reason, the impact of the change should have been analysed in this Environmental Impact Statement.

It is well known that many of the Region's National Forests burned through their timber schedules early and are left with very few timber sales through the life of the current plans. The Apache-Sitgreaves, Gila, Lincoln, and Kaibab have all been involved in timber reanalyses. To attempt now to pass of this issue off as a "correction notice" with no discussion of the ramped up timber sales schedules or the environmental effects is outrageous.

Timber harvest schedules are required by NFMA. They establish a very important environmental effect, they are most certainly not meant to be advisory only.

H. SUITABILITY OF LANDS FOR MANAGEMENT HAS NOT BEEN DETERMINED

The National Forest Management Act and implementing regulations require that all "significant" land management plan amendments must examine land use and determine area suitability for various activities, including grazing and logging. The amendments are very sweeping in their scale, affecting millions of acres of ponderosa pine, mixed-conifer, and spruce-fir habitats in regard to logging, roadbuilding, fire suppression, etc. The grazing guidelines may apply to other forests types as well. These are clearly significant amendments and as such, require a suitability analysis. No such analysis was conducted, however.

CHAPTER FOUR: OTHER WILDLIFE

A. FOREST WILDLIFE

1. The FEIS lists the sharp shinned hawk, flammulated owl, and pine grosbeak as the only forest species beside the MSO and NG which are threatened by wide-scale habitat degradation (p. 19). This statement completely ignores our comments on the DEISes which cited and summarized extensive scientific literature documenting the decline of numerous songbirds in managed ponderosa pine forest in the Southwest. Failure to acknowledge or address our comments is violation of 40 C.F.R. regulations.

2. Table 8 (p. 23) and the discussion of it, states that the most important forest structure changes, in terms of wildlife, is the increasing numbers of small trees. It makes no mention at all of the fact that large trees have decreased and that the decrease has negatively affected wildlife. The table, in fact, is designed to mask the loss of big trees, not containing any of the big tree categories of the studies it is based upon. The central issue of controversy for the MSO and the NG is logging, yet the FEIS contains no analysis whatsoever of the affects of logging on these two species, their habitats, other species, or the landscape. Incredibly, there is not a single discussion of the negative effects of logging in the entire document. This is a huge gap in the FEIS. One which misleads the public to a very large extent, serving to completely obscure the most controversial issue in forest management in the Southwest.

Contrary to the highly manipulated Table 8, large trees have declined precipitously since 1962, and even more so over the last 100 years (Silloway and Suckling 1995). This is not a generic loss, it has hit the Ponderosa pine community particularly hard. Numerous studies have correlated the loss of large pine trees with declines in wildlife (see our comments on the DEISes). Even Forest Service documents discuss the effects of declining large trees in the Southwest (see the BA and BE for the Rocker Timber Sale on the Gila National Forest).

3. The FEIS (p. 20) states that areas restricted to protect Mexican spotted owls and goshawks have the highest tree densities and are most at risk from catastrophic events. Not a shred of evidence is presented to justify this claim. Is the Forest Service in possession of tree density surveys which show MSO and NG territories to have higher densities than other areas? Does the Forest Service have data which demonstrate that catastrophic events are more common within than outside of MSO and NG territories? The opposite is true. Document 107 in process record "Responses to Comments Concerning Forest Management in the Forest Plan Amendment FEIS" states in response to comment #424-1 that less than half of all MS PAC acreage is in dense conditions.

4. The FEIS (p. 24) states that to preserve diversity, no one or two seral stages should be predominant. No explanation or citations are given to explain why this should be so. There is no a priori reason to believe that the predominance of one or more stages

will not better preserve native biological diversity. This is a huge assumption with wide-ranging effects yet is not justified in any manner at all. No explanation is give at to why RM-217 is considered the "best guidelines" for distribution of structural stages.

2. MICORRHIZAL FUGI-TASSEL EARED SQUIRREL-PONDEROSA PINE TRIAD.

RM-217 proposes to manage ponderosa pine forests in very small patches even though the patch sizes and densities of the VSS classes which are most supportive of ecosystem sustainability have not been determined. RM-217 will also reduce canopy cover, which is a key controlling factor in forest regeneration. The DFC of a 40% average canopy cover across the landscape will not be attainable at the lower and upper elevational limits of the ponderosa pine forests where biotic and abiotic site conditions strongly limit regeneration and growth. It is likely that the DFC is attainable only on highly productive sites. The result will be lack of regeneration across large areas.

Fungi, tassel eared squirrels and ponderosa pine have evolved together over many thousands of years to form an intertwined system whose maintenance is crucial to preserving forest health. Micorrhizal fugi encourage ponderosa pine regeneration and provide food for tassel eared squirrels. Tassel eared squirrels disperse fungal spores and use ponderosa pines for food and cover. Pines provide a host species and shade for the fungi. Reduction of canopy cover, however, can result in a drying out of the forest floor which quickly kills off the fungi which lead to reductions in tassel eared squirrels and pine regeneration. Reduction of squirrels results in declining goshawk numbers as tassel eared squirrels are key goshawk prey species. The 40% average canopy cover recommended by RM-217 is not sufficient to maintain healthy micorrhizal fungus populations.

Fungi are a manifestation of mycorrhizal root growth, especially the fine "feeder roots" which lie just below the litter layer. These fine roots are dependent upon relatively cool soil temperature and relatively high moisture. Both root growth and fungus development occur when the soil, at a depth of 20 cm, can hold 22% water for 12-14 days. This moist condition is possible in the arid Southwest when the overstory trees have overlapping canopy in the VSS 4, 5, and 6 stands or when adjacent trees provide ground shade for 4 or more hours during the daytime. This requires canopy cover of 60% or greater. Shading is crucial to maintain mycorrhizal root growth and fungi development, when closure drops below 60% populations die off dramatically.

Micorrhizal fungi are in turn beneficial to tree growth. They bring soil nutrients (especially nitrogen and phosphorous) and water to the host pine tree. Acting as extensions of the root system, they enhance water and nutrient uptake over an increased surface area. This symbiotic relationship is the primary reason for the pine's ability to inhabit the Southwest's nutrient-poor, dry soils, and to develop a more or less species-pure stand composition. Reducing micorrhizal fungus will reduce vigor and growth of ponderosa pine trees.

Fungi are the most important food source for the tassel-eared squirrel which is an obligate mycovore-herbivore. Tassel eared squirrels, in turn, are an important food source for northern goshawks and serve to distribute fungi throughout the forest. Reduction in canopy closure and fungi production then, not only reduces seedling regeneration, it reduces goshawk prey species as well. The canopy cover level prescribed by RM-217 within the post-fledging area (PFA) is not high enough to maintain a sustainable ponderosa pine ecosystem.

Tassel eared squirrels are unique to and the predominant rodent within the Southwest ponderosa pine forest. No other tree squirrel in the world has developed an exclusive distribution within a pine forest. In uncut ponderosa pine, there is essentially no understory vegetation. Without this vegetation, other potential prey species (chipmunks, ground

squirrels, rabbits) are absent, so goshawks are almost entirely dependent upon tassel eared squirrels. Tassel eared squirrels, however, will only occur where a 60% or greater canopy cover exists so that fungi are dependably available in VSS stages 4, 5, and 6. Micorrhizal fungi comprise 75 to 100% of the tassel eared squirrel's diet during the breeding season.

Tassel eared squirrels are also directly dependent upon the physical structure of ponderosa pine forests for hiding and movement cover. When enough cover is present, they are more likely to occur at ground level. Inter-connecting corridors enable squirrels to forage on the ground where they are more vulnerable to goshawks. A relatively dense stand with basal area (BA) of 140 or more is a major criterion for squirrel use. In VSS 4, 5, and 6 stands meeting this criteria, tassel eared squirrels have an average density of 0.3-0.5/ha.

MRNG prescriptions which leave only a few isolated tree groups per hectare in the PFA will exclude squirrels. Prescriptions for the foraging area will fragment connecting habitat corridors.

Modification of the natural forest structure, particularly (1) any loss of heterogeneous patchiness, (2) creation of extensive clear-cut or seed-cut areas, (3) loss of patch canopy cover and wildlife corridors among heterogeneous patches (fragmentation), and (4) and excessive regeneration of young age-class trees due to fire suppression and overgrazing will predictably result in decline of forest health and ecosystem function.

At risk is the ability of the forest to successfully regenerate on its own following disturbance. Seedlings develop with the protective influence of older, more fire resistant trees. These trees provide environmental conditions favorable to the establishment of beneficial mycorrhizae. Higher moisture conditions resulting from partial shading promote subsequent association of fungus inoculum with tree roots thus enhancing seedling establishment and tree growth.

At risk is the health of tassel eared squirrel populations; high enough densities for them to maintain a suitable inoculum potential of mycorrhizal fungi in the vicinity of mycorrhizal-dependent seedlings as well as maintain their own populations. Squirrel survival is clearly tied to the whole-forest stand structure and those subspecies of tassel eared squirrels restricted to small geographically isolated forest islands (e.g.. Chuska Mans. and North Kaibab Plateau) will be particularly sensitive to timber harvest impacts.

At risk are all the other interacting components of the ponderosa pine ecosystem who are in some manner dependent on the primary players. The northern goshawk, designated as a primary indicator species for ponderosa pine forests, is clearly one of these species because of the importance of squirrels in its winter diet and the hawks need for high canopy cover in its foraging area.

C. AQUATIC AND RIPARIAN SPECIES

The Final EIS states in numerous places that continued implementation of the existing forest plans without change in livestock management, will result in adverse effects and possible trends toward listing:

Alternatives C & F

> "The grazing utilization rates would be restricted to occupied owl and goshawk territories and would not be applied across the landscape. Numerous sensitive species tied to aquatic ecosystems may be impacted with a possible trend toward listing. The listed Southwestern willow flycatcher would continue to be adversely affected due to current grazing management." (FEIS 20-21).

Alternative D

> "Alternative D would not change the current adverse impacts on aquatic species outside MSO and northern goshawk habitat identified in Alternative A." (FEIS 21).

Alternative E

> "Numerous sensitive species tied to aquatic ecosystems may be impacted with a possible trend toward listing. The listed southwestern willow flycatcher would continue to be adversely affected due to current grazing management." (FEIS 21).

Alternative G

> "Due to proposed grazing utilization rates there will be a beneficial effect on all listed and sensitive species tied to riparian and aquatic habitats where degradation of habitat due to grazing has been contributed as the primary reason for listing (e.g. southwestern willow flycatcher) or for including a species within the Regional sensitive species list (e.g. numerous native fish species)." (FEIS 23).

The Final EIS makes this very negative determination of both existing grazing rates and improved grazing rates only in spotted owl and goshawk territories, in the apparent belief that widespread grazing improvement under Alternative G would reverse all negative trends. In our comments on the Final EIS, we warned that a loophole in Alternative G would very likely cause it to be limited to very few acres. That warning was born out by the ROD which very expressly states that the impacts of Alternative G will be limited:

> "Careful reading of those standards and guidelines [i.e. Alternative G] will show that they will apply primarily in areas where the Forests do not have good site specific information to develop a more localized standard. I never intended the region-wide utilization standards to replace better information generated at the site specific level." (ROD 4).

The Regional Forester reference's to "good" and "better" information are entirely lacking in the actual standards and guidelines. They merely state:

> "These guidelines are to be applied in the absence of more specific guidelines established through site specific NEPA analysis for individual allotment." (ROD 94).

Despite the poor range conditions prevailing throughout the Region, there are few allotments without site specific NEPA analysis. This means there are few areas on which the new grazing guidelines will be implemented, which in turn means the negative effects of grazing predicted by the Final EIS will continue.

CHAPTER FIVE: OLD GROWTH

In each of the forest types affected by implementation of the silvicultural guidelines proposed by the Final EIS, old growth forests will suffer further fragmentation and degradation of structural and compositional diversity. Old growth is a scarce and ecologically vital component of the Southwest's forest ecosystems, and represents a small fraction of its original extent. Old growth forests are the full flowering of biological diversity in all Southwest's as timber sales continue to be planned and implemented under the Forest Plans. Of most concern is the continuing harvest of any existing old growth, and forests that will, if left undisturbed, develop into old growth over the next 10-50 years.

To provide even the most basic assessment of the impacts of the proposed action on old growth, there first must be an accurate inventory of where such forests are located. The Final EIS utilizes statistical data derived from stand inventories to estimate the total acreage of forests in each of the Vegetative Structural Stages (VSS), but cannot and does not depict the location of such forests. Few forests in region three have such maps completed, and few are even considering a process to produce a map-based inventory.

Furthermore, the region's VSS classification are too broad to accurately depict old growth, even if maps were generated from the VSS data. As initially raised in comments submitted by the Arizona Game and Fish Department in May of 1993, the region's VSS 6 classification fails to distinguish between stands that have dense concentrations of large trees (18-24" DBH), and old growth forests with each of the structural components (AGFD at 22,23). Of the 4% VSS 6 depicted in Table 5 in the Final EIS, then, only a fraction actually has sufficient structural diversity to qualify as old growth.

Secondly, the values of such forests must be determined, including the occupied and potential habitats they support for late successional/ old growth related wildlife, their role in maintenance of long term forest productivity, and their contributions to water quality, flow, and overall watershed conditions. Once these have been assessed, the direct, indirect, and cumulative effects of continued logging of old growth forests expected by implementing the amended Forest Plans must be analyzed in a detailed manner that provides the reader with specific quantitative and qualitative information necessary for an effective comparison of the alternatives.

The Final EIS provides only brief narratives regarding the values of old growth forests, and absolutely no discussion regarding their distribution and current functions. The analysis of effects is almost non-existent, and what claims are made are contradictory. On the one hand, the Final EIS claims that old growth is not a sustainable forest ecosystem, and that fewer acres of old growth retention would enhance ecosystem sustainability, on the other, its retention in large blocks would provide suitable habitat for many late successional species. One can only conclude from these statements that wildlife is not considered a part of the ecosystem.

Of greater concern, however, is the Final EIS's complete lack of analysis regarding the effects of the old growth that will be logged as the amended Forest Plans are implemented. As "surplus" old growth is logged in diversity units now exceeding the VSS standards established by the Final EIS, the region's remaining old growth forests will shrink in

size, suffer fragmentation, and lose their ability to maintain viable populations of late successional/ old growth wildlife habitat over time. The Forest Service has the ability to quantify and spatially examine the loss of old growth as its timber sale program continues over the next several years (as modified by the proposed action), yet has failed to do so in any meaningful way.

Exhibit B contains of list of old growth associated species produced by New Mexico Game and Fish Department. The vast majority of these species are not discussed or analyzed by the Final EIS.

CHAPTER SIX: SIGNIFICANT DIFFERENCES BETWEEN EIS AND RECORD OF DECISION REQUIRE A SUPPLEMENTAL EIS

Pages 34-39 supplied by John Talberth

Exhibit A: Differences between Final EIS and Record of Decision

Pages 40-42, supplied by John Talberth, same as Appendix One

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APPENDIX ONE:
DIFFERENCES BETWEEN FINAL EIS AND RECORD OF DECISION

(same as Exhibit A)

APPENDIX TWO:
FOREST SERVICE LEGAL ANALYSIS SHOWING THAT SUPLEMENTAL EIS IS REQUIRED

EXHIBIT B:
NEW MEXICAN GAME AND FISH DEPARTMENT LIST OF OLD GROWTH ASSOCIATED SPECIES

(BISON M printout)