

## REVISED RECOVERY PLAN FOR THE MEXICAN SPOTTED OWL:

### INTRODUCTION TO COMMENT/RESPONSE MATRIX

The Recovery Plan for the Mexican Spotted Owl (Recovery Plan; USDI FWS 1995) was completed by the U.S. Fish and Wildlife Service (FWS) Region 2 (Southwest Region) in December 1995. On June 24, 2011, the FWS announced in the Federal Register the availability for comment of the Draft Recovery Plan, First Revision; Mexican Spotted Owl. The 60-day comment period closed on August 23, 2011.

The FWS received approximately 1300 "form letter" comments via email in response to a call for such action by the non-governmental organization Wild Earth Guardians. Counting those essentially identical emails as a single comment letter, we received a total of 31 comment letters totaling over 180 pages (again counting the form letter as a single comment) from the public at large. These comments came from Federal, state, and local government agencies; Native American Tribes; non-governmental organizations; and individuals who did not identify a particular affiliation.

In addition, the FWS solicited review from 4 professional organizations and 9 recognized experts not specifically associated with professional organizations. Of these 13 sources the FWS received comments from 3 individuals/organizations totaling an additional 14 pages. Altogether the FWS and Recovery Team members reviewed and responded to 34 comment letters totaling about 200 pages.

From this material we copied a total of 628 distinct comments *verbatim* (unless otherwise indicated) into the attached spreadsheet, divided into subject-matter categories as follows: Monitoring, Management Recommendations, Biology, Threats, Process, Content/Organization, Recovery, Policy/Costs, Research, and Current Management. Each category has its own tab in the spreadsheet. We did not attempt to consolidate similar comments; rather, all comments and their sources are listed and responded to individually, although in some instances similar comment responses refer the reader to a prior response rather than repeating the answers.

Most of the comments we received were of great value in converting the draft revision into the final version, and we thank everyone who took the time to provide their insightful comments. Comments that were incorporated into the final plan are noted in the Response column of the spreadsheet. In some cases we did not agree with the commenter or otherwise elected to not make the requested change in the final revised recovery plan; in those instances our rationales are included as responses in the spreadsheet.

No.	Signator, Affiliation	Monitoring (M) Comment	Response
M-1	M. Morrison, Texas A&M University (TAMU)	However, I think that are several major weaknesses that render this plan vague and without direction. Specifically, although general guidance for occupancy monitoring/modeling is provided, we are told that “pilot study” is needed to really determine how to proceed (i.e., use of covariates). Likewise, the lack of a rangewide occupancy model that would allow inference to be made on the current distribution of potential habitat by categories of predicted occupancy is a major omission. Although I realize that a rangewide monitoring plan has not been implemented, at a minimum a current remote-sensing based assessment of potential habitat should be included. In this way we can know something quantitative about the amount of habitat relative to the current known locations of owls. Here again we are told that remote sensing data are inadequate, which simply is not true at the level of simple occupancy prediction. Further, such a broad scale assessment would allow a better plan to be developed on the current locations of PACs and areas where “recovery habitat” should be emphasized.	When the occupancy monitoring is eventually implemented, new and improved techniques should be incorporated at that time. Further, the design will need to be refined for the resources and logistical capabilities available at the time of implementation. Hence, we do not believe it useful to develop a fully refined cookbook for the implementation of the monitoring plan given that the cookbook will have to be refined in the future anyway. Resources and authority were/are not available to the Team to develop a range-wide assessment of potential habitat.
M-2	M. Morrison, TAMU	326: Your discussion of occupancy modeling is fine. But here you leave the issue of assessing sample size with covariates to a “pilot study”, which renders this plan incomplete and with no good direction provided. I find it difficult to believe that data do not exist to make specific recommendations on covariates, at least for such planning purposes.	Power of the occupancy monitoring is estimated for the case where no covariates are included to predict occupancy. We believe that there will be covariates within each EMU that will improve our monitoring, but these covariates are probably not completely consistent across the EMU in that some covariates will be good predictors in some areas, and not good predictors in other areas. Without this detailed information (which we propose to obtain in a pilot study), we do not see value in trying to develop power functions for potential covariates.
M-3	M. Morrison, TAMU	326: You suggest a method to determine abundance but make no conclusion on doing it, the role of abundance in recovery, etc.	The method of Royle and Nichols (2003) is not appropriate for estimating abundance, and the reasons why are now incorporated in the Appendix E.
M-4	M. Morrison, TAMU	326: You say many variables cannot be measured by remote sensing (which of course is true). However, I doubt that this is true for predicting simple occupancy (presence-absence). I agree that more detailed information might be needed to predict, say, breeding success; but you do not need that for basic monitoring rangewide. The team is passing everything down the road when some additional details and guidance will be developed.	See response to comment M-1.
M-5	M. Raphael, Pacific Northwest Research Station (PNW)	Page 327, drawing a new sample each year. This is a very inefficient approach and I do not recommend it. If the main objective is trend in abundance (which is the objective) then drawing a new sample will result in greater variance among years and lower power to detect trend (as you correctly note).	As stated in the plan, we are recommending a set sample that improves our power to detect changes in occupancy across time.

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M-6	B. Burger, Arizona Game and Fish Department (AGFD)	Ten years of both MSO occupancy & habitat monitoring is required by the plan, yet there is neither funding nor a specific monitoring plan confirmed in either case.	We recognize that there is neither funding or a complete prescription for monitoring described. But, the Team does not have the authority or funding to remedy this situation.
M-7	B. Burger, AGFD	The idea behind the monitoring seems good, but it is unclear how it will actually be accomplished. Such monitoring seems to be additive to site-specific surveys as are required (or at least strongly encouraged) as they relate to management activities and which are currently and likely to remain a substantial work effort for forests as they relate to timber management, grazing, recreation and other “multiple uses” of the Forests. There is seemingly no specific funding to do occupancy monitoring, and with work-loads as they are for most agencies I don’t see how this will be fit in without compromising other activities. Such monitoring seems something that will need to be coordinated and funded at a high/overall level [at least by Ecological Monitoring Unit (EMU)], with specific field crews optimally hired to do most of the monitoring. It is also the sort of effort that once started will be important to follow-through, which will be difficult for a 10-year effort. It is not clear who would organize the overall effort including final decisions on monitoring methods. Even if the outlined method is used it is not clear who would be responsible for mapping areas to be surveyed, stratifying samples, selecting sites, assuring adequately trained personnel are available to monitor sites, compiling and analyzing data, etc.	We realize that the Plan proposes a major body of work, but that funding and authority to carry out this proposal are not provided. The Recovery Team does not have the authority or funding to make this happen. However, we have added a recommendation in the implementation schedule that FWS take the lead in overseeing the monitoring effort. Success will of course require adequate funding from multiple sources.
M-8	B. Burger, AGFD	Habitat Monitoring is discussed beginning on page 329. As described, this seems perhaps less of a additional burden than the Occupancy Monitoring; yet it is not clear how much of this work is already being done, and how much would be additive to meet the Recovery Plan objectives. On page 330 it is stated that “Currently, 10% of the (FIA, Forest Inventory Assessment) plots ...are scheduled to be sampled each year”, but this doesn’t indicate how many are actually sampled and how that would match with requirements of using the FIA plots in the way described in this document. Later on the same page it states “We believe existing FIA sampling schemes ....provide adequate data to meet the proposed delisting criteria” and on page 331 it is indicated “FIA is a well-funded, on-going effort.” If the suggested habitat data is being collected, and can reasonably be queried and analyzed to determine whether MSO habitat characteristics are stable or improving versus declining, then that is good. If much additional work is required, it is not clear who would do that work.	FIA data are collected over a 10-year period in a program funded by the US Forest Service. The analysis of these data to detect changes affecting the owl will require the efforts of a qualified analyst(s), but will not require additional field effort. The availability of these data is one of the main reasons we are suggesting the use of FIA data.
M-9	B. Burger, AGFD	Clearly, the objectives and design of the monitoring program must be defined explicitly, and they must be attainable. To implement the process, knowledgeable, dedicated people must be assigned the task. Adequate training and constant feedback mechanisms are critical aspects to a successful monitoring program, as tenable conclusions can be based only on reliable data.	We agree. As stated above, we recommend that the FWS lead this effort, and that it is implemented to the standards this commenter suggests. However the Team lacks the authority and funding to implement these programs.

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M-10	B. Burger, AGFD	p. 105 This is unlikely because some owls may not vocalize or an observer may fail to hear them. <i>I think the work "unlikely" should be deleted from this sentence.</i>	The sentence refers to the estimation of detection probability, p, as described in the preceding sentence. Removal of "unlikely" from the sentence makes the explanation too dogmatic.
M-11	V. Sielaff ++, WildEarth Guardians (WEG) form letter	I am also very concerned about the recommended monitoring procedures. Monitoring site occupancy is not adequate to determine population trends of the owl or to determine the effects of management activities. The recovery plan should recommend a robust demographic monitoring protocol.	We addressed this issue in Part V.B, concerning why the Team decided that occupancy monitoring is more likely to be conducted than the more intensive population monitoring originally proposed in the 1995 recovery plan. Monitoring to detect effects to owls from management activities is separate from the population (occupancy) monitoring and is also discussed in the Recovery Plan.
M-12	S. McVean, AGFD	Appendix F. We believe the proposed site occupancy monitoring is a realistic and appropriate approach to population monitoring that will yield solid data if implemented. Overall, a simpler approach will have a greater chance of actually getting done. However, even with the reduced effort of this approach we are concerned it will not get off-the-ground without more direct guidance from the RT (e.g., who will organize and lead the effort?).	See response to comment M-7.
M-13	S. McVean, AGFD	The revision states that the field methodology is not yet fully resolved. We understand the trade-offs but agree with the directions the RT is leaning. We encourage the Team to base occupancy estimates on owl responses regardless of whether the owl was physically on the plot. We also agree that visiting more plots two times rather than fewer plots three or more times is preferable. We understand the rationale and agree with monitoring a fixed sample of plots, with monitoring each year, and with 1-km <sup>2</sup> plots rather than PACs.	We have now suggested in Appendix E the use of the multi-state occupancy model (MacKenzie et al. 2009) as one approach to handle this issue. That is, instead of just not occupied or occupied, a plot will be classified to 3 states: not occupied, owl detected, and owl detected on the plot. A probability will be estimated whether a detection is on or off the 1-km <sup>2</sup> plot based on data where the detection is confirmed to be on the plot.
M-14	S. McVean, AGFD	The revision states that inadequate information is available to estimate the necessary sample sizes and/or power of a site occupancy monitoring design at this time. Please clarify what the RT proposes to address this shortcoming so that implementation of the proposed occupancy monitoring can be initiated.	Fig. F.2 and discussion following this figure provides for estimated power without covariates. We recommend a pilot study for incorporating covariates because the importance of covariates will likely vary by EMU, and necessary data to develop a power analysis is not available without a pilot study.
M-15	T. Timme, Southwestern New Mexico Audubon	With regard to monitoring, we recognize the difficulties in generating actual census numbers as discussed in Appendix F but we also encourage ongoing validation of the sampling techniques of occupancy monitoring.	We agree, but resources are lacking to obtain population estimates. We would like to be able to compare trends in population size with trends in occupancy, but at this point resources are lacking to do so.
M-16	S. Temple, Ecological Society of America (ESA)	It is sobering to see that even this well-reasoned approach will only have precision allowing the detection of relatively large changes in population size.	We agree, but with greater precision comes exponentially increasing cost and a concomitant decrease in the likelihood of implementation. We believe we have struck the appropriate balance.

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M-17	S. Temple, ESA	<p>Ten-year time frame is too short to adequately assess progress.—There is a fundamental biological issue that affects several of the plan’s monitoring approaches: Owls are long-lived and show strong fidelity to their territories, even after substantial degradation in its quality has taken place. This means that there is likely to be a significant time lag in assessing how owls respond to various planned and unplanned habitat manipulations. The continued presence of owls in territories that have been disturbed by fire, logging or deliberate habitat manipulations can’t by itself be assumed to indicate the habitat change was benign. Ideally, one would also use indicators of fitness (such as vital rates) as a better measure of how changes in habitat features have impacted owls. Yet, much of the primary monitoring of owls is based on occupancy of previously identified territories. I worry that impacts of some of the habitat manipulations designed to reduce the risk of severe wildfires may not be adequately assessed because of these time lags. Furthermore, the forested ecosystems in the owls’ range recovery slowly from disturbance. It might take 70-100 years for a stand to fully recover from a disturbance and again become high quality owl habitat. That means that the consequences of deliberate management regimes that subsequently prove not to be either beneficial or benign for owls, particularly in and around PACs, might persist for a long time. A 10-year assessment horizon, therefore, seems too short for both the owl and its habitat.</p>	<p>Our justification for why we chose a 10-year time frame (with an additional minimum of 5 more years required by the Endangered Species Act) appears in Part III.F. In essence, we believe the proposed monitoring strikes a balance between adequate study design and the resources expected to be available to conduct a monitoring program. As noted in Appendix E, our proposed range-wide occupancy monitoring plan is not based on previously established territories. We do suggest that previously identified territories be monitored as part of forest treatments (Box C.5-1). Lastly, we have included in Appendix E the approach of multi-state occupancy modeling (MacKenzie et al. 2009) as a method to include reproduction as an occupancy state that would provide useful information on the most temporally variable owl vital rate.</p>
M-18	S. Temple, ESA	<p>Monitoring of owls inadequate in the face of uncertainties.—The literature is full of clear indications that the dynamics of Mexican Spotted Owl populations are highly variable in time and space, and the factors underlying this variability remain poorly understood. It seems in the face of this variability there is considerable uncertainty that the proposed population monitoring protocol, which focuses on occupancy rates, will be able to detect potentially serious reductions in population viability caused by changes in vital rates. This may require more monitoring of vital rates to clarify the situation. It is harder to do and costs more, but it should be a more important part of monitoring.</p>	<p>We agree, but have proposed a monitoring design that has some reasonable chance of being implemented. Occupancy monitoring will detect large changes, but certainly not with the same statistical power as demographic studies. We have included in Appendix E the approach of multi-state occupancy modeling (MacKenzie et al. 2009) as a method to include reproduction as an occupancy state that would provide useful information on the most temporally variable owl vital rate.</p>

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M-19	S. Temple, ESA	Monitoring of habitat doesn't focus on key variables.—I have concerns about relying too heavily on FIA data to track important changes in owl habitat quality. Although the literature on habitat variables that seem to be correlated with owl occupancy and fitness is inconsistent, few studies have pointed to the usefulness of variables that can easily be derived from FIA data. Certainly, it is easiest to use readily available FIA data, but like so many other proposed activities, it needs to be treated as an experiment subject to adaptive management approaches. Furthermore, a cursory look at the FIA data from the owl's range suggests incomplete coverage and gaps in several key areas. That's because FIA coverage is restricted almost exclusively to US Forest Service lands. Why wasn't there more consideration of incorporating habitat inventory data from other land management agencies such as the US National Park Service that have jurisdiction over portions of the owl's range not covered by FIA? An approach that provides wider coverage throughout the owl's range should be considered.	We disagree that FIA data will not provide variables of use to monitor occupancy -- basal area, large trees, down logs, etc., are known to correlate with owl use: see Table C.2. FIA does sample more than US Forest Service lands, and does include US National Park Service lands. Because FIA data samples all land ownerships, it provides a unified, wide-area coverage.
M-20-	J. Karpowitz, Utah Division of Wildlife Resources (UDWR)	While we support an FIA-based habitat monitoring approach, we submit that this approach will work poorly, if at all, for canyon habitats. Therefore, we suggest that the USFWS work with states to develop an approach that monitors both forest and canyon habitats.	We recognize that FIA will probably not provide a good method to monitor canyon habitat, but do not have a suggestion for something better. We do recommend the FIA add some supplemental sampling plots that monitor canyon vegetation. The owl was listed because of forest practices, so monitoring habitat in canyons is not as high a priority as forested areas.
M-21	S. Bahr, Sierra Club Grand Canyon Chapter (SC)	Monitoring of projects relative to Mexican spotted owl PAC occupancy is critical. This monitoring should assess changes in owl site occupancy rates so that management actions can be adjusted if changes in owl populations occur. Additionally, in order to monitor the impacts of incidental take, management recommendations must require tracking and reporting the effects of any timber harvest on Mexican spotted owls.	Currently, the Plan recommends monitoring of PAC occupancy in response to treatments in PACs(page 297 Box C.5-1).
M-22	T. McKinnon, Center for Biological Diversity (CBD)	Recovery criteria should additionally include a specific population size and specific, quantifiable demographic trends that together would constitute a viable and recovered population. Occupancy monitoring alone is not a valid measure of viability; it does not account for spatiotemporal variability of source-sink dynamics and thus may not be an accurate measure of population viability. Future revisions of the DRP should provide a more detailed discussion on this topic and the costs and benefits of different recovery criteria in light of recovery goals and the law.	We agree that it would be nice to know population size, but this level of effort is beyond the logistical and financial constraints of existing and projected future resources. We believe that monitoring occupancy trends will allow inference to population trends through time. We also note that population size and demographic trends were not factors in the original listing decision.

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M-23	R. Maes, U.S. Forest Service (USFS)	Page 100, Action 8.1; Page 107, Top Paragraph; and Page 329: "We advocate no specific method for habitat monitoring and leave it up to management agencies to determine the best method(s) to use." If this is not standardized across the MSO's range and across agencies, then there may not be a good basis for consistently relating it to owl occupancy with any precision or accuracy, which is stated as the primary objective of habitat monitoring. If a protocol is not developed by a committee for everyone to use, then it likely won't get done on some units. Doing it one way on one unit, then changing to do it a different way when you move to another unit is also counter-productive.	We are recommending a standardized monitoring procedure across the range of the owl, and FIA data is one such method. However, canyons may require a different approach if habitat changes are a concern.
M-24	R. Maes, USFS	FIA is a good idea and has some clear advantages. But will plot location secrecy impede ability to study habitat changes directly resulting from certain treatments on certain projects in certain PACs or replacement nest/roost areas, if an FIA plot even exists there at all? It may not satisfy all monitoring/research needs at the micro-habitat level.	FIA is used to assess general habitat trend not specific to treatments. Effectiveness monitoring (see C.3) is designed to evaluate treatment effects.
M-25	R. Maes, USFS	Page 104, third paragraph: Note that one may use a very similar protocol for monitoring occupancy that allows for monitoring density, with virtually no added effort. Farnsworth et al. (2002) use this model (published in The Auk). Rocky Mountain Bird Observatory has some good quantitative ecologists that may be able to help develop a research design.	Our plots are small relative to owl home ranges, so that density should not vary much across occupied plots. Our objective is not to estimate density but rather change in occupancy. The emphasis of Farnsworth et al., 2002 Auk 119:414-425 is to estimate density. We question how well their approach would work given that night-time surveys would be required, and distances to responding owls must be estimated based solely on auditory responses.
M-26	R. Maes, USFS	Section 2.c. - How often are FIA plots sampled... will it be often enough to see trends within a 10 year period?	FIA plots are resampled on a 10-year cycle -- within each state, 10% of the plots are sampled each year. Thus, data are changing annually, with a complete sample after 10 years. In addition, these data are readily available -- what other field data are available?
M-27	R. Maes, USFS	Page 317, Appendix F: Fourth paragraph – What about common stand exams which are already being used for monitoring?	Stand exams are not standardized across the national forests, nor across agencies. Therefore, these procedures would not provide a standardized monitoring system across the owl's habitat.
M-28	R. Maes, USFS	Entire Appendix - This section loses some readers in the models and numbers. It is also unclear who is expected to do that scale of monitoring which will be work intensive and costly. Monitoring PAC occupancy has been the typical method employed by agencies. However, this type of monitoring was described as ineffective in the original Recovery Plan at accomplishing the goal of monitoring population trends. Regardless, a lead agency is needed to coordinate this effort and the logical agency is the FWS.	FWS is proposed to take the lead in setting up a committee to develop the monitoring system. We recommend monitoring PAC occupancy for measuring treatment effects (Appendix C.3), but this approach is not appropriate for range-wide population trends (see Appendix E). In addition, methods for occupancy modeling have improved considerably since the 1995 recovery plan.

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M-29	R. Maes, USFS	Page 319, Sampling Plan to Estimate Oi: We support the occupancy and information theoretic approach. This is a huge improvement over the previous plan. Perhaps consider using generalized random-tessellation stratification (GRTS), to select sample units within each stratum. This would allow for more geographic variation in sampling intensity and permit sites to be added or removed over time and would be more responsive to fluctuations in budget. Each stratum would have its own spatially-balanced, ordered sample, thus sampling effort could vary among strata and among years and still provide statistically valid estimates.	GRTS is now recommended in place of a simple random sample in Appendix E.
M-30	R. Maes, USFS	Page 329, 4. Habitat Monitoring: Common stand exams were used for more than just MSO monitoring. It is really the only way we have to identify marginal Pine-oak ground that may meet potential MSO habitat. So even though the primary, driving force behind doing exams was to meet monitoring protocol previously, it was 'priceless' in assuring that we captured all of the restricted habitat within a planning area. (See original comment for supporting argument).	See response to comment M-27.
M-31	R. Maes, USFS	In the draft recovery plan, "We advocate no specific method for habitat monitoring and leave it up to management agencies to determine the best method(s) to use." I am hoping this means that we can apply the CSE under the FS Manual direction to meet our statistically sound sampling requirements without having to meet the previously set guidelines. It appears they were not re-established in the new draft. One answer I would like is to the question, 'Are we now free to apply the Common Stand Exam as directed, without regard to the MSO sampling guidelines?' If not, the MSO sampling guidelines should be changed.	See response to comment M-27.
M-32	R. Maes, USFS	Page 330, Habitat Monitoring Methods, Second Paragraph: How often are FIA plots visited? Will it provide enough data to establish trends over 10 years?	See response to comment M-26.
M-33	R. Maes, USFS	With an expected northward shift due to climate change, this might be a consideration in designing the sampling frame for occupancy monitoring.	Given that occupancy samples extend to the northern edge of the owl's geographic range, we should be able to detect trends related to climate change.
M-34	B. Byrd and C. Hanson, WEG & John Muir Project of Earth Island Institute (EII)	The Recovery Plan could not do this because data on plot-specific covariates and temporal variation in occupancy for Mexican Spotted Owls are currently inadequate (page 326), thus the Plan notes that a pilot study is needed to determine the necessary number of plots surveyed. Therefore, the Recovery Plan should specify that manipulations of habitat in Mexican Spotted Owl sites should not proceed until the monitoring design has been established and implementation has begun. Three years of monitoring minimum is necessary to detect a trend. Moreover, the baseline trend in occupancy should be established before testing any habitat treatments within owl sites.	The habitat manipulations referred to have their own monitoring requirements separate from the occupancy monitoring of the entire population. We cannot wait to get population monitoring results before engaging in practices designed to reduce the risk of stand-replacing fire in PACs.

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M-35	B. Byrd and C. Hanson, WEG & EII	Variation in occupancy for Mexican Spotted Owls are currently inadequate (page 326), thus the Plan notes that a pilot study is needed to determine the necessary number of plots surveyed. Therefore, the Recovery Plan should specify that manipulations of habitat in Mexican Spotted Owl sites should not proceed until the monitoring design has been established and implementation has begun. Three years of monitoring minimum is necessary to detect a trend. Moreover, the baseline trend in occupancy should be established before testing any habitat treatments within owl sites.	See response to comment M-34.
M-36	B. Byrd and C. Hanson, WEG & EII	Because occupancy monitoring is less sensitive than the population monitoring, the Recovery Plan should ensure that sufficient numbers of plots are surveyed, with enough sites to represent untreated controls if any habitat manipulations are to occur. Also, the number of plots sampled should be large enough within each EMU to be able to determine differences in occupancy rates among regions.	Power requirements are specified in the plan.
M-37	B. Byrd and C. Hanson, WEG & EII	(4) Another sampling issue is the number of visits per year that should be required. In Appendix E, the text variably suggests that two or four surveys will be conducted. The number of required visits should be clarified. Page 323 shows Figure F.1: the text states “The results in Figure F.1 above also demonstrate that increasing the number of visits to the plot from two to three or more provides only small increases in probability of detection. Thus, we suggest visiting more plots two times rather than fewer plots three or more times.” However, the figure actually shows that increasing number of surveys from two to four can increase the detection probability by 0.2, which is quite a substantial difference. The goal for detection probability should be at least 0.6, which (according to Figure F.1) can be accomplished either by increasing the number of call stations per plot or by increasing the number of visits to each plot per year. Four visits per year should be adequate.	The number of visits can be computed for optimal performance using formulae in MacKenzie et al. (2006). So, arbitrary guesses are not necessary. The plan specifies that the MSO occupancy design “must have a [statistical] power of 90%...to detect a 25% decline in occupancy rate with a Type I error rate...of 0.10”
M-38	B. Byrd and C. Hanson, WEG & EII	(5) The Habitat Monitoring section of Appendix F provides essentially no details at all about how vegetation should be monitored other than suggesting and describing the use of FIA plots. This is a critical issue because both occupancy and habitat monitoring are required to meet the recovery criteria. The FIA plots are established at 5---km intervals, with more detailed ecological data collected at 22---km intervals. It is questionable whether these FIA data can be included as covariates for the occupancy monitoring given such sparse spacing. FIA might be useful for evaluating habitat trends at a broad landscape scale, but habitat within individual Spotted Owl sites is highly variable and FIA data are likely too coarse---scale to be useful for determining effects of localized management activities on site occupancy.	FIA data will provide landscape level covariates, not plot specific covariates, in this case.

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M-39	B. Byrd and C. Hanson, WEG & EII	The Recovery Plan proposes to relate or “link” habitat and Spotted Owl occupancy monitoring. However, how the link between FIA and owl occupancy monitoring will be established is very unclear. Will microhabitat be measured using FIA---style plots within Spotted Owl sites and used to identify predictor variables for occupancy? (e.g., see Bond et al. 2004, in Forest Science for FIA measurements useful for predicting nesting habitat of California Spotted Owls). Overall, the Habitat Monitoring section of the Recovery Plan should be much better explained.	These are details that will be worked out when the habitat monitoring is to be implemented.
M-40	C. Hanson, EII	Second, the Draft Plan (pages 104---106) states that only 10 years of MSO occupancy monitoring would be conducted to determine whether a trend exists. This is a wholly insufficient time period for determining trends at landscape scales, especially when landscape---level natural disturbance patterns, and habitat trends, are taken into account (Hanson et al. 2009, 2010). At least 20 years of such monitoring must be undertaken before de---listing is even considered.	We call for a <b>minimum</b> of ten years of monitoring before <b>considering</b> delisting, plus another 5 years of monitoring post-delisting. Delisting is not based solely on population data, but habitat must also be considered.
M-41	C. Hanson, EII	Third, the Draft Plan (page 105) clearly states that the plot size for occupancy monitoring will be 247 acres per plot. However, the Draft Plan (pages 104---106 and Appendix F) does not clearly indicate the sample size of plots on which occupancy monitoring would occur in each year. For example, on pages 324---326 of App. F, the Draft Plan discusses a wide range of potential sample sizes, and indicates that a sample size of at least 1,600 would be important, but does not require any minimum sample size. Without a formally required minimum sample size—one that is amply large to detect subtle changes in population with strong statistical power—the Recovery Plan will not be able to adequately detect any trend, up or down.	The power to detect change is specified in the plan, and this power is what will dictate the necessary sample size of plots. The plan specifies that the MSO occupancy design “must have a [statistical] power of 90%...to detect a 25% decline in occupancy rate with a Type I error rate...of 0.10”.
M-42	C. Hanson, EII	Fourth, the Draft Plan (page 328) opens the door to the possibility of only sampling at five---year intervals over a ten---year period, rather than annual sampling of occupancy. While the Draft Plan indicates that this would greatly compromise and undermine the monitoring accuracy and effectiveness, the Draft Plan does not require annual monitoring, and leaves the door open to an absurdly---inadequate monitoring only once every 5 years for a period of only one decade. This is not a serious attempt to determine population trend.	The plan specifies that the MSO occupancy design “must have a [statistical] power of 90%...to detect a 25% decline in occupancy rate with a Type I error rate...of 0.10”. Likely this level of power can only be detected by monitoring every year, not every 5 years.
M-43	C. Hanson, EII	Fifth, related to the third and fourth problems, the Recovery Plan (page vii) states that the MSO occupancy design “must have a [statistical] power of 90%...to detect a 25% decline in occupancy rate with a Type I error rate...of 0.10”. It is not clear precisely what the Draft Plan means by this. Does the Draft Plan mean to say that a decline in occupancy less than 25% over 10 years would not be considered a decline, at the coarse scale apparently implied by the Draft Plan? This must be clarified. The sample size and frequency of sampling for MSO occupancy must be large and high enough to detect a much, much smaller decline than this with 90% power at a Type I error rate of 0.10.	While reproduction is highly variable temporally and spatially in the owl population, occupancy is not so variable. A estimate of a 25% decline would indicate a real decline, whereas a much smaller estimated decline is likely well within the natural process variation of the population's dynamics.

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M-44	C. Hanson, EII	Sixth, while there is much discussion about MSO population monitoring in the Draft Plan, I could not find any clear requirements to conduct such monitoring, or to conduct it at any minimum level. Given the history of the federal agencies' total failure to monitor population trends of the MSO since its listing (as discussed in the Draft Plan), the absence of clear and binding requirements to conduct large-scale population monitoring at specified minimum levels, beginning on a date certain (by a particular year, e.g., 2012), and with specified frequency, is another major, fatal flaw of the Plan. In fact, given the refusal of federal agencies to monitor MSO population trends thus far (despite past promises of monitoring), the failure to include mandatory monitoring in the Draft Plan is tantamount to accepting that future monitoring will not actually occur.	Recovery plans do not invoke "requirements"; the plan makes recommendations and, if appropriate, the FWS endorses those recommendations by signing the plan. We believe the suggested monitoring is, unlike the monitoring recommended previously, within the range of available resources to implement. But the extent to which an individual agency or other entity participates in the program cannot be "required" by a recovery plan.
M-45	B. Byrd and C. Hanson, WEG & EII	Draft concedes that there is still no reliable information on population trend, this despite the 1995 Recovery Plan's statements regarding the critical importance of demographic monitoring. Furthermore, there is no prescribed protocol for population monitoring in the future. Instead, the Draft merely provides a framework for an occupancy monitoring program, with details to be worked out later. In light of the long-standing failure to monitor, the new Recovery Plan should be detailed and prescriptive with respect to the type of monitoring that will be done.	We disagree: The recovery plan's intent is to recommend what should be done, not necessarily how to do it.
M-46	B. Byrd and C. Hanson, WEG & EII	The draft revised Recovery Plan promotes a new monitoring plan for the Mexican Spotted Owl that involves determining occupancy rates of sites over time (occupancy) rather than estimating population change over time using marked individuals (demographic sampling). Occupancy rates will be used as an index of population change, although, as pointed out on page 327 of the plan, it will be difficult to detect impacts of, for example, logging on owl populations because "occupancy is not as sensitive a measure of the response of the owl population to manipulations as is the measurement of population change." This is because marking individuals allows the observer to determine changes in individual fecundity, age- and sex-specific survival, and population growth rates while occupancy just allows the observer to determine whether owls are merely present, reproducing in a site, or absent. Moreover, without individual marking, it is not possible to determine individual movements among sites. Individual-based population models are able to predict the behavior and fate (such as dispersal, survival, reproduction) of individual owls depending on their location, age, size, sex, social or breeding status, or other environmental or climate characteristics. Thus, individual-based (demographic) models provide more data for developing more detailed models and allows the observer to address more specific questions such as what particular aspect of demography is causing the population decline (e.g. reduced survival vs. reduced reproduction). <b>(See original comment for more elaboration on this point).</b>	To make inferences to the entire population, many (>10) demographic studies would be needed. As shown with the northern spotted owl demographic studies, there are never enough study areas to completely justify the extrapolation of the results from the demographic study areas to the entire population. The monitoring scheme we have developed allows inferences to the entire population, not just the few sampled demographic study areas.

No.	Signator, Affiliation	Monitoring (M) Comment	Response
M-47	B. Byrd and C. Hanson, WEG & EII	(1) The Draft calls for 10 years of monitoring to show stable or increasing populations. Yet, the most recent studies show significant spatial and temporal variation in reproduction. Why was a 25% decline in occupancy selected? The Recovery Plan never articulates and justifies how or why this figure was selected. A 25% decline in occupancy is quite large—a more cautious approach would be to set the goal to detect a smaller decline, such as the 20% from the earlier plan, or even lower such as 10%, given that the population has already plummeted in the recent past (Seamans et al. 1999) and in another 10 years the subspecies will be in much more serious trouble if observed declines continue. The FWS should justify this figure, particularly the fact that they recommend a less sensitive metric (occupancy) but have raised the threshold of decline from 20% to 25%.	Recent studies also show that while reproduction is highly variable, a failure of reproduction for a few years does not necessarily result in a decline in occupancy. A 25% decline in occupancy is a level of decline that we will be able to detect with good statistical power.
M-48	B. Byrd and C. Hanson, WEG & EII	Accordingly, some scientists have suggested that 10 years is not an adequate monitoring period to yield reliable conclusions about demographic trends. Further, Seamans et al. (1999) call into question the strength of 10 years of monitoring to assess population trends prior to delisting if long-term weather patterns are influential. The original Recovery Plan states that one of the criteria is that populations of MSOs in the three core Recovery Units be stable or increasing after 10 years of monitoring, using a study design with a Type I error rate of 0.05. The Draft calls for the same showing on population, but with a Type I error rate of 0.10.	Ten years of monitoring are required for delisting, plus another 5 years of monitoring post-delisting. Further, the Type II error is far more important than the Type I error. We are more interested in detecting real declines with high power, where power is equal to 1 - Type II error rate. That is, the Type II error rate (probability of not detecting a decline when a real decline is taking place) is far more important than Type I error. A Type I error rate means that we conclude there is a decline when in fact there is not, so a Type I error rate is relatively unimportant in this situation.
M-49	B. Byrd and C. Hanson, WEG & EII	Ganey et al. (2004) note the importance of the appropriate level of decline to monitor and the power of the detection. “[W]e recommend that agencies proceed extremely carefully when identifying particular species to monitor and when designing monitoring criteria and protocols. Particularly attention should be paid to the appropriate level of decline for which to monitor, power to detect a decline of that magnitude, sample sizes required to achieve that power, and associated costs and feasibility issues. Failure to consider these aspects could result in poorly designed monitoring schemes and unattainable goals, which in turn could place agencies in legal jeopardy.”	For the reasons described above, that is why the criteria are specified as they are.
M-50	B. Byrd and C. Hanson, WEG & EII	(3) One of the most important considerations in this Mexican Spotted Owl monitoring program is sample size, or how many plots must be surveyed each year to detect occupancy trends. The Recovery Plan must provide more specific details about exactly how many sites they will monitor before habitat alterations occur in Spotted Owl sites. While the Recovery Plan conducted robust analyses to determine how many sampling units will be needed to attain different precision estimates, and to estimate the power of occupancy monitoring at different sampling levels to detect trends in occupancy rates (Appendix F on page 326), the Plan fails to provide any more details about what will actually be required.	First, as stated above we do not believe the details such as sample sizes are appropriately specified in the plan; rather, we provide suggestions on how to approach monitoring and work out such details. Second, we do not believe necessary treatments to protect spotted owl habitat should be delayed while the monitoring details are developed.

No.	Signator, Affiliation	Monitoring (M) Comment	Response
M-51	B. Byrd and C. Hanson, WEG & EII	Ganey et al. (2011) specifically address the failures of agencies to implement the recommendations in the original recovery plan and the ensuing information gaps. "Many of the recommendations in USDI FWS (1995) were never implemented. As a result, we still have no rigorous estimates of trends in owl populations or habitat, nor have we evaluated the effects of common land-management activities on owls or their prey and habitat. For the most part, land managers have chosen to manage around owl habitat (Beier and Maschinski 2003). This generally is consistent with the short-term protection of owl habitat called for in USDI FWS (1995) but has not advanced the goal of developing knowledge that could be used to move beyond that short-term strategy. Thus, the uncertainties that limited our ability to devise a long-term, landscape-dynamics-based management strategy for Mexican spotted owls remain and will continue to remain until we proactively address some of the major information gaps identified." (Ganey et al. 2011 at 80).	We agree with the remarks in Ganey et al. (2011).
M-52	B. Byrd and C. Hanson, WEG & EII	Unfortunately, year round intensive domestic livestock grazing continues in MSO protected and recovery habitat especially in the UGM, BRE and BRW EMUs. We've attached an excel spreadsheet demonstrating the numbers of active grazing allotments on the Gila and Apache-Sitgreaves National Forests (limited in this case by the Blue Range Wolf Recovery Area boundaries) that have perennial water sources. (Exhibit A). In many of these allotments, year round grazing is authorized and the Forest Service and FWS do not have monitoring information on habitat conditions or MSO occupancy.	Thank you for this information as we did not have this available. Monitoring information is important to better assess range condition given these grazing levels. We presume that the action agencies will gather this information as they implement the Recovery Plan.
M-53	T. McKinny, R. Silver, CBD	Owl response and occupancy monitoring of PAC treatments should be made unequivocally mandatory in the Recovery Plan. The Recovery Plan should require that PAC treatments be preceded by (1) FWS approval of the action agency's monitoring plan, (2) FWS approval of the action agency's reporting plan, (3) FWS approval of the action agency's demonstration of adequate monitoring resources being in place, and (4) a minimum amount of pre-treatment monitoring having taken place to establish baseline conditions. The Recovery Plan should prohibit treatments in PACs absent these requirements. The Recovery Plan should further specify standardized monitoring and reporting protocols and schedules for occupancy and response monitoring. The Recovery Plan should specify a minimum occupancy monitoring duration period of 10 years.	Recovery plans cannot make anything "unequivocally mandatory". Further, the FWS does not have the authority to "approve" actions of other agencies. That said, the FWS will engage in section 7 consultation on agency actions that may affect this listed species, and will factor monitoring and other commitments, or lack thereof, into project analyses. It is thus in the section 7 process, not the recovery planning process, where adequacy of monitoring commitment is evaluated.
M-54	T. McKinnon, R. Silver, CBD	The DRP's modification in the monitoring approach intends to measure occupancy instead of the population itself. This significantly reduces or precludes the ability to detect population demise resulting from habitat modification. The RP should require occupancy and population monitoring and should be linked to quantitative population criteria for recovery and up-listing.	Certainly it would be nice to have both occupancy monitoring and population monitoring. However, previous work demonstrated that population monitoring was beyond the scope of a reasonable logistical effort. Because occupancy monitoring is more feasible, and because it will provide a sensitive indicator of population decline, we chose to go with occupancy monitoring to provide a method that can be accomplished.

No.	Signator, Affiliation	Monitoring (M) Comment	Response
M-55	T. McKinnon, R. Silver, CBD	The DRP fails to provide any threshold or tipping point beyond with risk will not be acceptable. Occupancy monitoring of PAC treatments should be linked to a 10% decline threshold.	A 10% decline in occupancy is a relatively normal occurrence in these populations given the spatial and temporal process variation in the population. So, a 10% decline is too strict and would too often result in reaction when the population is not at risk.

No.	Signator, Affiliation	Management Recommendations (MR) Comment	Response
MR-1	M. Morrison, TAMU	As developed this plan has no real spatial relevance. Rather, the individual management units and agencies are left with the task of determining what to do. The guidance provided herein is on the forest stand basis (e.g., tree density, understory condition), which is useful but not adequate for a recovery plan.	We emphasize in numerous places in the the plan the management needs to be planned at a landscape level. We agree that operationally, however, management typically occurs at smaller spatial scales, but hopefully that will change.
MR-2	M. Morrison, TAMU	Thus, this plan seems piecemeal (although thorough in detail) and not synthetic. I was expecting a recovery strategy that integrated current PACs and other owl locations within a framework of a dynamic landscape. If such a plan was set within an adaptive management framework (perhaps on a management unit basis), there could be readily identified thresholds and triggers to help guide management activities within the units. As written the individual management units (and administrative units therein) are left with a guidebook of forest practices but no real overarching strategy. What is needed is an overall strategy, which could then itself be monitored through time and adjusted by the recovery team as results come in. Passing everything off to some unspecified “pilot studies” and “experiments” renders this recovery plan rudderless.	Point well taken, but the issue here is more in the interpretation by the reviewer rather than the intent. Management must be guided by landscape analyses to identify (1) areas occupied by owls, (2) Recovery Areas, and (2) replacement nest-roost areas. Management for the owl should be done such that it enhances desired conditions for the owl at the appropriate spatial scale, not just at a stand scale.
MR-3	M. Morrison, TAMU	250: First bullet: I think you mean impact of weather on prey, and not climate. Also, both prey availability and raptor competition will vary temporally. Thus, I do not think this statement makes much sense as a guiding principle as stated.	Edited as suggested.
MR-4	M. Morrison, TAMU	251: I very much dislike the idea of permanent management areas because it limits your options long term. You note that PACs are unlikely to be maintained long term but are okay in the interim. What exactly do you mean by “interim”?	Interim means until the owl is delisted and a long-term management plan is in place.
MR-5	M. Morrison, TAMU	251: “Recovery Habitat”—what the heck is that? What you do not need to do is make up new jargon—we have plenty of that already. So, when they are “recovered” the “recovery habitat” (I refuse to capitalize it) disappear? What is needed is a description of the current areas that are occupied along with what appears to have the potential for occupancy; you need a lot of the latter because you cannot know if there is adequate prey or too many predators (and that will change with time). The juxtaposition between what is and could be occupied forms your management framework.	We agree with Dr. Morrison that this is inconsistent with the habitat concept (sensu Block and Brennan [1993]). Regardless, the term Recovery Habitat is understood by most readers of this RP, thus we have retained it.
MR-6	M. Morrison, TAMU	259: I agree with your general comments on forest dynamics, but disagree that you should work at the scale of forest stands. Seems you decided not to get into an analysis based on remote sensing data of the distribution and abundance of potential habitat. You certainly have the data to develop a rigorous occupancy model. Further, unless you know the current distribution of potential habitat how can you meet your second recovery criterion? Box C.1 is not adequate because it appears it was based on GIS layers and not an occupancy model. On page 331 you call for such a model.	The owl is well distributed throughout the southwest and Mexico. Owls have large home ranges. As a result, landscape analyses are required to understand their distribution and identify areas for management. Technology exists to conduct these analyses and they should be coordinated across jurisdictional boundaries. That said, treatments should not occur at a stand-level, per se, but should planned and implemented across the landscape.
MR-7	M. Morrison, TAMU	282: Is grazing so intense that it warrants such a strong case for research? Given the seasonality of grazing, the movements involved, etc., this would require a very broad scale and long term research study. “One unpublished study...” is not cause for a research agenda.	Unfortunately, no research has been conducted to understand effects of grazing on the Mexican spotted owl. As a result, we have pieced together circumstantial information from a number of different studies to infer grazing effects. This is a very contentious issue. The best way to address it objectively is to conduct research at the appropriate scales in time and space.

No.	Signator, Affiliation	Management Recommendations (MR) Comment	Response
MR-8	M. Raphael, PNW	Table 1, page 35. Seems like these desired conditions should be more explicit -- for example, what average patch size is desired, or what percent landscape in a given condition?	We have revised the DCs (Table C.2) to the extent that we have data to defend them. Most of our information is from the plot or stand level and we have little data from the landscape level.
MR-9	M. Raphael, PNW	Page 252 3. It looks like the intent to designate and protect 100% of occupied sites as PACs. This should be stated explicitly at the start of this section. But this makes me wonder about the site by site approach vs a landscape approach that would be more like the reserve systems in the NWFP for the Northern Spotted Owl. I worry about a site plan when a site is unoccupied. Is there a provision for that site to become part of the system again if habitat recovers or if owls recolonize the site? Would unoccupied sites be resurveyed in later years to check on status? Otherwise, such a system can lead only to reduction in numbers of PACs over time as sites become decommissioned.	PACs can only be "decommissioned" with pretty strong evidence that the habitat has changed and the site no longer can support owl. Further, we recognize the dynamic nature of the landscape, so we call for actively managing for replacement nest/roost habitat where appropriate on the landscape.
MR-10	M. Raphael, PNW	Page 252, last para. The last sentence is particularly important. One should not impose treatments intended for reduction of long-term risk when such treatments could render sites unsuitable in the shorter term, unless specifically called for.	We agree that treatments in PACs should not degrade habitat to the point where it is no longer suitable for nesting/roosting owls. However, there will likely be situations (e.g., in WUI, etc.) where owl management may not be the first priority.
MR-11	M. Raphael, PNW	Page 280, Types of treatments. A key here is how to do treatments that don't compromise habitat quality for owls (especially prey habitat). How will this be done? I am glad to see that there are provisions for monitoring results to learn from the experiences. But I hope funding will be available to really implement a solid monitoring design.	We agree that monitoring is essential to learn from actions implemented on the ground. We strongly recommend that such monitoring be conducted.
MR-12	B. Burger, AGFD	p.252 In many cases, strategic treatments on surrounding and/or adjoining lands will reduce fire risk sufficiently so that, in the short term, treatments are not needed within PACs (Ager et al. 2007, Finney et al. 2007, Ager et al. 2010). Although true, it must also be recognized that many/most PACs have been avoided for treatment since they were created, and "short-term" is ambiguous. Many PACs have perhaps never been treated for catastrophic fire reduction risk. It is good to see treatments will be allowed, with the caution that treatments should be well planned, but the wording still more strongly suggests avoiding treatment than may be appropriate, particularly if catastrophic fire is now seen as the major threat to the MSO as indicated in this plan.	This wording has been revised to deemphasize treatment priorities. Regardless, treatments within PACS should only proceed with rigorous monitoring in place to evaluate effects to the owl.

No.	Signator, Affiliation	Management Recommendations (MR) Comment	Response
MR-13	B. Burger, AGFD	p. 253. Establish PACs at all Mexican spotted owl sites (see Box II.E.2 for site definition) through the life of the Recovery Plan. Exceptions to PAC establishment or continuance are possible; we discuss these situations below. PACs also should be established at historical sites (i.e., sites documented by professional wildlife biologists) that meet our definition of an owl site.-The reference should apparently be to Box C.2 (not Box II.E.2); another incorrect citation. I also wonder about the criteria that a PAC should be established based on “One daytime location (visual or auditory) of ≥1 Mexican spotted owl within the breeding season (Mar-Aug)”. Although I don’t have direct much experience with MSOs I do recall discussion within the MSO Basin and Range West Working Group about PACs that had been designated but never known to support breeding owls. Further it just seems intuitively questionable that any location an MSO is detected during the day between March – August necessarily needs to be designated a protected area with a high level of special management. It seems such PAC designation should be for areas that are known and/or thought to support breeding, or be likely to support breeding. Thus a single daytime location could result in PAC designation if thought appropriate to do so, but would not require designation. This could even be supplemented by a call for a second visit to try to determine whether an MSO was repeatedly present if a PAC was not to be designated.	As we note in our discussion of owl sites, we try to strike a balance between being overly restrictive and err on the side of the owl. Furthermore, results of owl demography studies in the SW show that many 1st year birds establish breeding territories, leading us to believe that the number of non-breeding, non-territorial birds is quite small. Moreover, given the collective decades of expertise accumulated by the owl biologists on the recovery team, we think that we strike a reasonable balance.
MR-14	B. Burger, AGFD	<i>I have similar concerns about designation based on historic data. If historic data is specific enough to suggest a specific site, and that site still seems to retain characteristics of a likely MSO breeding area then a PAC should perhaps be designated, but such designation may not always be appropriate. Inaccurate or incorrect designation of PACs (e.g. perhaps guessing based on historic information); has to my understanding resulted in the past and probably serves little value while creating substantial work in monitoring, treatment planning, and perhaps decommissioning such PACs.</i>	We believe our guidance for designating PACs, whether based on historical or recent sighting data, strike an appropriate balance between being under- or over-inclusive.
MR-15	B. Burger, AGFD	<i>There is also discussion in this section regarding enlarging PACs, which may be appropriate in some instances, but there should also be provision to move/redraw PACs as better data becomes available rather than just enlarge. Such potential modification of PACs is suggested on p.257-58, but without much detail (i.e. “If owls are found, the PAC should remain, although adjustments to the boundaries can be considered where appropriate based on survey results and landscape configuration.”)</i>	The intent of the recovery plan is to provide general guidance without getting into details that are dependent upon site-specific circumstances. We support redrawing PACs as supporting data warrant.
MR-16	B. Burger, AGFD	p. 260 Recovery Habitat Guidelines for Forest Habitats: General Approach – <i>The references to Table II.E2. in this critical section of the document again appear wrong. I think Table II.E.2. is actually C.2).</i>	Your point is well taken. The original draft went through a complete re-formatting and much of the cross referencing was rendered incorrect. We have tried our best to make sure that cross-referencing is accurate now.
MR-17	B. Burger, AGFD	p.263. Guidelines for Non-replacement Riparian Recovery Habitat – <i>this is a cumbersome term that I don’t see to be specifically defined (though Figure C.1. does help in understanding).</i>	Riparian Forests have been classified as Riparian Recovery and Other Riparian Habitat; definitions for each are provided.
MR-18	B. Burger, AGFD	p. 255 <b>Monitoring.</b> Monitoring should be designed and implemented to evaluate effects of treatments on owls and retention of or movement towards desired future conditions. Box II.E.5 provides a framework for development of monitoring studies. – <i>The box reference again appears wrong, and this referenced is repeated a number of times in the document.</i>	See response to comment MR-16.

No.	Signator, Affiliation	Management Recommendations (MR) Comment	Response
MR-19	B. Burger, AGFD	p.254 b. No mechanical or prescribed fire treatments should occur within PACs during the breeding season unless it has been determined that the PAC is unoccupied or the owls are not nesting that year as inferred from results of surveys conducted according to protocol (Appendix E). – An “I” is misplaced in this sentence (it should be at the end of protocol, not in the line above).	Done.
MR-20	B. Burger, AGFD	p. 268. <b>Table C.2.</b> The basal area number conversion between metric and standard seems off in this table. One square meter is ~10.7 square feet; and there are about 2.5 acres per ha; so it seems 13.5 m <sup>2</sup> /ha should be about 58 ft <sup>2</sup> /acre.	Done.
MR-21	B. Burger, AGFD	p. 279 <b>Treatment Priorities</b> . ES and BAR treatments should be limited to areas surrounding PACs, and only when considered critical to stabilize soils, retain key habitat elements, and enhance ecosystem recovery. – This sentence is confusing. If I correctly understand the intent, perhaps something like the following would be better. ES and BAR treatments should be avoided with PACs, and used in areas immediately surrounding PACs only when considered critical to stabilize soils, retain key habitat elements, and enhance ecosystem recovery.	Done.
MR-22	B. Burger, AGFD	p. 280. <b>Seasonal Restrictions</b> . Within all PACs, light burning of surface and low-lying fuels may be allowed following careful review by biologists and fuel-management specialists on a case-specific basis. Does the statement “Within all PACs” indicate all PACs can be so treated if deemed appropriate? Or is such treatment limited to 20% of PACs as indicated just above in the document? This statement is confusing and perhaps not well placed under the “seasonal restriction” heading.	Done.
MR-23	B. Burger, AGFD	p.281. As discussed in I.C.2.a.vii, grazing can adversely affect spotted owls primarily through four indirect effects: (1) diminished prey availability and abundance, (2) increased susceptibility of habitat to destructive fires, and (3) degradation of riparian and meadow plant communities, impairing their ability to recover or develop into spotted owl habitat. This sentence provides 3 (not 4) enumerated effects. The I.C.2.a.vii reference is also confusing and perhaps wrong. Grazing is previously discussed in II.9.D.a.vii according to my reading of the Table of Contents.	Done.
MR-24	B. Burger, AGFD	p.286. Water development includes dams, permanent flooding of riparian habitats, bed degradation below dams, stream and spring dewatering, water diversions, altered-flow regimes of streams and springs, and artificial watering ponds (e.g., stock tanks). By far the most common water developments are those involving stock tanks; yet most of the discussion here and previously in the document is about Lake Powell potentially impacting MSO gene flow and changes in output from large dams on vegetation below the dams. These 2 issues most discussed are perhaps worth mention but unlikely to change. Whether stock tanks are worth mention is unclear – I can infer a connection with prey availability and grazing pressure in an area but neither of these things is specifically mentioned in terms of being related to stock tanks. If the desire is to require consultation with USFWS on stock tank modifications that should be more clearly stated.	We are not suggesting consultation on stock tanks unless they represent a considerable alteration of owl habitat.

No.	Signator, Affiliation	Management Recommendations (MR) Comment	Response
MR-25	B. Burger, AGFD	p.299 In other words, no more than one year should intervene between the completion of surveys and project implementation. If more than five years have elapsed between the last survey year and the initiation of the proposed action, then one additional year of survey is recommended prior to project implementation. <i>These 2 sentences are inconsistent and confusing. The first indicates no more than 1 year should intervene between completion of surveys and project implementation, the second indicates if &gt; 5 years have elapsed. What about if 1-5 years elapse between the last survey and project implementation?</i>	We have re-worded Appendix D to clarify.
MR-26	J. Driscoll, AGFD	Page 85 Section 3, and Appendix C page 258 Section H. The Recovery Team should look at a time component of when to allow the decommissioning of PACs. For many other species, we do not keep protecting the habitat if they abandon the site. There are many instances where a raptor “tests” and area to see if they could successfully reproduce. If they successful, they stay, but if not, they abandon. If the population is stable or increasing, as identified on page 83, then this will happen at much higher frequencies as individuals try to establish new territories in new areas, even in those less than marginal habitats.	Given the spotted owl's tendency to occupy some PACs only sporadically, we do not believe that decommissioning PACs based on time of non-occupancy is appropriate. See response to comment MR-9 for more information.
MR-27	J. Driscoll, AGFD	I also do not agree with establishing PAC’s in areas of historical occupancy just because it is historical. As stated in Appendix C, habitat conditions should be analyzed to determine if they are still conducive to a breeding pair before a PAC is designated.	We agree as stated in the plan.
MR-28	J. Driscoll, AGFD	Page 86 Section 4. Again it is wishful thinking to believe that the time and money exists to identify and protect recovery habitat.	We believe that recovery habitat is an essential component to manage through time.
MR-29	J. Driscoll, AGFD	Page 87, Section 6.5.1. and page 286 Section 6, The last sentence should be deleted. I don’t believe any agency will recommend lowering water levels of any reservoir in the southwest, in the midst of a drought, and while climate change is occurring. Not when, as of last year, the states were talking about water restrictions because water resources were so low.	Done.
MR-30	J. Driscoll, AGFD	Page 260. Recovery Habitat. There is no goal on how much acreage should be maintained for Recovery Habitat. Understandably, the goal is to preserve as much as possible to achieve recovery and increase populations. But how much acreage should a land manager in a local district strive for to meet the requirements of this recovery plan. A goal should be identified, so that if every land manager within the range and habitat of the species set aside a certain amount of Recovery Habitat, the criteria would be met.	The amount of acreage will vary spatially according to the amount of recovery habitat available and the suitability of areas to manage as replacement nest-roost habitat. Ideally, a landscape analysis will be done to identify where recovery habitat exists and where to manage for replacement nest-roost habitat.
MR-31	J. Dick, None stated	[Paraphrased] To encourage treatments to reduce fuel loading while at the same time recommending to retain the very habitat features that will be lost to such treatments (e.g., snags, down logs) causes too much equivocation and is self-contradicting. Make it clear that "retain" doesn't mean "retain all", and that land-managers and consultation agencies take into account the benefits of treatment versus the magnitude of loss to the owl in losing some of these "owlie" features.	This is addressed specifically in the document (C.3.b).
MR-32	J. Dick, None stated	[Paraphrased] The key is juxtaposition in restricted (recovery) habitat. Loss of a snag or down log should be considered in the context of developing recovery habitat into future nest/roost habitat. Some of these components will be lost through time as management (fire) is used to protect the habitat and encourage development of all necessary habitat components so they are eventually present together in space and time.	Understood and already addressed throughout Appendix C.

No.	Signator, Affiliation	Management Recommendations (MR) Comment	Response
MR-33	B. Hotze, U.S. Fish and Wildlife Service-Utah (FWS-UT)	The desired future conditions listed in Table 1 on page 35 and in Table C.1 on page 266 only contain desired future conditions for forested habitats. We recommended adding canyon habitat to these tables.	DFCs thought to be important in canyon habitats have been asterisked and a footnote has been added to Table C.2.
MR-34	S. Gerfers, None stated	I do not accept that the management and ecological conditions of our National Forest are best served by a non-aggressive fire suppression policy which welcomes fires to burn at any time of the year and under any conditions. Fire management needs to be conducted in a professional manner where fires are allowed to burn under conditions that will provide for improved ecosystem health and aggressively suppressed when they will destroy the desired vegetative communities and the manmade structures that currently exist.	We fully agree, and rely on the expertise of local land managers to develop fire prescriptions to meet management objectives.
MR-35	S. Gerfers, None stated	Also it must be clearly defined what is meant by the term pre-European conditions and how that condition relates to healthy forest ecosystems that provide for the needs of the MSO and other plants and animals, as well as the local citizens.	The concept of pre-European conditions is well established in the ecological literature and we cite many of of key references related to this concept.
MR-36	S. Gerfers, None stated	While it is further stated in this section of Appendix D that “the Southwest has one of the largest compilations of ecological research that documents and reconstructs historical reference conditions...”, again historical and/or natural conditions and the range of variability in forest structure, composition, and function are not well defined in the Draft Recovery Plan and can be interpreted to mean different things depending upon what someone wants to achieve.	See response to comment MR-35.
MR-37	S. Gerfers, None stated	1. In Appendix D: Threat-Specific Management Recommendations, Grazing: The FWS has erroneously identified the effects of overgrazing as the common baseline conditions in today’s forests, rather than the authorized level of grazing called for in US Forest Service Allotment Management Plans (AMP). The indirect livestock grazing effects listed in Appendix D are not something that would result from properly managed livestock grazing. The Forest Service has many standards and grazing practices that are incorporated into all AMP’s that prevent the adverse effects listed in Appendix D of the Draft Recovery Plan.	We do not quite agree. Overgrazing is not a common baseline, but it does occur within some allotments in the southwest. The key is here for monitoring to occur so we have an objective means to assess range condition.
MR-38	S. Gerfers, None stated	I believe that the FWS needs to recognize the many standards and grazing practices that are incorporated into all AMP’s. These standards and grazing practices prevent the adverse effects listed in Appendix D of the Draft Recovery Plan and will meet MSO habitat needs.	AMPs are not specific to the needs of owls. If owl needs were included and met by AMPs, grazing would not be a concern.
MR-39	S. Gerfers, None stated	5. In Appendix D: Threat-Specific Management Recommendations, Grazing: The Draft Recovery Plan does not identify the prey species that are commonly used by the MSO and infers livestock grazing affects all rodent species the same way. Many small mammal studies conducted over the years indicate that grazing increases the abundance of many rodent species while decreasing the abundance of only a select few. The effect on voles in high mountain meadows is only the grazing/prey relationship suspected to have possible adverse effects on MSO prey. This prey/vegetation relationship should be clearly explained in Appendix D of the Draft Recovery Plan.	We agree that grazing does not affect all prey species in the same way. Ideally, we would like research conducted to more specifically understand these effects. We also agree that voles are the group of species most likely to be affected by grazing. To date, we know of only 3 published studies (Ward [2001], Block et al. [2005], and Sureda and Morrison [1998]; all in literature cited section) to look at prey habitat relationships and these studies helped to inform our recommendations.

No.	Signator, Affiliation	Management Recommendations (MR) Comment	Response
MR-40	S. Gersfers, None stated	6. In Appendix D: Threat-Specific Management Recommendations, Grazing: The Draft Recovery Plan is not clear on what effects livestock grazing has on the occurrence and spread of fires in the various vegetative communities. It is inferred that grazing is somehow a cause of large catastrophic fire, but it is also stated that grazing hampers the ability to have low intensity surface fires. This section should explain that historic extended periods of abusive grazing did add to the increase of woody vegetation, but also that this level of livestock grazing has not occurred for over a hundred years and is not allowed under the current management of the National Forest. I believe that grazing does reduce and break up the continuity of fine fuels and is a very effective tool in reducing the spread of large fires. Prescribed grazing has the potential to be an ecologically and economically sustainable management tool for the reduction of fuel loads.	We agree that the reduction in fine fuels by grazing was primarily the result of historical practices. We have no evidence, however, that grazing is a contemporary tool for reducing fire spread in southwestern forests.
MR-41	S. Gersfers, None stated	7. In Appendix D: Threat-Specific Management Recommendations, Grazing: The objective for management of natural riparian, meadow, and upland plant communities including their functional processes is very broad and does not address specific MSO needs. Nowhere is there evidence that “ungrazed natural plant communities” are superior to management-created properly grazed MSO habitat, especially within the riparian and meadow habitat types. There is enough known about needs of the MSO that specific vegetation conditions can be created and maintained for the MSO thorough the implementation of proper grazing management practices. Also, there is enough known about needs of the MSO that grazing can be allowed during time periods when no adverse affects to the owl will occur.	We suppose that this is a topic for debate since we lack specific information on grazing effects on Mexican spotted owls. Clearly, management direction should be based on rigorous scientific experiments to determine the effects of grazing on owls. To date, such research has not been conducted.
MR-42	S. Gersfers, None stated	8. The Draft Recovery Plan gives no indication of how much of the currently occupied MSO habitat is actually grazed and fails to show any relationship between nesting and roosting habitat and lands that produce enough forage to be grazed by livestock. The overlap of land grazed by livestock and land that provides quality MSO nesting and roosting habitat appears to be limited. MSO nesting and roosting habitat is described as being dense multi-layered stands of trees or cliffs in narrow steep walled canyons, neither of these sites produce much forage for livestock.	See response to comment MR-41.
MR-43	S. Gersfers, None stated	I believe that the FWS needs to clearly show that livestock grazing occurs in nesting and roosting habitat at a level will adversely affects the MSO. Without clear evidence that livestock grazing is a threat to MSO nesting and roosting habitat the FWS should not be requiring specific livestock grazing requirements for these areas.	See response to comment MR-41.
MR-44	S. Temple, ESA	However, there is still a strong emphasis on habitat management for the owl in contrast to restoring overall ecosystem health. The question remains in my mind whether or not “managing owl habitat” can be considered synonymous with “ecosystem management” across the range of ecosystems in which owls occur.	A premise to our recommendations is that managing for ecosystem health will also provide appropriate conditions for the owl. However, ecosystem health is a somewhat nebulous term with various interpretations. Rather, we use the body of knowledge on owl-habitat relationships to define conditions to manage for. We assume that habitat selection by the owl has not changed over ecological time, thus those conditions existed historically and are within the natural range of variation.

No.	Signator, Affiliation	Management Recommendations (MR) Comment	Response
MR-45	S. Temple, ESA	<p>Inadequate justification for focusing almost entirely on US federal lands.—Given the owl’s wide range and habitat associations, the tacit assumption that a true “recovery” can be effected almost entirely by management actions mandated only on federal lands seems to require more justification. This assumption isn’t adequately discussed and seems to be taken as a given limitation on the scope of serious recovery activities. Why? Certainly, most of the best owl habitat is on federal lands, but if little action that directly benefits owls actually takes place on state, tribal and Mexican lands, would the prescribed activities on federal lands suffice to insure that the owl doesn’t at the very least become endangered? I know it’s a hard question to answer, but it shouldn’t be ignored.</p>	<p>The Implementation Table lists implementation responsibilities among various Federal agencies as well as Tribes and Mexico for the majority of recovery actions. The intent of the plan is to recover the owl throughout its range regardless of land ownership. It is unclear why this commenter believes the plan focuses "almost entirely on Federal lands".</p>
MR-46	S. Temple, ESA	<p>Not following basic requirements for successful adaptive management.—This is probably my biggest concern about the overall design of the plan. Although adaptive management is mentioned repeatedly (and quite appropriately), overall there is little evidence that the established principles of adaptive management are being followed closely. Much of the monitoring effort is inadequately tied to the experimental nature of the management activities that will take place if the plan is followed. This will make it difficult or impossible to get the required feedback on how the birds and their habitat are responding, and that in turn makes it difficult to improve management practices based on in-the-field experience. This is a really serious shortcoming because so much of what’s being proposed, both in monitoring and management, has yet to be adequately tested in the field. Much of the plan is actually a series of experiments, the outcomes of which may be less certain than the plan suggests. Although adaptive management was promoted in the 1995 plan, it is a major disappointment that it wasn’t practiced more rigorously over the past 15 years, as valuable opportunities to learn and make progress on refining approaches have been lost. I strongly recommend that the recovery team seek the guidance of an authority on adaptive management so that deficiencies can be remedied. This is my one recommendation that will probably lead to a significant restructuring of the linkage between management and monitoring and how managers respond to the results.</p>	<p>We agree with you entirely. We now emphasize that monitoring should be done if treatments are to occur within PACs and monitoring should be structured and rigorous. We have added a box providing our rationale for our recommendation allowing treatment in PACs, but again emphasize that monitoring must occur. Our experience is that we can recommend what should be done, but we have no jurisdiction to make sure that it is done. Hopefully, the action agencies will agree with the need to learn from what they do which means that adaptive management must be done not just mentioned.</p>
MR-47	S. Temple, ESA	<p>Assumptions about owls’ responses to fire suppression need more justification.—There is no doubt that understanding and dealing with the threat of catastrophic wildfires is an immediate and urgent need, especially in light of the impacts of the 2011 fires on habitat within the core of the owl’s range. But, there seems to be a tacit assumption that management activities that reduce the probability of stand-replacing wildfires will have few negative consequences for owls and that the overall effect will be a net positive. I think this assumption, although not necessarily incorrect, may be risky. The potential impacts of fire suppression activities on PACs are particularly worrisome. PACs should be spared from as much experimental manipulation as possible, and yet treating up to 20% of PACs is listed in Table 8 as one of the highest priority actions. There needs to be a much more upfront discussion about the benefits and risks of some of the specific activities that will likely be undertaken to reduce catastrophic fire risk, especially in PACs. A cautious approach is warranted.</p>	<p>We wholeheartedly agree that risk exists by entering PACs to reduce risks of crown fire. We also recognize that not treating in PACs carries the risk of large-scale loss of habitat as the result of stand-replacing fire. We do not know the effects of entering PACs, and that can only be determined by implementing a rigorous monitoring program to evaluate effects of these treatments on owl occupancy, reproduction, and survival. As a result, we've strengthened our recommendation for monitoring to inform us of the effects of these treatments on owls. We also recognize that PACs do not exist in perpetuity. That is, habitat will be lost as the result of fire and senescence as succession proceeds. In anticipation, we also recommend that a certain percentage of the landscape be managed as replacement nest/roost habitat.</p>

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MR-48	S. Temple, ESA	Range of options that could have been considered is not fully explored.—The recovery team must have had interesting discussions about alternative strategies and priorities for recovery. What were those alternatives, and why were they rejected in favor of the current strategy and priorities? Similarly, what was the thinking behind the final prioritizing of actions in Table 8? Given the uncertainties that exist over the efficacy of the plan as presented and the adoption of an adaptive management approach, those alternatives might be the options that managers turn to if the proposed experiments in habitat manipulation and monitoring prove problematic.	The recovery team began its deliberations in 1993 and discussed a number of alternative management approaches before settling on the approach used in the original 1995 plan. For example, one of the approaches considered was to designate a system of large habitat reserves similar to those used in management of the northern spotted owl. That approach was rejected largely due to the naturally fragmented distribution of the Mexican subspecies when compared to the northern spotted owl. We do not believe such a discussion is germane to this revised plan, but welcome suggestions on alternative approaches. We agree that alternative approaches should be developed if and when the information gathered going forward so indicates, but not before.
MR-49	S. Temple, ESA	There is not enough discussion of the full range of activities that might be required to restore “normal” functioning of these ecosystems. The emphasis seems to be on short-term fire-suppression activities rather than long-term solutions that restore ecosystem health so that heavy management inputs are less necessary.	We believe that restoring fire to previously fire-adapted landscapes is the long-term solution. However, in many situations existing habitats are no longer able to sustain any level of fire and mechanical treatments are needed to reduce fuels prior to fire being allowed to enter these areas. The FWS recognizes that within the next 10 years, thinning and prescribed burning will be the primary land-management tools used to "restore" ecosystem structure, composition, and process.
MR-50	M. Pastor. Gila County, Arizona	Finally the designation of Protected Activity Centers (PAC's) of 600 acres surrounding known owl sites seems excessive. We are concerned that while the Revision as proposed potentially allows mechanical timber treatment within the PAC's that the actual practice of agency land managers will be to avoid any activity within the PAC's, thus perpetrating the problem of high hazard forested areas within the landscape. Smaller PAC of 300 acres would be preferable as well as strengthening the language that allows treatment within the PAC's.	The size of PACs is based on numerous studies of home range size for this species. It is our best available information. We provide opportunities for treatments within PACS, and hope that the agencies will pursue those opportunities. In the past agencies have avoided managing in PACs, but we hope that they will not do so in the future.
MR-51	S. Bahr, SC	We are especially concerned in light of the fact that the monitoring called for in the original plan was not implemented and, therefore, the adaptive management that would be based on that monitoring was not implemented, either. The Draft Recovery Plan has significant levels of uncertainty and gaps in knowledge relative to current threats and proposed management actions, yet changes that may prove even more harmful to the species are proposed. How can the U.S. Fish and Wildlife Service (USFWS) justify the changes proposed in this Draft Recovery Plan without having that information? What is the basis for weakening certain management recommendations?	We have strengthened the language calling for treatment monitoring. Whether or not it is implemented is beyond our control, however. We have also stated the trade-offs in trying PAC treatments vs. a hands-off approach (Box III.1).

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MR-52	S. Bahr, SC	The Draft Recovery Plan states, “From a recovery standpoint, the actual number of spotted owls and temporal trend of those numbers are important” (Recovery Plan at p. 38). Because there has been little monitoring and, as the Draft Recovery Plan indicates, “. . . the population trend remains unclear” (Recovery Plan at p. 38), there is little basis for loosening any management restrictions and, in fact, every reason to err on the side of caution and to strengthen those provisions. As the Plan indicates, “. . . the management recommendation in the near-term must deal with high levels of uncertainty” (p. 40), which is why the recommendations should be conservative relative to the owl and should keep intact strong protections for the plethora of threats that exist for this species.	The plan tries to strike a balance between the risk of active management and doing nothing (see Box III.1). That risk can only be justified if validated by the results of rigorous monitoring.
MR-53	S. Bahr, SC	For example, the Draft Recovery Plan indicates that “[t]hreats to its population in the U.S. (but likely not in Mexico) have transitioned from commercial-based timber harvest to the risk of stand-replacing wildfire.” Subsequently, limited information regarding timber harvest and its effects on the spotted owl are provided in the draft plan, except to note that little is known about the effects. While we recognize the issues and impacts of stand-replacing wildfire, timber harvest remains a threat, plus there are significant efforts by some to accelerate commercial harvest in the forests of the southwest. The draft plan needs to adequately acknowledge the various threats and to provide suitable management efforts to protect owls from these threats.	See response to comment 491.
MR-54	S. Bahr, SC	We also generally support the planning and implementation fire risk-reduction activities. Our main concern here, however, is that the cumulative effects of treatments across watersheds and spotted owl habitat will not be adequately considered as the needed monitoring will not occur.	Action agencies are required to assess the cumulative effects of their actions under NEPA and ESA section 7 analyses. Further, it is the FWS' hope that the recommended monitoring will occur.
MR-55	S. Bahr, SC	Also, the Draft Recovery Plan indicates that owl populations in canyon habitat may be at less risk than those in forested habitats and that, even if the amount of habitat area burned in high severity fire from 1995–2005 was doubled, a significant portion of owl habitat may not be affected by high-severity fire. However, this information was not incorporated into the fire management guidelines.	We believe that a significant portion of owl habitat has been affected by high-severity wildfire, especially considering the activity of the 2011 fire season. Most of the 2011 affects were not in canyons as defined in the plan.
MR-56	S. Bahr, SC	Harvesting needs to be closely monitored and controlled, old growth logging prohibited, and adequate canopy cover for owls protected and restored over time.	The plan recommends canopy-cover criteria. It is beyond the purview of the plan to prohibit old-growth logging.
MR-57	S. Bahr, SC	For example, even in the draft Proposed Action for the Four Forest Restoration Initiative, the Mexican spotted owl restricted habitat treatments look more like a timber sale than an effort to restore and maintain canopy cover and suitable owl habitat (pp. 50–51). The proposed action includes the following (see original letter for cited prescriptions). In the Four Forest Restoration Initiative and in all of the forest plan revisions to date, the Forest Service is still maintaining that canopy cover requirements only apply to the group level and not the stand. This continues to present a threat to the owls and should be addressed in this Recovery Plan.	We have attempted to describe what owls need for nesting and roosting habitat, which includes canopy cover. We recommend that this be measured at the stand scale, using the same methods used in the research studies that documented this level of canopy cover.

No.	Signator, Affiliation	Management Recommendations (MR) Comment	Response
MR-58	S. Bahr, SC	The Recovery Plan indicates that “[a]dditional strategies may include the use of riparian pastures, management-intensive rotational and other methods that emphasize riparian vegetation and stream bank and channel recovery where degraded riparian conditions exist (Platts 1990, Holechek et al. 2001).” However, the management-intensive rotational systems have been discredited for use in arid systems, such as we have in most of the Southwest. Furthermore, some areas are in extreme and exceptional drought that is projected to continue well into the future. Using such methods under these conditions would be irresponsible and should not be included in the plan.	Your point is well taken. Our intent here is not to prescribe specific management direction, but to offer suggestions of ways to alleviate grazing pressure in riparian areas. Not all options are appropriate for all situations, but open to local expertise to determine the best option for specific situations.
MR-59	S. Bahr, SC	Managing grazing effects should focus on limiting access of livestock to riparian areas. Tree removal in riparian areas should also be significantly limited.	We agree that livestock access to riparian areas should be managed as appropriate for local situations. We are uncomfortable, however, with a blanket statement discouraging tree removal. For example, if removal of Russian olive would expedite restoration of a cottonwood gallery forest, we would support removal of the invasive olive.
MR-60	S. Bahr, SC	Construction of roads and trails continues to be a threat to spotted owls via the fragmentation of habitat and other more indirect threats. Consideration must be given to the increasing number of user-created trails relative to off-road vehicles. As noted in Appendix C, any road or trail maintenance, repair, and building should be extremely limited. The plan indicates that such actions will be “undertaken only if pressing management reasons can be demonstrated.” What would be considered a “pressing management reason?”	We agree that OHV activities have impacts to habitat and potential to disturb nesting or roosting birds. The discussion on current threats lists OHV use as potentially adverse. A "pressing management reason" can only be determined by land managers on a case-specific basis, and any such action would be subject to section 7 consultation when appropriate.
MR-61	S. Bahr, SC	Clearly, large and/or loud groups or individuals can have a negative impact on owls, but the plan does not seem to make a distinction between quiet recreation and off-road vehicle activities. Closures may be appropriate for both activity types, depending on the area, but it is clear that the impacts of ORVs is much more significant due to the large numbers of vehicles, the loud noises they emit, and their ability to travel over large areas.	In the management recommendations we do not distinguish between specific activities; rather, the recommendation to limit breeding-season noise disturbance is based on the level of noise rather than its source. The plan clearly states noise limitations we believe are prudent to avoid disturbing nesting owls.
MR-62	S. Bahr, SC	We recommend that a guideline limiting development of stock watering tanks in areas where grazing could adversely affect the owl be included in Appendix D.	The first step here is to determine how and where livestock grazing affects spotted owls, and how that might be influenced by stock watering tanks. This requires conducting research to specifically address this concern. Once a given activity is more firmly established as a threat, specific management recommendations can be proposed.
MR-63	T. McKinnon, CBD	The failure of FWS and USFS to implement the 1995 Recovery Plan’s research, monitoring and management provisions perpetuates an information void that precludes a strong scientific basis for deviating far from the 1995 Recovery Plan, which was designed to tackle this exact uncertainty.	We agree that we have not learned as much as we could have since the 1995 plan was released. Even so, we have learned more about the owl and know better the feasibility of various management options. The plan tries to strike a balance between the risk of active management and doing nothing. That risk can only be justified if validated by rigorous monitoring.

No.	Signator, Affiliation	Management Recommendations (MR) Comment	Response
MR-64	T. McKinnon, CBD	<p>Guidelines for area limitations are problematic for several reasons.</p> <p>Area Limitations. Treat as needed up to 20% of the non-core PAC area within an EMU identified through the landscape-level assessment (see Appendix C).</p> <p>How this provision will be implemented is unclear. The DRP needs to include a detailed discussion of how the 20% limitation will be applied in space and time, within and across PACs.</p>	<p>The recovery plan is intentionally descriptive rather than prescriptive. Decisions on where and when to conduct restoration treatments is best left to land managers based on many site-specific variables.</p>
MR-65	T. McKinnon, CBD	<p>The DRP needs to carefully explain and provide scientific justification all changes between the 1995 management recommendations and those proposed in the DRP, especially those within PACs.</p>	<p>We provide such justification based on published literature where available; otherwise we rely on the collective professional judgement of the recovery team members.</p>
MR-66	T. McKinnon, CBD	<p>As a result of FWS and USFS' failure to monitor and evaluate the effects of management recommendations in the 1995 recovery plan on MSO prey and habitat, FWS provides no scientific information in the draft revised recovery plan demonstrating that cutting numbers and sizes of trees in excess of limits set forth in 1995 Recovery Plan management recommendations will not degrade MSO habitat or contribute to its further decline. Because of this, FWS lacks a scientific basis for deviating from the 1995 management recommendations in its revised plan.</p>	<p>Despite the fact that action agencies have not implemented monitoring, we have still gathered new information and have become better informed on parts of the plan that have been effective as well as parts that have been ineffective. We've used this information to develop the limited changes in the revised RP, and our rationales are provided therein.</p>
MR-67	T. McKinnon, CBD	<p>The problems arise as FWS attempts to use stand-replacing wildfire to justify easing of management recommendations. First, the FWS has not demonstrated that fuels reduction strategies set forth in the 1995 management recommendations are insufficient for reducing fire hazard within PACs. Second, only a small proportion of PACs are actually affected by fire, and only a small portion of those are affected by severe fire; the need for uniform changes to management recommendations is unclear at best. This is not to say that severe fire is not a threat to the MSO; but that threat does not justify less cautious and more severe silvicultural interventions within PACs. Owls will likely benefit from neither.</p>	<p>The decision to recommend a different approach to fire-risk-reduction in PACs was not made lightly, but we believe it is necessary to break up crown-continuity as well as reduce ladder fuels. We also concluded that the original 9-inch cap in treating PACs was ineffective in reducing the spread of crown fires and would perpetuate the very conditions (even-aged management) that caused listing in the first place.</p>
MR-68	C. Williams, None stated	<p>Finally the designation of Protected Activity Centers (PAC's) of 600 acres surrounding known owl sites seems excessive. I am concerned that while the Revision as proposed potentially allows mechanical timber treatment within the PAC's that the actual practice of agency land managers will be to conservatively avoid any activity within the PAC's, thus perpetrating the problem of high hazard forested areas within the landscape. Smaller PAC of 300 acres would be preferable as well as strengthening the language that allows treatment within the PAC's</p>	<p>See response to comment MR-50.</p>
MR-69	R. J. Lee, Apache County, AZ; McKeen et al., Catron County, NM	<p>The Apache County Board of Supervisors does not accept that the management and ecological conditions of our National Forest are best served by a non-aggressive fire suppression policy which welcomes fires to burn at any time of the year and under any conditions. Fire management needs to be conducted in a professional manner where fires are allowed to burn under conditions that will provide for improved ecosystem health and aggressively suppressed when they will destroy the desired vegetative communities and the manmade structures that currently exist.</p>	<p>See response to comment MR-34.</p>

No.	Signator, Affiliation	Management Recommendations (MR) Comment	Response
MR-70	R. J. Lee, Apache County, AZ; McKeen et al., Catron County, NM	The Apache County Board of Supervisors believes that the FS and FWS need to return to known and proven principles of forest management that have been developed from years of being successfully applied to the land. Reduced fuel loads, habitats for owls, uneven aged stands of trees, foraging areas, roost trees for owls, goshawks, and turkeys along with opening in the tree canopy can all be created under well managed timber and fire programs as occurred in the past.	We generally agree with your statement and think that if implemented as envisioned, this Recovery Plan will achieve those goals.
MR-71	R. J. Lee, Apache County, AZ; McKeen et al., Catron County, NM	The FWS has erroneously identified the effects of overgrazing as the common baseline conditions in today's forests, rather than the authorized level of grazing called for in US Forest Service Allotment Management Plans (AMP). The indirect livestock grazing effects listed in Appendix D are not something that would result from properly managed livestock grazing. The Forest Service has many standards and grazing practices that are incorporated into all AMP's that prevent the adverse effects listed in Appendix D of the Draft Recovery Plan. The Apache County Board of Supervisors believes that the FWS needs to recognize the many standards and grazing practices that are incorporated into all AMP's. These standards and grazing practices prevent the adverse effects listed in Appendix D of the Draft Recovery Plan and will meet MSO habitat needs.	See response to MR 37.
MR-72	R. J. Lee, Apache County, AZ; McKeen et al., Catron County, NM	The Draft Recovery Plan does not identify the prey species that are commonly used by the MSO and infers livestock grazing affects all rodent species the same way. Many small mammal studies conducted over the years indicate that grazing increases the abundance of many rodent species while decreasing the abundance of only a select few. The effect on voles in high mountain meadows is only the grazing/prey relationship suspected to have possible adverse effects on MSO prey. This prey/vegetation relationship should be clearly explained in Appendix D of the Draft Recovery Plan. The Apache County Board of Supervisors believes that the FWS needs to recognize the many standards and grazing practices that are incorporated into all AMP's. These standards and grazing practices when implemented will prevent the adverse effects to MSO prey species.	See response to MR 39.
MR-73	R. J. Lee, Apache County, AZ; McKeen et al., Catron County, NM.	The Draft Recovery Plan is not clear on what effects livestock grazing has on the occurrence and spread of fires in the various vegetative communities. It is inferred that grazing is somehow a cause of large catastrophic fire, but it is also stated that grazing hampers the ability to have low intensity surface fires. This section should explain that historic extended periods of abusive grazing did add to the increase of woody vegetation, but also that this level of livestock grazing has not occurred for over a hundred years and is not allowed under the current management of the National Forest. The Apache County Board of Supervisors believes that grazing does reduce and break up the continuity of fine fuels and is a very effective tool in reducing the spread of large fires. Prescribed grazing has the potential to be an ecologically and economically sustainable management tool for the reduction of fuel loads.	See response to MR 40.

No.	Signator, Affiliation	Management Recommendations (MR) Comment	Response
MR-74	R. J. Lee, Apache County, AZ; McKeen et al., Catron County, NM	The objective for management of natural riparian, meadow, and upland plant communities including their functional processes is very broad and does not address specific MSO needs. Nowhere is there evidence that "ungrazed natural plant communities" are superior to management created properly grazed MSO habitat, especially within the riparian and meadow habitat types. There is enough known about needs of the MSO that specific vegetation conditions can be created and maintained for the MSO through the implementation of proper grazing management practices. Also, there is enough known about needs of the MSO that grazing can be allowed during time periods when no adverse affects to the owl will occur. The Apache County Board of Supervisors acknowledges the value of riparian and meadow habitats and supports grazing management that creates and/or enhances these very productive ecosystem. These habitat types are limited in the Southwest and the commission encourages the FWS to accept management-created riparian and meadow habitats to be important parts of the Southwest landscape.	We are unsure of the origin of the quoted phrase "ungrazed natural plant communities", as that phrase does not appear in the draft plan. Further, the plan does not contain any management recommendations that would counter Apache and Catron counties' views on the role of grazing.
MR-75	R. J. Lee, Apache County, AZ; McKeen et al., Catron County, NM	The Draft Recovery Plan gives no indication of how much of the currently occupied MSO habitat is actually grazed and fails to show any relationship between nesting and roosting habitat and lands that produce enough forage to be grazed by livestock. The overlap of land grazed by livestock and land that provides quality MSO nesting and roosting habitat appears to be limited. MSO nesting and roosting habitat is described as being dense multi-layered stands of trees or cliffs in narrow steep walled canyons, neither of these sites produce much forage for livestock. The Apache County Board of Supervisors believes that the FWS needs to clearly show that livestock grazing occurs in nesting and roosting habitat at a level will adversely affects the MSO. Without clear evidence that livestock grazing is a threat to MSO nesting and roosting habitat the FWS should not be requiring specific livestock grazing requirements for these areas.	See response to MR 42.
MR-76	L. Strand, None stated	"Natural" wildfires do not have to decimate hundreds of thousands of acres. Healthy forests that don't support catastrophic wildfires must logically be healthy for Mexican spotted owls - owls are not phoenixes that rise from ashes. Given the current drought conditions and the predictions of continued drought, I believe that the use of fire to manage forests is misguided at best, criminal at worst.	Under extreme drought and fire hazard conditions, prescribed fires and wildfire for resource benefits are typically not used to manage our forests. These fires are managed for public and firefighter safety, and during times of extreme prolonged drought and fire conditions as we saw this summer in 2011, most of these fires are managed with full and rapid suppression as a goal. Under less-extreme fire hazard conditions, prescribed and wildfires can be managed for resource benefits. The forests have evolved and adapted to frequent fires in past that remove the forest fuels and litter, keeping the forest more open, productive, healthy, and resilient over the longer term. This natural cycle in the past also reduced the chance of more intense fires of greater severity, like we have seen in recent years, following a century or more with a national fire-suppression policy.
MR-77	L. Strand, None stated	Much documentation exists for controlled use of livestock (from goats and sheep to cattle) to clear brush and keep ground cover from overgrowing - which presumably does not bother Mexican spotted owls, given that they somehow survived grazing by livestock as well as elk, deer and other grazing animals all this time.	We have no information on the use of the goats, sheep, and cattle as tools to manage for owl habitat. We would, however, be very interested in seeing the results of a rigorous scientific study that evaluates this relationship.

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MR-78	L. Strand, None stated	My comment is that FWS should encourage grazing and forest restoration/fuels reduction for management of Mexican spotted owl habitat.	The recovery plan encourages forest restoration as suggested. The plan appropriately neither encourages nor discourages grazing, but simply recommends maintenance of good to excellent range conditions in grazed key areas.
MR-79	R. Maes, USFS	Overall, the document should be reevaluated in light of the recent Wallow, Las Conchas, and other fires because this document was seemingly written on the premise that MSO habitat can be preserved through treatments around PACs (see IV. RECOVERY PROGRAM, sect. 3.2, Appendix D, sect. 1. Fire Management, A. Guidelines). Wildland fire is clearly a crucial functional component of the landscape in the Southwest, but fire cannot function in its historic role until historic forest conditions are replicated through restoration treatments.	We apologize that we were not clear, but our emphasis is in the direction you advocate. We clarified the plan's intent in the appropriate sections.
MR-80	R. Maes, USFS	Historic fire did not stop at arbitrary 600-acre polygons and preventing fire from entering that or a 100-acre core area is problematic at best. Placing a fire break around these areas is often times difficult due to topography, expensive which results in less area treated, and produces an unsafe condition for firefighters to maintain. Due to the varying views of forest fuels, wildland fire behavior, and forest ecology, the Recovery Team should consider additional information from experts in these fields and incorporate that knowledge in deriving management guidelines for forest treatments.	We are confident of the expertise of our fire ecologist on the recovery team. In addition we have sought advice and expertise from scientists at the USFS RMRS Fire lab in Missoula Montana. Based on this input, our intent is not to place a fire break around PACs but to provide managers with the tools needed to restore natural fire regimes to these forests.
MR-81	R. Maes, USFS	Additionally, the assumption that treatment areas will protect core areas is questionable, unfortunately. There are no guarantees with fire and treated areas that PACs will still burn; hopefully with less intensity and mimicking historic fire behavior. Assuming the conditions that promote severe fire behavior are present, untreated areas adjacent to treated areas will be vulnerable to high severity fire. Fire in the forests of the Southwest is and should be regarded as inevitable. The choice is at what intensity and severities are they to burn.	See response to comment MR-80.
MR-82	R. Maes, USFS	Fire and fuels management is a critical focus for USFS forest management in R3, but can we reframe the discussion to be more inclusive of the current agency emphasis, and not so focused on fire risk reduction? We have moved beyond management focused primarily on fuels and risk reduction to an emphasis on "forest ecosystem restoration." That is managing for desired forest structure, species composition and ecosystem function. Yes, fire risk and fuels reduction are a key and crucial component, but this new emphasis moves beyond the WUI to focus on managing large forest landscapes, to improve biodiversity, and restore ecosystem functions to increase resiliency and sustainability.	We support this change in emphasis and concur with your comment.
MR-83	R. Maes, USFS	For example, the 60% canopy cover recommendation does not clarify whether canopy cover is measured in the desired openings as well as tree groups or whether it is measured only under trees. While measuring a tree metric in a tree-less space seems ridiculous, it is an ongoing and spirited discussion amongst Four Forest Restoration Initiative stakeholders. Let the guiding document provide guidance and the results won't depend on the individuals conducting the consultation or designing the project.	Based upon what we know of existing nesting and roosting owl sites, canopy cover is an important measure of whether owls are currently using an area for these activities. We describe the science behind our justification in using this as a descriptor of desired habitat, but we do not recommend how it should be measured.

No.	Signator, Affiliation	Management Recommendations (MR) Comment	Response
MR-84	R. Maes, USFS	Our overarching comment in regards to range management is that the Recovery Plan fails to acknowledge the fact that, with exception of a limited number of grazing allotments, Forests throughout the Southwestern Region have completed site-specific NEPA for the authorization of domestic livestock grazing. In the course of completing this work, National Forests have completed section 7 consultations with FWS on the MSO and other T&E species as part of the NEPA and grazing authorization process.	In section II.H.2 we note the Forest Service and FWS have consulted programatically on a number of issues, including grazing.
MR-85	R. Maes, USFS	Throughout the document the tone regarding domestic livestock grazing is consistently negative pointing out that grazing can adversely affect spotted owls...The draft recovery plan goes on to conclude these indirect effects flow from the potential direct effects of “ineffective livestock management” practices that result in long-term alterations in plant species composition, density, vigor, and vegetation structure. This is certainly not the case with grazing activities within the Southwestern Region.	We acknowledge in the threats presentation that our knowledge of grazing effects on owls is based on a collection of studies, none of which specifically address effects of grazing on owls. As a result, we base our perception of threats on inferences drawn from these studies. We welcome any published science shedding light on this issue.
MR-86	R. Maes, USFS	The recovery plan needs to reflect a more positive tone related to domestic livestock grazing by recognizing the resolution of many of the previous issues and conflicts associated with the MSO and domestic livestock grazing.	This is an interesting assertion and we have no basis for disputing or agreeing with it. Clearly, rigorous scientific experiments are needed to (1) evaluate effects of graing on spotted owls, and (2) evaluate effects of management actions on mitigating grazing effects on owls.
MR-87	R. Maes, USFS	The draft recovery plan document repeatedly lumps issues related to domestic livestock and wild ungulates having to do with management strategies oriented towards the needs of MSO habitat. This is not practical or possible, since as compared to domestic livestock, large wild ungulates know no bounds and the management of their numbers are the responsibility of the State wildlife agencies. The recovery plan needs to recognize that large numbers of wild ungulates, especially elk, may negatively impact owl foraging areas and potentially slow recovery. Therefore, separate discussions regarding domestic livestock and large wild ungulates would seem appropriate.	Given that effects of livestock and wild ungulates are cumulative and synergistic, it is hard to discouple one from the other. We recognize that management of populations and effects require different strategies, but we would rather grazing management be addressed as a holistic program than as a piecemeal agency-specific problem.
MR-88	R. Maes, USFS	Page 5, top Paragraph: Long-term future replacement nest/roost habitat to be developed over time will need to be managed at less than the 110-120 BA shown in Table C.2. for UGM on Pg.268, to maintain enough growing space for more rapidly moving small/medium diameter trees into the large (>18” dbh) size class, as well as to keep ponderosa pine and Gambel oak from being shaded out by more shade-tolerant species, and for keeping a diversity of tree species on both Pine-Oak and Mixed Conifer sites. This will be especially important on landscapes that have already lost a lot of old growth and late-seral forest.	The BA range is what we need to meet owl nest/roost habiat needs. These figures are based on published science.We recognize, however, in C.3.b that prescriptions may need to lower these BA levels temporarily to achive them in the long-term.
MR-89	R. Maes, USFS	Page 9, Box 1. Defining Owl Sites: Based on reading scenario 1 - finding 1 MSO adult one time during the day within breeding period – a PAC should be created. Is this scenario consistent with the definition in the executive summary (p. vi) that states an owl site is an area used repeatedly by a single or a pair of owls. Transient owls do stop during the day to rest even during the breeding season. Based on comments from experienced biologists, transient owls have been detected once during daytime hours and within the breeding season, but never detected thereafter. PACs have been delineated based on this scenario and years of surveys have failed to detect any owls within the PAC. Establishing an Owl Site based on this single scenario may be overly inclusive.	See response to comment MR-13.

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MR-90	R. Maes, USFS	We suggest an alternative definition of pine-oak forest: one that is based on percentage and/or basal area of oak greater than or equal to 12" diameter at root collar. By incorporating this recommendation to emphasize tree-form oaks in the definition of the pine-oak forest, the USFWS would promote management of nesting/roosting habitat in areas that actually have the potential to serve as nesting/roosting habitat, and it would open more areas for land managers to manage for general ecological restoration, MSO foraging habitat, and abatement of uncharacteristically severe, landscape-scale wildfires. On the Williams Ranger District of the Kaibab National Forest, many stands meet the definition of pine-oak forest based on the criterion of b(2)c, yet they do not have the capacity to presently serve or eventually become suitable nesting/roosting habitat for Mexican Spotted Owls (MSOs). That is, many stands contain many small oak (mostly around 5-8" diameter at root collar) but are lacking in larger oak (12" or greater), and poor soil and dry moisture conditions very likely preclude the development of these shrub-form oak into tree-form oak.	We are comfortable with the existing definition of pine-oak. Based on results from previous studies, increasing the minimum diameter limit for oak would exclude too much owl habitat. Pine-oak forests provide for more than just nest sites, but also roost and foraging habitat. Perhaps your biggest concern relates to replacement nest/roost habitat. We suggest that the Kaibab consider a larger landscape that crosses jurisdiction boundaries (e.g., Coconino) for appropriate locations of replacement nest-roost habitat.
MR-91	R. Maes, USFS	Page 27, Mixed-conifer Type: Choosing to avoid the distinction between Dry (frequent-fire) and Wet (infrequent-fire) MC is a missed opportunity to better address the correct fire ecology and habitat sustainability issue more effectively. The majority of MC PACs and MC MSO Protected/Restricted habitat that burned most severely in the Wallow fire was Dry MC, which was extremely departed from the historic natural reference conditions for this fire regime. (See original comment for much more detail/supporting arguments.)	The distinction between wet and dry mixed conifer seems artificial and not indicative of the real world. We contend that mixed-conifer forests occur along a continuum from xeric to mesic. Regardless, managers should have the flexibility within this plan to treat a particular patch of mixed-conifer forest in an ecologically appropriate manner.
MR-92	R. Maes, USFS	Pg. 35, Table 1 & Pg. 266, Table C.1: We assume the number of snags and downed logs to leave is for green forests: e.g., unburned or low-moderately burned? If so, please say so. Number of snags and downed logs greater than these should probably be left per acre by harvest operations salvaging in severely burned areas. Please check the literature for how many more per acre to leave. (See original comment for supporting information/suggestions.)	The number of snags and logs have been removed from the DCs. We assume that if the DCs are met, adequate snags and logs will be provided.
MR-93	R. Maes, USFS	Pg. 35, Table 1 & Pg. 266, Table C.1: Also as shown with current goshawk guidelines, canopy cover is very hard to measure. Measurement site selection can also skew results. Given the issues with measuring and remeasuring canopy cover that have plagued management efforts to date, can we use BA + tpa as metrics? Regardless, we suggest that canopy cover be removed from the Recovery Plan as a descriptor for desired future conditions. (See original comment for supporting information/suggestions.)	Please see response to comment MR-57.
MR-94	R. Maes, USFS	The DCs sound great individually, but are these realistic collectively? Were any silviculturists involved or modeling done to demonstrate whether the desired canopy cover, BA, dense complex forest structure, openings, and developed understory are feasible when interspersed together?	The desired conditions are based upon real data and peer-reviewed, published science. These habitat conditions are realistic and are currently being used by owls. Nest and roost sites are relatively small areas across the landscape and we are hopeful that with additional research we can begin to examine patch size. Silviculturists have been involved in the development of the original and revised Recovery Plans and we will continue to work with silviculturists on future research needs.

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MR-95	R. Maes, USFS	Pages 46 and 279, Burned Area Response: Given that large Douglas-firs are often preferred as MSO nest/roost trees, protecting all post-fire stressed large Douglas fir within PACs from DF bark beetle attack becomes especially important within the first 2 to 3+ years, if these beetles are known to exist nearby. Your recommendations/checklists of BAR work to benefit MSO habitat should specifically mention consulting Forest Entomologists about using DF beetle anti-aggregation pheromone (“MCH”) capsules stapled to trees as a beetle deterrent. This technology is quite affordable, safe for the environment, and has been used successfully for 20 years, including post-burn MSO PACs in the southwest (Rodeo-Chediski fire for example, and also planned for Wallow fire). Fire BAR funds should be rightly be used for this work. If the authors need papers and citations for this, please call/email me.	We have added a sentence to II.H. 3.a.iii and C.4.a.ii to emphasize the need to protect existing green trees.
MR-96	R. Maes, USFS	Appendix. C: Not many MSO PACs (non-core acres) have been treated to reduce fire hazard during the past 16 years of the recovery plan because they are often on steep slopes, and/or inaccessible terrain. Treating around them is also difficult when adjacent acres are also on steep slopes. Mechanical thinning treatments cannot be done because heavy equipment cannot operate in these conditions. Thinning by hand becomes very labor intensive and costly, with large amounts of fresh slash created and left on-site to be disposed of safely somehow (like burning piles without killing the PACs main canopy trees = very difficult to do. In fact, the portions of the Alpine WUI that did burn hot with high tree mortality by the Wallow Fire were those acres which had already been thinned but still had slash piles sitting there).	The revised Recovery Plan recognizes the need to protect PACs from stand-replacing fire and makes management recommendations to do so. Whether or not a given site can be treated can only be determined through site-specific analyses conducted by land-management agencies.
MR-97	R. Maes, USFS	Most managers choose to draw proposed project boundaries to avoid PACs, avoid the extra work to address them, and avoid consulting with USFWS if possible. There is no monetary incentive or benefit to treat a large number of PACs, because small trees still have a negative market value; they cost far more to cut and transport than their value brings as a raw industrial material. So no projects are proposed specifically to protect or enhance MSO PACS/nest-roost habitat. Instead, any PACS that do get treated somehow are those few included within a project that has some other purpose and need, which cannot avoid the PAC. The Four Forests Restoration initiative is focused primarily on road-accessible, gentle slopes of ponderosa pine lands that can be cut mechanically, rather than steep mixed conifer. It will mostly treat non-PAC recovery habitat. At this rate, too many more PACs will likely be damaged by severe wildfire in the near future.	We realize that some PACs cannot feasibly be treated for various reasons, but we sincerely hope that the recommendations in this revised plan will encourage pro-active treatments to reduce the vulnerability of PACs to stand-replacing fires.
MR-98	R. Maes, USFS	Page 85: Action Item #3 - We agree that much MSO habitat can be protected from fire by treating around PACs. But keeping excessive tree mortality from advancing into PACs and existing nest-roost habitat due to over-crowded stand conditions, drought, and insect/disease already present there will not be controlled by this approach. Recently visited stands that qualified as old growth in the past 20 years were found to have already declined to the point of having lost all their large/old trees to natural (non-fire) mortality already. Treating other forest and woodland types first, before doing fuels-reduction treatments in non-core PACs, will take too long to accomplish before the PACs get the attention they require sooner.	We have removed the order in which treatments should occur. Treatment priorities should be established after a careful and rigorous landscape analysis to identify treatment priorities. Treatments within PACs, however, should be designed such that we learn from them.
MR-99	R. Maes, USFS	Action Item #4 – As with the comment for Action Item #3 above, fire/fuels managers believe this may be impractical to implement and yet accomplish the intended goal of protecting replacement nest/roost habitat.	See response to comment MR-98.

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MR-100	R. Maes, USFS	Indeed, Pg. 260 states that “Managers have wide latitude in developing prescriptions that will expedite attainment of nest/roost conditions as rapidly as reasonably possible to meet recommended percentages; prescriptions may include thinning to promote growth of large trees.” Most fuels-reduction objective cuts lack that wide latitude which Table C.2 gives us for mixed conifer.	We have removed that phrase from the final plan.
MR-101	R. Maes, USFS	(Pg. 85): “Identify and map ... throughout each administrative unit.” Does this level equate to an entire Ranger District, or National Forest? In Appendix C, page 260, it states habitat should be assessed at the level of a third-order watershed for allocating percentages of area to manage for nesting/roosting. Hydrologists indicate the average size of such a watershed in the Southwestern USA encompasses about 6 to 6.5 million acres, which is bigger than some entire National Forests. Meanwhile, Pg. 261 says that “... until ecosystem assessments can document that a surplus of these stands exist at larger landscape levels (e.g., no less than the size of a USFS District).”	Owls have large home ranges. As a result, landscape analyses are required to understand their distribution and identify areas for management. Technology exists to conduct these analyses and they should be coordinated across jurisdictional boundaries. We agree that 3rd-order watersheds are a bit large and have removed this.
MR-102	R. Maes, USFS	Pg. 86): “Conduct landscape level fire behavior assessments to strategically locate and prioritize...” So we infer that your definition of a larger landscape scale is somewhere between a ranger district (or administrative unit?) and 6 million acres. PLEASE help your readers better understand what your idea of a larger landscape scale is. Possibly it varies by intended scope of the analysis?	Landscape-level fire assessments should be done at the scale needed for planning. As an example, 4-FRI is conducting the analysis over 2.4 million acres.
MR-103	R. Maes, USFS	If such a massively large scale is really your intent, then such studies should be done as one complete exercise in advance, rather than waiting for any individual fire Incident Command Team fire behavior analysis or WFDS exercise undertaken when an actual fire starts. Administrative unit level assessments of existing and potential replacement nesting/roosting habitats may need to overlap District/Forest boundaries. They also should be done in advance as one exercise, rather than piece-mealed for each smaller project-level NEPA analysis done at the Districts.	We agree.
MR-104	R. Maes, USFS	Page 250, Appendix C.: There is lots of discussion on how to treat PACs and recovery habitat (both replacement and outside replacement) to reduce risk to loss to wildlife fires. However, on pages 85 and 86 (see discussion for those pages) it is stated at least 3 times we will likely not need to treatment within owl habitat and we should 1st treat other forest and woodlands before treating most owl habitat including foraging and dispersal (which I would assume means recovery not used for nesting/roosting). It is noted several times that PACs and recovery habitat should not be hands off, but not the message based on pages 85-86.	See response to comment MR-98.
MR-105	R. Maes, USFS, USFS	This is a management plan that would lessen the probability of a crown fire coming from outside the stand and continuing in the owl habitat, but it is not a fix to protecting PACs and ensuring we have PACs for the future. With the desired conditions of nesting/roosting habitat (thick canopy, uneven aged stands, heavy fuel loadings), a fire is likely to quickly grow vertically in common weather conditions and topography often seen within a PAC. By simply treating around it, we are leaving it "unprotected". What about a start within the owl habitat? Forest condition classes typically fall within fire class 2 or 3. It is essential for managers to be pro-active and treat MSO habitat aggressively enough to have a fighting chance of protection from stand-destroying fires, even if it makes some areas slightly less than perfect (conditions) in the short term.	See response to comment MR-98.

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MR-106	R. Maes, USFS, USFS	Pg. 250, 3rd bullet: Be careful about equating large trees with mature trees. Under the right growing conditions, young trees can become large fairly quickly. I'd hope that a mix of both could work, if we want large boles and some with heartrot.	We agree.
MR-107	R. Maes, USFS	Pages 250-252, Assumptions and Guiding Principles: 3rd bullet on page 251 – “This revised Recovery Plan represents a short-term (10 year) strategy.” We have lost thousands acres of owl habitat to severe burning conditions over the last ten years with the current management direction. Without treatments for fuels reduction and aggressive action to mitigate expected burning conditions; how does this assumption “preserve options”?	The Plan calls for treatments both within and outside of PACs to reduce fire risk. We think that we have provided managers with the tools and flexibility to accomplish this goal.
MR-108	R. Maes, USFS	Page 251: Management recommendations focus on minimizing management within PACs as an interim strategy due to insufficient information. This is similar to the recommendations included in the original Recovery Plan finalized 15 years prior. Given the recent occurrences of large-scale, stand-replacing, high intensity wildfire, it would seem prudent to increase allowable treatment percentages in PACs from 20% to a greater number. Fuels treatments and ecological restoration to something similar to the historical conditions may effectively provide resilience to natural disturbance and changing conditions associated with climate change as well as provide for the needs of the owl. (See original comment for supporting argument.)	The information that USDI FWS (1995) recommended be collected so that we could assess the effects of mechanical and prescribed fire treatments on owls was not collected from 1995 to 2012. In addition, PACs comprise <5% of the forested landscape within the Southwest. Therefore, we are proceeding with recommending that 20% of the total PAC area in each EMU is treated and monitored prior to allowing additional PAC acres to be treated. This amount could mean that entire or portions of individual PACs are treated, but there is a cap of 20% on the total acres.
MR-109	R. Maes, USFS	Last paragraph (2nd point for intent of recovery habitat) - We should focus future nest/roost habitat in areas where it is likely that owls may use it for this. In the past, required percentages across cover types have led to areas being selected as target/threshold habitat where previous surveys have never revealed much owl use. Is it reasonable to expect or predict, with reasonable accuracy, future use for nesting/roosting habitat or non-use of certain areas? For example, we have never detected MSO in pine-oak habitat on the Williams RD of the Kaibab National Forest.	Managers should use their best professional judgement to designate and manage for replacement nest/roost habitat where it makes sense to do so. It may be inappropriate to designate such habitat on places like the Kaibab.
MR-110	R. Maes, USFS	In general, recommendations are difficult to tease out of background and general narrative. For example, is the 1st sentence of paragraph 2 in the PAC section a recommendation: “All PACs should contain a designated 40-ha (100 ac) nest/roost core area...”?	Yes. We have provided a cost and implementation table that specifies managements actions. In addition, we also now provide a summary table of recommendations (C.1) that should make it easier to discern them.
MR-111	R. Maes, USFS	Page 252, PACS: 1st paragraph - Throughout the document PACs are established for an area defined as an owl site. In this paragraph, it describes a PAC as areas occupied by breeding Mexican spotted owls. However, we don't believe an owl site is necessarily consistent with occupation by breeding owls. The Recovery Team is making the assumption that an area occupied by a single owl and observed during daylight hours during the breeding season qualifies as an owl site. However, based on experience by biologist within the Forest Service, this is not necessarily the case.	Defining an owl site is a balance between being overly inclusive and overly exclusive. Based on the collective years of owl research experience of scientists on the Recovery Team, we think our definition strikes a reasonable balance. Also, owls detected during the day and during the breeding season are likely roosting or nesting.

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MR-112	R. Maes, USFS	2nd paragraph - In the DFCs, the Team describes nest/roost areas as those areas used by owls for nesting and roosting and are $\geq 1$ ha or 2.5 acres. The implication here in this paragraph, as with the language in the original Recovery Plan, is that 100 acre cores should be managed as nest/roost core areas rather than in patches 2.5 acres in size and larger. However, this will likely result in even-aged stands 100 acres in size (or larger based on % treatments outside of core) in which no treatments should occur. The assumption is that these 100 acre cores are ideal in their current condition for occupation by MSO. However, these areas may be second-generation growth that is over-stocked, lacking in structural diversity, and susceptible to disturbances that may adversely affect the entire core as well as the entire PAC. Also, Box II.E.I cannot be found.	We have removed this from the table and checked/corrected references in the plan.
MR-113	R. Maes, USFS	3rd paragraph - The second sentence should also speak toward habitat enhancement. For example, some PACs are so thick with small- and medium- diameter trees that an MSO would have trouble even flying through much of the area. Thinning and/or burning can enhance such habitat and provide for ecological restoration.	We provide opportunities to treat up to 20% of the PAC area outside of cores. This should give managers an opportunity to address some of these thick stands.
MR-114	R. Maes, USFS	Further in 3rd paragraph - "Treatments should be located strategically and informed by fire behavior or modeling across the greater landscape..." (see original comment for further cited text). These studies assume fuel treatments essentially stop fire or reduce the rate of spread considerably which is not always the case in SW systems. Treatments that improve herbaceous cover could indeed increase the probability of fire spread to a PAC area in which case the PAC itself needs to be resilient to fire. It also limits the ability for the fire manager to manage fire through a PAC with low to moderate fire severity. The proposed approach for PACs is likely not sustainable in fire adapted ecosystems of the Southwest. Currently our fire models have been unable to accurately model fire behavior within stands and areas that have become so overgrown, excessive fuel loadings, and current climate conditions.	The assumptions for these treatments and studies can also be to reduce fire severity, canopy loss, and large-tree mortality, which are more realistic and relevant to southwest forest ecology and owl habitats. This is also clarified by our recommendation for landscape assessments. A landscape-level assessment should be conducted to strategically locate and prioritize prescribed and hazardous fuels treatments to best mitigate the risk of stand replacing fires and high severity fire effects to current and future spotted owl habitat elements (Table C.2 in Appendix C).
MR-115	R. Maes, USFS	Our impression so far is that management within PACs, whether mechanical or fire, will require a light touch. The Plan emphasizes the need for treatment but seems out of touch with how difficult it will be to commit the time and money necessary for these treatments. An intensive effort that will yield limited results over limited acres against a backdrop of a landscape needing treatment is a tough sell. It seems there is a feeling that this plan opens the door for needed work, but the door appears barely ajar. Can verbiage be developed that encourages heavier treatments in small diameter dog hair stands and lighter treatments where the structure is closer to the DCs or otherwise adding flexibility so that there is more opportunity to actually committing to projects in PACs?	Given that MSO habitat and designated PACs represent a small portion of the overall southwest ponderosa and mixed conifer forest ecosystems that need restoration treatments, and that at least 20 percent of PAC area within a recovery unit can be managed with restoration treatments, there are plenty of forest tracts and PACs to get started with to demonstrate restoration treatments that are consistent with MSO recovery goals.
MR-116	R. Maes, USFS	Is there a role for aspen and meadow restoration within PACs and if so, how does that fit with the intermix of other DCs (e.g., canopy cover, dense stands of large trees, etc)? If stands have a high component of large post-settlement trees, does retaining them rank over ecological restoration or can they be cut to achieve aspen and meadow restoration? The latter fits in terms of 4 Forest Restoration Initiative discussions but other FWS reps might support the former. A clearer understanding of how the pieces fit would help guide decisions.	Nothing within the plan prohibits this. However, within PACs the emphasis should be on owls. If trees are encroaching on meadows, they can be removed; however, we do not advocate the creating of meadows in PACs.

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MR-117	R. Maes, USFS	Page 253, A. Where should PACs be Established: Based on the 2nd paragraph surveys on North Kaibab Ranger District, for example, above 9000 ft (which is west of Hwy 191) are recommended. The Kaibab NF believes this is acceptable. However, the text on page 272, Box C.3 creates a bit of confusion as to whether surveys are required or not. The text in Box C.3 likely needs to be rewritten to make it clear that sufficient data exists to conclude that owls do not use high-elevation, mixed conifer forests west of Hwy 191 for nesting and roosting.	Please follow the recommendations in C.3.a.i, specifically "...surveys are not recommended for forested Mexican spotted owl habitat above 2,740 m (9,000 ft) occurring west of US Highway 191. Surveys in this region would still be required for forests below 2,740 m (9,000 ft). These areas should still be managed as Recovery Habitat (see discussion below) anticipating that owls and their habitat might shift both north and upwards in elevation as climate changes. "
MR-118	R. Maes, USFS	Page 254, Recommendation C.c., Fuelwood Harvest: eliminating fuelwood harvest as a means for managing within PACs may not be advisable. Perhaps continuing the sentence by indicating fuelwood harvest should be avoided unless it can be implemented in a manner in which it accomplishes the goal of fuels reduction without significantly affecting key habitat components within PACs.	We have revised this section to clarify that our recommendation is geared toward the harvest of key habitat variables.
MR-119	R. Maes, USFS	Page 254 C. b.: "No mechanical or prescribed fire treatments should occur within PACs during during the breeding season...." Page 254 C. e.: "Treatments should occur during the non-breeding season (1 Sep-28 Feb)...." Page 255 e.: "Mechanically treat as needed up to 20% of the non-core PAC." And "Treatments should occur during the non-breeding season." Page 255 f.: "Within all PACs, light burning of surface and low-lying fuels...." Page 255 D. b.: "Management activities should be deferred from the nest cores..." Page 255 D. c.: ". . .burn with low fire severity and intensity. . ." - We feel these statements are examples of language that will greatly reduce future mechanical and fire treatment opportunities. (See original letter for supporting arguments).	This is a recovery plan for the owl, so safeguards must be in place for the owl. The plan does not preclude treatments, but suggests when and where some treatments can be done.
MR-120	R. Maes, USFS	Page 255: Strategic Placement of Treatments - SPOTs refer to a specific type of treatment derived from a very specific type of project planning (google WWETAC website of the USFS for details). SPOTs are not appropriate for planning areas smaller than 20,000-50,000 acres, and most USFS projects are less than 20,000 acres. The SPOT concept is a strategy that is specifically targeted at reducing fire effects to key areas, and it is not a forest restoration strategy designed to develop/restore sustainable desired conditions, biodiversity, or ecosystem functions on the land. It is not a good substitute for landscape-scale forest ecosystem restoration.	We are using SPOTs (strategic placement of treatments) in a generic sense and not in reference to a specific program.
MR-121	R. Maes, USFS	Area Limitations – How was it determined that 20% treatment is effective at protecting MSO PACs? Is this percentage sufficient to protect PACs? If you factor in predicted changes associated with climate change, is this sufficient to protect PACs? In general, the 20% treatment limit seems arbitrary. Perhaps the Team could exclude any maximum-percentage recommendation and instead note that land managers should coordinate with the USFWS in designing any treatments within PACs.	20% is based on a number of papers that demonstrate that is the percentage on the landscape to be treated to modify fire behavior.
MR-122	R. Maes, USFS	Also, this discussion would indicate that the landscape level analysis be at the EMU level... which is difficult to undertake....	Given GIS technology and data layers, we are confident that these analyses are possible.
MR-123	R. Maes, USFS	Furthermore, what is time frame? Over the next 10 years only 20%? When does this 20% acreage start, some forests have already treated in PACs.	We start with a clean slate. No particular timeframe.

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MR-124	R. Maes, USFS	Under what conditions, i.e., what if owl occupancy is not affected by treatment?	If owl occupancy is unaffected by treatments, it might provide an opportunity to consider relaxing some restrictions on types and extent of treatments done.
MR-125	R. Maes, USFS	Who will determine how much acreage is within PACs outside of core areas? And then who is going to track how many acres has been treated in the EMU to determine when we are at the 20% of non-core PAC area. Since PACs are across several federal agencies, state lands, tribal and private lands, this could be hard to track.	Tracking and coordination will be done through the working teams and FWS.
MR-126	R. Maes, USFS	Using “mechanical” treatments is mentioned twice for within PACs. Please define your idea of mechanical treatments. To most modern Foresters, this means using heavy equipment to cut and move trees. That is not physically possible on steep, rocky, canyon slopes, and unroaded locations, where many PACs are located. (See original comment for supporting arguments).	Mechanical treatments refer to tree removal. We recognize that constraints exist as to where they can be applied.
MR-127	R. Maes, USFS	Type of Treatments – We suggest moving this before the Area Limitation discussion. The flow is not very good. The document goes from core areas to restriction on areas treated by mechanically treat to treating areas outside the core area with both mechanically and burning. Is this part of the above 20%? If not then what is the difference in treatment type from the area limitation section?	We have re-ordered and restructured this section so the flow is more in line with what you suggest.
MR-128	R. Maes, USFS	Page 255, Recommendation 3.C.f.: It is unclear why C.f. was included. This seems to be covered in Section 3.C.g. Types of Treatments.	We addressed this by editing the text in Appendix C.3.
MR-129	R. Maes, USFS	The statement that within all PACs, light burning of surface and low lying fuels may be allowed following careful review...This conflicts with the direction on page 280- Area limitations which limits burning to 20% of PAC or PACs within EMU (or does it?).	We have clarified this in Appendix C.3.
MR-130	R. Maes, USFS	Pages 255-256, Activities Allowed in PACs: It is not clear if hand or mechanical treatments are allowed in core areas. While it is obvious that a greater amount of flexibility has been included in the updated plan, we worry that land managers will still be restricted from treating the core through mechanical means. We understand that strategically treating areas surrounding and adjacent to PACs can help protect them from high-severity, high-intensity wildfires under some circumstances, but this likely will not protect a PAC that is composed of densely stocked pine-oak or dry mixed conifer forest from a localized lightning-caused fire or other fires that originated outside of the PAC but burning out of control due to environmental conditions. Being unable to remove some trees in the core of a PAC makes it a sitting duck for these types of fires, even if they are very rare events. The PAC core represents the preferred nesting and roosting habitat for a given pair of owls, so providing flexibility to treat these areas mechanically, even if only in limited ways on a case-by-case basis, is a very important tool towards recovery of the species. Some minor thinning could be used as a tool to improve the health of stands in the core.	No mechanical treatments are permitted in core areas. Deviation from this must be done in consultation with FWS.
MR-131	R. Maes, USFS	Page 255, Recommendation 3.D.c.: The terms “planned” and “unplanned” fires are no longer used when describing fires.	Current fire policy terminology used is planned ignitions (prescribed fire) and unplanned ignitions (wildfire).
MR-132	R. Maes, USFS	Page 256, Recommendation 3.D.d: We suggest removing from the list of restricted activities the action of removing hazardous trees. These trees have been identified because they pose a safety risk to employees and/or the public. We see this as a pressing reason otherwise they would not be labeled as a hazard in need of emergency action.	The removal of some hazard trees may be an emergency and therefore could be handled under emergency consultation.

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MR-133	R. Maes, USFS	Page 256, Recommendation E: Salvage logging is sometimes utilized in areas where safety is a concern, for example, along road right-of-ways, trails, campgrounds, etc. Recommending that this tool be avoided under all circumstances within PACs except for ecological restoration is not advisable. We suggest the Team consider other sources of information in the discussion related to salvage logging, e.g., Brown, Reinhardt, and Kramer 2003; Franklin and Agee 2003; Savage and Mast 2005; and Monsanto an Agee 2008.	We modified the text to respond to safety concerns. When safety is concern, emergency actions are typically conducted to deal with the situation. If these actions may affect listed species, then emergency section 7 consultation may be necessary to deal with the situation as soon as possible. This section is describing the general application of salvage logging in PACs and not specific situations.
MR-134	R. Maes, USFS	The logic of protecting PACs in the manner described in this document seems flawed especially in light of the effects of recent fires such as the Las Conchas, Wallow, Horseshoe, Monument, and other wildfires of 2011. The concept of leaving pockets of untreated habitat surrounded by treated areas sounds well and good, but assumes that fire will either be stopped by the treated area or that managers will have the resources to stop the fire in treated areas prior to reaching the fuel-laden protected pockets.	See response to comment MR-119.
MR-135	R. Maes, USFS	However, the Forest Service is concerned with the inclusion of pine-oak habitats on flat ground, such as those on the Williams Ranger District of the Kaibab NF will not currently nor in the future provide the necessary habitat components necessary for occupation by breeding owls. In addition, these areas historically were very open and likely did not provide the microhabitat required by the owl. We would like the Recovery Team to consider an approach or process for removing pine-oak from Recovery Habitat if it is determined to lack key characteristics of Mexican spotted owl habitat.	These pine-oak forests may provide resources for other aspects of the owl life history such as foraging, dispersal, and wintering. Managers should use their best professional judgement to designate and manage for replacement nest/roost habitat where it makes sense to do so.
MR-136	R. Maes, USFS	Page 259, a. Reference Conditions: At what spatial scale? For example do we have information on nesting sites proximity to openings? Nest/roost patch size, distribution, and frequency within core, PAC, and replacement habitat in recovery habitat.	We do not have this information.
MR-137	R. Maes, USFS	Page 260, Recommendation 4.A. c., "Guidelines for Forested Recovery Habitat Managed as Replacement Nest/Roost Habitat": This section should include "Emphasize Large Oaks" as in the next section (4.A.d.) Many of these large old oak developed under much more open pre-settlement conditions that had much lower densities of pine. The problem is that due to current heavy competition with dense overtopping pine that we are in danger of losing these large trees over time. The longevity and size of these trees is negatively affected by this heavy competition and we have recently seen many of these large oaks dying without replacement. The dense overstory of pine also limits the ability of younger oak to develop into large oak in the future. There could be a conflict in retaining large oaks and also retaining all trees >18" (retaining large tree p. 261). It may be necessary to remove some 18" trees if there is a compelling management reason. There may also be a conflict with the 18" diameter cap requirement and the stated desire to "manage for species diversity, inc. early seral species...and to allow for variation in existing stand structure."	We revised these sections to clarify oak protection. Many management reasons exist for following these recommendations, and are best known by local land managers.

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MR-138	R. Maes, USFS	Page 260 c.: "Treatments are allowed. . .as long as stand conditions remain at or above the values given in Table C.2" and similar statements throughout this section are not consistent with Page 261 c., which states, "This does not preclude use of treatments to reduce fire risks. . .as long as. . .Table C.2" The stand conditions in Table C.2 are not desirable from a sustainability standpoint. And they are not consistent with the historic range of variability. To treat to this level is not worthy of investment as the target end state (Table C.2) is simply not sustainable or desired. In order for a fuels treatment to be effective, it must decrease tree densities to a level in which crown fire cannot be perpetuated. There is significant evidence that 110 BA is too high in pine/oak (Fiedler et al. 1998, Guillermo et al. 2002, Brewer et al 2007). Because Table C.2 refers to additional "Recovery Habitat" this area is vulnerable to initiating crown fire into the PAC. Therefore density should be closer to the historic range (pine/oak) in order to effectively keep crown fire outside of the PAC.	This is based on data we have that describes owl nest/roost site characteristics. The analysis was done by a Forest Service silviculturist using Forest Service data. Recall that these recommendations are for owl replacement habitat as the primary objective. If there are better data to inform owl habitat needs, please provide them.
MR-139	R. Maes, USFS	Page 261, Strive for Saptial Heterogeneity and Manage for Species Diversity sections: Over time this could require the removal of trees greater than 18"....	We agree.
MR-140	R. Maes, USFS	Page 262, Recommendation 4.A.d., Retain Large Trees: In the context of managing landscapes for composition and structure, it may be acceptable to remove large diameter trees. This should occur in situations where a surplus of large diameter trees is present and management for restoration is consistent with their removal. Micro-site or individual tree management may not be advisable under certain circumstances outside replacement nest/roost habitat. Also, first it says no cutting of 24" trees, then it says retain most 18" trees, then the text goes back to keeping 24" trees. Confusing, could be worded more clearly?	We have re-worded this section to clarify.
MR-141	R. Maes, USFS	Page 263, Riparian Recovery Habitat: Consider adding the definition of riparian from the definitions in the Forest Service Handbook 2509.23 between the first and second sentence in this section. That definition is: Riparian ecosystems are distinguished by the presence of free water within the common rooting depth of native perennial plants at least seasonally (10 percent of the time or more). Riparian ecosystems are normally associated with seeps, springs, streams, marshes, ponds, or lakes. They commonly comprise a mixture of water (aquatic) and land (phreatic) ecosystems.	The definition of Riparian Recovery Habitat has been clarified and cited. While we did not use the Forest Service Handbook definition, the definition we did use incorporates the same principle characteristics.
MR-142	R. Maes, USFS	Page 265: For the statement, "...silvicultural practices will favor selection over regeneration cuts," we are not sure what is meant here. Is the team indicating they favor group and individual tree selection treatments (both uneven-aged selection methods) over clear cuts and shelterwood cuts (even-aged systems)? In silvicultural terminology, selection cutting refers to the uneven-aged management cutting methods (group and individual tree selection). By definition, intermediate thinning is the "intermediate" step in an even-aged management system. The maintenance thinning that is conducted between stand establishment and stand rotation (replacement) is termed an intermediate treatment. But the recovery plan language quoted above is incorrect. Selection cutting is a regeneration method, so I assume that they are referring to a preference for uneven-aged regeneration cutting over even-aged regeneration cutting.	Done. Changed to uneven-aged and even-aged.

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MR-143	R. Maes, USFS	Use of the phrase “fuels management” may be outdated. The Forest Service in Southwestern Region has moved from a hazardous fuels reduction approach to one that emphasizes “ecological restoration” or “forest restoration” which is consistent with movement towards our desired condition? These terms better describe the work truly needed, from which just one of many benefits will be reduced fire danger.	Nomenclature can vary with time. The term "fuels-reduction" encompasses various types of vegetation management including restoration.
MR-144	R. Maes, USFS	In the table of DFCs it would help to have a column for scale for each of the desired future conditions.	We have added scale where appropriate.
MR-145	R. Maes, USFS	First Row, Nest/Roost Habitat: This condition may be helpful and practical to implement as patches >2.5 acres in size. However, guidance related to percentage distribution for this structural state across the core and PAC would be useful.	We lack the information to provide this level of detail.
MR-146	R. Maes, USFS	Second Row, Heterogeneity: The majority of the ponderosa pine forest in northern Arizona is fairly even-aged at present. In order to convert an even-aged structure to an uneven-aged structure, a certain percent of a stand must be regenerated at every cutting entry. Because ponderosa pine is a shade intolerant species, it requires a significant amount of sunlight in order to regenerate. It is ecologically impossible to maintain both “high canopy cover” across a stand and to get “patches of all ages”.	We provide no specific recommendations for other forest and woodland types, including PP forest, thus there are no owl-based reasons for concern here.
MR-147	R. Maes, USFS	Third Row, Tree Species Diversity: As the shade tolerance of a tree species increases, fire tolerance decreases. Those species that are the most shade tolerant represent the highest fire hazard. If the primary treatment emphasis is on reducing fire hazard, it would be counter-productive to retain any significant number of shade tolerant/fire intolerant tree species.	Again, the primary objective here is to manage for the owl, while striving to reduce fire risk. This necessitates retention of some amount of shade-tolerant species.
MR-148	R. Maes, USFS	Fourth Row, Diverse Composition - Over the past century, fire suppression has resulted in tremendous increases in stand densities. With increasing stand densities/canopy covers, understory productivity and diversity has decreased significantly. Average percent canopy cover must be reduced to well below 60% in order to increase understory productivity and diversity.	We base the percentages for canopy cover on published research on habitat relationships for the Mexican spotted owl (these references are provided in the table).
MR-149	R. Maes, USFS	Sixth Row, Openings - If average canopy cover of 60% includes openings, it would be difficult to create 1-2-acre openings across a stand while also maintaining at least 60% canopy cover averaged across an entire stand (including openings and tree patches). However, if the average percent canopy cover includes only tree patches, then enough openings of significant size could be put in a stand to get sufficient ponderosa pine regeneration to begin conversion to an uneven-aged structure and to ensure the sustainability of that structure while still maintaining higher percent canopy covers within tree patches. Additionally, the DFC does not specify what percent of a stand is to be in openings.	See response to comment MR-148. The goal within PACs is to manage for the spotted owl and not necessarily pine regeneration. The DC does not specify the % of stand to be in opening because we have no data to support it.
MR-150	R. Maes, USFS	Ninth Row, Canopy Cover - Do you expect this “Average canopy cover of 60%” to occur there in all seasons? Or just during the nesting/roosting season? Is it during the summer when oaks and aspen are in full leaf, in addition to coniferous canopy? Or should it be provided year-round by conifers? What about Riparian Forests which have few leaves providing canopy cover in the winter? Some timing clarification for various forest types would be helpful.	See response to comment MR-148. These data were collected during the summer when deciduous trees were leafed oak, so they include oak, etc.

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MR-151	R. Maes, USFS	The statement “average canopy cover of 60%” does not specify at what scale this average is calculated. Is this an average across an entire stand, including openings? Or is this average only across tree patches? If this “average” includes openings created for the purpose of ponderosa pine regeneration, then it would be ecologically and mathematically impossible to create enough openings of sufficient size to develop an uneven-aged forest structure and to increase vertical diversity, while maintaining an average of 60% canopy cover across an entire stand. We recommend removing all management recommendations and desired future conditions for canopy cover. Perhaps a surrogate that captures canopy cover indirectly would be more effective than using a condition that is difficult to measure and rarely measured.	See response to comment MR-148. The average includes openings. We spent considerable time working with Regis Cassidy, the Regional Silviculturist and RT member, to find a surrogate for canopy cover. We failed to find one that predicted canopy cover with consistent accuracy.
MR-152	R. Maes, USFS	Tenth Row, Diversity of Seral Stages: In some areas, it would not be necessary to cut trees over 18 inches dbh to meet DFCs such as creating openings for a diversity of seral stages, increasing vertical diversity, and developing an uneven-aged structure. However, in many areas, it would be impossible to create openings of 1 – 2 acres in size without cutting trees greater than 18 inches dbh. Furthermore, in stands that contain an abundance of trees greater than 18 inches dbh, retaining all trees 18”+ dbh would necessitate the removal of all trees less than 18” dbh to reduce fire hazard, reduce canopy cover to 60%, and increase understory productivity and diversity. By removing all trees less than 18” dbh, this creates a more even-aged forest structure. This conflicts with DFCs for increasing vertical heterogeneity.	1. We recognize that in some cases outside of PACs, removal of trees >18" may be needed. 2. We have never advocated removing all trees <18". 3. We have revised the table to clarify our intent.
MR-153	R. Maes, USFS	Recommendations and General Comments for Table C.1: 1. Use basal area rather than percent canopy cover to describe desired conditions.	Canopy cover is a strong correlate of owl habitat. If we can document a strong relationship between canopy cover and basal area, we can use basal area as a surrogate. To our knowledge, this strong relationship has not been documented.
MR-154	R. Maes, USFS	<u>Recommendations and General Comments for Table C.1:</u> 2. Describe DFCs for basal areas in terms of a range, rather than one number. Basal areas of 100 ft <sup>2</sup> per acre and greater result in a closed canopy. A range of desirable basal areas within patches of trees of 50 – 150 ft <sup>2</sup> per acre would result in over half of patches with closed canopies and meet DFCs.	We consulted available data and found that trees >16" comprised >50% of the stand BA and that is our current recommendation. This allows for a diversity of size classes.
MR-155	R. Maes, USFS	<u>Recommendations and General Comments for Table C.1:</u> 3. Specify that the average basal area does not include openings created for the purposes of pine regeneration and is only to be measured within tree patches.	Our objective is not to regenerate pine, so we are unclear of what the issue is here.
MR-156	R. Maes, USFS	<u>Recommendations and General Comments for Table C.1:</u> 4. Define what percent of a stand’s total acreage is to be in openings for pine regeneration, preferably using a range such as 5% - 20%.	See response to comment MR-155.
MR-157	R. Maes, USFS	<u>Recommendations and General Comments for Table C.1:</u> 5. Emphasize retaining more fire tolerant species in treated areas.	See response to comment MR-147.
MR-158	R. Maes, USFS	<u>Recommendations and General Comments for Table C.1:</u> 6. Clarify management reasons for why the removal of trees 18”+ dbh would be desirable, such as in the creation of openings for regeneration or to reduce average canopy cover to 60%. Or increase the recommended diameter to 24” dbh across the board.	There are numerous reasons why a manager may need to remove trees >18"; we rely on local land managers to articulate those to FWS.

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MR-159	R. Maes, USFS	<u>Recommendations and General Comments for Table C.1:</u> 7. While individual DFCs are listed, it isn't clear what the overall DCs are for PACs and recovery habitat. A diagram or diagrams could help with visualization of the DCs.	This table is targeted to PACs and nest-roost replacement habitat and should be able to stand on its own without a diagram.
MR-160	R. Maes, USFS	<u>Recommendations and General Comments for Table C.1:</u> 8. It's not clear what the difference in DFCs are (if any) among PAC and "recovery habitat not managed as replacement nest/roost habitat.	This table is targeted to nest-roost replacement habitat and should be able to stand on its own.
MR-161	R. Maes, USFS	<u>Recommendations and General Comments for Table C.1:</u> 9. Delete canopy cover from the DFCs and attempt to capture indirectly in patches through basal area or some other surrogate.	See response to comment MR-153.
MR-162	R. Maes, USFS	<u>Recommendations and General Comments for Table C.1:</u> 10. What are "healthy levels of residual biomass" of the herbaceous component? Do these DFCs include all of the riparian forest types? For example, montane willow riparian conditions can be quite different than cottonwood willow riparian.	This has been deleted.
MR-163	R. Maes, USFS	Page 268. Table C.2.: Does Table C.1 apply to these sites also? When a site is not meeting certain conditions in this table can we reduce some conditions below minimums in order to more quickly meet all conditions?	Yes. And see text for situations for where stand conditions can be lowered below these levels.
MR-164	R. Maes, USFS	Mixed-conifer forests should be broken up into dry and wet mixed-conifer. The requirements in the document seem to be more appropriate for wet mixed-conifer. We should not treat all mixed conifer across the landscape as if it is the same. There is a distinct difference between mixed conifer in wetter and cooler sites and mixed conifer on warmer and drier sites.	Mixed-conifer forests occur along a continuum from xeric to mesic. We know of no ecological justification to arbitrarily divide them into two distinct types. We expect that local land managers understand the key ecological variations along this continuum and will adjust management goals and actions accordingly.
MR-165	R. Maes, USFS	See discussion for page 259 on basal area. The way this is written, you can have dense patches of small trees with some large trees as overstory and meet these basal areas. Is this providing suitable habitat for the owl.	Table C2 notes that a certain amount of the basal area must be provided by large trees and we provide a minimum number of large trees/ha. If these are followed, your concern should be addressed.
MR-166	R. Maes, USFS	It will be extremely difficult to maintain a shade-intolerant species (Gambel oak) in pine/oak habitat at 110 square feet of BA over time. This requirement will result in the degradation/loss of this primary habitat element.	See response to comment MR-147.
MR-167	R. Maes, USFS	It will be extremely difficult to maintain early seral species in dry mixed conifer forests at 120 square feet of BA over time. This requirement will result in the degradation/loss of early seral species.	Again, the primary objective here is to manage for the owl, while striving to reduce fire risk. This may necessit
MR-168	R. Maes, USFS	Perhaps it would be best to present the desired conditions as ranges rather than minimum requirements. The ranges could surround the minimum requirements presented and allow flexibility when managing sites that will eventually become replacement nest/roost habitat.	See response to comment MR-147.
MR-169	R. Maes, USFS	A. - The minimum BA densities will not be conducive for growing big trees really fast where they are currently in deficit across large areas. Small openings in your Desired Conditions might provide a few trees enough growing room to become big faster, but likely not the 12 big trees per acre desired.	See response to comment MR-147.
MR-170	R. Maes, USFS	B. – These minimum BAs will still make it hard to retain and regenerate seral species that need more sunlight (and are more fire-resilient) as an important part of the tree and vegetation species mix. Again, only the small openings might meet this silvicultural requirement for those species.	See response to comment MR-147.

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MR-171	R. Maes, USFS	Include a footnote for pine-oak that defines the type as it relates to recovery habitat, particularly the basal area requirement for oak. Many folks may look directly at the table and include "pine-oak" areas that are not, nor will they ever be, MSO recovery habitat.	We added this footnote to Table C.3.
MR-172	R. Maes, USFS	Page 271, Defining Owl Sites: It appears that the Team recommends establishing a PAC if you hear a single owl in the same general area on two separate nights separated by a week. Some biologists have found sub-adults on many occasions in the same general area for an entire breeding season, then nothing there for years after. A PAC may be established in this area making treatments unlikely although the treatments may move the area toward the desired condition more rapidly. Some biologists believe the methods for defining sites are too inclusive and would rather attempt to confirm nesting before a PAC is established. It is much too difficult to deal with removing a PAC after establishment and may delay treatments that are beneficial for recovery of the species.	See response to comment MR-13.
MR-173	R. Maes, USFS	Page 279, b. ES and BAR: Seasonal Restrictions – As with hazard trees, emergency stabilization projects constitute emergencies and need to be completed immediately. There should be no seasonal restrictions on these activities. Non-emergency BAR actions could potentially wait until after the breeding season if implementation is not critical to resource and community protection and human safety.	Good clarification. Seasonal restrictions have been removed for BAER and ES but remain for BAR.
MR-174	R. Maes, USFS	Page 279, b. ES and BAR: Treatment Priorities- This section is a bit condescending and offensive to staff working to rehabilitate burned areas. We suggest that it be reworded or eliminated. BAER activities are implemented to stabilize soils where needed and enhance recovery of ecosystems. Seeding recommendations, however, are noted for minimizing or eliminating the potential for introduction of exotic species.	The cautionary note on introduction of exotic species and seeding concerns is based on applied peer-reviewed research that assessed BAER treatments across the Southwest Region and beyond over the last decade (Peppin et al. 2010a, 2010b; Dodson et al. 2010; Stella et al. in press). These and other related research studies have had very similar findings and management implications. The alternative BAER/ES treatments that are recommended have reduced risk of exotic species introduction. The statement regarding seeding is based on recent peer-reviewed science that evaluated multiple studies, including ones specific to the Southwest Region. This has not only been recommended by a couple studies but a documented trend in the emerging scientific literature and disseminated as an area of concern by the scientific community.
MR-175	R. Maes, USFS	Page 279- 280, Prescribed Fire, HF treatment and WUI: A PAC has to be a minimum of 600 acres. The document states that strategic placement of fuels treatments be done downslope from PACs to protect them. That is a management plan that would lessen the probability of a crown fire coming from outside the stand and continuing in the PAC, but it is not a fix to protecting (and ensuring) we have PACs for the future. With the desired conditions of a PAC (thick canopy, uneven aged stands, heavy fuel loadings), a fire is likely to quickly grow vertically in common weather conditions and topography often seen within a PAC. By simply treating around it, we are leaving it "unprotected". What about a start within the PAC? (See original comment for supporting argument).	We have revised the hierarchical order for treatments and offer opportunities within PACs.

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MR-176	R. Maes, USFS	Area Limitations – on page 85 the plan discusses treating PACs last; Box C.1 indicates that about 80% of the land is available for treatment outside of protected and recovery habitat; and Treatment Priorities below also emphasizes treating all other forested and woodland types first. The Area of Limitation seems to include treatment only in areas outside of owl protected and recovery habitat once you factor in cost and ability to implement restoration on all other areas. The ability to implement this recovery plan within the 10 year time frame and protect and recover the species from the most significant threat (wildfire) seems impractical.	We have revised the hierarchical order for treatments and offer opportunities within PACs. We are hopeful that can-do agencies such as the FS will do their best to implement actions to recover the spotted owl.
MR-177	R. Maes, USFS	The statement treat as needed up to 20% of the non-core PAC area within an EMU identified through landscape-level assessment is not clear enough direction. This was confusing in the original recovery plan and this draft does not clarify the intent. How should this be tracked? Is this 20% of each individual PAC or 20% of the PACs within an EMU? Why 20%? What if your landscape-level assessment identifies a need for a larger percentage of PACs to be treated? Over the past 10+ years the Forest Service has completed planning for mechanical/burning treatments in PACs and managed unplanned ignitions in PACs without a landscape-level assessment. Are these PACs included in the 20%? If so, can you identify how many PACs have been proposed for treatment or treated within each EMU?	FWS will track the 20% PAC area within EMUs. The 20% is based on published science indicating the amount of the landscape to be treated to modify fire behavior. The 20% starts anew.
MR-178	R. Maes, USFS	Types of treatments – wildfires under the right conditions can also reduce threats.	We agree and hope that the plan reflects this adequately.
MR-179	R. Maes, USFS	Treatment Priorities – interpretation of this guideline during consultation with FWS will likely place PAC and Recovery Habitats off limits to treatment.	See response to comment MR-175.
MR-180	R. Maes, USFS	Some in the Forest Service believe this approach is not sound from a fire management standpoint. To leave the core area untreated ensures it remains the most volatile and most subject to future loss. This also raises the point that PACs upwind of WUI will remain a threat to these WUI values and ensures that these areas remain in this dangerous state. We view this as a very undesirable impact of “preservation/hands off” strategy.	This is not a fire-management plan but a Mexican spotted owl Recovery Plan. Further, we do not advocate hands-off within cores, but advocate the use of low-intensity fire within cores.
MR-181	R. Maes, USFS	Areas within the MSO PAC should be treated along with the areas surrounding the habitat, especially in areas where mechanical treatment cannot be used to reduce tree densities.	See response to comment MR-175.
MR-182	R. Maes, USFS	The following language is not helpful for ecological restoration and maintenance, or for the protection of existing nesting/roosting habitat, and it seems to tout a hands-off approach: “Emphasize treatments in other forest and woodland types over those of PACs and recovery habitats to the extent practicable. Treatments in these areas might buffer owl habitat as well as provide fire risk reduction to WUI communities. Where appropriate, areas surrounding PACs could be treated with higher prescribed fire and mechanical treatment intensities to better achieve management objectives (e.g., reduction of hazardous fuels and potential for stand-replacing fires, enhancement of landscape, and forest structural diversity).” (See original comment for supporting argument).	See response to comment MR-175.
MR-183	R. Maes, USFS	In addition, we recommend recognizing the different fire regimes and species composition between Dry and Wet Mixed Conifer (MC). Dry MC should be restored to the appropriate species and frequent, low-intensity fire regime. Wet MC naturally belongs in a longer frequency and mixed-severity fire regime, which has species that cannot be treated or managed the same way as the Dry MC. This distinction is critical to types and placement of treatments.	See response to comment MR-164.

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MR-184	R. Maes, USFS	Pages 281-282, Appendix D, section 3. Grazing: Once again this section categorizes grazing in general as being something adverse to the MSO; this is simply not correct. The opening sentence need to be changed to read ‘...if not properly managed, grazing can adversely affect owls primarily through...’ The next sentence uses the phrase “ineffective livestock management’; again, this sentence needs to be changed by replacing the phrase “ineffective livestock management” with the phrase “improper grazing management.”	We have taken this language out of this section.
MR-185	R. Maes, USFS	Paragraph 2 of this section (page 282) uses the term “good to excellent” range condition. We request that the term “range condition” and related descriptors such as “good and excellent” not be used since for the most part these terms are descriptors of the quality of forage for livestock grazing rather than ecological status. In this context we request the wording of this section be changed to read: “Management utilizing appropriate levels of grazing intensity should be designed to provide sufficient residual vegetation to achieve the desired condition for MSO habitat including moderate to high similarity...within grazed areas.” Please avoid the use of the term “range condition” throughout the MSO recovery plan in favor of the terms “desired conditions” and “ecological status.”	This paragraph (setion C.4.c) now reads "Appropriate grazing management should be designed to provide a target level of residual vegetation that would attain or sustain moderate to high similarity to potential natural vegetation, or otherwise favorable habitat characteristics for the spotted owl and its prey."
MR-186	R. Maes, USFS	Page 282, 2nd paragraph: Please add selective removal of water troughs and salt blocks as another means to control grazing upon hardwood trees, including aspen.	We provide latitude in grazing recommendations for "other grazing management strategies" and these seem like some good ones.
MR-187	R. Maes, USFS	Page 283, top paragraph: Please add aspen along with each mention of riparian species as an over-browsing issue.	Overgrazing is an issue for aspen, but aspen is not recognized as an important type for owls.
MR-188	R. Maes, USFS	Page 284, 1st bullet: Please add “critical aspen regeneration areas” along with riparian areas in this text. Also add to ... use of exclusion fencing “or other effective methods” to improve ... 4th bullet – Add “...riparian and aspen vegetation...” to this one also.	See response to comment MR-188.
MR-189	R. Maes, USFS	Page 287, Recreation Disturbance, Section A.b.: Did you intend for disturbance to be defined as the presence of < 1 person and not > 1 person? If a disturbance could be a large group of people (presence of >1 person) then this guideline indicates that 48 groups (any size if they are considered a group) during a 24 hour time period would be allowed within a PAC if the nest is not known. The same number would be allowed outside of the line of site of a nest/roost if the nest is not known.	This has been clarified in the text.
MR-190	R. Maes, USFS	Page 288, Recreation Disturbance, Section A.d.: It is not clear if limiting group sizes to 12 persons or less within PACs from March 1 to August 31 is a recommendation. If it is not intended to be this general statement is confusing. Please clarify.	This has been clarified in the text.
MR-191	R. Maes, USFS	Page 290, Mitigation Strategies – Climate Change: The recommendation to reduce the density of small trees to provide resilience during predicted climate change likely will not happen within the 10 year time period for this Recovery Plan. The recommendations related to strategic placement of treatments, treatment priority (non-owl habitat, then recovery habitat, then PACs), followed by area limitations place the removal of small trees within PACs out into the distant future. In addition, this type of thinning moves PACs toward even-aged stands and is inconsistent with the desired conditions recommended within this revised Recovery Plan.	It is true that the recommended mitigation strategies will not likely result in the changes we would like to see in a 10-year period. However, since it is imperative to meet many resource and safety objectives across the Southwest to improve forest resiliency, we expect that within 10 years efforts will be made to improve forest resiliency. We have edited the text to remove the prioritization language from the discussion.

No.	Signator, Affiliation	Management Recommendations (MR) Comment	Response
MR-192	R. Maes, USFS	Page 293-316, Survey Protocol: Some feel uncomfortable with the requirement of skipping a call station or area of survey if a predator is detected, then have to come back to complete the survey. This makes things VERY difficult and you may not be able to complete a survey. Where it is difficult is if you are doing a cross country continuous calling survey and 2 miles into a 4 mile route you pick up a great horned owl, you'd have to go at least 0.5 mile to get out of hearing and continue calling your route. Then you'd have to go back to the section you missed and call again hoping you don't pick up the great horned again on either the same night or different night. What if the great horned is nesting in the area? You may hear it every time out and you'd never complete a survey. If it is an easily accessible point or something, then that may not be too bad, but would much rather wait a while to see if the predator leaves the area before calling again. Or, just do a passive listening for a longer period of time with minimal calling, if anything.	These situations are all adressed in the survey protocol. There are provisions in the survey protocol for dealing with predator responses while calling for owls.
MR-193	R. Maes, USFS	Disagree with the idea of not being able to have at least a few points of up to 0.75 mile. There are some instances where you can hear into a canyon that is just over 0.5 mile and can use the 0.75 mile to still have complete coverage. It wasn't more than 5% of the survey area anyways and was very helpful when calling in big, wide canyons etc.	If there are situations on the landscape where it makes more sense to have stations located at 0.75 mile intervals, then you should do so. We recommend that the survey route notes document the rationale. The station placement guidance in the survey protocol is guidance and should not replace on-the-ground knowledge.
MR-194	R. Maes, USFS	In the leapfrog method the Recovery Plan talks about using 2 people. This is true that you need at least 2 to do this method, but for safety a minimum of 4 people is more desirable.	The survey protocol provides recommendations on the number of people that should be sufficient to complete the work. However, safety concerns should be addressed and dealt with as the individual land-management agency sees fit.
MR-195	R. Maes, USFS	There would be a change of search time in daytime follow-up from 4 person hours to 1 hour period regardless of how many people search. Perhaps it is just a minimum and more time can be spent. It likely would just depend on the quality and amount of habitat to be searched.	We have clarified this section.
MR-196	R. Maes, USFS	Mousing requirments would change for refusing a mouse from 1 hour to 30 minutes. Also, non-nesting can be determined if an owl takes 2 mice in combination of eating or caching and refuses to take a 3rd. In a bad prey base year this may not be accurate as an owl may cache a bunch of mice if they are offered. I know there are exceptions to every recommendation, but biologists have seen owls cache and eat 5 before they take a mouse to a nest or young. This does make things easier and cheaper though, not to mention logistics would be easier.	The mousing guidelines in the currently accepted protocol are based upon the best available science. There will always be exceptions when dealing with individual animals and this is where experience and knowledge of permitted surveyors is critical to getting the correct result with mousing.
MR-197	R. Maes, USFS	While it is logical that sites are scarcer at the edge of the range, the Recovery Plan should address whether connectivity is currently believed to exist or needs to be reestablished.	We don't know. The Recovery Plan recommends research into this question.
MR-198	R. Maes, USFS	Table 1, p. 35 (and Table C1, p. 266) provides a very informative discussion of desired future condition of forest and woodland cover types. Could similar DFCs and management recommendations be provided for canyon habitats? Threats are identified for Riparian Habitats (p. 54) and Water Development (p. 58) that are particularly relevant to canyon habitat.	We evaluated the Desired Conditions with respect to their relevance to forests found on canyon bottoms, and we think they they apply well to those situations.

No.	Signator, Affiliation	Management Recommendations (MR) Comment	Response
MR-199	R. Maes, USFS	Table C.2 (App. C, p. 268) describes minimum conditions for mixed-conifer and pine-oak forests. Staff on the Pike-San Isabel National Forest in Colorado previously provided comments indicating that the minimum density of large trees and minimum basal area seldom could be met in the SRM EMU. App. B, p. 174, discusses cover types in the northern portion of the range that are less heavily forested; perhaps a reference to this could be made in App. C to clarify where habitats referenced in Table C. 2 exist.	We do not have this information. They say it was provided. Have we looked?
MR-200	R. Maes, USFS	Possible future effects of climate change regarding potential northward migration of the species are mentioned on p. 202, and perhaps should be brought more explicitly into recovery actions. With an expected northward shift due to climate change, it would seem that some additional focus should be placed on habitat management in the northern portion of the range.	We cannot go beyond the information we have and since the actual response of owls to climate change is unknown at this time there is little we can do other than to hypothesize what might occur. Within the current range of the owl, the recommendations to improve the sustainability and resiliency of the habitat will assist with responding to climate change within the current range of the owl.
MR-201	B. Byrd C. Hanson, WEG and EII	At pages 48---49, the Draft hypothesizes that the timber program in Region 3 is no longer a threat to the MSO because timber harvest practices have been altered by what the Recovery Plan calls the "Goshawk Management Guidelines." However, this statement is only true to the extent that the Forest Service actually implements the guidelines. Indeed, the fact that the Draft recognizes the significant risk of WUI projects is inconsistent with its finding that the Forest Service's timber program no longer poses a threat to MSOs. Along these same lines, the Draft recognizes that the goal of many WUI projects is to reduce basal area to between 30 and 60 ft2 per acre. This basal area is not adequate for owl habitat as state in the Draft (Draft at 268).	We have altered the language and emphasis. We still think that some of the more detrimental practices have been reduced, but recognize that there is potential for some types of treatments to be detrimental. We have also added a section on effects of thinning and other treatments to Appendix B.
MR-202	B. Byrd C. Hanson, WEG and EII	As with monitoring, the Draft doesn't really recommend a particular management system with respect to grazing – rather, it's written in very general "aspirational" terms. We appreciate that the Draft Recovery Plan does recommend exclusion of grazing for extended time periods as well as reducing grazing pressure, seasonal grazing and reduced numbers. We'd like to suggest another management strategy which is gaining popularity in other Forest Service and BLM regions where endangered species conflicts exist with domestic livestock grazing: voluntary grazing permit retirement. Please add this to the list of management strategies on page 284 of the Draft Recovery Plan.	We provide latitude in grazing recommendations for "other grazing management strategies" and this seems like a good one.
MR-203	B. Byrd C. Hanson, WEG and EII	One of the big mysteries in MSO biology appears to be juvenile dispersal. It seems that the best indications are that riparian habitat is extremely important dispersal habitat. Yet, the Draft Recovery Plan doesn't really get at protecting and managing dispersal habitat – this is inconsistent with the importance of maintaining connectivity between all suitable habitats. Recovery must include a genetically well--connected population.	We agree that connectivity is important, and acknowledge the role that riparian areas may have in dispersal in C.3.b.ii. But we have few data to indicate what habitat attributes should be managed for or against in the general forest landscape. We do, however, provide guidelines to maintain healthy and functional riparian systems.

No.	Signator, Affiliation	Management Recommendations (MR) Comment	Response
MR-204	B. Byrd C. Hanson, WEG and EII	<p>Moreover, the only reference that we could find to an acknowledgement of any potential threats posed to spotted owls by thinning was a brief mention, on page 189 of the Draft Plan, to Seamans and Gutierrez (2007), but the Draft Plan only states that this study “evaluated the effects of mechanical treatments on the habitat of spotted owls”, and failed to mention the findings of this study. Seamans and Gutierrez (2007) found that mechanical treatments (e.g., thinning) of as little as 20 hectares (about 50 acres) within the 400--- hectare home range core area of spotted owls reduced colonization of territories by spotted owls, and increased the probability of breeding dispersal away from territories— both substantially negative indicators for spotted owl conservation. Similarly, U.S. Forest Service researchers, in a radio---telemetry study of an area with mechanically thinned and unthinned areas, found that spotted owls selected against the mechanically thinned areas (called “Defensible Fuel Profile Zones”, or DFPZs), and the effect was highly significant statistically, at p = 0.006 (Plumas Lassen Study 2010, pages 124---125) (see <a href="http://www.fs.fed.us/psw/topics/ecosystem_processes/sierra/forest_health/plas/plas_annual_report_2010.pdf">http://www.fs.fed.us/psw/topics/ecosystem_processes/sierra/forest_health/plas/plas_annual_report_2010.pdf</a>).<sup>3</sup> Similarly, Dugger et al. (2011) (in press in Ecological Applications) found that thinning and its variants reduced the competitive advantage that spotted owls have in dense, old forest relative to the more aggressive barred owls, and exacerbated the negative effects that barred owls have on spotted owl occupancy. The failure of the MSO Draft Plan to account for and evaluate this new evidence, which is well---known to spotted owl scientists and federal land management agencies, is unacceptable, and the Draft Plan’s failure to list thinning as a threat or potential threat to the MSO is another major, fatal flaw.</p>	<p>We recognize that thinning in PACs carries risk. Unfortunately, the bdy of science with respect to the Mexican spotted owls is non-existent, and we are uncertain how results from studies on the other 2 subspecies in other forest types translate to the Mexican subspecies. We also recognize some risk involved without treating in PACs as far as stand-replacement events. We articulate these tradeoffs in Box III.1.</p>
MR-205	B. Byrd C. Hanson, WEG and EII	<p>In light of the foregoing, and the analysis on pages 4---5 of Appendix B below, the Draft Plan’s failure to list post---fire logging as a current or potential threat to the MSO, in the Threats and Threat Assessment section (pages 41---77) or Appendix D, is a serious flaw. We do not believe that any Recovery Plan, especially this one, can be successful without directly addressing the threat posed by post---fire logging and prohibiting this practice within spotted owl home ranges. This is a major flaw in the Draft Plan, one which we hope the U.S. Fish and Wildlife Service will rectify in the final version.</p>	<p>First, as we have documented in previous comments, the commenters overstate the case for documenting impacts of salvage logging on spotted owls. Their conclusion is largely based on a single study; critical examination of that study does not support their assertions on the impacts of salvage logging alone, and in a later peer reviewed paper resulting from that study, the authors made no recommendations on salvage logging. Second, our recommendations in this plan call for surveying for owls in post-fire landscapes, and recommend salvage logging only in areas away from territorial owls. This seems reasonable in the context of this plan. If owls are no longer occupying those post-fire landscapes, then prohibiting salvage logging based on owls is beyond the purview of this Plan.</p>

No.	Signator, Affiliation	Management Recommendations (MR) Comment	Response
MR-206	T. McKinnon, R. Silver, CBD	<p>Spatial analysis conducted by the Center for Biological Diversity demonstrates that that PACscomprise approximately 5.75% of forested national forest acres (about 499,114 of 8,677,242 acres) in the Southwestern Region (Table 1). Given that PACs comprise a miniscule portion of the forested landscape, high severity fire, insofar as it does or may threaten owls, primarily derives from fuel matrices that can spread crown fires from outside of to within PACs. As such, the DRP should acknowledge that fuel conditions outside of PACs form the primary fire threat to owls, insofar as such a threat does exist, and that strategically placed and timed treatments within the fuel matrix outside of and upwind of PACs can efficiently reduce the potential for crown fires to enter and move through PACs without directly impacting PACs or owls therein. ** (Table 1 shown in original letter pg. 4)</p>	<p>We believe that treatments outside of PACs, especially when located on the windward side of PACs, can provide some level of risk-reduction. However, PACs can never be completely protected from wildfire entry, so it's important that managers be able to break up crown continuity within the PACs in an attempt to prevent entire PACs from undergoing high-severity, stand-replacing fire.</p>

No.	Signator, Affiliation	Biology (B) Comment	Response
B-1	M. Raphael, PNW	Page 33, top. What is the basis for defining a core area? Cite literature or provide some data to support this 40 ha definition	We added a brief discussion of the basis for defining a core area, and cited relevant literature for the general concept and Ward and Salas 2000 for support for core area size in Mexican spotted owls.
B-2	M. Raphael, PNW	Page 39, top. I recommend including examples of rates of decline that have been observed in the studies that are cited in Appendix B. Some specific examples would be helpful in this section.	We have included mention of rates of decline as suggested.
B-3	B. Burger, AGFD	Page 197-200 of Appendix B do provide information from generally small-scale and short-term studies and present seemingly largely insignificant and inconsistent conclusions. That section ends with: "Thus, Mexican spotted owls appear to be somewhat resilient to wildfire, at least in the short term. However, we have no data on long-term effects of these fires on occupancy patterns or on components of Mexican spotted owl fitness such as survival and reproduction, and the little data available from other subspecies is not entirely consistent (Clark 2007, Bond et al. 2009)".	We agree that results are equivocal in this area. We have expanded Box B.2 in response to this and other comments, to include a fuller discussion of the studies cited and possible reasons behind conflicting results.
B-4	B. Burger, AGFD	p. 87 Collect materials for genetic analyses to evaluate if large water developments are impeding movements and gene flow. If so, consider lowering water levels to reduce barriers to movement. Is there any evidence of this anywhere? Is there thought that it might be occurring anywhere but at Lake Powell as mentioned a couple times in the plan? Do we really think Lake Powell is going to be lowered to benefit MSO gene flow?	We have removed the recommendation to lower water levels.
B-5	B. Burger, AGFD	p. 212. Estimates of adult survival were comparable to estimates derived using similar methods for northern (Anthony et al. 2006) and California (Franklin et al. 2004) spotted owls, and to estimates from radio-marked owls (Tables E.6 and E.7). Some specific numbers regarding survival values should be given in the text – even if only to indicate high variability among studies. Also the tables referenced should be B.7 and B.8 (not E6 & 7).	Two points here: 1. We fixed the table references throughout the document. 2. With respect to including estimates of survival rates in the text, we believe that including those values in the tables is sufficient.
B-6	B. Burger, AGFD	p.217. <b>b. Starvation</b> .—Starvation may be another common source of mortality (Table E.7). <i>The table intended to be referenced should apparently be B.8 – again – all such references should be checked.</i>	We fixed the table references throughout the document.
B-7	K. Brus, Army Corps of Engineers	On page 181, under D. Summary of Habitat Use, a. Reasons Underlying Habitat-Use Patterns., 2nd paragraph states as follows: "Barrows(1981) suggested that spotted owls are relatively intolerant of high temperatures and roost and nest in shady forest because they provide favorable microclimate conditions."In reviewing the citation/reference on Barrows (1981) from his paper titled "Roost Selection By Spotted Owls: An Adaptation To Heat Stress," in The Condor (83:302-309), a statement is made in the Abstract, as follows:"The owl's apparent intolerance to high temperature was, at least in part, related to their having plumage as thick as that of boreal-zone owls. Such plumage appears to be an adaption for enduring periods of winter stress. Selecting cool summer roosts may be a behavioral adaptation to compensate for the owls'observed inefficiency in dissipating body heat."It is recommended that the discussion stated in the MSO Recovery plan Draft First Revision, on page 181, referring to Barrows (1981) reference be reexamined and restated to convey more accurately what Cameron W. Barrows was surmising in from the citation/reference Barrows, 1981).	We disagree with this comment, and think that the wording in the document is consistent with the indicated reference to Barrows (1981). Therefore, no change is required here.

No.	Signator, Affiliation	Biology (B) Comment	Response
B-8	S. Temple, ESA	The level of attention to certain key details seems uneven, as revealed in several of the weaknesses described below. For example, I would have liked to see a more rigorous critical synthesis of all the accumulated knowledge about the biology and status of the owl, especially all the work that has taken place over the past 15 years. Instead, the information is presented mostly as what amounts to abstracts of published papers.	We agree with the reviewer's first comment here. In a perfect world, we would have produced a document with more even and fuller treatment of this material, and far more integration and synthesis. We believe that such a document would be extremely useful to managers and other interested parties. However, all recovery team members have other obligations in their daily jobs and essentially donate their time for recovery-planning efforts. Working under the constraints of their regular duties and other assignments, as well as the time lines involved in completing this revised recovery plan, we did the best we could. We recognize that it is more a literature review than a comprehensive synthesis, but hope that the information summarized is helpful to managers and interested readers despite its limitations. We have attempted to include all recent literature, but note that this is a moving target, and that, due to limited funding for work on Mexican spotted owls, most of the recent literature pertains to other subspecies of spotted owls. We have incorporated such information to the best of our ability, but it was never our intent to emphasize such information in this appendix.
B-9	S. Temple, ESA	I discovered in the course of this review that there were several what appear to be really important papers by lead researchers (e.g., R. Gutierrez and his students) that are currently in press or about to be submitted. Some of the information and conclusions in those papers may be important enough to warrant consideration as it seems likely that the insights they contain may influence the plan.	As noted previously, we have attempted to incorporate recent literature, and searched the internet for updated citations until the day the revised Appendix was finalized. We have cited fairly extensively an unpublished report on demography of Mexican spotted owls by R. Gutierrerez and his students. We keep in close contact with Dr. Gutierrez and include his publications once they are accepted by journals.
B-10	R. Maes, USFS	Page 169, a. Landscape Connectivity: Is the UGM unit still the most important overall? Does it/can it still provide connectivity after the 2011 Wallow Fire?	We do not necessarily consider the Upper Gila Mountains EMU to be most important, but do view it as important, due to its' large size and central location. We have no new data here to cause us to conclude otherwise. It is too early after the Wallow fire to fully understand it's effects. It certainly seems possible that it had impacts on overall amounts and distribution of owl habitat, but we suspect that connectivity across the Upper Gila Mountains EMU will be maintained despite those impacts. Therefore, we still view this EMU as important to overall stability of owl populations across the range.

No.	Signator, Affiliation	Biology (B) Comment	Response
B-11	R. Maes, USFS	<p>Page 181, section a, "Reasons Underlying Habitat-Use Patterns: Clarify the inductive reasoning that informs many of your conclusions. There are major assumptions that should be tested through experimental/adaptive restoration in PACs. Current assumptions on MSO habitat are largely based on inductive reasoning after decades of intensive timber harvesting and fire exclusion. That is, after widespread shelterwood cutting, owls mostly persisted in areas that had never been cut, and as fire suppression precluded fire from "thermally thinning" these refugia, these areas grew dense. Do owls truly need high densities of trees, or is something else that was lost due to shelterwood cutting the limiting factor (e.g., large trees or snags, basal area of large trees, basal area of large oaks in pine-oak forest)? Based on historic photographs and literature, as well as evidence, most current forests were much more open than they are now. If more open forest existed prior to Euro-American settlement, and the species adapted and evolved under pre-settlement conditions, then one could reasonably hypothesize that the species should be able to do well across a landscape that reflects pre-settlement conditions. The fact that owls do well in rocky canyon habitat with very little forest cover indicates that basal area should not be a limiting factor as much as attributes such as those that provide for thermal regulation and nesting microhabitat (e.g., large trees on cooler aspects and drainages; snags; interlocking crowns).</p>	<p>We strongly agree with the bulk of this comment. Logically, it seems likely that forest stands used by owls have changed since the advent of effective fire suppression, and likely changes include increased tree density, especially density of smaller trees, and fuel loads. It therefore follows that it should be possible to use management to move these stands more toward presettlement structure. However, there may be thresholds beyond which habitat suitability for owls is reduced, and we don't where those thresholds lie. That is why in both the original recovery plan and this revision we strongly advocate for experimentation and monitoring to see how owls respond to management treatments that alter stand characteristics. This work is essential to understand what types of treatments are compatible with reducing fire risk in owl habitat while still maintaining sufficient structural elements to retain suitability for owls. In the absence of such work, we do not know what types, extents, and intensities of management are compatible with maintaining habitat suitability for this species. Given the owls' threatened status, and our charge to devise a strategy to recover the owl and its habitat, we think it would be irresponsible for the recovery team to recommend such management without tying it to experimentation and monitoring so that we can reduce the uncertainty involved.</p>
B-12	R. Maes, USFS	<p>Page 190, top paragraph, and Box B.2: Using the fire trends just from 1996-2005 may not provide a clear trajectory for the rate at which MSO habitat may be consumed. It may be more insightful to go back further in time and also to include fires up to the current year, if feasible, to predict what may be in store for the Southwest and MSO habitat.</p>	<p>We did attempt conduct the reanalysis with a longer time period (back to 1984) and then over a larger geographic extent to minimize disparities caused by using National Forest boundaries as a blocking unit (for some National Forests this would result in proportions calculated from very small numbers of PACs). We were unable to justify using the longer time period because PACS were not established until 1995 and would likely not have been allocated to areas that had received high-severity burns prior to that year. This resulted in a bias: low to no burned habitat in the area where PACs were eventually established during the period 1984-1994. Hence, we were forced to use the original start date of 1995 for the analysis. We did add an additional 3 years out to 2008. Unfortunately, at the time of our analysis data were not available for the 2011 fire season, which was a year of many large and high-severity fires. This caveat was added and one of the new potential forecasting models approximated an exponential increase in owl habitat loss assuming rates similar to what might be lost with more large fire years like that in 2011.</p>

No.	Signator, Affiliation	Biology (B) Comment	Response
B-13	R. Maes, USFS	Page 190, top paragraph, and Box B.2: "Thus, even when allowing for a doubling in rates of high-severity fire, considerable owl habitat may escape high severity fire in the National Forests where the majority of Mexican spotted owls dwell." This concluding sentence seems to ignore the biological significance of the previous sentences. It comes across as cavalier and in defense of a hands-off approach. It seems to be stating that complete loss of MSO habitat on 5 of 11 National Forests and 40% loss on the remainder is not a big deal. The concluding sentence downplays the threat of high-severity wildfire to MSOs; contradicts other parts of the Recovery Plan that state that wildfire is the primary threat to the species; and emboldens groups intent on hands-off land management.	The analysis and section was revisited and rewritten. The results only show potential gross loss and not net loss (which would be offset by any restoration of habitat or new areas being used). The analysis also does not convey the net result on owls as in some cases spotted owls continue to use burned habitat. Thus, 40% of habitat loss in 100 years does not necessarily equate with a 40% loss in the owl population. Finally, the recommendations in the Recovery Plan don't qualify as a "hands-off" approach as the vast majority of the landscape is available for active management to reduce fire risk and we provide recommendations for forest management within owl habitat as well.
B-14	R. Maes, USFS	Page 190, top paragraph, and Box B.2: Absolute numbers (in terms of PAC area and/or # of PACs lost to high-severity wildfire) are more important than proportions (e.g., half of six PACs lost on one National Forest is not as significant as a third of 180 PACs lost on another; it takes a lot of combing through your results to extract meaning from them). Approximately 5% of known PACs were burned in the Wallow Fire in 2011 alone, many of which presumably were of high severity. We can safely assume that wildfire seasons will worsen, not improve, as climate change is leading to drier, warmer conditions and longer fire seasons. This will equate to more frequent, larger, and higher-severity wildfires.	Both proportions and absolute numbers of PACs with burned habitat from larger land areas (EMUs instead of National Forests) were presented from the re-analysis. Also, PACs are not "lost" per se, the habitat within them is modified and owl's may move or continue to use some or all of the habitat within a PAC. The new analysis includes a scenario that would be similar to the conditions described whereby fire seasons become increasingly active and result in severe effects.
B-15	R. Maes, USFS	Page 200, Appendix B, section 4Fb. Grazing: The same issues indicated above are repeated in Appendix B, section 4Fb. Grazing (page 200) with usage of the terms "intensive grazing" and "excessive grazing." In the first instance the appropriate language would probably be: "Heavy" grazing intensity by domestic livestock and wild ungulates, repeated over successive season, can create a short to moderate..." In the second instance where the term "excessive grazing is used, the wording needs to be altered to read: "...in much lower abundance where drought combines with successive seasons of heavy grazing intensity, without opportunity for plant development and recovery from grazing events.	We made both of the suggested wording changes to Appendix B. We also added additional material on impacts of wild ungulates on species composition (after Martin 2007).
B-16	R. Maes, USFS	Page 205, 2nd paragraph: Ward's (2001) suggestion to increase late-seral conditions of mixed conifer forest is probably not sustainable at large scales for very long, and certainly not in the Dry MC.	We are not making a recommendation here, or claiming that this approach is sustainable. We are merely summarizing the relevant literature in this area.
B-17	R. Maes, USFS	The map on p. 10 and discussion on p. 12 describe the Southern Rocky Mountain Ecological Management Unit extending to the Wyoming border. However, existing owl sites as shown on p. 247 and the information on page 342 shows a much more limited distribution of owls in this EMU. The plan states that further surveys would help define a more ecologically appropriate range line (p. 12). Surveys conducted over a number of years on national forests in the middle and northern portions of Colorado have consistently failed to detect owls. If additional surveys are necessary, the plan should provide some guidance on what would be required to establish the northern extent of the distribution.	The northern boundary of this EMU extends to the state line based primarily on limited evidence that owls historically occurred in northern Colorado, as well as on a recent record from Dinosaur National Monument in northwestern Colorado. If agencies have good data on extensive areas surveyed without finding owls, we recommend that they summarize that information and provide it. We have not seen such information.

No.	Signator, Affiliation	Biology (B) Comment	Response
B-18	R. Maes, USFS	There is a significant gap between owl sites in northern New Mexico and sites in central Colorado. However there is no discussion about whether there is connectivity between them, or how those Colorado sites might contribute to a metapopulation structure. The Landscape Connectivity section in App. B (p. 169) does not describe areas where connectivity is a concern, or provide a description of existing connectivity (existing or lost) in the northern extent of the range. The Metapopulation section (p. 231) indicates that the SRM EMU is a "single cluster" of discrete habitat, but fails to clarify whether or how it is connected to the rest of the metapopulation. The same lack of information exists for the few sites north of southwestern Utah.	We generally agree about the lack of information on connectivity. We have two sources of information here: spatial models of connectivity and data on genetic structuring, and we have summarized important points from both sources. Neither source necessarily answers all of the questions raised here. The genetic data suggests that the Colorado owls are not genetically isolated, but sheds little light on how gene flow occurs across the landscape. The connectivity modeling identifies some potential areas of concern with respect to connectivity, and these are mentioned in the discussion of those models. Also, note that both this comment and those analyses are based on the known distribution of owls, which may not adequately represent the true distribution. For example, the genetic data suggest a high degree of gene flow between the Colorado population and owls elsewhere in the range. This finding is difficult to explain in light of current known distribution, but could indicate that owls are both more numerous and well distributed in northern New Mexico and southern Colorado than indicated by current data. This is a geographic area that has always presented problems for the recovery team and plan, due to scarce data on distribution and ecology of Mexican spotted owls in northern New Mexico and Colorado.
B-19	R. Maes, USFS	The Distribution section on p. 7 indicates that areas of the CP EMU are rocky canyons, but says nothing about the SRM EMU. A definition of Rocky-Canyon Habitat is on p. 30; it would be helpful to get a sense of where these exist. The EMU maps on earlier pages show where owl sites exist, but much of the discussion that follows in the plan pertains to either forest or canyon habitat, which are very different. It would be useful to include a map or discussion for each EMU that distinguishes the forest vs. canyon habitat types. Table B-3 lists some study areas and indicates whether the habitat is forest or canyon, and it would be useful to elaborate on this.	First, owls in most of the Colorado Plateau EMU occur exclusively in rocky canyons, whereas owls in the Southern Rocky Mountains occur in both forests and canyons, and are not as restricted to rocky canyons. Second, the plan is intended to work and provide guidance at a range-wide scale. There are many other sources for the fine-scale data you request here (and expanded treatment of this information is included in Appendix B); and if the type of mapping analysis suggested here is desired it would be appropriately conducted by the EMU working team.
B-20	R. Maes, USFS	On page 177, only the New Mexico portion of the SRM EMU is described in the section on canyon habitats; Colorado should also be included.	We have generalized this section of Appendix B slightly to include Colorado as well as New Mexico. We do not really have much information on which to base a separate discussion of Colorado sites. The Team and the Recovery Plan have always been hampered by a dearth of information on distribution and ecology of owls in Colorado.
B-21	B. Byrd C. Hanson, WEG and EII	The radio---telemetry findings of Bond et al. (2009) and Clark (2007), discussed above, establish that moderate--- and high---intensity burned forest habitat (especially high--- intensity) that has not been subjected to post---fire logging is suitable foraging habitat for spotted owls. The Draft Plan's description of foraging habitat (page 32) completely fails to mention that this new scientific information has broadened our understanding of suitable habitat for the owl.	The section referred to here is a very brief summary of some aspects of owl ecology, and does not go into this kind of detail. Here, we simply note that owls forage in a wide variety of ecological conditions. However, we have added material documenting foraging in burned areas in response to this comment. Fuller treatment of this material is included in Appendix B.
B-22	B. Byrd C. Hanson, WEG and EII	(6) In Appendix B page 199, the Recovery Plan should clarify that sites monitored by Clark (2007) experienced substantial post---fire salvage logging, whereas sites monitored by Bond et al. (2009) had very little post---fire logging. This may explain the differences in post--- fire foraging habitat selection between the two studies, as well as explain the differences in post---fire vs. unburned survival rates in Clark (2007).	See response to comment B-21.
B-23	B. Byrd C. Hanson, WEG and EII	As in the original Recovery Plan, the Draft indulges in the core assumption that the current population level of the MSO is adequate to support a viable population of the species. But the Draft Plan recognized that the population trend remains unclear (Draft at 38) and the best evidence demonstrates that populations are declining (Draft at 40).	See response to comment R-37.

No.	Signator, Affiliation	Biology (B) Comment	Response
B-24	B. Byrd C. Hanson, WEG and EII	<p>The Draft Plan (pages vi---vii, 44---46, 278---79) states repeatedly that the primary current threat to the MSO is “stand---replacing fire”, by which the Plan apparently means patches of high---intensity fire where most or all trees are killed. However, the Draft Plan fails to provide empirical data to support its assumption that wildland fire, including patches of high---intensity fire, harms the MSO. In fact, the Draft Plan (page 45) correctly divulges that the empirical studies that have actually researched this question have found that mixed--- intensity fire, which includes patches of high---intensity fire, does not appear to harm spotted owls and actually creates suitable foraging habitat for spotted owls, stating that the existing studies show that large fires with substantial proportions of high---intensity fire effects: a) do not appear to adversely affect survival, reproduction, site fidelity, or mate fidelity; and b) spotted owls preferentially select high---intensity fire areas (that have not been subjected to post---fire logging) for foraging. The Draft Plan also acknowledges (pages 191---192) that the overall current rate of high---intensity fire in MSO PACs is only 3.7% of total PAC area per decade, or a rotation interval of about 270 years, and that, even if the high---intensity fire rate doubled, high---intensity fire occurrence if the national forests containing most of the MSO PACs would remain relatively moderate, given differences in rates of high---intensity fire in these forests. Nevertheless, the Draft Plan continues to assume, without sound scientific foundation, that high---intensity fire poses a threat, even the primary threat, to MSO conservation, and the Draft Plan misrepresents scientific data regarding fires and owls, particularly with regard to post---fire logging, as discussed below.</p>	<p>Re-analysis and discussion of that analysis, particularly in Appendix B, points out the past low rate of high-severity fire effects in PACs and the relative lack of knowledge about long-term impacts of such fire effects on the owl's vital rates and potential for recovery. Additional, but still limited and anecdotal, information was added in Appendix B about owls still using and reproducing in PACs impacted by high-severity fire. The caveat stating that there are exceptions to high-intensity fire effects always being a threat was also included. We also mention that the potential for rapid, extensive modification of the owl's habitat by fire in the future is what highlights this threat as 'primary' in the absence of comprehensive knowledge about the long-term impacts of fire on this species.</p>
B-25	B. Byrd C. Hanson, WEG and EII	<p>The Draft Plan (pages 199---200) correctly discusses the fact that Bond et al. (2009) found that spotted owls preferentially selected high---intensity fire areas for foraging, and correctly post---fire logging. In stark contrast, Clark (2007) found that the reduction in spotted owl occupancy was the result of fire followed by extensive post---fire logging on both private and public lands, NOT by wildland fire. Clark (2007) was very clear about this, yet the Draft Plan fails to mention that the finding regarding reduced occupancy was in an area with substantial salvage logging after fire. Similarly, Bond et al. (2009) were very clear that post---fire logging was de minimus in their study area, but the Draft Plan fails to mention this fact. Further, the Draft Plan also fails to mention that Clark (2007) also conducted radio--- telemetry research on these owls, and found that they selected high---intensity fire areas that had not been subjected to post---fire logging (similar to Bond et al. 2009), and generally avoided high---intensity fire areas that had been subjected to post---fire logging (and, in the relatively few places wherein the owls were found in the larger salvage---logged landscape, Clark (2007) found these locations to actually be un---salvaged areas, e.g., riparian zones, within the otherwise salvage---logged landscape). The only examples offered by the Draft Plan to indicate that high---intensity fire effects may reduce MSO occupancy are undermined by the same defect discussed immediately above— i.e., the Draft Plan fails to distinguish fire---affected areas from burned areas that have been subjected to post---fire logging.</p>	<p>There are several points to respond to here: 1) We have added a discussion of post-fire salvage logging as discussed in Clark (2007) in Appendix B. 2) The commenter's statement that Clark (2007) documented declines in occupancy based on salvage logging rather than fire is wholly incorrect. In fact, Clark (2007) was unable to model the effects of salvage logging on owl demographic parameters separately from fire impacts, and states this in no uncertain terms (see Clark:2007, pages 122 and 124). 3) Again contrary to the commenter's assertion, Bond et al. (2009) did not explicitly state whether or not salvage logging occurred in their study areas. So we did not mention that burned areas in Bond (2009) were not salvage logged because the authors of that study did not specify whether or not that was the case. We have now determined that areas were not salvage logged (pers. com., J. P. Ward, 9 Sep 2011), and so noted in the text in Appendix B. 4) We have added a brief discussion of habitat use by radio-marked owls in Appendix B. As the commenter notes, owls generally avoided using salvage logged areas. 5) Relevant to all of these points, we note that, in a more recent peer reviewed paper stemming from the same study, Clark et al. (2011: 45) make no specific recommendations with respect to salvage logging, and also state that: "...we urge caution when applying our findings to forest management or recovery planning for spotted owls." (emphasis added)</p>

No.	Signator, Affiliation	Biology (B) Comment	Response
B-26	B. Byrd C. Hanson	For example, on page 45 the Draft Plan mentions that owl surveys were conducted two years after the Dude and Rodeo---Chediski fires on the Mogollon Rim in Arizona, and claims that the surveys "failed to locate spotted owls since the fires". However, the Rodeo---Chediski fire area had been subjected to massive and extensive post---fire logging on both national forest lands and Native American lands by two years post---fire. The Draft Plan does not provide any information about post---fire logging in the Dude Fire, but it is difficult to imagine that the fire area was not extensively salvage logged, given that much if not most of the fire area occurred outside of any protected areas and that post---fire logging was the norm (as it remains, generally) at that time. Nor does the Study <i>Draft Revised Recovery Plan</i> provide any citation whatsoever to any data source or publication for this assertion about reduced owl occupancy in these two fire areas, and the Study Plan fails to indicate who conducted the surveys and whether they were done to protocol.	The sentence that is referred to in Part II.H.3.i was written poorly in the draft Recovery Plan you reviewed. It has since been corrected to state "Conversely, owl surveys conducted two years post-wildland fire in some previously occupied, but severely burned areas (e.g., within some areas of the Rodeo-Chedeski Fire on the Mogollon Rim in Arizona), failed to locate Mexican spotted owls." This sentence is not included to say that all areas that burned with high-severity can no longer support owls, just to provide the contradictory view of the sentence prior to it which states that owls continue to use some areas impacted by high severity fire. It is also not an articulation of the potential effects of salvage logging as the former PACs we refer to here were not salvage logged. In addition, surveys were completed to protocol.
B-27	B. Byrd C. Hanson, WEG and EII	Similarly, on page 197---198, the Draft Plan cites an unpublished, and unavailable, report by Stacey and Hodgson (1997), which the Draft Plan claims found a reduction in MSO occupancy in four MSO territories affected by "a large wildfire", though no statistical results are presented to support this. The Draft Plan fails to identify the fire in question in this unpublished report, or the extent of post---fire logging in the areas studied.	We agree that details are sketchy for this reference, that inference from this reference is extremely limited as a result, and that the report is generally unavailable to the interested public. We initially included this report despite these issues, in an attempt to be inclusive in terms of existing literature. However, based on this comment and the valid issues raised, we have deleted all references to this material.
B-28	B. Byrd C. Hanson, WEG and EII	Several scientists, including myself, conducted an analysis of post---fire spotted owl occupancy in burned/unlogged areas versus burned/logged areas, and the data indicate a substantial adverse effect of post---fire logging on occupancy, but no adverse effect of fire alone. A discussion of this analysis is found on pages 4---5 of the comments, submitted on December 15, 2010, on the Draft Recovery Plan for the Northern Spotted Owl (under the subject heading "Need to Comprehensively Evaluate Spotted Owl Occupancy and Fire"). These comments are attached hereto as Exhibit C below, and the portions relevant to the discussion herein are fully incorporated by reference into these comments on the Draft MSO Recovery Plan.	There are several points to respond to here. 1) We acknowledge that we failed to discuss the issue of salvage logging in the area studied by Clark (2007) and have added discussion of this topic to correct this oversight. 2) The commenter's statement that Clark (2007) documented declines in occupancy based on salvage logging rather than fire is incorrect. In fact, Clark (2007) was unable to model the effects of salvage logging on owl demographic parameters separately from fire impacts, and states this in no uncertain terms (see Clark:2007, pages 122 and 124). 3) Again contrary to the commenter's assertion, Bond et al. (2009) did not explicitly state whether or not salvage logging occurred in their study areas. So we did not mention that burned areas in Bond (2009) were not salvage logged because the authors of that study did not specify whether or not that was the case. We have now determined that areas were not salvage logged (pers. com., J. P. Ward, 9 Sep 2011), and so noted in the text. 4) The commenter correctly notes that we failed to discuss habitat selection of radio-marked owls. We have added a brief discussion of this topic. As the commenter notes, owls generally avoided using salvage logged areas. 5.) Relevant to all of these points, we note that, in a more recent peer reviewed paper stemming from the same study, Clark et al. (2011: 45) make no specific recommendations with respect to salvage logging, and also state that: "...we urge caution when applying our findings to forest management or recovery planning for spotted owls."
B-29	B. Byrd C. Hanson, WEG and EII	Finally, the Draft MSO Recovery Plan (page 256) explicitly allows post--fire logging not only within MSO home ranges after fire, but also within MSO PACs following fire. While the Draft Plan (p. 256) contains some vague cautionary notes about such practices, the Draft Plan totally fails to prohibit post--fire logging within MSO homes ranges, even post--fire clearcutting and its variants. This is a major, fatal flaw of the Draft Plan. As Bond et al. (2009) recommended, no post--fire logging should be allowed within owl home ranges—at least within a 1.5 km radius of nest sites.	Recovery plans neither allow nor prohibit activities. In the case of salvage logging we recommend careful consideration of the effects of these treatments and that they only be conducted when expected to promote recovery of owl habitat. Bond et al. (2009) do not recommend banning all post-fire logging within owl home ranges.

No.	Signator, Affiliation	Biology (B) Comment	Response
B-30	B. Byrd C. Hanson, WEG and EII	<p>The Draft Plan fails to adequately evaluate the threat posed by landscape-level logging via thinning to the MSO. Instead, the Draft Plan (pages 252---255, 278---281) simply assumes that thinning merely mitigates and alleviates the threats that the Draft Plan assumes are posed by fire and insect mortality, and even authorizes logging in MSO PACs in this context. In fact, logging is not even mentioned in Appendix D, which describes the existing threats to the MSO. Nowhere does the Draft Plan include any sound scientific evidence that fire or insect mortality at current levels are actually harming MSOs, and the Draft Plan minimizes the importance of an abundance of snags for the spotted owl's prey base.</p>	<p>We do not have conclusive evidence clearly demonstrating whether stand-replacing fire or treatments to alleviate that risk are either beneficial or adverse. We suspect there are both beneficial and adverse impacts in both scenarios, and further suspect that such effects vary by site, fire and/or treatment intensity, and numerous other variables. We clearly discuss the difficulty the Recovery Team had in formulating its recommendations, due to a lack of conclusive data, in various places in the document. Thus we relied on the best available information as required under the ESA. When the best available information is not unequivocal, we must rely on professional judgement, which we did in this case.</p>
B-31	B. Byrd C. Hanson, WEG and EII	<p>Moreover, the only reference that we could find to an acknowledgement of any potential threats posed to spotted owls by thinning was a brief mention, on page 189 of the Draft Plan, to Seamans and Gutierrez (2007), but the Draft Plan only states that this study "evaluated the effects of mechanical treatments on the habitat of spotted owls", and failed to mention the findings of this study. Seamans and Gutierrez (2007) found that mechanical treatments (e.g., thinning) of as little as 20 hectares (about 50 acres) within the 400--- hectare home range core area of spotted owls reduced colonization of territories by spotted owls, and increased the probability of breeding dispersal away from territories— both substantially negative indicators for spotted owl conservation. Similarly, U.S. Forest Service researchers, in a radio---telemetry study of an area with mechanically thinned and unthinned areas, found that spotted owls selected against the mechanically thinned areas (called "Defensible Fuel Profile Zones", or DFPZs), and the effect was highly significant statistically, at p = 0.006 (Plumas Lassen Study 2010, pages 124---125) (see <a href="http://www.fs.fed.us/psw/topics/ecosystem_processes/sierra/forest_health/plas/plas_annual_report_2010.pdf">http://www.fs.fed.us/psw/topics/ecosystem_processes/sierra/forest_health/plas/plas_annual_report_2010.pdf</a>).<sup>3</sup> Similarly, Dugger et al. (2011) (in press in Ecological Applications) found that thinning and its variants reduced the competitive advantage that spotted owls have in dense, old forest relative to the more aggressive barred owls, and exacerbated the negative effects that barred owls have on spotted owl occupancy. The failure of the MSO Draft Plan to account for and evaluate this new evidence, which is well---known to spotted owl scientists and federal land management agencies, is unacceptable, and the Draft Plan's failure to list thinning as a threat or potential threat to the MSO is another major, fatal flaw.</p>	<p>We recognize that thinning in PACs carries risk. Unfortunately, the body of science with respect to the effects of thinning on Mexican spotted owls is scant at best, and we are uncertain how results from studies on the other 2 subspecies in other forest types translate to the Mexican subspecies. We also recognize some risk involved without treating in PACs as far as stand-replacement events. We articulate these tradeoffs in Box III.1.</p>

No.	Signator, Affiliation	Threats (T) Comment	Response
T-1	M. Morrison, TAMU	67-69: Your discussion of climate change is predicated (first sentence of section, page 67) on human cause, and your review of the topic is sophomoric. By making such an assumption (which I realize is politically correct and is basically federal policy) you set yourself up for an irrational discussion of the impacts of a changing climate on owls. That is, you argue that the changing climate will negatively impact owls by shifting forest cover and hence the owls, yet you fail to give a timeframe over which this would occur. If it is long term then the owls could move and adapt physiologically. If the climate would be rapidly cooling if it were not for humans, then perhaps the artificial warming is actually benefiting the species. My point: you make no strong basis for human-induced climate change; if we learn that it is not people, or the impact is actually beneficial in some way, your argument collapses. Thus, I recommend you delete the "cause" and refocus your discussion to speculate on how a changing climate (warming or cooling) might influence the owl, and if so, over what timeframe should concern be raised (i.e., short term, rapid change versus long term, slower change). I personally do not know how climate change will impact species, but am skeptical enough not to paint myself into a corner; I suggest you do likewise.	Regarding making no strong basis for human-induced climate change, we cited the IPCC (2007). Increased greenhouse gases caused by anthropogenic factors is currently the most widely accepted reason for climate change (see IPCC 2001 for data and helpful graphs). The entire write-up addresses the speculation on how changing climate influences owls rather than the "cause". Timeframe was not discussed on purpose because of obvious uncertainty. Additions made to this section are based upon recent published studies.
T-2	M. Raphael, PNW	Page 59, scientific exploitation. Even if there is no significant mortality, you might consider whether there are any behavior affects that are noteworthy. Does handling and marking affect reproductive success?	We are unaware of any data addressing this issue.
T-3	M. Raphael, PNW	Page 59. You mention noise here and there, but noise and disturbance issues may deserve greater attention, perhaps under a separate heading. It would be helpful if readers had a sense about the importance of other indirect effects of the various factors cited above. I see that these issues are highlighted further down (page 65) but this seems out of place and should be moved up to fit better with other threats.	We do address noise disturbance under a separate heading and provide threat-specific management recommendations for noise disturbance. Because we use the 5-factor analysis format and noise disturbance fits as an "Other Natural or Manmade Factor", noise disturbance is addressed after several other factors in the document. The order in which factors are listed does not imply priority.
T-4	M. Raphael, PNW	Page 60. I might be worth mentioning the possibility that climate change could affect the abundance and distribution of mosquitos (vectors of the disease), which could affect vulnerability of MSOs.	The West Nile Virus section (II.H.3.c.i) was edited to include this information.
T-5	M. Raphael, PNW	Page 72, top. It would help to indicate what proportion of potential habitat has been lost to the activities cited. Simply saying "large areas" is not meaningful.	This section (Part II.H.4) has been edited for clarity to the extent available information allowed.
T-6	M. Raphael, PNW	Page 72, second para. Similarly, I don't know if 200 ha in one area and 400 ha in another are "large areas of old-growth forest. What proportion of old-growth in each area is this?	See response to comment T-5.

No.	Signator, Affiliation	Threats (T) Comment	Response
T-7	B. Burger, AGFD	<p>With this revision of the MSO recovery plan the major threat to the owl is presented as changed from timber management to stand-replacing wildfire. E.g. on page 81 it is stated that “Currently, the Mexican spotted owl is threatened primarily by habitat degradation and loss of old growth nesting habitats through stand-replacing wildfire (Listing Factor A)”; and this threat is elaborated upon in Appendix B where wildfire impacts on likely or known MSO habitat is discussed in more depth. Although likely negative impacts of large, high-intensity wildfires intuitively make sense, there seems to be little in terms of solid data or literature citations supporting this perspective in the plan. This shift toward reducing the likelihood of catastrophic wildfire is a major shift in emphasis in the plan, and this follows current thinking in terms of forest and ecosystem management, but it would be good to know it was supported by data in terms of specific impacts to MSO in areas that have had large wildfires (e.g. not just a number of PACs and/or acreage burned, but actual impacts to owls in terms of decreased populations and/or productivity). It is surprising to me that with this major shift in emphasis for the MSO Recovery Plan there was not some type of retrospective analysis of survey data from PACs before and after wildfires. Although the conclusion that fire is the major threat to MSOs may be correct, support for that position is apparently lacking. Is there any solid data that can be included to support this major change in the plan?</p>	<p>We agree that complete data are lacking on this issue, but point to the fact that large numbers of PACs have undergone significant habitat alteration due to recent fires unlike any seen in recorded history within the owl's range. We provide our rationale in evaluating the trade-offs between active management and a "hands-off" approach in Box III.1. While we agree that definitive data on pre- and post-fire population effects would be useful, we are not aware of the existence of such data so have relied on the best professional judgement of the recovery team.</p>
T-8	B. Burger, AGFD	<p>p.55 Exurban development is defined based on either population or housing density, but it is commonly considered as low-density, large lot residential development (i.e., one house per 4–16 ha [1–4 ac]; Theobald 2004). The conversion between ha &amp; acre is wrong, i.e. 4-16 ha does not = 1-4 acres.</p>	<p>The conversion was corrected in Part II.H.3.a.x. The statement should have read: "...(i.e., one house per 0.4–1.6 ha [1–4 ac])..."</p>
T-9	B. Burger, AGFD	<p>p. 57 Canyoneering permits for popular canyons occupied by the owl increased by 1714% between 1998 and 2002 (Zion National Park, unpublished backcountry use records). This is an impressive number – is there any data on what happened with the MSOs in that period or since? A further statement indicates that “Currently, however, recreational disturbances such as these are not known to affect regional or range-wide owl populations.”</p>	<p>The percentage stated in the draft plan was a typographic error and has been removed. Conducting specific studies of the effects of various recreational activities on owl populations was beyond the scope of this revision. Zion National Park annually monitors spotted owl PACs and would be able to address trends in owl activity within the park. We cite specific studies that have looked at recreational impacts at a local level; however, to our knowledge there is no study addressing regional or range-wide impacts of recreation on owl populations.</p>
T-10	B. Burger, AGFD	<p>P 59. The FWS frequently receives reports of people continuously playing audio recordings of spotted owls to elicit responses, shining lights repeatedly at owls to take pictures, and other acts of harassment. Though it is unlikely that these actions are impacting large numbers of owls, it is a threat at the site-specific level and is usually illegal absent appropriate Federal and state or Tribal permits issued for research or inventory purposes. Is there any data on how such impacted pairs are doing compared to others in the same general area (BRW) with less disturbance?</p>	<p>We do not have comparative information for owls being impacted by this action and owls close by that are not being harassed. However, when we receive reports regarding this behavior, we are working with Law Enforcement to deal with this human behavior. In some cases, land managers have also put signs out to educate people on what is appropriate behavior if they see an owl and what permits and qualifications are needed to legally conduct owl surveys.</p>

No.	Signator, Affiliation	Threats (T) Comment	Response
T-11	B. Burger, AGFD	p.61 (& p.217). Procyonid mammals were observed attempting to raid cliff-site nests occupied by spotted owls in southern Arizona (R. Duncan, Southwestern Field Biologists, pers.comm.), Was this ringtails, raccoons, or both? Was it multiple sightings or just one? The document should be more specific if possible, while at the same time more reader-friendly for those perhaps not familiar with terms like procyonids. Common names are used for birds in the following sentence both places this is referenced.	We are simply citing a report of this occurring. We have no data to elaborate on here.
T-12	B. Burger, AGFD	p. 72. In the Sierra Madre Oriental, devastating wildfires scorched large areas of old-growth forests. Two hundred ha (494 ac) of mature forest were lost in El Taray in 2006, and 400 ha (988 ac) were burned in the Municipio de Santiago Nuevo León in 2008 (CONANP-Pronatura Noreste, 2008). These sound like relatively small wildfires to cite here unless the areas burned were known to be especially critical.	This section (II.C.b.ii) has been edited for clarity.
T-13	B. Burger, AGFD	<i>p. 87. In areas of owl occupancy, assess the impacts of currently allowed (both permitted and non-permitted) recreational activities and institute limitations as described in section Appendix D - 8.a. 6.7.3. Seasonal closures of specifically designated recreational activities should be considered where disturbance to breeding owls seems likely. This is okay, if supported, but thus far is there any hard data to support this? On page 57 of the plan it indicates that despite huge increases in canyoneering in Zion, that "Currently, however, recreational disturbances such as these are not known to affect regional or range-wide owl populations."What about ATV and/or other recreational impacts?</i>	Based on the research by Delaney et al., we know that ground-based noise can potentially affect spotted owl behavior. We extend those results to other ground-based noise activities. We know of no research conducted on effects of ATVs or other recreational impacts on Mexican spotted owls.
T-14	K. Brus, Army Corps of Engineers	Discussion(s) on Climate change. Climate change discussions in the MSO Recovery Plan, such as discussions in: 1. subsection iv. Climate Change (under section e.e. Other Natural or Manmade Factors Affecting the Mexican Spotted Owl's Continued Existence (Factor E), bottom of page 67through page 71, and; 2. Subsection 11. Climate Change, bottom of page 290 through page 291, could potentially be expanded in discussion in these sections, and elsewhere in other discussions on potential effect of climate change to the Mexican spotted owl, or where relative in other discussions outside of climate change, in the MSO Recovery Plan Draft First Revision by reading the following references/citations, as follows: (see references in original letter)	Additions made to this section based upon recent published studies in Part II.H.3.e.iv.
T-15	V. Sielaff++ (WEG form letter)	I am concerned that the draft recovery plan significantly understates threats to the Mexican spotted owl other than large, stand-replacing fire. In particular, the grazing of domestic livestock,widespread forest thinning, as well as the construction and maintenance of electrical transmission lines and other rights-of-way. All of these activities account for significant incidental take of the owl and should be considered in the draft recovery plan with recommendations for avoiding or mitigating take of the owl.	The revised recovery plan includes detailed discussions of the activities mentioned by these commenters, as well as recommendations to minimize effects of these activities to acceptable levels.
T-16	S. McVean, AGFD	Threats. The revision describes Water Development as always negative. The revision should be more specific about "water development" because many water developments can be good for wildlife. In most cases, natural water sources and hydrologic regimes have been disrupted and now artificial wildlife waters and stock tanks provide beneficial, if not essential, habitat for many species, and are used by owls and their prey.	The intent of this appendix is to review activity-specific threats. Threats vary in their extent and intensity. Whether or not stock tanks are beneficial to owls is unknown, but certainly a topic worthy of study.

No.	Signator, Affiliation	Threats (T) Comment	Response
T-17	T. Timme, Southwestern New Mexico Audubon	Habitat degradation from grazing is also clearly a threat to recovery and while more research studies can confirm this, there are ample studies cited in Appendix D to justify immediate exclusion of livestock from sensitive areas.	There may be a basis for excluding livestock from sensitive areas, but we lack direct evidence that grazing effects the owl. Until research is done specifically to address effects of grazing on spotted owls, we lack a strong basis for excluding livestock.
T-18	T. Timme, Southwestern New Mexico Audubon	The recovery plan must also anticipate and provide safeguards from future pressures to increase logging, drilling and other resource (especially water) extractive activities that threaten not only the MSO but also the overall health and nature of the wilderness areas that make the public lands here in the Southwest unique.	We believe that the management recommendations adequately address each of the cited activities. It is beyond the scope of the plan to discuss wilderness except in the context of owl recovery.
T-19	S. Temple, ESA	However, that reduction in the threat of logging to owl habitat seems to pertain only to federal lands. The question of how logging might still be threatening the owl on tribal, state and Mexican portions of the range (as opposed to federal lands) is not adequately addressed.	Unfortunately, we often do not have adequate information on threats to the subspecies on some landownerships. The plan does discuss illegal logging as a threat in Mexico, but we have no data to quantify the extent of this threat.
T-20	S. Temple, ESA	I was not, however, convinced that the plan adequately prioritizes the long-term role of grazing by domestic and wild ungulates on federal lands as a component of the overall threat to owl habitat. The relationship between grazing and the undesirable changes in forest ecosystems within the owls' range seems too important to be given a secondary priority number in Table 8.	We are unaware of data supporting the contention that grazing is a significant threat to this species when compared to timber management and wildfire.
T-21	S. Temple, ESA	Justification for threatened status is not fully developed.— The basis for the initial listing is described in some detail and in the past tense (pp. 41-42). In light of all the new information and changing conditions over the past 15 years, it might have been appropriate to provide a concise review that explicitly justifies the basis for the ongoing threatened status. That information is now buried in the plan but quite diffuse. I know that there are some who have argued the owl doesn't deserve to be listed, and this would directly address those concerns. In most instances, recently acquired information seems to reinforce the listing, whereas other findings could raise questions. It wouldn't take much effort to explicitly document why the owl still deserves to be listed as a threatened species. The discovery of additional owl sites, for example, is already explained as not providing evidence of an on-going recovery, and a similar discussion could be provided for other recent discoveries that relate to threats.	We provide an overview of the original listing analysis for a historical perspective, and thoroughly address the current factors on the landscape that may be influencing spotted owls. However, it appears the commenter is asking for a listing-type five-factor analysis, which is more appropriately conducted when the recovery criteria are met and delisting is being deliberated.
T-22	S. Temple, ESA	Neither is there enough consideration of how owl populations may have responded historically to changes in their habitat. It seems conceivable, for example, that the 20th century changes in forests, resulting from activities such as overgrazing and fire suppression, might have actually lead to an increase in owl habitat as forests became denser and more structured, conditions that now threatens owls because of the risk of catastrophic wildfires.	This is a plausible hypothesis that has been advanced by a number of persons, but we know of no way of testing it. We therefore base our management recommendations on what we know the owls utilize today and how we believe we can best keep those features on the landscape over time.
T-23	S. Bahr, SC	Timber Harvesting (Wildland-Urban Interface [WUI] and Silvicultural Treatments) (pp. 47–49) The Draft Recovery Plan states that threats to the Mexican spotted owl have shifted from commercial based timber harvest to the risk of intense wildfires and that threats from timber harvesting have largely been addressed. Because of this assumption, timber harvesting is not discussed in detail in the draft plan. This lack of attention is of concern as timber harvest does continue to pose a substantial threat, and this threat could worsen if any protections are removed. While it's true that non-salvage logging activities have been reduced since the 1995 Recovery Plan, these activities do still occur and can threaten this species.	We have added language to address this issue (Box III.1).

No.	Signator, Affiliation	Threats (T) Comment	Response
T-24	S. Bahr, SC	Grazing (p. 51 and Appendix D, pp.281-284) The section on grazing begins with a paragraph describing effects of grazing on Mexican spotted owls as “complex” and offering the idea that some grazing could be beneficial to the owls. There are no references or citations given for any ways in which grazing might positively affect the owl, but the next five paragraphs list well-cited adverse effects of grazing on the owl and its prey. The suggestion that grazing can benefit the owl should be removed unless it can be legitimately cited. As noted, the Recovery Plan is supposed to be based on the best available science. That is clearly not the case with this section, so it should be modified to reflect that.	We do not state or imply that grazing is necessarily good for owls. The bottom line is that knowledge on the the effects of grazing on owls is based on inferences from studies not designed to specifically address effects on owls. Until well-designed and rigorous experimental studies are conducted, conclusions that grazing is good, bad, or indifferent with respect to owls are subject to debate.
T-25	S. Bahr, SC	The discussion of elk should be modified to reflect that elk are an exotic species in some areas subject to the plan.	Elk are not an exotic species in the SW, but the Rocky Mountain subspecies is exotic. We see no need to mention this in the plan.
T-26	S. Bahr, SC	The plan acknowledges “increases in outdoor recreational use” as one of the “greatest threats to owls at Walnut Canyon National Monument.” Specific mention should be given to the development of a shooting range by the Arizona Game and Fish Department (AGFD) less than one mile from an occupied PAC, bringing constant daytime noise throughout the breeding season and associated increases in camping, canyoneering, and ORV use near and within the PAC. The new Northern Arizona Shooting Range should, therefore, be considered a documented threat to the Cherry PAC and to owls in Walnut Canyon National Monument and in nearby Coconino National Forest areas. It should be specifically mentioned in the description of threats to Walnut Canyon National Monument owls.	Analysis conducted by the Arizona Game and Fish Department regarding the shooting range does not indicate that owls in Walnut Canyon will be impacted by the proposed shooting range. We have no data to refute that conclusion.
T-27	T. McKinnon, CBD	The changing of Region 3’s silvicultural regime from even-aged to uneven aged does not mean that silvicultural treatments are no longer a threat to MSO survival and recovery. To the contrary, the Forest Service is currently moving forward with restoration, like the Four Forests Restoration Initiative, that envisions thinning 1 million acres over a period of 20 years on the Kaibab, Coconino and Apache-Sitgreaves National Forests. While these changes can expected to be largely restorative in the long-term, short term effects of some of the more severe treatments envisioned therein could be similar to traditional even-aged shelter-wood cuts (see letter for cited prescriptions).	Your point is well taken. Although the owl was listed primarily on the basis of past timber harvest practices, uncertainty exists with what the future holds. We have revised the executive summary and threats discussion to articulate this uncertainty. See Box III.1.
T-28	T. McKinnon, CBD	The Recovery Plan and Team should include a careful and thorough examination and disclosure of silviculture treatments being advanced by the USFS; they can and have been every bit as severe as the even-aged silviculture that the 1995 Recovery Plan and 1996 Plan Amendments and ROD sought to curb. As one measure of the threat silviculture still poses to MSO, the Recovery Team and Plan should analyze and disclose the recent extent of take attributable to silvicultural projects in Region 3.	We agree that forest management may pose some level of risk to the owl, but also have witnessed extensive and rapid habitat modification due to severe wildfire. We have added a discussion of the trade-offs regarding forest management to the revised Recovery Plan (Box III.1).
T-29	R. Maes, USFS	Page 44, Section i, devastating wildfires: If possible, consider adding major fires of 2011 to this list.	This has been added in to Part II.H.3.a.i.
T-30	R. Maes, USFS	Page 45, Top of Page, Fourth Bullet: Spatial extent of severity and intensity of fire...a large fire can mean many different things depending on how it burns...it can be large and have little effect on vegetation (low severity).	The text has been edited accordingly in Part II.H.3.a.i.
T-31	R. Maes, USFS	Page 46: Fire Suppression – Back fires and burnouts can also be done in ways to reduce fire severity, as has been done on the Gila many times... which might then be beneficial to habitat.	We have captured this concept in the final version (see Part II.H.3.a.ii).

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T-32	R. Maes, USFS	Page 47, WUI Treatments Section: Second Paragraph – It would be beneficial here to have some distinction between Dry and Wet MC different fire regimes becomes more obvious. Most Wet MC stands in the southwest typically are only low to moderately altered by missing >1 fire cycle, as condition class two. But most Dry MC stands are substantially altered by having missed multiple fire cycles, and thus are condition class three. Elsewhere in the document, brief references are made to “wetter” and “drier” MC as useful information. This paragraph could simply list wetter MC and spruce-fir forests along with the pinyon/juniper woodlands as generally being in condition class two. The last sentence could/should include dryer MC with pine and pine-oak stands as generally being in condition class three. If the authors need papers and citations for this, please contact the Forest Service Regional Office.	The distinction between wet and dry mixed conifer seems artificial and not indicative of the real world. We contend that mixed-conifer forests occur along a continuum from xeric to mesic. Regardless, managers should have the flexibility within this plan to treat a particular patch of mixed-conifer forest in an ecologically appropriate manner.
T-33	R. Maes, USFS	Page 47, WUI Treatments Section: The Lincoln Capability Assessment is defunct and should not be a discussion point in the recovery plan. The Lincoln Capability Assessment has not been implemented. I'm not sure what the point is here. Obviously large blocks of thinning treatments that do not follow the MSO guidelines would be detrimental to the owl... those are threats and will continue to be.... Therefore WUI treatments if not implemented in ways compatible with MSO guidelines are threats... not just the Lincoln.	Some uncertainty exists whether or not the LCA is officially defunct or simply has not been implemented. To our knowledge the Perk Grindstone was implemented and was part of the LCA, leading to our uncertainty.
T-34	R. Maes, USFS	Page 47, WUI Treatments Section: Also for the USFS, this whole discussion has moved on from the narrow discussion of WUIs and fire hazard reduction around communities to the larger context of forest restoration on the larger landscape. We are focused on managing the entire WUI and non-WUI landscapes for resilient and sustainable forests, not just hazardous fuels reduction. The recovery plan should reflect this emphasis.	We agree and we acknowledge throughout the plan that that many forests are managing at the landscape scale.
T-35	R. Maes, USFS	Page 48, Silvicultural Treatments: The current treatment discussion (end of section) correctly describes silvicultural practices, but is lacking the current strategic focus. The current forest management emphasis is landscape scale forest restoration, based upon principles of uneven-aged selection-cutting, and informed by historic reference conditions and natural range of variability. The focus is to develop/maintain forests that are resilient to natural disturbances and are sustainable over the long-term. The increased bio-diversity of these restored forests provides improved habitat for all native and desired non-native species.	This comment goes beyond the goal of the threats section, which is simply to describe threats to the owl and not summarize the pros or cons of the threat agent.
T-36	R. Maes, USFS	Page 49, Silvicultural Treatments: The salvage harvesting discussion is limited and one-sided. It cites non-local reference conclusions (Donato) that list negative effects of salvage harvest applicable to other forest ecosystem types, but does not mention the positive effects of salvage harvests and the role in long-term forest rehabilitation. (It is extremely difficult to manage frequent surface fire in post-fire landscapes with uncharacteristically high downed fuel-loadings, while also attempting to regenerate/develop coniferous forest vegetation towards desired habitat conditions).	May go beyond the goal of the threats section, which is to describe threats to the owl and not summarize the pros or cons of the threat agent. We are simply citing a report of this occurring. We have no data to elaborate on here.
T-37	R. Maes, USFS	Page 49, paragraph 3: If done quickly enough, salvage logging is also an important way to remove bark beetle brood material that can help prevent post-burn beetle outbreaks from moving into live trees that survived the fire.	May go beyond the goal of the threats section, which is to describe threats to the owl and not summarize the pros or cons of the threat agent. We are simply citing a report of this occurring. We have no data to elaborate on here.

No.	Signator, Affiliation	Threats (T) Comment	Response
T-38	R. Maes, USFS	Pg. 50, "Dwarf mistletoe" Paragraph: Information to add to this paragraph: As a stressor, heavy dwarf mistletoe infection also pre-disposes large diameter Douglas-firs to Douglas-Fir bark beetle attack, and nearly certain tree mortality results. This becomes important as it affects MSO nest trees, and big DF trees in PACs, as well as in replacement nest/roost habitat.	We view these as natural ecological processes with which the owl evolved.
T-39	R. Maes, USFS	Page 50, "Decay fungi" Paragraph: Last sentence should read: "... so retaining old trees on the landscape with this type of decay is essential."	We have made this edit as suggested (see Part II.H.3.vi.)
T-40	R. Maes, USFS	Pages 51-53, Part II 9.D.a.vii (Grazing): We first request that discussions concerning the potential effects of domestic and wild ungulate grazing be dealt with separately since management implications and needs are dramatically different and under separate jurisdictions as previously indicated.	We recognize that livestock and wild ungulates are different animals, but effects of both are cumulative and synergetic. Thus, as we note in C.4.c, coordinated efforts are required. "Resource managers should coordinate to implement livestock and elk population management strategies that will reduce browsing impacts on upland deciduous woody species in areas where the recruitment of these species into the overstory is lacking due to browsing pressure within owl habitats. Strategies developed under this guideline should not be focused solely on domestic livestock management, rather they should be focused on reducing the impacts of all browsers that contribute to the identified threat."
T-41	R. Maes, USFS	<u>Pages 51-53, Part II 9.D.a.vii (Grazing)</u> : We are uncertain as to what is meant by the term "moderate- to high- intensity" grazing? If the authors are attempting to describe grazing utilization levels normally considered to be damaging to ecosystems if repeated for successive seasons, then the proper terminology would be "heavy to severe" utilization levels, or simply "heavy" grazing intensity. Proper citations can be provided for this terminology which is utilized by the Forest Service, Southwestern Region.	The RT expertise on grazing is primarily with Dr. Gary Ziehe (Lincoln NF) and Mr. Bob Vahle (formerly US Forest Service and Arizona Game and Fish Department). We think that the terminology used conveys the information we need to present. We are more intent on conveying the information than being bogged down by debates on terminology.
T-42	R. Maes, USFS	<u>Pages 51-53, Part II 9.D.a.vii (Grazing)</u> : Further, a distinction between "utilization" and "grazing intensity" needs to be made since these terms mean different things and have separate definitions. This requested clarity needs to be made in the recovery plan since the existing recovery plan, and associated implementation documents, have been problematic to the Region for lack of clear, concise, and appropriate terms and definitions attempting to describe potential impacts of domestic grazing to the MSO. Judith Dyess of the Regional Rangeland management staff can be consulted for additional information on these points.	See response to comment T-41.
T-43	R. Maes, USFS	<u>Pages 51-53, Part II 9.D.a.vii (Grazing)</u> : This section also makes the statement "Grazing can adversely affect the owl primarily through four indirect effects: ..." We request this sentence be changed to state "Improper or unmanaged grazing can adversely..." To imply that grazing in general "... can adversely affect..." is an inappropriate and unsupported statement.	We have made the edit as suggested (section II.H.3.a.vii).
T-44	R. Maes, USFS	To further confuse the issue, the terms "excessive" grazing and "managed insufficiently" are later introduced in this section. Again, we request that consistent and appropriate terminology be used to describe grazing that is counter to the interest of MSO recovery. The authors of the draft recovery plan are requested to consult with the Regional rangeland management staff for the usage of professional correct terminology. To publish a recovery plan document with such poor and unprofessional terminology would be an embarrassment to the recovery team and agencies involved.	See response to comment T-41.

No.	Signator, Affiliation	Threats (T) Comment	Response
T-45	R. Maes, USFS	Page 52: Second Paragraph, Second Sentence – “Low-intensity ground fire...” should read “Low-intensity surface fire....” A ground fire is one that burns duff and roots. The intent here, we believe, is to have fires that burn low lying vegetation and remain at the surface rather than move into the crowns.	This has been edited in the text hroughout the document.
T-46	R. Maes, USFS	If desired, scientific papers and citations to support the 5th sentence on elk limiting aspen regeneration, specifically publications on this problem within Arizona and across the MSO range can be provided. Per the last sentence, hunting is not the only way to manage wild ungulates – placing physical barriers (e.g. fences, jack-strawed logs, wood pole windrows), and also limiting numbers and locations of salt blocks and water troughs can be used to some extent, for controlling grazing impacts by all ungulates. Please consider adding these to Appendices C and D. Also, add salt and mineral blocks to Page 58, 4th Paragraph.	We provide latitude in grazing recommendations for "other grazing management strategies" and this seems like a good one.
T-47	R. Maes, USFS	Also, add salt and mineral blocks to Page 58, 4th Paragraph.	See response to comment T-46.
T-48	R. Maes, USFS	Page 57: The plan says that canyoneering increased by 1714% in 4 years; this seems like a big jump. Is it a typo?	We modified the text and removed this value.
T-49	R. Maes, USFS	Page 63 – Healthy Forests Initiative: It is unclear how counterpart regulations may affect management and treatment of owl habitat. The implication is that the Action Agencies are adversely affecting the owl although only projects determined not likely to adversely affect the MSO could utilize the counterpart regulations. Moot point now, since the FS will no longer use the counterpart regulations after September 30, 2011.	Good point of clarification and we have edited the section accordingly.
T-50	R. Maes, USFS	Page 64 & several other pages, including Appendix. C: Not many MSO PACs (non-core acres) have been treated to reduce fire hazard during the past 16 years of the recovery plan because they are often on steep slopes, and/or inaccessible terrain.	We agree that there are some PACs that are inaccessible for mechanical treatment.
T-51	R. Maes, USFS	Page 65, second paragraph: This paragraph on noise disturbance could be revised for clearer understanding.	This section (II.H.3.e.i) has been rewritten to clarify.
T-52	R. Maes, USFS	Page 70, 3rd Paragraph: The first sentence describes “loss of habitat due to increased fire frequency and extent (Westerling et al. 2006).” Perhaps it would be more appropriate to describe the threat of loss of habitat due to fire intensity rather than frequency. The frequency in which high intensity fires occur may change due to climate change and result in a direct loss of habitat. However, an increase in fire frequency alone may not result in direct loss of habitat.	This has been revised (section II.H.3.e.iv) to read "Mexican spotted owls may experience direct loss of habitat due to increased frequency of high severity fires (Westerling et al. 2006)."
T-53	R. Maes, USFS	Page 70, 3rd Paragraph: The last sentence describes exactly what contributed to the Wallow fire growing so big and burning so hot on many acres, including MSO PACs. Additionally, it should be noted that many large/old trees showing no evidence of insect/disease or physical damage have also been dying simply due to overcrowded stand conditions, resulting in intense competition between trees for limited soil water, nutrients and growing space. (Citations are available upon request, including FIA data.) This mimics or elevates drought conditions on over-stocked sites.	Unclear as to what change is requested here, if any.
T-54	R. Maes, USFS	The threat section on Stand-replacing Fire includes the Hayman (p. 44) in a short list of large fires, but Table B-1 (App. B, pp. 193-194) does not include the information from Colorado.	Table B-1 has been deleted from the document.

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T-55	R. Maes, USFS	The section on Riparian Habitats (p. 54) refers to PACs including some of the best canyon riparian habitat that still exists; it would be nice to know where these exist (see Habitat comment above). Healthy riparian systems are well-described as important to the owl, and degraded areas are cited as a threat. However, this section is not linked to other, related areas of the plan, such as the Water Development section (p. 58). The final sentence of this section says a definition is provided by BLM (1998); if the definition is too long to include in the plan, I suggest it be included in App. C, - Riparian Recovery Habitat.	Point well taken. We have removed the riparian habitats from threats as a specific section, but have incorporated relevant information in appropriate threat sections (e.g., Water Development). Definition for PFC was added to C.3.b.
T-56	R. Maes, USFS	The section on Water Development (p. 58; App. D, p. 286) mentions dewatering, diversions, and altered-flow regimes, but there is little discussion of these other than of inundated canyons and barriers to movement. A lot of focus in recent years has been on diversions of the Colorado and other rivers, reducing flows for fish and listed species. Are reduced flows in canyons supporting owls a concern?	We address this in II.H.3.xii.
T-57	R. Maes, USFS	Factor D includes a discussion on page 64 of Collaborative Forest Landscape Restoration. Please note that the Rocky Mountain Region also is implementing funding received for the Front Range CFLR project.	We have edited the text to include the Rocky Mountain Region as well in this example.
T-58	B. Byrd C. Hanson, WEG and EII	Generally, our criticisms of the Draft Revised Recovery Plan, for the MSO, First Revision (Draft Recovery Plan or Draft Plan) are that the recovery criteria do not meet the statutory obligations in the ESA, the failure to recognize that the 1995 Recovery Plan and 1996 Standards and Guidelines have not been implemented, the single identified threat to the population, stand---replacing wildfire, is not warranted by the evidence presented and fails to recognize other threats such as widespread, intensive thinning; energy transmission corridors; as well as grazing of domestic livestock and finally, occupancy monitoring should be replaced by robust demographic monitoring.	The items in this summary paragraph are addressed in relevant comments on the individual points.
T-59	B. Byrd C. Hanson, WEG and EII	In wildland urban interface (WUI) areas, the Forest Service decided to conduct management actions in PACs that were more aggressive than the actions allowed by the 1996 S&Gs For example the Perk--Grindstone Fuels Reduction Project on the Lincoln National Forest. The FWS's Biological Opinion (BiOp) on the Perk---Grindstone Fuel Reduction Project authorized in 2008 specifically finds that the project goes "far beyond 1996 S&Gs For example the Perk---Grindstone Fuels Reduction Project on the Lincoln National Forest. The FWS's Biological Opinion (BiOp) on the Perk---Grindstone Fuel Reduction Project authorized in 2008 specifically finds that the project goes "far beyond the recommendations in the Recovery Plan," "is inconsistent with the major assumptions of the [2005 BiOp]," and constitutes a "major threat" to the continued survival and recovery of the MSO: "The [Forest Service] found that, based upon current conditions, the largest threat to the MSO in the project area is the potential for a high---severity crown fire. We disagree with this conclusion. We believe this type of a proposed project is the largest threat to the MSO within the Recovery Unit. We strongly encourage the [Forest Service] to adhere to their [Forest Plans] and the respective 1996 amendments for future projects within the wildland urban interface."	The revised recovery plan does not, and should not, recount historical events nor analyze specific projects.

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T-60	B. Byrd C. Hanson, WEG and EII	In addition to the Perk---Grindstone Fuel Reduction Project, BiOps issued by the FWS to the Forest Service in connection with the 2009 Upper Beaver Creek Watershed Fuel Reduction Project, the 2008 Phase II Utility Maintenance Corridor Project in Arizona Forests, and the 2008 Wildbunch Allotment Management Plan all indicate that the projects violate the requirements of the 1995 Recovery Plan and the 1996 S&Gs. In these and other instances during the 2000s, many Forest Service management actions planned and authorized involved more intensive tree cutting, prescribed burning, and road construction than contemplated in the Recovery Plan's management recommendations that had become binding on the Forest Service through promulgation of the 1996 S&Gs.	See response to comment T-59.
T-61	B. Byrd C. Hanson, WEG and EII	As demonstrated above, the assumptions made in the Draft Recovery Plan do not reflect actual activities on the ground and understate ongoing threats to the owl, its habitat and its prey species habitat.	The revised recovery plan thoroughly, although not site-specifically, evaluates current threats and makes management recommendations designed to ameliorate those threats to acceptable levels. Whether those recommendations are followed is not under the purview of a recovery plan.
T-62	B. Byrd C. Hanson, WEG and EII	The Draft Recovery Plan identifies minimum basal area for mixed conifer for nesting/roosting habitat as 120 to 145 ft <sup>2</sup> per acre for 20% of planning area managed for threshold habitat (Draft at 268). We've provided three examples of many in Region 3 that demonstrate the Forest Service continues silvicultural management that is a potential threat to the MSO, yet the Draft Recovery Plan ignores this threat.	The recovery plan discusses current silvicultural practices but does not get into project-by-project detail, nor should it. The plan makes management recommendations we believe will minimize such threats if implemented as envisioned.
T-63	B. Byrd C. Hanson, WEG and EII	The Draft Recovery Plan notes that WUI projects on the Lincoln could involve significant risk to the MSO population in the Sacramento Mountains and "could seriously endanger owls within this recovery unit." It's important to note that these projects have never been "backed---up" with the cause and effect experiments that were envisioned by the FWS – and agreed to by the Forest Service – in the WUI and the Penasco II BOs. The Draft recovery Plan goes on to acknowledge elsewhere that landscape scale restoration projects currently in planning have the "potential to impact vast acreages in short time frames" (Draft at 109).	It is unclear what the commenter is requesting here.
T-64	B. Byrd C. Hanson, WEG and EII	Grazing continues to be a significant threat to the MSO but the Draft Recovery Plan seems to downplay this threat and fails to name it as such. As acknowledged by the Draft Recovery Plan, domestic livestock grazing can have significant effects on MSO habitat and prey populations. Grazing in upland forest ecosystems that historically experienced low severity, high---frequency fires changes fuel profiles in favor on longer fire return intervals and more severe fire behavior. In riparian ecosystems, the impacts of domestic livestock grazing are myriad but can affect prey populations by changing prey habitat features.	The important point here is that no studies have been conducted to specifically evaluate effects of grazing on the Mexican spotted owl. As a result, we are left to forming broad inferences based on results of various studies. That said, we temper our evaluation of grazing pending acquisition of more reliable information.
T-65	B. Byrd C. Hanson, WEG and EII	Off highway vehicle (OHV) use on the national forests in Region 3 continues to pose a significant threat to the Mexican spotted owl and its habitat. In the Forest Service's proposed action for the Santa Fe National Forest Travel Management Plan(73 fed. reg. 138. July 17, 2008), there was a total of 328 miles of motorized roads and trails in MSO critical habitat and 34.7 miles in Protected Activity Centers. <sup>1</sup> There were 268.9 miles of motorized roads and trails in Protected Activity Centers in the Gila National Forest Travel Management Plan Proposed Action. <sup>2</sup>	The data provided in this comment absent an analysis of the effects of these road densities makes the comment useless. The plan recommends measures to minimize the effects of roads, and actions that may affect the Mexican spotted owl will undergo section 7 review.

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T-66	B. Byrd C. Hanson, WEG and EII	According the anticipated take spreadsheets maintained by the FWS in Flagstaff, much of the take occurring in NM and AZ is a result of utility corridor construction and/or maintenance. However, there is little to no mention in the Draft Recovery Plan of this source of take. If this is one of the largest causes of incidental take for the MSO in Forest Service Region 3, shouldn't it have been listed as a threat?	We have clarified that forest management associated with utility corridor construction and/or maintenance is part of the energy threat (II.H.3.viii).
T-67	B. Byrd C. Hanson, WEG and EII	The Draft Plan (pages vi---vii, 44---46, 278---79) states repeatedly that the primary current threat to the MSO is "stand---replacing fire", by which the Plan apparently means patches of high---intensity fire where most or all trees are killed. However, the Draft Plan fails to provide empirical data to support its assumption that wildland fire, including patches of high---intensity fire, harms the MSO. In fact, the Draft Plan (page 45) correctly divulges that the empirical studies that have actually researched this question have found that mixed--- intensity fire, which includes patches of high---intensity fire, does not appear to harm spotted owls and actually creates suitable foraging habitat for spotted owls, stating that the existing studies show that large fires with substantial proportions of high---intensity fire effects: a) do not appear to adversely affect survival, reproduction, site fidelity, or mate fidelity; and b) spotted owls preferentially select high---intensity fire areas (that have not been subjected to post---fire logging) for foraging. The Draft Plan also acknowledges (pages 191---192) that the overall current rate of high---intensity fire in MSO PACs is only 3.7% of total PAC area per decade, or a rotation interval of about 270 years, and that, even if the high---intensity fire rate doubled, high---intensity fire occurrence if the national forests containing most of the MSO PACs would remain relatively moderate, given differences in rates of high---intensity fire in these forests. Nevertheless, the Draft Plan continues to assume, without sound scientific foundation, that high---intensity fire poses a threat, even the primary threat, to MSO conservation, and the Draft Plan misrepresents scientific data regarding fires and owls, particularly with regard to post---fire logging, as discussed below.	See response to comment B-25 in which we respond to most of the points in this comment. The statement here that we have misrepresented the science regarding salvage logging is in fact false, as we demonstrate in those responses. We have modified language in the plan to indicate that we view fire as one of several threats. We agree that owls continue to use many burned areas, but we still view cumulative loss of older forest habitat to fire as a threat in the long-term.

No.	Signator, Affiliation	Threats (T) Comment	Response
T-68	B. Byrd C. Hanson, WEG and EII	<p>The Draft Plan (pages 199---200) correctly discusses the fact that Bond et al. (2009) found that spotted owls preferentially selected high---intensity fire areas for foraging, and correctly post---fire logging. In stark contrast, Clark (2007) found that the reduction in spotted owl occupancy was the result of fire followed by extensive post--fire logging on both private and public lands, NOT by wildland fire. Clark (2007) was very clear about this, yet the Draft Plan fails to mention that the finding regarding reduced occupancy was in an area with substantial salvage logging after fire. Similarly, Bond et al. (2009) were very clear that post---fire logging was de minimus in their study area, but the Draft Plan fails to mention this fact. Further, the Draft Plan also fails to mention that Clark (2007) also conducted radio--- telemetry research on these owls, and found that they selected high---intensity fire areas that had not been subjected to post---fire logging (similar to Bond et al. 2009), and generally avoided high--intensity fire areas that had been subjected to post--fire logging (and, in the relatively few places wherein the owls were found in the larger salvage---logged landscape, Clark (2007) found these locations to actually be un--salvaged areas, e.g., riparian zones, within the otherwise salvage---logged landscape). The only examples offered by the Draft Plan to indicate that high---intensity fire effects may reduce MSO occupancy are undermined by the same defect discussed immediately above— i.e., the Draft Plan fails to distinguish fire---affected areas from burned areas that have been subjected to post---fire logging.</p>	See response to comment B-25.
T-69	B. Byrd C. Hanson, WEG and EII	<p>For example, on page 45 the Draft Plan mentions that owl surveys were conducted two years after the Dude and Rodeo---Chediski fires on the Mogollon Rim in Arizona, and claims that the surveys “failed to locate spotted owls since the fires”. However, the Rodeo---Chediski fire area had been subjected to massive and extensive post---fire logging on both national forest lands and Native American lands by two years post---fire. The Draft Plan does not provide any information about post---fire logging in the Dude Fire, but it is difficult to imagine that the fire area was not extensively salvage logged, given that much if not most of the fire area occurred outside of any protected areas and that post---fire logging was the norm (as it remains, generally) at that time. Nor does the Study <i>Draft Revised Recovery</i> Plan provide any citation whatsoever to any data source or publication for this assertion about reduced owl occupancy in these two fire areas, and the Study Plan fails to indicate who conducted the surveys and whether they were done to protocol.</p>	<p>The sentence that is referred to in Part II.H.3.i has been corrected to state "Conversely, owl surveys conducted two years post-wildland fire in some previously occupied, but severely burned areas (e.g., within some areas of the Rodeo-Chediski Fire on the Mogollon Rim in Arizona), failed to locate Mexican spotted owls." This sentence is not included to say that all areas that burned with high-severity can no longer support owls, just to provide the contradictory view of the sentence prior to it which states that owls continue to use some areas impacted by high-severity fire. It is also not an articulation of the potential effects of salvage logging as the former PACs we refer to here were not salvage logged. In addition, surveys were completed to protocol.</p>
T-70	B. Byrd C. Hanson, WEG and EII	<p>Similarly, on page 197---198, the Draft Plan cites an unpublished, and unavailable, report by Stacey and Hodgson (1997), which the Draft Plan claims found a reduction in MSO occupancy in four MSO territories affected by “a large wildfire”, though no statistical results are presented to support this. The Draft Plan fails to identify the fire in question in this unpublished report, or the extent of post---fire logging in the areas studied.</p>	<p>We agree that details are sketchy for this reference, that inference from this reference is extremely limited as a result, and that the report is generally unavailable to the interested public. We initially included this report despite these issues, in an attempt to be inclusive in terms of existing literature. However, based on this comment and the valid issues raised, we have deleted all references to this material.</p>

No.	Signator, Affiliation	Threats (T) Comment	Response
T-71	B. Byrd C. Hanson, WEG and EII	Several scientists, including myself, conducted an analysis of post--fire spotted owl occupancy in burned/unlogged areas versus burned/logged areas, and the data indicate a substantial adverse effect of post--fire logging on occupancy, but no adverse effect of fire alone. A discussion of this analysis is found on pages 4--5 of the comments, submitted on December 15, 2010, on the Draft Recovery Plan for the Northern Spotted Owl (under the subject heading "Need to Comprehensively Evaluate Spotted Owl Occupancy and Fire"). These comments are attached hereto as Exhibit C below, and the portions relevant to the discussion herein are fully incorporated by reference into these comments on the Draft MSO Recovery Plan.	See response to comment B-25.
T-72	B. Byrd C. Hanson, WEG and EII	Finally, the Draft MSO Recovery Plan (page 256) explicitly allows post--fire logging not only within MSO home ranges after fire, but also within MSO PACs following fire. While the Draft Plan (p. 256) contains some vague cautionary notes about such practices, the Draft Plan totally fails to prohibit post--fire logging within MSO homes ranges, even post--fire clearcutting and its variants. This is a major, fatal flaw of the Draft Plan. As Bond et al. (2009) recommended, no post--fire logging should be allowed within owl home ranges—at least within a 1.5 km radius of nest sites.	We recommend surveying for owls after fires, and conducting salvage logging only after thorough analysis of the effects of proposed salvage and in section 7 consultation with FWS. A recovery plan is advisory and does not prohibit activities.
T-73	B. Byrd C. Hanson, WEG and EII	The Draft Plan fails to adequately evaluate the threat posed by landscape--level logging via thinning to the MSO. Instead, the Draft Plan (pages 252---255, 278---281) simply assumes that thinning merely mitigates and alleviates the threats that the Draft Plan assumes are posed by fire and insect mortality, and even authorizes logging in MSO PACs in this context. In fact, logging is not even mentioned in Appendix D, which describes the existing threats to the MSO. Nowhere does the Draft Plan include any sound scientific evidence that fire or insect mortality at current levels are actually harming MSOs, and the Draft Plan minimizes the importance of an abundance of snags for the spotted owl's prey base.	Our rationales for our management recommendations are provided throughout Appendix C (which now includes the recommendations from appendices C and D in the draft plan).

No.	Signator, Affiliation	Threats (T) Comment	Response
T-74	B. Byrd C. Hanson, WEG and EII	<p>Moreover, the only reference that we could find to an acknowledgement of any potential threats posed to spotted owls by thinning was a brief mention, on page 189 of the Draft Plan, to Seamans and Gutierrez (2007), but the Draft Plan only states that this study “evaluated the effects of mechanical treatments on the habitat of spotted owls”, and failed to mention the findings of this study. Seamans and Gutierrez (2007) found that mechanical treatments (e.g., thinning) of as little as 20 hectares (about 50 acres) within the 400--- hectare home range core area of spotted owls reduced colonization of territories by spotted owls, and increased the probability of breeding dispersal away from territories— both substantially negative indicators for spotted owl conservation. Similarly, U.S. Forest Service researchers, in a radio--telemetry study of an area with mechanically thinned and unthinned areas, found that spotted owls selected against the mechanically thinned areas (called “Defensible Fuel Profile Zones”, or DFPZs), and the effect was highly significant statistically, at p = 0.006 (Plumas Lassen Study 2010, pages 124---125) (see <a href="http://www.fs.fed.us/psw/topics/ecosystem_processes/sierra/forest_health/plas/plas_annual_report_2010.pdf">http://www.fs.fed.us/psw/topics/ecosystem_processes/sierra/forest_health/plas/plas_annual_report_2010.pdf</a>).<sup>3</sup> Similarly, Dugger et al. (2011) (in press in Ecological Applications) found that thinning and its variants reduced the competitive advantage that spotted owls have in dense, old forest relative to the more aggressive barred owls, and exacerbated the negative effects that barred owls have on spotted owl occupancy. The failure of the MSO Draft Plan to account for and evaluate this new evidence, which is well---known to spotted owl scientists and federal land management agencies, is unacceptable, and the Draft Plan’s failure to list thinning as a threat or potential threat to the MSO is another major, fatal flaw.</p>	See response to comment B-31.
T-75	B. Byrd C. Hanson, WEG and EII	<p>In light of the foregoing, and the analysis on pages 4---5 of Appendix B below, the Draft Plan’s failure to list post---fire logging as a current or potential threat to the MSO, in the Threats and Threat Assessment section (pages 41---77) or Appendix D, is a serious flaw. We do not believe that any Recovery Plan, especially this one, can be successful without directly addressing the threat posed by post---fire logging and prohibiting this practice within spotted owl home ranges. This is a major flaw in the Draft Plan, one which we hope the U.S. Fish and Wildlife Service will rectify in the final version.</p>	<p>First, as we have documented in previous coments, the commenters grossly overstate the case for documenting impacts of salvage logging on spotted owls. Their conclusion is largely based on a single study, critical examination of that study does not support their assertions on the impacts of salvage logging alone, and in a later peer reviewed paper resulting from that study, the authors made no recommendations on salvage logging. Second, our recommendations in this plan call for surveying for owls in post-fire landscapes, and allow salvage logging only when owls are not located. This seems reasonable to us in the context of this plan. There are many valid ecological arguments against salvage logging, and we certainly do not encourage salvage logging in this plan. However, this is an owl recovery plan. If owls are no longer occupying those post-fire landscapes, then prohibiting salvage logging based on owls is beyond the purview of this plan.</p>

No.	Signator, Affiliation	Threats (T) Comment	Response
T-76	B. Byrd C. Hanson, WEG and EII	Unfortunately, year round intensive domestic livestock grazing continues in MSO protected and recovery habitat especially in the UGM, BRE and BRW EMUs. We've attached an excel spreadsheet demonstrating the numbers of active grazing allotments on the Gila and Apache---Sitgreaves National Forests (limited in this case by the Blue Range Wolf Recovery Area boundaries) that have perennial water sources. (Exhibit A). In many of these allotments, year round grazing is authorized and the Forest Service and FWS do not have monitoring information on habitat conditions or MSO occupancy.	Thank you for this information as we did not have this available. Monitoring information is important to better assess range condition given these grazing levels. We presume that the action agencies will gather this information as they implement the recovery plan.
T-77	T. McKinnon, R. Silver, CBD	The failure by FWS and USFS to monitor owl populations and owl population responses to fires and forest management is itself a threat to the owl because those failures preclude developing understanding owl population responses to fire and forest management upon which recovery strategies can be based. The DRP's statement that "...the total documented population size has increased with the additional surveys throughout the range (i.e., populations on NPS lands, and others)" is disingenuous. DRP at 38, 83. The additional surveys do not establish an increase in population size. The additional surveys only document a more expansive range than previously known. The final recovery plan's threat assessment should list scientific uncertainty and failure to research and monitor Mexican spotted owl as a threat to the species.	The plan clearly identifies the knowledge gaps in our understanding of spotted owl populations and the effects of activities (and lack of activities) on those populations. The statement that the number of known sites has increased with increased survey effort is factual. The text clearly qualifies this statement so as to not be disingenuous. We do not believe scientific uncertainty and a lack of research qualifies as a threat to this or any other species.

No.	Signator, Affiliation	Process (P) Comment	Response
P-1	M. Pastor, Gila County, Arizona	Gila County has been identified as having jurisdictional lands within at least parts of 4 locations designated as MSO Critical Habitat (BR-W-4, BR-W-5, BRW-6, UGM-10). As such Gila County must be coordinated with by USFWS as an interested stakeholder with special standing regarding any currently planned or future planned Revisions to the MSO Recovery Plan. In other words the County needs to be consulted at the earliest stages of the Revision process and throughout the process.	The intent of the recovery plan is to involve local stakeholders by way of EMU Working Teams.
P-2	M. Pastor, Gila County, Arizona	A copy of the adopted Land Use Resource Policy Plan for Gila County, Revised September 16, 2010, is available on our website at <a href="http://www.gilacountyaz.gov/DepartmentFiles/CommunityDevelopment/FINAL201OLandUseandResourcePolicyPlan0916201O.pdf">http://www.gilacountyaz.gov/DepartmentFiles/CommunityDevelopment/FINAL201OLandUseandResourcePolicyPlan0916201 O.pdf</a> . Contained within this document is the County's policies regarding working with Federal agencies as well as regarding natural resources in Gila County.	See response to comment P-1.
P-3	R. J. Lee, Apache County, Arizona	This mission as well as implementing the updated MSO Recovery Plan will work much better when done with the support of local citizen. Local citizen support is only gained through open honest communications and when a sense of fairness is part of the equation. The FWS needs to honestly consider the impacts of the updated MSO Recovery Plan actions on the local citizens.	See response to comment P-1.
P-4	T. McKinny, R. Silver, CBD	The Recovery Plan should be subject to peer review by the following spotted owl researchers and professional societies: Drs. Rocky Gutierrez, Peter Stacey, Barry Noon, The Society for Conservation Biology, The Wildlife Society and Ecological Society of America.	The Wildlife Society, Ecological Society of America, American Ornithological Union, and Society of American Foresters were offered payment to provide peer review; only the ESA chose to do so. Further, nine well-respected and established scientists and professionals were asked to peer review the plan. A complete list of reviewers solicited is in our administrative record.

No.	Signator, Affiliation	Content/Organization (CO) Comment	Response
CO-1	M. Morrison, TAMU	8: Inclusion of a Glossary is nice. However, your definition of habitat (“...required by an organism...”) is vague in that you need to state it is species specific. On this page you seem to confuse habitat type with habitat in usage (or at least I cannot determine what you mean). This is an important distinction so people know if you are talking about the general vegetation type (the term I would sue rather than “habitat type” to avoid confusion) or the specific conditions (i.e., habitat) used by the owl.	The definition for habitat was taken from Block and Brennan (1993; Current Ornithology). We have followed the suggestion for use of habitat type throughout the document.
CO-2	M. Morrison, TAMU	25: Forest type seems to be used synonymously with habitat type but is unclear; the former should be included in the Glossary.	Forest Type was added to the Glossary.
CO-3	M. Morrison, TAMU	31: Here you have “forested habitat”; again, terminology is confusing.	We think forested habitat conveys the concept that these are forests potentially used by owls. We do not find this confusing.
CO-4	M. Morrison, TAMU	34: Another example of mixing habitat and habitat type; again, I would sue vegetation type instead of habitat type.	We have reviewed and edited the document in various places to ensure that we use these two terms appropriately.
CO-5	M. Morrison, TAMU	37: “mortality” is a rate; fatality is the act of dying. You improperly use “mortality” in many places when you really mean fatality.	We have reviewed and edited the document in various places to ensure that we use these two terms appropriately.
CO-6	M. Morrison, TAMU	156: Your Literature Cited seems to end prematurely; for example, Willey citations are not included (stops at Welty).	This has been fixed.
CO-7	M. Morrison, TAMU	Appendix B: Is unnecessary and makes the document cumbersome. I would split it off and provide online only as a “supplement”.	Presumably, the format of the plan is such that readers can download sections of the plan they deem important. Thus if a reader has no use for Appendix B, they need not download it.
CO-8	M. Raphael, PNW	Box 1, page 9. This acronym (PAC) has not been defined.	PAC is now defined the first 2 places where it was presented.
CO-9	B. Burger, AGFD	Among the most frustrating recurring issues in this regard was apparent miss-identification of some of the tables, boxes, etc. as they were referred to in the text. The documents should be fully reviewed with this level of detail in mind.	There were many edits and reformattings of the draft, which caused some glitches in the cross-referencing. We believe we have corrected those.
CO-10	B. Burger, AGFD	pages 10-20. EMU maps. Add at least a few cities, highways, labeled rivers, and/or other points of reference to maps to help orient the reader. E.g although the Upper Gila Mountain EMU can be seen as in central AZ it’s specific location relative to Payson, Highway’s 87 and 260, Tonto Creek, the Tonto/Coconino/A-S forest boundaries, etc. is unclear based on the maps.	These improvements have been made.
CO-11	B. Burger, AGFD	pp. 73-76. Table 3 seems quite useful in terms of orientation in the overall document and finding areas of management interest. That said it perhaps could be moved forward in the document (perhaps even shortly following the table of contents rather than starting on p.73. Also, the set-up of the table, broken into 2 parts “Appendix Section” then “Appendix D Section” was somewhat confusing especially since parts of Appendix D were included in the initial portion of the table.	We have reformatted this table (now table IV.1) and believe it is now more understandable and user-friendly.
CO-12	B. Burger, AGFD	Maps on pp. 248-9. Figures B.8. and B.9. are not well presented. I didn’t note references to them in the text (and couldn’t find such references when I searched for them – again indicating possible problems with table and figure citations). The area covered by the figures is also unclear (where are these). The purpose of the figures is not clear from their legends.	See response to comment CO-9.
CO-13	B. Burger, AGFD	p.308 Figure E.1. <i>The “arrows at the bottom of the table” referenced in the legend do not show in the figure.</i>	This edit was made to (now) Figure D.1.

No.	Signator, Affiliation	Content/Organization (CO) Comment	Response
CO-14	J. Driscoll, AGFD	Executive Summary. The document needs to reference a back-up plan. That is, in this political and economic climate, to say that the species will be recovered in 10 years if \$42 .6 million is spent on the species is wishful thinking at best. There is no way that Congress will approve that amount of money on one species any time within the next 10 years. To that end, you could say that multiple species could be recovered in that time frame if \$5 billion was spent on eliminating greenhouse gases thus reducing the effects of climate change. Same wishful thinking.	We see no need to have a "back-up plan". We believe the approach to management detailed in the plan will be effective if implemented. Nowhere does the plan state that its implementation depends on congressional appropriations; we envision that the plan be implemented among many entities and the costs be shared accordingly.
CO-15	J. Driscoll, AGFD	Bigger Picture. This plan describes how to manage forests to meet habitat conditions for the recovery of the MSOW, but how do these management prescriptions cross-checked with the Management Recommendations for the Northern Goshawk. It seems there should be some mention of how the two relate, and how differences will be handled.	We have not conducted a formal analysis of the correspondence between the goshawk recommendations and this recovery plan, nor have we done so for the many other species whose ranges overlap the owl. We think, however, that with exception of PACS, which represent about 3% of the forested landscape, there is wide latitude to manage forests to meet the needs of both the owl and goshawk.
CO-16	S. Harger, Coconino Natural Resource Conservation District (CNRCD)	<u>p.41 paragraph II.9.A.a</u> Text refers reader to an assessment of the current situation "...in Part 8.B, below..." However there doesn't seem to be a corresponding Part, other than the very brief 9.B. Perhaps Part 9.D, Factors Affecting the Mexican Spotted Owl in the US, was intended?	See response to comment CO-9.
CO-17	S. Harger, CNRCD	<u>p.263 paragraph App C.4.B.a</u> Text refers readers to discussion in paragraph I.C.2.a. This should probably refer to paragraph II.9.D.a.	See response to comment CO-9.
CO-18	S. Harger, CNRCD	<u>p.281 paragraph App D.3</u> Text refers reader to discussion in paragraph I.C.2.a.vii. This should probably be paragraph II.9.D.a.vii.	See response to comment CO-9.
CO-19	S. Harger, CNRCD	<u>p.281 paragraph App D.3</u> Text says there are <b>four</b> indirect effects, but lists only <b>three</b> .	Changed to 3.
CO-20	S. Harger, CNRCD	<u>p. 366 App J</u> Should add Deer mice, <i>Peromyscus spp.</i> to this list. By the way, this list jumps back and forth from singular to plural common names.	This entire appendix (now Appendix I) has been revised and corrected.
CO-21	S. McVean, AGFD	It is unclear whether this revision is intended to be a stand-alone document. A stand-alone document is preferable since it is cumbersome and confusing to have to reference two large documents.	This is now clarified in Part I.D.
CO-22	S. McVean, AGFD	Implementation and Oversight. There is an erroneous description of UDWR as Utah Department of Wildlife and Recreation. UDWR is the acronym for Utah Division of Wildlife Resources.	This has been corrected throughout the document.
CO-23	S. McVean, AGFD	Tables and figures. These are hard to find. It would be nice if they were located on the next page after their first reference.	In most cases we placed the tables and figures as soon as practicable after the first time referenced in the text, but this was not practicable in some instances; for example, the EMU maps are all placed together at the end of the EMU write-ups rather than interspersed within the EMU section. We encourage readers to make use of the list of Tables, Figures, and Boxes at the end of the Table of Contents.

No.	Signator, Affiliation	Content/Organization (CO) Comment	Response
CO-24	S. McVean, AGFD	Literature Cited. This section is incomplete. It appears to be truncated after Welty, i.e., no Willey, Zimmerman etc.	We are unsure how this happened, but it has been corrected.
CO-25	S. McVean, AGFD	Appendix C. Boxes II.E.1-3 (referenced on pp. 252-3). These are not listed in the TOC and we could not locate them in the document.	See response to comment CO-9.
CO-26	S. McVean, AGFD	Appendix E. Apparently there will not be a certification process for surveyors (such as there used to be for owls and still is for willow flycatchers). A reference is made to meeting training standards but these are not described.	Training standards have been added to the protocol (Appendix D).
CO-27	S. McVean, AGFD	A complete inventory requires two years of surveys. Clarify whether these two years must be consecutive.	This has been clarified in the survey protocol (Appendix D).
CO-28	S. McVean, AGFD	Stand-alone revised RP vs. revision to original RP. At the bottom of page 252 the draft states "The following guidelines pertain...and supersede all other guidelines within the 1995 Recovery Plan: ..." On page 319, there is a reference to the EMUs to be included in population monitoring. In order to determine which are included, the reader must reference the original RP or already be familiar with it. Whether it is a revised Recovery Plan or only some sections supersede the original RP, this should be made clear in the introduction.	The revised Recovery Plan recommendations will supersede the recommendations in USDI FWS (1995). Regarding the second part of this comment, there is no need to reference the original Recovery Plan (USDI FWS 1995) in order to understand the population monitoring procedures.
CO-29	K. Frye, Hawk Watch International	In Table 8, the authors outline the priorities based on threats to the MSO, but we propose a section in the document and executive summary that covers this issue and includes suggestions of how recovery actions for MSOs might dovetail with current forest restoration objectives for multiple scales, to allow for more efficient use of future available funding.	The table displays tasks and costs for recovery actions. It is the responsibility of each action agency to explore efficiencies.
CO-30	K. Frye, Hawk Watch International	Lastly, on page 308, the caption indicates that there should be an arrow indicating the best time of year to perform successful surveys, and in the PDF version online, the arrow does not appear.	This edit was made fo Figure D.1.
CO-31	B. Hotze, FWS-UT	On page 11, under the Colorado Plateau description, Wyoming is included as part of this Ecological Management Unit. We are not aware of owls occurring in Wyoming nor is Wyoming included in the Colorado Plateau in Figure 2. Please clarify the wording in the document.	See response to comment CO-24.
CO-32	B. Hotze, FWS-UT	The literature cited section appears to be missing citations. For example, none of the Willey citations are included.	See response to comment CO-24.
CO-33	S. Temple, ESA	The recovery team's ranking of priorities for action will probably guide decisions about which activities will be sidetracked. In view of that reality, and assuming there will actually be a serious overall emphasis on adaptive management, it appears to me that monitoring activities deserve a higher "priority number" among the many actions listed in Table 8. Two of the four top-ranked activities involve habitat manipulations to reduce fire risk that can be considered experimental in terms of their effects on owl habitat. None of the top-ranked actions involve monitoring, which is required to assess the efficacy of management and make adjustments.	As stated under "Key to the Implementation Table below by column" heading which precedes the table, Priority 1 actions are those "necessary to prevent extinction or irreversible decline." We believe all of the recommended actions are important, but not all meet this definition, which is contained in the FWS' recovery planning guidance.

No.	Signator, Affiliation	Content/Organization (CO) Comment	Response
CO-34	S. Temple, ESA	Inadequate discussion of how plan affects other species.—In as much as the plan is taking an approach that moves in the direction of ecosystem management, I was surprised that there was not more discussion of how the proposed management activities might affect other species that occupy the same habitats as owls. Although the plan is focused on the owl, the impacts of recovery actions on other species need to be considered.	We agree that it is important to consider the effects to other resources when implementing recovery actions recommended in the plan. However, to do so within the plan itself would be a monumental undertaking and beyond the scope of the recovery-planning process. Plus, given the variety of situations in which a given recommendation might be implemented, we believe that a site-specific, project-specific analysis of impacts by the implementing entity is preferable.
CO-35	S. Linner, U. S. Fish and Wildlife Service-Colorado (FWS-CO)	Pg 6, 2nd paragraph. Sentence says that "all national forest plans were amended in 1996 to incorporate management recommendations in the 1995 MSO recovery plan." We think it would be more accurate to say that national forests in the southwest region amended their plans, since we don't know of any in Colorado that were amended for the MSO.	This point is now clarified in the Executive Summary.
CO-36	S. Linner, FWS-CO	Pg. 8, 1st bullet, last sentence. Discussion on mechanical treatments is not clear how it relates to PACs here. We understand the intent here but think point could be made clearer.	Added PACs to this bullet in the Executive Summary.
CO-37	S. Linner, FWS-CO	Pg. 14, Table of Contents, Part VII, Appendix H. Replace "own" with "owl."	Done
CO-38	S. Linner, FWS-CO	Pg 17, Appendices A-I-I. Is "wildland-fire use" now the correct term?	No, 'wildland fire use' is now an obsolete term. The recovery plan has been edited to include the new policy and terminology throughout the document. A 2009 revision of the 2003 Interagency Strategy for the Implementation of Federal Wildland Fire Management Policy distinguished between two kinds of wildland fire: prescribed fire (planned ignitions), and wildfire (unplanned ignitions).
CO-39	S. Linner, FWS-CO	Pg. 21, 3rd paragraph, 2nd sentence. Sentence starting with "Although we know of recent. .. " is awkward and intent is not clear.	We edited the language for clarity.
CO-40	S. Linner, FWS-CO	Pg. 22, owl site box. Use of text boxes breaks up flow of discussion. It is unclear why this particular information is in text box and not in regular text.	We use boxes specifically not to break the flow of the document. They contain useful information at a level of detail that would otherwise detract from the key points in the main part of the text.
CO-41	S. Linner, FWS-CO	Pg. 24, Figure II.B.I. The Colorado Field office would like to see a detailed map that provides some level of reference so that we can better see the new dividing line between the CP and SRM.	This comment is reflected in the improved maps.
CO-42	S. Linner, FWS-CO	Pg. 26, 4th paragraph. We should note that white fir only appears to extend about halfway up into Colorado on the Front Range (ends around Colorado Springs). The northern canyons in Colorado do not contain white fir.	These are just general descriptions, so an edit restricted to one location not needed here.
CO-43	S. Linner, FWS-CO	Pg 26, last paragraph. It not clear if this section is describing activities that just occur in the EMU or ones that are actually a threat to the MSO. We don't think that downhill skiing especially is a threat to the MSO since downhill skiing occurs at high elevations in deep snow in spruce-fir and lodgepole forests.	We have edited this section by clarifying those activities that are potential threats.

No.	Signator, Affiliation	Content/Organization (CO) Comment	Response
CO-44	S. Linner, FWS-CO	Pg. 39. 1st paragraph. Discussion on forest types is unclear here. Is this meant to include all forest types that provide habitat nesting, roosting, and foraging for MSO, as stated in the first sentence? If so, why are ponderosa pine, spruce-fir, and aspen included here, while on page 290, this plan says that these cover types do not provide MSO nesting and roosting habitat and are considered other forest types, as shown on page 290: "Other Forest Types and Woodlands - We propose no specific guidelines for several forest and woodland community types where they occur outside PACs, These include ponderosa pine, spruce-fir, pinyon-juniper, and aspen as defined in II C. However, the lack of specific management guidelines within this plan does not imply that these forest and woodland types are unimportant to the Mexican spotted owl. This point should be made clear upfront in the document. We are going to create a lot of confusion if we say that spruce-fir and aspen provide nesting and foraging habitat.	We include these other forest types in the this so managers can distinguish them from the "owl" types when they might overlap.
CO-45	S. Linner, FWS-CO	Pg. 44, Definitions of rocky canyon habitat. We are concerned that the canyons must be at least 1km. We think this length is a good descriptor of canyon size in which MSO are typically found, but think this too absolute and think that some canyons will be overlooked as owl habitat if they are not at least 1km.	We state that these definitions are those "typically" used, thus local land managers can adjust as local data dictate.
CO-46	S. Linner, FWS-CO	Pg. 46, 2nd paragraph. The text on nesting and roosting habitat discusses AZ, NM, and Utah but leaves out CO and Texas.	Texas is specifically discussed, but Utah is used as an example not necessarily at the exclusion of Colorado. The section highlights published studies, and there isn't much published from Colorado.
CO-47	S. Linner, FWS-CO	Pg. 47, Migration and Wintering Areas. This discussion on winter movements should also include the telemetry work by Charles Johnson.	Charlie Johnson's work is discussed in the more inclusive Appendix B.
CO-48	S. Linner, FWS-CO	Pg. 48, Table II E 1. It is not clear what the intent is for the most right hand column "Potential Variables" and how that information is to be used.	Potential variables are merely recommendations of how to measure particular DFCs.
CO-49	S. Linner, FWS-CO	Pg. 55, Threats discussion is confusing between threats identified for listing and for current threats. Text needs to be made very clear to the reader which is being discussed.	These are clearly identified within titled subsections of the text.
CO-50	S. Linner, FWS-CO	Pg. 59, Third paragraph. Provide reference for sentence about anecdotal evidence on burned PACs continuing to be occupied.	We note the RT members have personally observed owls occupying sites after fire.
CO-51	S. Linner, FWS-CO	Pg. 63, 4th paragraph. The text states that we don't consider even-aged timber management to be a threat, but what do we think about uneven-aged timber management? It is our understanding that at least USFS R2 is now putting more emphasis on uneven-aged management.	We believe that uneven-aged silvicultural methods are more compatible with spotted owl habitat needs than even-aged systems, but acknowledge that any silvicultural treatments must be designed and evaluated site-specifically to assess effects.
CO-52	S. Linner, FWS-CO	Pg. 97, Dinosaur National Monument. Note that MSO surveys were conducted in Dinosaur National Monument in 2006 in side canyons on the Yampa River. The CO and Utah FWS field offices participated in this survey.	We note the unsuccessful surveys that were conducted in 2006 in this section.
CO-53	S. Linner, FWS-CO	Pg. 102, iv. Sentence that BLM in Colorado has been managed under the 1995 recovery plan recommendations raises question about how other BLM offices are managing MSO habitat.	We discuss how BLM is managing under the plan in appendix G.1.A.iv.

No.	Signator, Affiliation	Content/Organization (CO) Comment	Response
CO-54	S. Linner, FWS-CO	Pg. 110, f. Regarding the tribes in CO, there should be some mention of the Ute Mountain Ute tribe. Although they did not respond to requests for information, there have been owls identified on their lands. Could we provide text similar to what was said for the White Mountain Apache tribe?	We now mention in Appendix G that other tribes have not provided information and that we are only discussing the information on tribes who have granted permission to do so.
CO-55	S. Linner, FWS-CO	Pg. 118, last paragraph. Regarding the reference "(but see Stacy and Peery 2002)", this suggests that this reference provides alternate information. If so, what does it say?	Stacy and Peery documented extirpation of owls from isolated mountain ranges and those so inclined can read that paper for the details.
CO-56	S. Linner, FWS-CO	Pg. 210, Item 3. In parentheses, remove word "also".	We cannot find the "also" referenced by the commenter.
CO-57	S. Linner, FWS-CO	Pg. 123, 6.9.2. Can we provide any recommendations for helicopter flight distance to nests, or do we think the noise disturbance guidance covers that?	This recommendation is based on the noise level and distance will vary by topography, forest density, etc.
CO-58	S. Linner, FWS-CO	Pg. 129, Monitoring MSO habitat. Guidance that we leave the habitat monitoring up to management agencies to determine best methods is a little too vague and leaves room for inconsistencies on such an important issue.	We recommend at FWS convene a team of representatives of management agencies and other interested parties to design, plan, and oversee implementation of monitoring.
CO-59	S. Linner, FWS-CO	Pg. 130, Item 4. Discussion that landscape analyses are "required", under what guidance are these "required" and for what purpose?	They are not "required in a regulatory sense, but are necessary, and therefore required, to appropriately apply the plan recommendations.
CO-60	S. Linner, FWS-CO	Pg. 193, 2nd paragraph. Text should also say that owls in the SRM EMU are mainly found in canyons, at least in CO.	We discuss areas as examples for which we have information. We recognize that many CO birds nest in canyons but have insufficient information to elaborate to any great extent.
CO-61	S. Linner, FWS-CO	Pg. 201, Box E.1. There is some redundant information in the text box. Also, the use of the text box creates a disruption in the flow of the text and creates a level of confusion about why that information was pulled into the box.	The very purpose of boxes is specifically to not break the flow of the document. They contain useful information at a level of detail that would otherwise detract from the key points in the main part of the text. Although we made some effort to minimize redundancy, in cases where a stand-alone box embellishes on the text such repetition is helpful to those who choose to read the box.
CO-62	S. Linner, FWS-CO	Pg. 202, paragraph 1. Example of rocky canyon habitat should also include BLM lands near Canon City, which is our stronghold ofMSO in CO.	We have added information on Canon City (G.I.a.iv).
CO-63	S. Linner, FWS-CO	Pg. 203. D. SRM. Why is this only the NM portion? Why is there not discussion for CO? Overall, this docunlent seems to ignore or leave out much of the information on MSO in CO.	We discuss areas as examples for which we have information. We recognize that many CO birds nest in canyons but have insufficient information to elaborate to any great extent.
CO-64	S. Linner, FWS-CO	Pg. 203, 1st paragraph. We object to the references of spruce-fir providing MSO habitat in CO. We find owls in mixed conifer (ponderosa, Douglas-fir, and white fir) in CO and while there are some spruce-fir trees interspersed at our highest location (Devil's Head PAC), this is still primarily a mixed conifer forest. To say that MSO in CO occupy spruce-fir habitat types is misleading.	We do not say that these are spruce-fir forests; we state that they contain more spruce and fir than mixed-conifer in other places. It would be still be classified as mixed-conifer, though.
CO-65	S. Linner, FWS-CO	Pg. 219, Box E.2, Table I. Why are Carson NF and Prescott NF in this table? It looks like they didn't have any PACs that burned.	In the original analysis, these forests did not have burning in PACs by fires >1,000 acres according to the MTBS data. Subsequent re-analysis was partitioned by larger EMUs rather than by National Forest.

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CO-66	S. Linner, FWS-CO	Pg. 291, Box E.2, Table 1. Why isn't CO in this table? Our most northern PAC, Thunder Butte, had a large amount of habitat that burned in the 2002 Hayman fire.	We did not have boundaries for PACs in Colorado, and therefore they could not be included in the analysis.
CO-67	S. Linner, FWS-CO	Pg. 220, Box E 2, Table I. Why isn't Mesa Verde NP in this table also? A lot of MSO habitat here has burned in recent fires.	See response to comment CO-66.
CO-68	S. Linner, FWS-CO	Pg. 277, 4th paragraph under Management Recommendations. What is the reasoning for removing the category for protected steep slopes and combining all non-PAC habitat into "recovery habitat"? From what we see in CO, it seems like steep slopes and topographic relief are still important. Pages 203 and 232 of this document also suggest an importance of topographic relief.	We agree that steep slopes are important to the owl in many parts of its range. However, giving them protected status just on the basis of their topography seems unjustified. Steep slopes found in relation to an owl site can be protected within a PAC. Other steep slopes of pine-oak and mixed-conifer forests are treated as Recovery Areas and should be managed accordingly.
CO-69	S. Linner, FWS-CO	Pg. 278, 2nd paragraph. We're not convinced that MSO use of high elevation forests in CO varies by longitude. Also, it should be noted that we do not have a record of owls breeding at 9,000 feet in CO. We had a pair at this site, and despite mousing efforts, breeding was never identified. We think that surveys may be appropriate at higher elevation in mixed conifer habitats, but not in spruce fir. We don't agree that all areas below 9,000 feet should be managed as recovery habitat - only those with mixed conifer.	We removed longitude from this paragraph. Recommendations note that areas to be surveyed are those with potential of having owls. If spruce-fir is not deemed habitat, it should not be surveyed.
CO-70	S. Linner, FWS-CO	Pg. 280, Activities outside core areas, item a. Why should habitat altering activities in PACs only "coordinate" with FWS? Why isn't consultation recommended here?	Whether section 7 consultation is required is legally specified in the ESA and its implementing regulations, and it is likely that some projects will require consultation while others will not. The recommended coordination would be the venue for making such determinations.
CO-71	S. Linner, FWS-CO	Pg. 280, f. Regarding the Rx burns, please be clear whether or not these burns constitute the 20% of fuels reduction treatments that will be allowed in PACs per EMU.	We have clarified this throughout the document.
CO-72	S. Linner, FWS-CO	Pg. 281, D, a. Why do only activities in the core area require consultation - why not the whole PAC?	The plan has been clarified in numerous places to indicate that any action that may affect the owl should go through Section 7 consultation.
CO-73	S. Linner, FWS-CO	Pg. 281, d. If we understand correctly, trail and road construction can occur in PACs but not the core areas - is this interpretation correct?	New trail and road construction is not recommended to occur in PACs, particularly in core areas. However, in some cases there are existing roads and trails in PACs that will need to be maintained.
CO-74	S. Linner, FWS-CO	Pg. 281, a. What is the basis for using the 400 m buffer around PACs? Is this the only activity where we recommend a 400 m buffer around PACs?	We recommend 400-m (0.25 mi) buffers for survey areas around PACs post-fire/pre-salvage, as a distance from a PAC boundary where detections should be evaluated to determine if they belong to an existing or perhaps new PAC, and for minimizing disturbance. This distance was chosen because we tried to strike a balance between excessive distances for surveys and management actions and protecting the owl. The distance is supported by science (e.g., Delaney et al. 1999) and the best professional judgement of the Recovery Team.

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CO-75	S. Linner, FWS-CO	Pg. 282, a. We should be very clear about under which circumstances we think only one season of surveys are acceptable.	We have attempted to clarify these reasons under "expedited surveys" in the salvage section of Appendix C.
CO-76	S. Linner, FWS-CO	Pg. 283, b. Regarding decommissioning, we should be specific about how many years of surveys are required - since we said in previous paragraph that "failure to detect owls in a few years does not indicate that an area no longer provides habitat, or that protecting such habitat is inappropriate." We are concerned that 2 years of surveys are not enough to decommission a PAC.	Requirements for surveying are established. There is some risk that within 2 years we may fail to detect birds, but since considering decommissioning must be based on an extreme habitat modification or poor information to originally designate PAC, we think that risk is relatively small.
CO-77	S. Linner, FWS-CO	Pg. 283, c. This topic should be its own heading as "PACS that have undergone substantial change", similar to PACs that were based on information that does not meet Recovery Plan definition of owl site.	We maintained the original header (How can PACs be decommissioned?), but have added more clarification regarding when this is appropriate.
CO-78	S. Linner, FWS-CO	Pg. 283, accelerated survey. We should be clear about when an accelerated survey is appropriate.	We have attempted to clarify when "accelerated surveys" are appropriate after fire or other large-scale disturbances (C.3.a.v).
CO-79	S. Linner, FWS-CO	Pg. 285, b. Do we still have the concept of "target" stands for stands that do not meet the Table II E 2 conditions but are being managed towards those conditions?	The concept remains, but the terminology has changed.
CO-80	S. Linner, FWS-CO	Pg. 286, C. For treatments in replacement stands, we are concerned that we need to conduct fuels reductions in stands that do not meet Table II E 2.	If the percentage of replacment area exceeds the goal across the landscape, stands can be lowered below desired conditions in those "surplus" stands. If not and the stand meets or exceeds recommended conditions, treatments may still occur provided levels are not reduced below those conditions.
CO-81	S. Linner, FWS-CO	Pg. 290, Other Forest Types. Note that other forest types identified here include spruce-fir and aspen and these are not used for nesting and roosting. We agree With the inclusion of these forest types in this category and want to emphasize this point in the event that surveys are requested in these forest types.	Non-comment.
CO-82	S. Linner, FWS-CO	Pg. 291, Table II E I. The purpose of this table and the importance of DFCs should be better explained.	We have revised the heading in(now) table C.2 to articulate the purpose and importance.
CO-83	S. Linner, FWS-CO	Pg. 295, Figure II E I. Footnote should be included to better explain the percentages.	We cannot find a figure II.E.1 in the draft plan, but if you refer to the map developed by ForestERA, percentages appear in the narrative.
CO-84	S. Linner, FWS-CO	Pg. 301, Box II E 6-1. We are concerned that the analysis of nest stand only used data from AZ and NM and not Utah and CO.	We had no available data from CO or UT to analyze.
CO-85	S. Linner, FWS-CO	Pg. 304, i wildfire suppression. Why consult only on PACs, why not recovery habitat also?	Any action that effects a listed species or its habitat should undergo consultation with the FWS. We have attempted to identify many circumstances where consultation should occur within the Revised Recovery Plan, but ultimatley, action agencies need to determine consultation needs based upon law and regulation.
CO-86	S. Linner, FWS-CO	Pg. 305, iii. Why consult only on PACs, why not recovery habitat?	See response to comment CO-85.
CO-87	S. Linner, FWS-CO	Pg. 309, Guidelines ii. Sentence says utilization should be light to moderate intensity in protected and "replacement" habitats. Why is this "replacement" and not "recovery" habitat?	This should be recovery habitat and not replacement habitat. It has been corrected.

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CO-88	S. Linner, FWS-CO	Pg 310. Guidelines for energy. Text sounds like we will be consulting on actions in recovery habitat for energy, but it didn't sound like we would be consulting on fuels activities in recovery habitat - we need to be consistent and clear about consultation requirements.	See response to comment CO-85.
CO-89	S. Linner, FWS-CO	Pg. 310, Guideline. Sentence says we should site structures away from owl travel corridors - have we defined "owl corridors" somewhere?	Didn't we get rid of the word "corridors"?
CO-90	S. Linner, FWS-CO	Pg. 311, i. How well does this guidance correlate with the energy guidance already being used in Utah?	
CO-91	S. Linner, FWS-CO	Pg. 311, Land Development, i. Regarding sentence that managers are encouraged to pursue "voluntary consultation" - why is this only voluntary? Aren't they required to consult if Take is anticipated?	We have changed consultation to coordination to avoid confusion with Section 7.
CO-92	S. Linner, FWS-CO	Pg. 313, Recreation Disturbance, ii. Definition of disturbance is not clear. What if there are several people in a group - is that still one disturbance?	We modified the text to clarify what is meant by a disturbance. Disturbance is defined as the presence of 1 -12 people; group sizes exceeding 12 people should not be allowed in PACs during the breeding season.
CO-93	S. Linner, FWS-CO	Pg. 342, last sentence. I realize that Franklin used the term "floater", but can we come up with a better term?	Term is in glossary. We think it's an acceptable term.
CO-94	S. Linner, FWS-CO	Pg. 344, 1st paragraph. Text says that canyons would be defined based on topographic roughness and "lack of forested habitat". Note that many canyons with MSO contain forests.	We removed "lack of forested habitat".
CO-95	S. Linner, FWS-CO	Pg. 344, 2nd paragraph. Text mentions the four core EMUs. What will occur for the non-core EMUs?	This text has been corrected in Appendix E. The core EMU concept was an older concept that was not corrected in the draft Plan you reviewed.
CO-96	S. Linner, FWS-CO	Appendix E Monitoring. General comment - much of this discussion is too confusing.	The commenter likely refers to Appendix F. We agree that this material is highly technical, which is why we provide a summary in the main body of the plan and make the more in-depth appendix available for those who wish such detail.
CO-97	S. Linner, FWS-CO	Pg. 354. Habitat monitoring. In which phase will canopy cover be measured? How will canopy cover be measured?	Canopy cover will be measured using phase 3 of FIA procedures (crown light exposure). <a href="http://fia.fs.fed.us/library/field-guides-methods-proc/docs/2012/field_guide_p3_5-1_sec23_10_2011.pdf">http://fia.fs.fed.us/library/field-guides-methods-proc/docs/2012/field_guide_p3_5-1_sec23_10_2011.pdf</a>
CO-98	S. Linner, FWS-CO	Pg. 355, sentence before Habitat Monitoring Methods. Can you really get suitable DFC and nest-roost habitat information from FIA plots?	Canopy cover will be measured using phase 3 of FIA procedures (crown light exposure). <a href="http://fia.fs.fed.us/library/field-guides-methods-proc/docs/2012/field_guide_p3_5-1_sec23_10_2011.pdf">http://fia.fs.fed.us/library/field-guides-methods-proc/docs/2012/field_guide_p3_5-1_sec23_10_2011.pdf</a>
CO-99	S. Linner, FWS-CO	Pg. 365. EMU is not in acronym list.	Yes it is.

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CO-100	J. Karpowitz, UDWR	The revision does not provide an adequate estimate of the current owl population as owl sites on tribal lands are ignored. The USFWS should work with tribes within the owl's range to voluntarily provide information on the number of owl sites.	The FWS works with tribes on a government-to-government basis on many resource issues, including those involving spotted owls. We asked for owl occurrence data, but as sovereign nations it is their right to refuse such requests. We do not view this as a significant omission.
CO-101	J. Karpowitz, UDWR	We support the changes made to the Colorado Plateau EMU but note that it does not include southwestern Wyoming (p. 11).	We have removed mention of Wyoming.
CO-102	T. McKinnon, CBD	<p>The DRP states:  Cumulative effects of multiple treatments across the watershed, downstream effects, and effects to spotted owl habitat will need to be evaluated through landscape analyses and modeling, and effects must be moderated to the extent possible.</p> <p>DRP at 278. This sentence should be modified to emphasize rather than marginalize MSO recovery (which is the goal of the plan), as follows:  Cumulative effects of multiple treatments across the watershed, downstream effects, and effects to spotted owl habitat will need to be evaluated through landscape analyses and modeling, and effects must be moderated to ensure MSO recovery.</p>	We edited this section to read: "...and effects should be moderated to promote Mexican spotted owl recovery." Section C.4.
CO-103	T. McKinnon, CBD	<p>The DRP states:  Emergency Consultation. All wildfire suppression activities with potential to affect PACs should be made in emergency consultation with the appropriate U.S. Fish and Wildlife Service, Ecological Services office. DRP at 278. This sentence should require and not suggest emergency consultation, as follows:  ...All wildfire suppression activities with potential to affect PACs shall be made in emergency consultation with the appropriate U.S. Fish and Wildlife Service, Ecological Services office.</p>	We removed the language here addressing emergency consultation.
CO-104	T. McKinnon, CBD	<p>The DRP states:  Wildfire Behavior and Incident Planning. Conduct landscape-level fire behavior assessments to strategically locate and prioritize fire suppression activities/tactics to mitigate the effects of high-severity fire and suppression activities on PACs and recovery habitat. Potential strategies include locating fire-line construction and other suppression activities where possible outside of PACs, and conducting night burning ahead of approaching moderate-high severity wildfire in areas surrounding PACs to reduce wildfire severity within PACs.</p> <p>DRP at 279. The words "potential," and "where possible" should be struck from the second sentence to ensure MSO recovery.</p>	We disagree. The words "potential" and "where possible" recognize that not all strategies are either possible nor desirable in all situations.

No.	Signator, Affiliation	Content/Organization (CO) Comment	Response
CO-105	T. McKinnon, CBD	<p>The DRP states:  Retain Key Habitat Elements. Where possible, wildfire suppression activities should be applied that limit high-severity fire and loss of key habitat elements within PACs and recovery habitats.</p> <p>DRP at 279. Research discussed and cited in the DRP shows that MSO will forage in forest mosaics burned with high-severity fire; high severity fire creates key MSO habitat elements including snags, logs, understory and habitat and forage for MSO prey species. The words “high-severity fire” and “should be applied that limit” should be struck; the word “shall” should replace “should” to ensure MSO recovery. It would then read:  Retain Key Habitat Elements. Where possible, wildfire suppression activities shall limit loss of key habitat elements within PACs and recovery habitats.</p>	<p>The word "shall" implies a mandatory requirement while recovery-plan recommendations are simply advisory. The other suggested edits would obscure the intent, which is to limit high-severity wildfire in PACs.</p>
CO-106	T. McKinnon, CBD	<p>In the section discussing ES and BAR on 279, the word “should” should be replaced with “shall”; the word “within” should be changed to “near” in Seasonal Restrictions because Treatment Priorities rightfully limits treatments to areas surrounding PACs.</p>	<p>The word "shall" implies that a measure is mandatory, which is inappropriate for a recovery plan. The word "near" was added to make this recommendation consistent with disturbance recommendations.</p>
CO-107	T. McKinnon, CBD	<p>In the guidelines for Prescribed Fire, Hazardous Fuels Treatments, and Wildland Urban Interface(WUI), the DRP states:  Consultation. All habitat-altering activities within PACs should be coordinated with the appropriate U.S. Fish and Wildlife Service, Ecological Services office.</p> <p>DRP at 280. The word “should” should be changed to “shall” to read:  Consultation. All habitat-altering activities within PACs shall be coordinated with the appropriate U.S. Fish and Wildlife Service, Ecological Services office.</p>	<p>The word "shall" implies a mandatory requirement while recovery-plan recommendations are simply advisory. The other suggested edits would obscure the intent, which is to limit high-severity wildfire in PACs.</p>

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CO-108	F. Clemente, Colegio de Postgraduados, Campus SLP	<p>(NOTE: This comment was translated from Spanish to English) Beforehand a cordial greeting. Deeply appreciate the information submitted for the review of the 2011 Draft Recovery Plan Mexican Spotted Owl (TMM). Distracted your attention to tell you that after having carefully read the entire document, I find very good agreement and consistency with the initially proposed in the document which I was a participant in 1995 as the official representative of Mexico, as member of the Recovery Team of this species . It's flattering that the team forward current recovery has been achieved in the EU through the work conducted by the USFWS. Although the paper focuses on objectives and targets for the EU because only they have worked on policies to achieve remove from the list on this species, and no doubt it will, Mexico should do their part as it is a shared species and it is found in NOM-059. Unfortunately, the document does not reflect any progress by Mexico in the proposed strategies for the conservation of their population, its monitoring and much less for the recovery of the species habitat. I am convinced that the proposals of the draft is for consultation purposes reflect progress and plan for the EU, which should be reflected also in Mexico. I do not know if the Mexican Federal Government has established a recovery program for the species and what are their strategies and actions that would show progress towards recovery, which should be reflected in the draft in comment. It is important highlight the importance to conserve the species in Mexican territory, but it is worry the few or no participation of Mexico in the Recovery Plan for the species. I suggest, we officially see how to put in an expert in the current recovery team, which in the first instance provide information on research progress of this species and its habitat and could be considered in the draft. The professional staff should be instructed about the commitments that Mexico can get to through this person contribute to the goal of the recovery plan. Only in this way the plan can be successful in the entire range of the species.</p>	<p>Since the early 1990s, Mexico has developed a number of policies aimed at conserving natural resources and ecosystem recovery. These actions have had a positive impact on the conservation, protection and habitat management at national level, especially considering the lack of these before late 1990 and early this century. This information and developments can be found in detail in the documents of the Capital Natural (CONABIO, 2008). Much of this information and developments in Mexico are not detailed in this document, since that is not the goal, nor the purpose of the Recovery Plan.</p> <p>Definitely there are a severe limitations of financial and human resources to perform actions or make specific recovery programs on more than 2,500 species in any risk category, according to NOM-059-SEMARNAT-2010. This situation is also reflected in the limited information that is generated both, from government, NGOs and academia. However, public policies generated in the last 15 years primarily have been directed to promote the conservation of natural habitat, establishing actions to protect and promote recovery. In this sense there have been selected species whose conservation and management promote recovery of other species associated and their own habitat, this concept was developed from the PREPS (Program Priority Species Recovery) and currently under the Species at Risk Conservation Program (PROCER). A brief analysis of the most representative environmental policy in Mexico since 1995 is presented in Appendix G.7 of the document.</p>
CO-109	R. J. Lee, Apache County, Arizona	<p>Also it must be clearly defined what is meant by the term pre-European conditions and how that condition relates to healthy forest ecosystems that provide for the needs of the MSO and other plants and animals, as well as the local citizens. The Apache County Board of Supervisors believes that ecosystem health, viable animal and plant populations and habitats for all species of plants and animals can be maintained while the needs of people are also met through well thought out, balanced forest management practices.</p>	We concur.
CO-110	L. Strand, None stated	<p>If Mexican spotted owls only need to have large diameter trees within a PAC, or are impacted by grazing only within a PAC, then it should be made very clear in the Mexican spotted owl recovery plan that FWS guidelines for grazing and timber only apply to those areas. I do not feel that this is made sufficiently clear in the draft.</p>	The owl occurs over large landscapes and not all activity occurs within PACs. As a result we need to consider and apply management across a broader landscape.

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CO-111	R. Maes, USFS	In general, the document is pretty daunting and could be very difficult to implement for on-the-ground management. There was almost too much information and the reader had to wade through pages to discern what management should be. More bullet statements would have been helpful. Further explanation could follow the bullet for clarification.	We have tried to present the management recommendations as bullet statements, but explanation is often to clarify those recommendations. In addition, we have added a summary table of the management recommendations which should help the reader.
CO-112	R. Maes, USFS	Page vi , bottom of 2nd paragraph: The statement indicating “we learned what worked and what did not” leaves the reader wondering what did work and what didn’t. Perhaps some brief examples could be included.	Since this language is in the Executive Summary, we do not feel elaboration is necessary or appropriate. Further, the Primary Differences from the 1995 Recovery Plan section in section I.E points out what the FWS believes needed changing.
CO-113	R. Maes, USFS	Page viii, 1. Management, First Bullet, Last Sentence: What type of landscape analysis should be performed?	The owl is well distributed throughout the southwest and Mexico. Owls have large home ranges. As a result, landscape analyses are required to understand their distribution and identify areas for management. Technology exists to conduct these analyses and they should be coordinated across jurisdictional boundaries.
CO-114	R. Maes, USFS	Page ix, Executive Summary: The following statement was made. "As a surrogate for evaluating trends in actual owl numbers, owl occupancy will be monitored at a sample of fixed sites randomly selected throughout the U.S. range of the bird." It was not clear who would undertake this task and how it would be funded. This monitoring as well as habitat monitoring is a multi-jurisdictional effort in need of effective coordination. Table 8, page 100 does not indicate any agency as the lead. This is unfortunate. We believe this is the type of coordination and involvement the FWS should undertake in this recovery effort. The past fifteen years of implementing the original Recovery Plan is a good example. The result is no coordinated effort to assess population trends for the MSO.	We agree that FWS should take initial lead at convening a monitoring team. We have noted this in Table V.1.
CO-115	R. Maes, USFS	Pages xv – xxiii, Table of Contents: Provide automatic links between the sections in the Table of Contents to the various sections in the document for ease of navigation.	The final plan has hyperlinks from the Table of Contents to the different sections of the Recovery Plan.
CO-116	R. Maes, USFS	Page 4, Bullet 9 under Section Appendices A-H: Wildland fire use is no longer a term used. Prescribed fire (planned ignition) and wildfire (unplanned ignition) are types of wildland fire. Replace “wildland fire use” with “wildfire” or “unplanned ignition.” Wildfires can be managed for multiple objectives over an area – from full suppression to monitoring and point protection. Objectives can also change over time.	Correct; this has been edited and all references to 'Wildland Fire Use' have been changed to "wildfire" throughout plan.
CO-117	R. Maes, USFS	Also, there is no definition in the glossary for transient owl. There is a definition for floater in the glossary on page 369 that seems to meet the definition of a transient owl. Are they interchangeable names? If so then should use one or the other but not both.	"Floaters" specifically refer to owls between the time they fledge and the time they settle on a territory. "Transient" owls mean any owl that is away from a territory whether a floater, wintering bird, migrant, etc. We have added these terms to the Glossary.
CO-118	R. Maes, USFS	Page 11, paragraph 4, last sentence: The sentence notes that MSO in northern AZ uses both canyon and montane forest. However, owls have not been found nesting in montane forest types in northern AZ. As displayed in Figure 3 (page 16), owl sites exist in northern Arizona but only occur in canyon habitat within Grand Canyon NP. Surveys in montane habitat of the Colorado Plateau EMU in northern Arizona have failed to detect MSO in this habitat type.	The statement is correct in the plan - owls use both types in this region.

No.	Signator, Affiliation	Content/Organization (CO) Comment	Response
CO-119	R. Maes, USFS	Page 13, 4th full paragraph under UGM, page 39, pages 45-46, and elsewhere: After other big fires that have occurred since 2005, including the Wallow wildfire, could information for the UGM and other EMUs be updated throughout the final revision document, if practical.	The recent major fire events are mentioned in the final plan, but data on the effects to the owl are unavailable to our knowledge.
CO-120	R. Maes, USFS	Page 13, bottom Paragraph: The most significant addition to recreational activities now prevalent in most EMUs is OHV/ATV use. Please add this to your list in the last sentence.	We have added OHVs. II.H.3.xi discusses the increase in OHV use.
CO-121	R. Maes, USFS	Page 25, bottom paragraph & page 26, top paragraph: The added clarification by defining “dominant” and “co-dominant” trees here is especially important and helpful for all readers. Non-foresters often chose to interpret these terms in the original plan as if they referred to a majority or plurality of a certain species, giving rise to confusion and several project Interdisciplinary Team disagreements about how to classify stands into correct forest types. They were never defined in the original plan glossary. PLEASE ADD them both, as well as “pure”, “majority” and “plurality” to your GLOSSARY in Appdx. K,	These terms have been added to the Glossary.
CO-122	R. Maes, USFS	Page 26, paragraph under sections a (Ponderosa Pine) and section b (Pine-oak): Many stands can meet the criteria for both a(2) and b(2)c: A stand can qualify as pure (Eyre 1980) ponderosa pine as defined in the second paragraph of this page (a single species [ponderosa pine] contributes greater than or equal to 80% of the basal area of dominant and co-dominant trees), yet still have greater than or equal to 10% of the stand basal area or 20 sq. ft./acre in Gambel oak greater than or equal to 5” at root collar. Please clarify which definition takes precedent. This is confusing.	The definition for pine-oak takes precedent. See C.2.b.i.1
CO-123	R. Maes, USFS	Also need to remove the reference to the “Quercus gambelii phase of the habitat type” (page 26). A plant association that is in the Quercus gambelii phase will not meet the oak structure criteria.	We disagree.
CO-124	R. Maes, USFS	General note: it seems that the key for b. (2) that a. and b. should be reversed. If outside of these EMUs why have to go any further in the key.	We agree and changes have been made to Appendix C.2.b.
CO-125	R. Maes, USFS	Page 28, Section 4B.f.(2): It is unclear what the species the authors are referencing. Perhaps, as with other sections, a reference to specific species or an example of species typically found within the riparian zone that are typically upland species. Otherwise, this statement has little value in the context of this forest type.	We have added species in this bullet to clarify.
CO-126	R. Maes, USFS	Page 28, Section 4C.1., Riparian Forest: Does this definition include willow dominated riparian habitats and would they be considered owl habitat? Also, do riparian forests need to be in close proximity to forested areas occupied by owls? Is there a size for riparian forests that would likely be owl habitat, e.g., riparian areas around springs? Is there a width minimum for riparian areas along streams that provide habitat for owls?	If willows are tree-form, then the definition of riparian applies to owls. As far as the other questions, we do not have data to provide specifics on the attributes of riparian forests used by owls and prefer not to make it up.
CO-127	R. Maes, USFS	Page 29, Section C.4a.: Some of our ponderosa pine stands across the Southwest have > 50% aspen as measured with basal area. Is it your intent to classify these as Aspen Forest? Likewise, new pure aspen regeneration stands will become more abundant again (post-wildfire). They will not be measurable by BA until they reach 4.5 feet tall; and, as written, the key appears to lump them in with Riparian forest. Some clarification may be needed.	Yes, mixed aspen-pine stands with > 50% of the BA in aspen should be classified as aspen. We have added a sentence to C.2.b.v.1 to clarify the situation with aspen following fire.

No.	Signator, Affiliation	Content/Organization (CO) Comment	Response
CO-128	R. Maes, USFS	Page 30, Rocky Canyon Habitat: This section relies on modeling data. However, further discussion of the modeling data later in the document starting on page 182, seems to focus on the limitations of the models. Is it robust enough to use to create definitions? What is or how do you measure “extensive” ledge structure? What information should we use to delineate Rocky Canyon Habitat? The broad definition of Rocky Canyon Habitat will likely create a significant workload for Districts like the Jicarilla RD on the Carson NF.	We base the definition of canyon habitat (C.2.d) on the best available science. Whereas it's not complete or perhaps not perfect, it's the best we have. If the Jicarilla has collected better data, we can incorporate them into our definition.
CO-129	R. Maes, USFS	Section E(5) - Change “and” to “or”. Seems to imply that all forest and woodland types should be present at each site.	Done.
CO-130	R. Maes, USFS	Page 32, Section B. Foraging Habitat: Please clarify that logged forests referenced in Ganey and Balda’s (1994) study were the result of shelterwood logging which is no longer practiced in the Southwestern Region. Without clarification, this discussion can be taken out of context to mean that any sort of logging equates to degradation of foraging habitat without distinguishing between ecologically based thinning treatments from logging projects that are strictly for commercial ends. I suggest inserting the statement, “However, the effects of commercial logging in which large, old trees are targeted for removal through shelterwood cuts probably differ from logging as a means to finance ecological restoration in which large, old trees are targeted for retention through ecologically informed thinning.”	Please read Ganey and Balda (1984) because not all logging considered was shelterwood harvest.
CO-131	R. Maes, USFS	Pg. 35, Table 1 & Pg. 266, Table C.1: Description of Table - DFCs are providing a description of key habitat variables for nesting and roosting habitat. They note nesting and roosting as forest and woodland cover types. Why is the woodland cover type included as nesting/roosting habitat for the MSO? The FS has only considered mixed-conifer, pine-oak and riparian habitat as nest/roost habitat in the past.	The heading of what is now Table C.2 has been edited.
CO-132	R. Maes, USFS	Pg. 35, Table 1 & Pg. 266, Table C.1: Row 2 - “Patches of all ages and unevenly spaced trees with interlocking crowns and high canopy cover.” Is every patch dominated by larger trees? If so it would be difficult to sustain an uneven-aged system over time at this density (> 60% canopy cover). If they are patches dominated by younger tree, is it necessary to have interlocking crowns? It would be better to have more open younger patches that could more quickly develop into groups of larger trees with interlocking crowns.	No, every patch should not be dominated by large trees but the size-class distribution should approach that needed to have a sustainable forest.
CO-133	R. Maes, USFS	Pg. 35, Table 1 & Pg. 266, Table C.1: Row 7 – Snags All snags are “on average across a large landscape” – what is the scale to use for a large landscape: is it 100 acres, 1000 acres, or 10,000 acres? This should be more clearly defined.	Language removed from what is now Table C.2. and "landscape" is included in the glossary.
CO-134	R. Maes, USFS	Pg. 35, Table 1 & Pg. 266, Table C.1: Row 8, Second Column – Could the Team provide a citation for the content of this cell? Also, dead and down logs do not always reduce fire ignition and severity. They can sometimes increase intensity.	We have considerably revised what is now Table C.2 and provide references to support our recommendations.
CO-135	R. Maes, USFS	Pg. 35, Table 1 & Pg. 266, Table C.1: Row 9 – Canopy Cover: Is the canopy covered averaged across the patch, across the forest stand, or by landscape? This should be better defined since it is too easy for different interpretation of the DFC by different readers. At 60% canopy cover, it should be at the patch level and also defined as an average. The primary producer of canopy closure should be from larger trees. Having a 60% canopy cover with lots of smaller trees does not likely meet the needs for the owl. Also critical habitat PCE has canopy closure at 40+%. Why the different?	Canopy cover should be applied across the "stand" and not the landscape or patch scale. See table C2.

No.	Signator, Affiliation	Content/Organization (CO) Comment	Response
CO-136	R. Maes, USFS	Pg. 35, Table 1 & Pg. 266, Table C.1: Row 10 – Diversity of Seral Stage: See comment for Row 2 above. “Diversity of seral stages dominated by large trees >46 cm (18 inches) dbh.” This statement makes no sense. A diversity of seral stages implies just that: young-mid-old (small-medium-large sized) trees. If the seral stages are dominated by large trees, then you don’t have diversity, you only have the late-seral stages represented. And what scale is this relevant to? For PP/oak and dry mixed conifer types, the historic condition is all-aged forest stands, and the seral stages represent groups within the stand. For the wet MC and SF types, these seral stages are represented as landscape patches. Clarify.	First, this applies to PACs and management therein. By diversity of seral stages, we mean that all seral stages should be represented. Within PACs, however, large trees should be favored given the strong correlation with owls.
CO-137	R. Maes, USFS	Page 39, Second Paragraph and Table 2: These sections state that the Upper Gila Mountains has 684 sites representing 63% of the sites in the U.S. It looks like that number should be 53%. (684/1301 = 0.526).	Table II.1 corrected with updated information on the number of owl sites.
CO-138	R. Maes, USFS	Page 41, Last Sentence of Section 9.A.: This sentence refers to Part 8.B below. Where is Part 8.B?	This was a typographical error and has been corrected in the final Recovery Plan (see Part II.H.1.).
CO-139	R. Maes, USFS	Page 43, D. Factors Affecting the MSO in the US: This section includes a large discussion regarding timber and other management actions from the Forest Service, however there is no reference to the recent and increased use of fire as a management tool in the Grand Canyon National Park as described in the January 2010 Grand Canyon National Park Fire Management Plan. It would be beneficial for the Final Recovery Plan to discuss preliminary results from the management of the fire plan for the past 2 years.	We agree that it would be beneficial for the plan to discuss preliminary results from the GCNP fire plan. However, the new fire policy however is only a few years old (2009) and 2011 was really the first year in the Southwest Geographic Area where conditions were conducive to implement the new fire policy, and only in limited areas. Thus we have really not had the time to monitor and assess the effects of the new wildfire policy on MSO's and their habitats. Furthermore, without very specific data within each wildfire about targeted management objectives for resource benefits, and before and after monitoring data, fire effects and management outcomes would be difficult to evaluate.
CO-140	R. Maes, USFS	Page 73, Table 3, Crosswalk between Threats and Recommendations: This table is difficult to understand.	See response to comment CO-11.
CO-141	R. Maes, USFS	Page 85: “Owl habitat” – confusion of terminology – here owl habitat seems to imply just nest/roost and replacement nest/roost areas, but owl habitat is all MC and all pine-oak forest types in addition to nest/roost and replacement habitat.	Habitat is the place an organism uses (Block and Brennan 1993). Owls do not use all mixed conifer or pine-oak, thus not all of it is habitat.
CO-142	R. Maes, USFS	Page 86: Action Item #5 - Using the term “fuels-reduction treatments” is troubling and is used frequently across Action Items #s 3, 4, and 5. Fuels-reduction treatments did work to save the majority of homes and urban conifer forest from burning in the communities of Alpine, Nutrioso, Eagar and Greer, AZ from the 2011 Wallow Fire. However, these treatments are not the same as true forest restoration. They were indeed “fuels-reduction” treatments but nothing more than that. Yes, they survived the biggest/hottest fire in AZ history as they were designed to do, but they are far from functioning as an uneven-aged or sustainable ecosystem. At any rate, I propose that using the term “fuels-reduction” treatments (if used at all) may only belong in Action Items # 3 and 4 texts for PACs and existing replacement nesting/roosting habitat.	We consider fuels-reduction an umbrella under which numerous treatments fall, including forest restoration because in the course of restoring forests fuels are removed.

No.	Signator, Affiliation	Content/Organization (CO) Comment	Response
CO-143	R. Maes, USFS	Table 8 on Pg. 94 shows that Action # 4 and 4.1 are “ongoing”, but these have been done piece-meal project by project at the District-level. Table 8 on pg. 95 suggests that Action # 6.1.1.1 will be done by 4 parties within 5 years, which makes us wonder if they will continue to be done incrementally one project at a time. Table 8 on pg. 102 shows Action # 10.1.5 will be done by the Ecological Management Working Teams, which makes more sense.	We did not edit actions 4 and 4.1 because they are "ongoing", however "piecemeal" that may be. For action 6.1.1, the intent is that they not be conducted one project at a time (thus the word "landscape").
CO-144	R. Maes, USFS	Page 89, Action 9.1.13 and Page 110, Item xii: Need to add wild ungulates and aspen into this same text.	We presented it as "e.g." which means "for example", thus our list need not and should not be inclusive of everything.
CO-145	R. Maes, USFS	Page 94, Table 8, Implementation Table: General Comments - The Priority, Action, and Recovery Criteria numbers are a little confusing in terms of what is driving this table. It might be easier to digest if it is in chronological order, according to priority-assuming that is most important.	The table matches the order of tasks as listed in the Recovery Action Outline and Narrative (section IV.A.), which are largely ordered from the general through the specific.
CO-146	R. Maes, USFS	Pages 252-265: Suggest Section numbers 3-5 be subheadings under 2. Management Recommendations for clarity.	Subheadings changed as suggested in Appendix C.
CO-147	R. Maes, USFS	Page 254, Section 3.B.e: The last sentence refers the reader to Section e below. Does the Team mean Section 3.F.?	Cross-references have been corrected throughout the Recovery Plan.
CO-148	R. Maes, USFS	Page 253-258, Sections A-G: Question format seems awkward. Suggest re-wording as statements.	Research works by addressing questions; thus, we think questions are appropriate.
CO-149	R. Maes, USFS	Page 254 C.a.: What activities are allowed in PACs outside of Core Areas?	These are detailed in Appendix C.
CO-150	R. Maes, USFS	Page 254, Section 3.C.b.: Delete the “I” after owls. The misplaced “I” just mentioned likely is meant for protocol at the end of the sentence.	Done.
CO-151	R. Maes, USFS	Page 258, Rationale for Underlying PAC Guidelines: We suggest putting this section at the front of the PAC recommendations section on page 252.	We've considered this suggestion but prefer the order in which we present the material.
CO-152	R. Maes, USFS	Page 260, B. Recovery Habitat General Approach: Is the Team referring to Table C.2? We don't believe that Table 11.E.2 exists.	See response to comment CO-9.
CO-153	R. Maes, USFS	Page 264, 5. Other Forest and Woodland types: 1st paragraph, second sentence - The reference to II.C may be in error.	See response to comment CO-9.
CO-154	R. Maes, USFS	2nd paragraph: refers to Appendix E for natural history of the owl. Appendix E is about survey protocols. Do you mean Appendix B which is the ecology of the owl?	See response to comment CO-9.
CO-155	R. Maes, USFS	Page 266 - 267, Table C. 1: Please add the word “physiognomy” to the Glossary of definitions.	Term has been added to Glossary.
CO-156	R. Maes, USFS	Page 270, Box C.1: 3rd paragraph and figure 1 – This is the 1st time protected habitat has been used in this document. It also has a different definition than in the last plan. Here the Team defines protected habitat as PAC and replacement Recovery habitat. The 2nd sentence shows that protected habitat is approximately 8% and replacement Recovery habitat is 12%, this contradicts the 1st sentence that says that protected habitat is both PACs and replacement Recovery habitat. What the figure appears to show is protected habitat (PAC and replacement Recovery habitat) at 8% and non-replacement Recovery at 12%.	We have edited this section in Box C.2 accordingly to alleviate the confusion.
CO-157	R. Maes, USFS	Page 274, Box C.5 – 1: Guiding Questions, second bullet – replace fire intensity with fire severity.	Box C.5 has been edited.

No.	Signator, Affiliation	Content/Organization (CO) Comment	Response
CO-158	R. Maes, USFS	Page 278: Fire Management – Fire management is not the threat. Large spatial areas of high severity, stand-replacing wildfire is the threat.	Some fire management can be a threat: Barfoot PAC in the Chiricahua Mountains (Horseshoe II fire) of this year provides one recent example. Another is prioritization of different types of WUI treatments above all other resources and using timber harvest treatments incompatible with spotted owls to represent fire-reduction treatments as in the Lincoln Cabability Assessment.
CO-159	R. Maes, USFS	Page 278: Wildfire Suppression - The phrases ES (Emergency Stabilization) and BAR (Burned Area Stabilization) are not typically used in the Forest Service. They create confusion.	Clarified by inserting USFS terminology; Burned Area Emergency Response (BAER).
CO-160	R. Maes, USFS	Page 278: Emergency Consultation - This is a matter of compliance with law and we don't believe this should be part of management recommendations.	This has been deleted.
CO-161	R. Maes, USFS	Page 279, b. ES and BAR: Protect People and Property - section change from fire fighter to personnel working in burned areas. We have lots of folks on fires that are not fire fighters, especially dong ES and BAR work.	We have revised this to include all humans, not just fire personnel.
CO-162	R. Maes, USFS	Page 279, b. ES and BAR: Consultation – Again, this is a matter of compliance with law. We do not feel like this language should be part of management recommendations.	This has been deleted.
CO-163	R. Maes, USFS	Page 281: 5th Paragraph, Last word - Please correct the misspelling of “Silviculturists” by removing the extra “-al-” from the middle.	This has been corrected throughout.
CO-164	R. Maes, USFS	Page 281: Grazing – Reference to I.C.2.a.vii does not appear to lead the reader to a discussion of grazing.	See response to comment CO-9.
CO-165	R. Maes, USFS	P. 283 Guidelines – Protected Habitat now only equals Protected Activity Centers.	Correction made in C.4.c.
CO-166	R. Maes, USFS	This section is titled “Guidelines.” The narratives then in subsections a. and b. proceed to describe standards for grazing management. Usage of the terms “guidelines” and “standards” in this manner is contradictory as guidelines cannot be made up of standards; it must be one or the other! Guidelines are generally considered to be non mandatory general guidance for management purposes and standards are generally considered to be mandatory requirements. Management applications for range management purposes within the Southwestern are considered to be guidelines not standards. Our request, therefore, for this section is to make the language in the text consistent with the title through consistent use of the term “guideline(s)” and eliminate use of the term “standard.”	The word "standards" has been changed to "guidelines" throughout as suggested.
CO-167	R. Maes, USFS	Page 308, Figure E.1.: The arrows are not visible to the reader at the bottom of the table.	This edit was made to Figure D.1.

No.	Signator, Affiliation	Content/Organization (CO) Comment	Response
CO-168	R. Maes, USFS	<p>GLOSSARY in Appendix. K</p> <p>1. Please add the following definitions:</p> <ul style="list-style-type: none"> <li>- co-dominant trees</li> <li>- dominant trees</li> <li>- forest restoration treatments</li> <li>- fuels-reduction treatments</li> <li>-grazing intensity</li> <li>- landscape scale (as used throughout the document)</li> <li>- majority (as used on Pgs. 25-26)</li> <li>- mechanical treatments (as the authors intend its use in this document)</li> <li>- physiognomy (as used on pg. 266)</li> <li>- plurality (as used on Pgs. 25-26)</li> <li>- pure (as used on Pgs. 25-26)</li> <li>- Recovery Habitat (as a distinction from the old plan's restricted habitat)</li> </ul>	Terms added to Glossary as suggested.
CO-169	R. Maes, USFS	<p>GLOSSARY in Appendix. K</p> <p>1. Please add the following definitions:</p> <ul style="list-style-type: none"> <li>- co-dominant trees</li> <li>- dominant trees</li> <li>- forest restoration treatments</li> <li>- fuels-reduction treatments</li> <li>-grazing intensity</li> <li>- landscape scale (as used throughout the document)</li> <li>- majority (as used on Pgs. 25-26)</li> <li>- mechanical treatments (as the authors intend its use in this document)</li> <li>- physiognomy (as used on pg. 266)</li> <li>- plurality (as used on Pgs. 25-26)</li> <li>- pure (as used on Pgs. 25-26)</li> <li>- Recovery Habitat (as a distinction from the old plan's restricted habitat)</li> </ul> <p>2. Please review and possibly delete? or clarify? the following terms:</p> <ul style="list-style-type: none"> <li>-protected areas</li> <li>- restricted areas</li> </ul> <p>Both of these terms state "as used in this Recovery Plan". Is this still the Recovery Plan? or is this one the Revised Recovery Plan? Leads to some confusion in my mind for which vintage of terminology we should be using.</p>	Terms added to Glossary as suggested. The definitions of "protected" habitat and "restricted" habitat have been defined in the revised Recovery Plan (see Executive Summary, Appendix C.3.a, and C.3.b.). This Revised Recovery Plan replaces the Recovery Plan completed in 1995.
CO-170	R. Maes, USFS	<p>The plan is strongly focused on Arizona and New Mexico. While the majority of the population and most critical habitat exist in those states, e.g., the UGM EMU source area, key areas of the plan would benefit from some focus on habitat and owl persistence in the northern part of the range, particularly in light of the potential changes caused by climate change.</p>	We have attempted to do this to the best of our ability given available data. We have good information from Utah and work done by Willey and others. However, we have almost no information from Colorado to provide a basis for analysis or recommendations specific to Colorado.

No.	Signator, Affiliation	Content/Organization (CO) Comment	Response
CO-171	R. Maes, USFS	The Research Needs section (pp. 109) indicates that little is known about canyon-type environments; this fact could be made clear early in the document so that it does not appear to be overlooked throughout.	We disagree that it appears to be overlooked throughout.
CO-172	R. Maes, USFS	It would be helpful to include a map of critical habitat units in that section (p. 40-41).	The recovery recommendations apply both within and outside critical habitat, and including critical habitat maps would imply otherwise.
CO-173	R. Maes, USFS	The Grazing section (pp. 51-53; App. B, p. 200; App. D, p. 281) lumps domestic livestock with wild ungulates. These seem to be inherently different, since livestock grazing is an intensively, human-managed activity where effects can be monitored and management regimes implemented. We suggest separating them into two subsections under grazing.	Given that effects of livestock and wild ungulates are cumulative and synergistic, it is hard to decouple one from the other. We recognize that management of populations and effects require different strategies, but we would rather grazing management be addressed as a holistic program than as a piecemeal agency-specific problem.
CO-174	R. Maes, USFS	Several cites (e.g., Willey, Willey and Spotskey, Willey et al.) are missing from the Literature Cited.	See response to comment CO-24.
CO-175	T. Stevenson, New Mexico Department of Game and Fish	Although revisions to the 1995 plan are intended to promote existing management activities (e.g., fuels reduction) that achieve desired ecological conditions necessary for MSO recovery, management recommendations for the MSO are not clearly defined within the Plan and are difficult to ascertain from the text. For example, based on the discussion on pages 255-256, it is unclear in the Plan if mechanical treatments are allowed within the 100 acre core area within a larger 600 acre PAC (outside of the breeding season or if the PAC is determined to be unoccupied or if the pair is not nesting). The Department recommends revising the Plan to clearly show the relationship between habitat categories (e.g., Core Areas, PACs, and Recovery Habitat) and land management. Specifically, we recommend defining which management activities are recommended, discouraged, and/or prohibited for each category in the text, figures, and tables. Without this revision, the Department believes that the Plan will not be easily understood and readily adopted by land managers.	We have added a table to summarize activities permitted or not permitted within various management zones. Hopefully, this summary will address the confusion.

	A	B	C	D
1	No.	Signator, Affiliation	Research (Rs) Comment	Response
2	Rs-1	K. Frye, Hawk Watch International	Additionally, we feel that it is important to address data gaps to enhance the science upon which management decisions are based. While many of these knowledge gaps are mentioned in the document, we feel that it is important to focus on spatial data gaps (such as those on some Tribal lands and NPS administered lands) to better investigate landscape connectivity between large population centers.	We cannot address the lack of data from most tribal lands, other than to note it and incorporate the resulting uncertainty. We have data for many NPS lands, and have incorporated those data in the plan in various places where appropriate.
3	Rs-2	K. Frye, Hawk Watch International	Additionally, it is important to prioritize research effort into better understanding wintering ranges and non-breeding season resource use. Given that this recovery plan is (appropriately) landscape-based, it would be wise to have a more full understanding of MSO use of its range.	We list a better understanding of winter ecology as an important research need.
4	Rs-3	S. Temple, ESA	The one important activity that seems not to be assigned clearly is research. Given that so much crucial information about the owl and its habitat remains lacking, it is very important that future research efforts be targeted at high priority needs, well coordinated, adequately funded and incorporated into the design of on-going adaptive management activities. I did not get the sense that this would happen; instead, it appeared that responsibility for research was dispersed and lacking much obvious coordination.	We agree that a well-funded, coordinated program of research is essential to gaining the knowledge required to recover the owl. Unfortunately, this recovery team does not have the authority to make that happen. Consequently, we have tried to provide a reasonably comprehensive list of important topics that require attention.
5	Rs-4	B. Byrd C. Hanson, WEG and EII	Ganey et al. (2011) specifically address the failures of agencies to implement the recommendations in the original recovery plan and the ensuing information gaps. "Many of the recommendations in USDI FWS (1995) were never implemented. As a result, we still have no rigorous estimates of trends in owl populations or habitat, nor have we evaluated the effects of common land---management activities on owls or their prey and habitat. For the most part, land managers have chosen to manage around owl habitat (Beier and Maschinski 2003). This generally is consistent with the short---term protection of owl habitat called for in USDI FWS (1995) but has not advanced the goal of developing knowledge that could be used to move beyond that short---term strategy. Thus, the uncertainties that limited our ability to devise a long---term, landscape--- dynamics---based management strategy for Mexican spotted owls remain and will continue to remain until we proactively address some of the major information gaps identified." (Ganey et al. 2011 at 80).	We agree with the remarks in Ganey et al. (2011).

No.	Signator, Affiliation	Policy/Costs (PC) Comment	Response
PC-1	S. Harger, Coconino Natural Resource Conservation District	I agree in principle with the threat descriptions and recommended actions regarding grazing within Riparian Recovery Habitat. The proposed management actions should be welcomed as long-term benefits to the habitat in general. But I am concerned about the possible cumulative effects on allotment lessees, particularly where extended prescribed grazing may represent a significant part of any particular grazing allotment. Although a return to low intensity fire as a habitat maintenance tool may not become widespread within the ten year span of this plan, when it does, lessees may be facing much more prescribed grazing (other than and in addition to riparian meadows) to provide base fuels to carry low intensity fire. I see an estimate for costs relating to actions related to riparian health (p.96, Table 8, Action Number 6.3.4) that may be a reasonable placeholder estimate, but which may be much less than the cost incurred by lessees due to the economic impact of prescribed grazing. Therefore, in due course as work proceeds on implementing this recovery plan, this district asks to see estimates from USFWS and/or USFS of areas affected by action to improve riparian health by grazing allotment, in order to estimate costs and impacts to individual cooperators. Perhaps we can then put this concern aside, or plan accordingly.	Recovery action number 6.3.4 calls for implementing actions to promote riparian health. "Prescribed grazing" is not specifically recommended, and whether it is appropriate in a given situation would be up to the judgement of the land manager. We cannot quantify such costs because we don't know that "prescribed grazing" will be selected as a management technique, nor would such a decision likely be solely related to owl management.
PC-2	K. Frye, Hawk Watch International	Given that we are facing difficult economic times, and funding for many conservation programs seems to be in peril, how likely is it that we will reach the necessary funds to implement these strategies?	It is beyond the scope of this recovery plan to predict the likelihood of implementation. We believe we have made a reasonable effort to keep costs as low as possible.
PC-3	S. Gerfers, None stated	This mission as well as implementing the updated MSO Recovery Plan will work much better when done with the support of local citizen. Local citizen support is only gained through open honest communications and when a sense of fairness is part of the equation. The FWS needs to honestly consider the impacts of the updated MSO Recovery Plan actions on the local citizens.	We agree, and intend that EMU Working Teams be formed so as to consider the knowledge and abilities of local citizens in making management decisions.
PC-4	M. Pastor, Gila County, Arizona	The \$42 million federal budget estimate for MSO Recovery seems excessive. We encourage you to not adopt a Recovery Plan Revision that is not fundable by federal agencies. We encourage you to maximize opportunities to let the private sector utilize the renewable timber resources in a manner that promotes Fire-Wise Communities, healthy local economies, healthy forest eco-systems and MSO critical habitat.	The FWS envisions a cooperative funding program in order to implement the plan. The majority of implementation costs is attributable to monitoring, and the FWS realizes that such a program would be best implemented by multiple cooperators. It is not within the purview of the recovery team to identify funding sources.
PC-5	J. Karpowitz, UDWR	As monitoring is critical to the recovery of the owl, we recommend the USFWS provide funding to assist with monitoring Mexican Spotted Owls.	We agree that the FWS should contribute to the monitoring programs, but it will take multiple cooperators to implement programs of this cost and magnitude.
PC-6	J. Karpowitz, UDWR	The revision provides valuable suggestions for monitoring, but does not provide a comprehensive interstate monitoring plan. We suggest the USFWS, in cooperation with the states, develop such a plan as soon as possible.	Per the Implementation Schedule (Table V.1), we envision beginning implementation in FY'12 and have suggested FWS as the lead for implementing the program.
PC-7	T. McKinnon, CBD	The FWS must provide standardized decision protocols for determining whether to designate one or more PACs when multiple detections may represent single or multiple owl territories. Decision protocols should err on the side of MSO recovery, favoring the designation of more rather than fewer PACs when multiple detections lead to uncertainty.	Our collective experience with the owl clearly demonstrates that situations are often site-specific. That said, a standardized protocol may apply to one place, but not another. Thus, we rely on local expertise of biologists to make this call. We encourage them to work closely with the local FWS field office in doing so.

No.	Signator, Affiliation	Policy/Costs (PC) Comment	Response
PC-8	C. Williams, None stated	Rural Arizona Counties have been identified as having jurisdictional lands within at least parts of multiple locations designated as MSO Critical Habitat. As such these Counties must be coordinated with by USFWS as interested stakeholders with special standing regarding any currently planned or future planned Revisions to the MSO Recovery Plan. In other words the Counties needs to be consulted at the earliest stages of the Revision process and throughout the process.	We welcome the involvement of local governments, and have reviewed the revised recovery plan with several counties. We are open to continuing to do so upon request.
PC-9	C. Williams, None stated	Unfortunately it has taken the unprecedented disastrous fires of the last decade for Federal agencies, including US Fish & Wildlife Service, to realize that the primary threat to MSO Critical Habitat, a healthy forest and to the communities that live within them is the fire hazard created by not managing timber including tree thinning and timber harvesting. To the extent that the First Revision recognizes this I support the First Revision. However I caution you to not be intimidated again by litigation threats during this comment period from those same radical environmental groups who want only to prevent timber extraction from the forest. Rely upon sound science not politically motivated threats from outside groups when making the Revision.	The original 1995 recovery plan clearly recognized the risk of stand-replacing fire and provided unambiguous recommendations for conducting fuels-reduction treatments. We also hope that such treatments be implemented.
PC-10	C. Williams, None stated	The \$42 million federal budget estimate for MSO Recovery seems excessive and I am not sure where those funds will realistically come from. I encourage you to not adopt a Recovery Plan Revision that is not fundable by federal agencies. I encourage you to maximize opportunities to let the private sector utilize the renewable timber resources in a manner that promotes Fire-Wise Communities, healthy local economies, healthy forest eco-systems and MSO critical habitat.	See response to comment PC-4.
PC-11	L. Strand, None stated	My comment is that ESA should not be allowed to be used as a weapon against the citizens of the humans who live in EMUs in the western states.	This concern is beyond the scope of the recovery plan.
PC-12	L. Strand, None stated	Further, forest restoration and fuels reduction projects can achieve greater benefits for forest ecology than catastrophic wildfires can, while at the same time providing socio-economic benefits to local communities (as opposed to fire teams from all around the country, as wonderful as those people are).	We agree that forest restoration is key to managing for resilient forsts, and encourage such management.
PC-13	McKeen et al., Catron County, New Mexico	While we find no conflicts between these goals and objectives and the mission of the Catron County government, the Catron County Commission does have concerns about the use of the Endangered Species Act and its procedures to target and interrupt production and use of natural resources found on America's federal lands. The comments that Catron County offers herein addresses concerns where proposed MSO recovery action may unnecessarily and punitively impact the ability of local government to carry out its responsibilities to the visiting public and local citizens of the County.	We believe that the management recommendations are neither punitive nor unnecessary. The ESA requires that we attempt to recover listed species, but we strive to do so with the least impact to local economies as possible.
PC-14	McKeen et al., Catron County, New Mexico	While the Endangered Species Act directs the FWS and other federal agencies to conserve endangered and threatened species and the habitats they depend upon, many other acts of US Congress also require the agencies to honestly and openly disclose and address both the adverse and beneficial socio-economic effect of their actions.	We expect that such effects will be addressed in NEPA processes associated with specific implementation actions.

No.	Signator, Affiliation	Policy/Costs (PC) Comment	Response
PC-15	S. Combs, Texas Comptroller's Office	In developing the final recovery plan, we urge you to continue working closely with the local communities. Landowners, businesses and communities are the best stewards of our natural resources, and the success of any endangered species recovery plan will be enhanced by input from these groups. The recovery of the Mexican Spotted Owl requires a plan that is flexible, voluntary and contains reasonably accomplished measures that take into account local considerations.	See response to comment PC-3.
PC-16	R. Maes, USFS	Page 94, Table 8, Implementation Table: Actions 3.2.1, & 3.2.2 - These types of treatments may not be covered by on-going land management actions and would cost land agencies more to do these types of treatments than currently budgeted. Treatment restrictions also drive analysis and implementation costs up.	The guidelines for implementing PAC treatments were prompted by the Forest Service's contention that the 1995 plan hindered the agency from conducting effective fuels treatments to meet forest-restoration objectives. Such objectives are not owl-driven and therefore should not be attributed to recovery implementation.
PC-17	B. Byrd C. Hanson, WEG and EII	We are pleased that the U.S. Fish and Wildlife Service (FWS) is revising the MSO's recovery plan under the Endangered Species Act (ESA) because very few of the 1995 recovery plan's action's have been implemented in the field, the anticipated take is close or exceeding what was identified in the original recovery plan and the monitoring of the owl as envisioned in the plan has not happened. With a total of around 2,000 known owls, there's an urgent need to increase efforts to recover this rare bird.	We share the hope that the revised recovery plan will be implemented in full.
PC-18	B. Byrd C. Hanson, WEG and EII	Despite the fact that the Forest Service's two pilot studies concluded that implementation of the population monitoring protocol prescribed by the Recovery Plan is technically feasible, and despite the fact that the Forest Service achieved a no---jeopardy BiOp in 1996 by making a firm commitment to conduct the monitoring program, the Forest Service has never implemented the required monitoring program.	The Forest Service-funded pilot study conducted by Ganey et al. (2004) recommended an alternative approach to monitoring given the economic and logistical infeasibility of the 1995-recommended approach. According to Ganey (pers. comm.), the mark-recapture methodology recommended in 1995 would annually require hundreds of people, millions of dollars, and logistical support (vehicles, radios, etc.) beyond what could be realistically obtained.
PC-19	P.Call, Cochise County, Arizona, Board of Supervisors	The Draft Recovery Plan does not propose any expansion of designated critical habitat. If, however, expansion of critical habitat is proposed in the future, the FWS should publish a supplement that examines the potential economic and social impacts on Cochise County. Furthermore, we continue to have concerns about FWS policies that potentially result in deleterious and restrictive effects on agricultural activities in Cochise County, including grazing.	Critical habitat is a regulatory designation that is beyond the scope of recovery planning. We do not believe that the grazing recommendations impose "deleterious and restrictive effects" in Cochise County or elsewhere.

No.	Signator, Affiliation	Policy/Costs (PC) Comment	Response
PC-20	T. McKinnon, R. Silver, CBD	<p>The Endangered Species Act (ESA) requires that FWS know " know roughly at what point survival and recovery will be placed at risk before it may conclude that no harm will result. " Gifford Pinchot Task Force v. U.S. Fish and Wildlife Serv., 378 F.3d 1059 (9th Cir. 2004). And as re-confirmed in Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv., 524 F.3d 917 (9th Cir.2008). The DRP speaks of recovery and delisting but fails to provide a defensible status review that includes a population viability analysis that will help establish a threshold or tipping point beyond which risk will not be acceptable. The DRP fails to provide any threshold or tipping point beyond with risk will not be acceptable. Occupancy monitoring of PAC treatments should be linked to a 10% decline threshold. Without a finite threshold number triggering reviews in the case "occupancy monitoring demonstrates a declining owl population" (DRP at 83) there is no trigger to modify or curtail ongoing and/or planned habitat modifying activities. A finite threshold number trigger will help justify use of the RP to remove the jeopardy currently faced by the owl when the RP is incorporated in the new Forest Plans. Without this threshold trigger, the RP will not satisfy Gifford Pinchot or Nat'l Wildlife.</p>	<p>The ESA does not require a recovery plan to "provide a defensible status review that includes a population viability analysis that will help establish a threshold or tipping point beyond which risk will not be acceptable." The cases in question do not apply to recovery plans, they are Section 7 cases. While applying those cases to recovery planning is an interesting exercise, neither of those cases resulted in a holding that stands for the proposition the commenter is suggesting.</p>
PC-21	T. McKinnon, R. Silver, CBD	<p>If the ultimate goal of the DRP is incorporation into the Forest Plans, failure to provide specific or enforceable mitigation measures violates ESA. See Ctr. for Biological Diversity v. Rumsfeld, 198 F. Supp. 2d 1139, 1143 (D. Ariz. 2002); and more recently, Ctr. for Biological Diversity v. Salazar, CV 07-484-TUC-AWT, Memorandum Order, May 28, 2011. "The Ninth Circuit has held that mitigation measures may be included as part of a proposed action and relied upon only where they involve "specific and binding plans" and "a clear, definite commitment of resources for future improvements" to implement those measures. Nat'l Wildlife Fed'n, 524 F.3d at 935-36 (finding agency's "sincere general commitment to future improvements" inadequate to support no jeopardy conclusion). See Ctr. for Biological Diversity v. Salazar, CV 07-484-TUC-AWT, Memorandum Order, May 28, 2011 at 20.</p>	<p>The "ultimate goal" is that the recovery plan be implemented and the owl recovered. The plan recommends that land-management-planning documents incorporate the plan to facilitate recovery. Again, the two cited cases involve section 7 consultation and not recovery planning.</p>

No.	Signator, Affiliation	Recovery (Rc) Comment	Response
Rc-1	M. Morrison, TAMU	7-8: Based on the information presented herein on the status of the owl, one wonders if the species was ever “threatened” to begin with. Also, given the substantial amount of land area available to the species, it is difficult to conceive how the species could ever go to the verge of ‘endangered’ given most likely future environmental scenarios.	To question whether the species should ever have been listed is not within the scope of the recovery plan. The plan does not contemplate whether the species is on "the verge of endangered".
Rc-2	M. Morrison, TAMU	81: You say to support into perpetuity. That means forever. Thus, if you cannot guarantee it will never go extinct for whatever reason it cannot be delisted? That is just plain silly. And, a species can always be relisted. This statement needs modification to have any relevance. You then state “and to maintain...”. Seems to me that if you accomplish the first statement (perpetuity) you must have accomplished everything you needed, including roosting and nesting habitat. What about foraging habitat? They have to eat? Clearly this entire statement needs some serious reworking!	We edited the document in both the Executive Summary and section III.C to use the words "foreseeable future" rather than "perpetuity". As to the comment about foraging habitat, the plan is based on the assumption, as stated in various sections, that nesting and roosting habitat provides the other life-history requisites such as foraging.
Rc-3	M. Morrison, TAMU	82: Your first criterion is direct and reasonable. However, your second criterion seems unnecessary if the first is being met. That is, if the population abundance is stable or increasing while the habitat is changing outside your bounds, it tells me either the owls have adjusted their behavior to the changing conditions or (more likely) your stated conditions are incorrect. In other words, if the first (numbers) are good but the second (conditions) are declining, I would conclude the owl is doing fine. However, the opposite (i.e., declining numbers, good conditions) would indicate the owl is not doing fine (obviously). Thus, your statement that meeting one criterion means the other is met is false. I know you say these criteria are dependent, but that assumes you are correct in the response of owls to the changing conditions and that you are not missing some other co-variate (e.g., food) that is really what the owls are responding to. I would go with the first criterion, and if needed, tighten it up some (i.e., make it slightly more difficult to achieve, or over a 15 year time frame).	The commenter's assumption ignores a lag-effect between habitat loss and population change. We have removed the language suggesting that progress on one criterion translates to progress on the other. We retain both criteria because both are important.
Rc-4	M. Raphael, PNW	Page 81, 2nd para. If the owl is threatened primarily by loss of old-growth nesting habitat, then it is difficult to imagine how recovery could be achieved within 10 years as stated here. Habitat recovery would obviously take more than 10 years. I could see potential to reduce threat to future loss of habitat in that timeframe, but recovery of currently unsuitable habitat will likely take many decades. Some clarification is needed here.	The plan does not state that the species was listed due to loss of old-growth nesting habitat; rather, the owl was listed largely due to the threat of even-aged management that threatened to remove many of the attributes of nesting-roosting habitat. While some of those attributes have been lost on the landscape due to both anthropogenic and natural causes, we are unaware of any data showing that habitat must be re-grown to recover the owl. If the population and habitat are found to be stable or increasing for the next 10 years, we believe that the owl should be evaluated for delisting.
RC-5	M. Raphael, PNW	Page 82, (1) and (2). Is the 25% figure an annual rate or (more likely) a cumulative rate over the 10 years? Wording should be made more explicit.	Edit made.

No.	Signator, Affiliation	Recovery (Rc) Comment	Response
Rc-6	B. Burger, AGFD	On page vii it is stated that “Under the proposed recovery criteria, the owl could be delisted within 10 years of implementing this revised Recovery Plan.” Although this perhaps theoretically true, it is very unlikely and this statement just seems to ask for un-realistic expectations. As noted on page 81, “The recovery criteria require monitoring. Without careful and rigorous application of monitoring, there would be no objective basis for delisting the owl.”	We agree that this is optimistic, but it is something to strive for.
Rc-7	B. Burger, AGFD	p. 81 Success of the plan, however, hinges on the commitment and coordination among the Mexican government, United States (U.S.) Federal and State land-management organizations, sovereign Indian nations, and the private sector to ensure that the spirit and intent of the plan is executed as envisioned by the Recovery Team. While true overall, the over-riding burden on the USFS should not be down-played. According to Table 4, > 82% of known US MSO sites are on USFS lands.	We do not believe we have "down-played" the FS role in recovery.
Rc-8	B. Burger, AGFD	p. 108 The Recovery Team recommends development of a central repository for data related to Mexican spotted owl recovery. Good recommendation, but is there any specific plan for how to achieve this? There is probably no funding, so despite the seeming importance it is unclear how/if this will actually be done.	There is currently no plan on accomplishing this task. The FWS is envisioned as the lead for this action but it is not necessary to specify the process in the recovery plan.
Rc-9	J. Driscoll, AGFD	Recovery Criteria. The second criteria is nearly unachievable and certainly not achievable in the near future. To expect that in 10 years trees can grow and habitat conditions can stabilize at a minimum through forest thinning and fuels reduction treatments is not probable. It would take a couple of hundred years and a lot more money than mentioned in this plan to manage the forest in that manner.	We believe that reducing threat to further loss of roost/nest habitat could result in stable or increasing trend in occupancy and stable trend in habitat in a 10 year period. This could lead to delisting.
Rc-10	J. Driscoll, AGFD	General Comment. This plan is looking at recovery of the species from the 30,000 foot level. There should be more benchmarks that land and wildlife managers can strive for to achieve recovery on a more local or down to earth level.	The owl plan is focused on recovery of the species across its range. Local land managers can contribute by implementing the plan at their level. However, owls have large home ranges and are sparsely distributed. Thus, it is difficult to develop meaningful benchmarks at a smaller scale.
Rc-11	J. Driscoll, AGFD	Page 83, 1 <sup>st</sup> paragraph. The criteria justifying the assumption lends only a small portion of the perceived growth to increased survey efforts, when a large part of the “increase” could arguably be from increased knowledge of the population and their habitats. More clarification/justification is needed in this section to eliminate phantom population increases due to increased survey efforts.	We agree entirely. Our point is simply that as we look more for owls, we find more. These surveys are likely influenced by increased knowledge of where to look.
Rc-12	J. Driscoll, AGFD	Page 84, Section 6. It is time the USFWS recognizes that States can no longer foot the bill for post-delisting monitoring. Cost estimates included in this document to achieve recovery should also encapsulate the costs for post-delisting monitoring. Thus a true cost estimate for recovery and delisting could be given.	Post-delisting monitoring is not part of the recovery process, but rather is a requirement of the ESA once the species is delisted. Thus we do not attribute the cost of such an effort to recovery-plan implementation.
Rc-13	S. McVean, AGFD	Recovery Criteria. Although a short time-frame for recovery is commendable, given the current state of our forests and rate of restoration, it is highly unlikely that conditions will be stable or improving for 10 years in roosting and nesting habitat anytime in the near future.	See response to comment Rc-9.
Rc-14	B. Hotze, FWS-UT	Table 8 lists recovery actions and the responsible party for those actions. Because many of our owls nest in canyons on BLM lands, we recommend adding BLM as a responsible party to action numbers 4.1, 5, 5.1, 5.1.2, and 6.1.1.2.	We have added the BLM to the suggested recovery actions in Table V.1.

No.	Signator, Affiliation	Recovery (Rc) Comment	Response
Rc-15	S. Temple, ESA	The inclusion of tribal, state and Mexican representatives is important, although it is unclear exactly how much input they may have had into the plan. I hope that their involvement in actual implementation expands beyond what is suggested in the plan. This is especially true because significant portions of the owl's range are on tribal lands and in Mexico, yet reliable information on the distribution and status of owls in those areas is largely lacking (or at least it's not presented in the plan), and it is unclear how strong their commitment may be to plan implementation.	We agree that a commitment to plan implementation is important to rangewide recovery of the Mexican spotted owl. In the case of Mexico, the lack of distributional and status data is likely attributable a lack of surveys in portions of the range. In the case of tribal lands, some tribes have elected to not share their information with the FWS, which is their right as sovereign nations. However, that does not necessarily indicate that most tribes will not implement the plan.
Rc-16	S. Temple, ESA	Failure to fully implement original plan is not adequately explained.—The 1995 plan has had 15 years to accomplish its objectives, but it seems that many of what appeared to be the most innovative and promising approaches presented in that plan were never fully implemented, or not implemented at all. An explanation of why and what could be done to prevent a similar outcome for the present plan seems to be needed. Some of it will always be due to shifting agency priorities and funding challenges, but there is clearly something to be learned from an honest appraisal of where a previous plan fell short. Addressing some of the shortfalls is included in the current plan but without noting that these are tasks that remained unaddressed from the 1995 plan.	This commenter is correct that some portions of the 1995 plan were not implemented, and the commenter likely hit on the most common reasons for lack of implementation. Conversely, a number of entities followed the plan recommendations. We have made adjustments (e.g., a revised monitoring program and recommendations for improved PAC treatments) which we believe will enhance implementation.
Rc-17	J. Karpowitz, UDWR	According to the revision, the owl cannot be delisted in the U.S. if it is not recovered in Mexico. We suggest the USFWS consider recovery within the U.S. portion of the range independent of the owl's status in Mexico.	The FWS must consider recovery of the subspecies as listed, which is rangewide. If, in the future, the FWS determines that recovery could be accomplished in a subset of the entire range, such a determination would be a separate process. For now, rangewide recovery is the goal.
Rc-18	J. Karpowitz, UDWR	Given the extensive range of the Mexican Spotted Owl, we recommend that recovery and delisting be allowed by Ecological Management Units (EMU). This smaller-scale delisting option is more likely to encourage interstate and interagency cooperation than a range-wide recovery requirement. At the EMU scale, individual states have more control and influence over recovery.	Please see the response to comment Rc-17.
Rc-19	S. Bahr, SC	How will the USFWS ensure that the monitoring occurs going forward? How will it be determined if the objectives and measurable recovery criteria are met?	We can't ensure that the monitoring will be implemented, but the recovery criteria cannot be met absent the suggested monitoring program or other scientifically rigorous methodology to estimate population trends. Whether the recovery criteria would ultimately be met would be evaluated during annual 5-year reviews per ESA 4(c)(2) and/or at any time delisting of the species is contemplated.

No.	Signator, Affiliation	Recovery (Rc) Comment	Response
Rc-20	T. McKinnon, CBD	As in 1995, there remain today no rigorous estimates of trends in owl populations or habitat; rigorous measurements on the effects of key land-management activities on owls or their prey and habitat are still lacking too. As a result, information has not been developed to serve the 1995 Recovery Plan's goal of moving beyond short-term provisions with a long-term, science-based management strategy for MSO. That ongoing scientific uncertainty, and the FWS and USFWS' inability to inform those uncertainties, is itself a threat to the MSO and lends skepticism to claims that research monitoring will occur with a new Plan. In short, information in the DRP fails to justify deviating far from the 1995 Recovery Plan; implementing that plan and its conceptual framework is still today, as it was sixteen years ago, largely a good idea.	We believe there are a number of compelling reasons for revising the 1995 plan, as explained throughout the revised document.
Rc-21	S. Combs, Texas Comptroller Office	At the very least, for listed species, we should understand the abundance of the species, the occupied range and the preferred habitat. In the case of the Mexican Spotted Owl, Page VI of the first revision of the draft recovery plan states that "Surveys since the 1995 Recovery Plan have increased our knowledge of owl distribution but not necessarily owl abundance." Owl abundance is key information that is necessary to understand the effectiveness of the original Mexican Spotted Owl recovery plan and to develop a more effective plan. Knowledge of owl abundance should be necessary in determining whether the owl still warrants inclusion on the threatened species list.	The commenter presents no rationale for the statement that an understanding of owl abundance is necessary to understand the effectiveness of the 1995 plan, nor that such knowledge is essential to develop a revised plan. The FWS believes that trends in habitat and the population, rather than abundance, is key to determining whether listing as a threatened species is appropriate.
Rc-22	R. Maes, USFS	Page vii, Recovery Strategy: It is unlikely that a significant proportion of the landscape can be restored within ten years to significantly affect the threat of habitat loss due to wildfire. Ten years of implementing restoration projects is unlikely to address the threat caused by 100 years of fire suppression.	See responses to comments Rc-4 and Rc-9.
Rc-23	R. Maes, USFS	Page 81, Recovery Strategy; and Executive Summary: Based on accomplishments under the original plan, we are skeptical about the reality of an anticipated recovery date of 2021. Time to do the landscape-scale assessments, build a monitoring plan, and implement all the treatments proposed can easily take more than 10 years. For example, mechanical treatments are expensive and there is a lack of sustainable industry available to implement landscape restoration. Prescribed fire can treat larger areas across the landscape but is difficult to implement effectively without considerable risk. Therefore, fire under certain conditions may be the only viable option for managing the threat of uncharacteristic, high-severity, landscape altering wildfires.	See response to comment Rc-6.
Rc-24	R. Maes, USFS	Page 82, Recovery Criteria: Given the potential loss of habitat and PACs due the wildfires this year, how will occupancy monitoring and trends be affected?	The loss of PACs and potential owl habitat has not been quantified well enough to say. This is being investigated. Monitoring hasn't started yet, so it doesn't impact collected data or associated results. The sampling frame is general enough to not be impacted by recent fires.

No.	Signator, Affiliation	Recovery (Rc) Comment	Response
Rc-25	R. Maes, USFS	Page 91, 10.1.1.: Will the FWS attend trainings/seminars put on by the recovery team so that all FWS consultation biologists understand the intent of the plan? I think this is a key step in making change on the ground given there are individuals who still advocate "stay[ing] out of owl habitat." Having training for either the FWS alone or the FWS and the FS together with the recovery team/authors would help reduce future disagreements rather than every individual forming their own opinion on what the plan "really means."	We agree that effective implementation will require a clear and common understanding of the recovery plan intent. The revised plan calls for EMU working teams, which should be composed of FWS and other key personnel, to meet with the Recovery Team to ensure consistent interpretation, and for conducting implementation workshops for the same purpose. This has been re-worded to stress that the workshop should be for all parties responsible for implementing the recovery plan.
Rc-26	R. Maes, USFS	Actions 6.10.1, 6.10.2; 6.10.3; 6.10.4; 7.1; 8.1 – The FWS should take a more active role in leading various aspects of this plan, particularly as it relates to monitoring the species.	<p>6.10.1. Carry out well-distributed demographic studies to detect significant downward population trends. <b>This is better led by research agencies/organizations.</b></p> <p>6.10.2. Conduct spotted owl surveillance to detect the disappearance of birds from a given area. <b>Best conducted by land-management agencies.</b></p> <p>6.10.3. Local biologists should monitor reports of avian mortality on the CDC website (www.cdc.gov) as well as those of state and county health departments. <b>Best conducted by state/county health agencies.</b></p> <p>6.10.4. If any of the above situations lead to suspicion of a WNV epizootic, conduct surveillance for the disease using standard arbovirus surveillance techniques. <b>Best conducted by state/county health agencies.</b></p> <p>7.1. Coordinate among administrative units to develop occupancy-monitoring design and secure funding. <b>Table V.1 edited to show FWS lead role.</b></p> <p>8.1. Coordinate among administrative units and FIA to develop habitat-monitoring design and secure funding. <b>FWS is not a habitat-managing agency except on refuges.</b></p>
Rc-27	R. Maes, USFS	Actions 7-7.6 - If monitoring owl occupancy (recovery criterion 1) is key to delisting the species, it is not clear why it is only a priority 2?	Per FWS recovery-planning guidance and as stated in the plan, Priority 1 actions are those necessary to prevent extinction or irreversible decline. While monitoring is important for both achieving recovery and alerting managers to population declines, we do not believe it fits within this Priority 1 definition.
Rc-28	R. Maes	Similarly the plan highlights how habitat monitoring and occupancy monitoring are dependent on one another, maintenance of nesting/ roosting habitat (action item 3), fire risk reduction treatments (3.2) and treatment of high risk PACs (3.2.1) are all Priority 1, yet habitat monitoring is given a recovery criterion of only 2. This seems counterintuitive. Shouldn't habitat monitoring also be a Priority 1 as well as evaluated in order to determine the success of the above action items and to maintain consistency with the plan strategy and recovery objectives below.	See response to comment Rc-27.

No.	Signator, Affiliation	Recovery (Rc) Comment	Response
Rc-29	R. Maes	It is not clear who will lead, fund, and coordinate the monitoring effort even though monitoring has a rank of recovery criterion 1. Without a clear link to who will lead this effort, fund it, etc. This is unlikely to get implemented and could present a fatal flaw underlying this plan in terms of realizing whether or not the criteria for delisting (below) have been achieved. As mentioned above, perhaps the FWS should take a more active role in leading this aspect of recovery, particularly coordinating efforts.	FWS is now identified as the lead for this effort in Table V.1, but it is expected that funding will come from multiple sources.
Rc-30	R. Maes, USFS	The largest obstacle to accomplishing monitoring is sufficient funding. There needs to be some sort of commitment by responsible parties to conduct surveys at regular frequency/interval to maintain consistency with the Strategy and Objectives	We agree.
Rc-31	R. Maes, USFS	Page 108, part 5, suggestion on interagency database: Strive to make this system user-friendly and available to all affected agencies. Consider working with the Cornell Laboratory on developing a system (a modified, restricted-access version of ebird.org would be a great model for this system).	Following completion of the revised Recovery Plan the FWS will work on implementing a centralized owl repository.
Rc-32	R. Maes, USFS	Page 254 C.a.: Section C.a. states that “[A]ll habitat-altering activities within PACs should be coordinated with the appropriate FWS office.” We would like to see more details as to what kind of coordination you envision. Experience tells us that a conservative approach will be taken when coordination through the ESA Section 7 consultation process is used. This process often result in minimizing or eliminating adverse effects in the short term often at the expense of potential long-term benefits and recovery.	We have modified this language throughout the plan to be consistent. Current law and regulation should guide the consultation process but coordination can occur on any project at any time between FWS and the action agencies.
Rc-33	R. Maes, USFS	The Distribution section (p. 7 and App. B p. 167) indicates that the current distribution generally follows the historical extent, with a few exceptions, but that it does not occur uniformly throughout its range. While a stated assumption of the recovery plan (p. 82) is that the existing owl population is adequate to maintain viability, it is unclear whether the current and anticipated distribution likewise is considered adequate. This should be clarified.	We have attempted to clarify this in the Recovery Plan (specifically see Part III.D). At this time, we cannot describe the future desired distribution of owls across their range. For example, changes in the species’ range may occur due to factors such as climate change which could result in shifts in the owl population to the northern portion of its range. Because the population monitoring is rangewide we should be able to detect potential changes in what we believe to be the distribution of the species today.
Rc-34	R. Maes, USFS	The recovery goal, objectives and criteria (p. 82) say nothing about distribution. We suggest adding an explicit criterion concerning the extent and connectivity of owl populations and habitats.	We addressed the distribution issue as described above in Part III.D.
Rc-35	R. Maes, USFS	Implementation and Oversight Table 8 on page 94 indicates that recovery plan recommendations are to be adopted through land management planning documents within 1 year. This may not be realistic as this would probably have to be meshed with the schedule for ongoing or planned forest plan revisions.	The FWS recommends completion of this task within one year; we realize that this won't happen throughout the range but hope it is accomplished as forest plans and other planning documents are revised.
Rc-36	B. Byrd C. Hanson, WEG and EII	The recovery criteria identified in the draft recovery plan (Draft at 82) depart from the statutory requirements for measurable, objective criteria for recovery. The NMFS Interim Endangered and Threatened Species Recovery Guidance states clearly, “it is appropriate to identify recovery objectives in terms of demographic parameters, reduction or elimination of threats to the species (the five listing factors), and any other particular vulnerability or biological needs inherent to the species” (NMFS 2010).	We believe that both habitat and population trends are measurable and objective. As stated in III.E (The Delisting Process), an evaluation under the five listing factors would be undertaken once the two recovery criteria are met.

No.	Signator, Affiliation	Recovery (Rc) Comment	Response
Rc-37	B. Byrd C. Hanson, WEG and EII	Occupancy rates are not demographic parameters and a stable rate of occupancy is not a defensible recovery criteria. If a recovered population is the objective, occupancy should show an increasing trend because the species has already been declining for decades (according to the literature cited in the Draft Recovery Plan). On page 37 the plan states that the population trend unclear, but on page 38 the papers cited all show declines. Why is it acceptable for the recovery criteria to incorporate a stable trend after years of decline? Why does FWS believe that a population that is being sustained at greatly reduced numbers the same as a recovered population? This cannot meet the definition of a recovered population. The Recovery Criteria should be modified to require that the population shows an increasing trend, not a stable trend, for recovery to be achieved.	We believe that trends in occupancy provide a defensible recovery criterion. We are unaware of any literature showing that the species has been "declining for decades", nor that this particular subspecies has declined at all. There are two demographic studies of which we are aware, one of which showed a declining trend and the other showing a stable trend, but both of these studies are extremely limited both spatially and temporally, and cannot be extrapolated to make conclusions about past population trends.
Rc-38	B. Byrd C. Hanson, WEG and EII	(2) The Recovery Criteria proposes that occupancy rates should show an increasing or stable trend. However, if you want a recovered population, occupancy should show an increasing trend because the species has already been declining for decades (according to the literature cited in the Recovery Plan). On page 37 the plan states that the population trend unclear, but on page 38 the papers cited ALL show declines. Why is it acceptable for the recovery criteria to incorporate a stable trend after years of decline? Why does FWS believe that a population that is being sustained at greatly reduced numbers the same as a recovered population? The Recovery Criteria should be modified to require that the population shows an increasing trend, not a stable trend, for recovery to be achieved.	See response to comment Rc-37.

No.	Signator, Affiliation	Recovery (Rc) Comment	Response
Rc-39	C. Hanson, EII	<p>There are several major problems with the Draft Plan’s population assessment and monitoring strategy. First, the Draft Plan (pages 38--39, and 104) assumes that the current population of MSOs “is adequate in numbers and distribution to maintain the viability of the species”. This assumption is not supported by any citation to conservation biology scientific literature in the Draft Plan. In fact, the Draft Plan (page 39) states that, after many years of surveys (and recently expanded surveys in terms of geographic scope) there are only 1,335 known MSO sites known to exist in the U.S. and Mexico combined. The DraftPlan, in various places, acknowledges that these sites are not consistently occupied by pairs, or even by individuals—occupancy can often be sporadic in any given territory, as is the case with the other two subspecies of spotted owl. Thus, even within these 1,335 MSO sites, there are not 1,335 pairs of MSOs at any given point in time—the number of pairs, and total number of adults, in any year will be substantially lower than this. However, even if we assume, unrealistically, that all 1,335 MSO sites are fully occupied by pairs 100% of the time, this only yields 2,670 adults. This is well below the extinction threshold identified by the most up---to---date, and most comprehensive, research in conservation biology, which indicates that a significant risk of extinction exists when populations are below about 4,000 to 5,000 individuals (Traill et al. 2007, 2010). The Draft Plan’s assumption that current population levels of MSOs are comfortably above a minimum viable population threshold is not scientifically sound. Thus, even if, over the next ten years or more, a stable or increasing population trend in MSOs is found, this would not form a legitimate scientific basis for delisting the MSO under the ESA—at least until and unless the population rises, and remains, well above the extinction threshold identified by Traill et al. (2007, 2010). A stable or increasing population trend is merely a necessary, but not sufficient, factor in considering de---listing.</p>	<p>First, the number 1,335 represents the known sites, and no where does the plan state that this is an estimate of abundance. In fact, Ganey et al. (2000) estimated that there are <math>2,950 \pm 1,067</math> (SE) Mexican spotted owls in the Upper Gila Mountains Recovery Unit (now Ecological Management Unit) alone. We agree that some sites are unoccupied in some years, but are not aware that non-occupancy rates are indicative of population instability or decline; this phenomenon is commonly observed in species exhibiting metapopulation structure. The assumption stated in the draft Revised Plan that the current population levels are "adequate" has been removed. We assume that sufficient information on population size and distribution exists to allow us to start with this baseline for reasons articulated in the plan text.</p>
Rc-40	B. Byrd C. Hanson, WEG and EII	<p>As in the original Recovery Plan, the Draft indulges in the core assumption that the currentpopulation level of the MSO is adequate to support a viable population of the species. But the Draft Plan recognized that the population trend remains unclear (Draft at 38) and the best evidence demonstrates that populations are declining (Draft at 40).</p>	<p>See response to comment Rc-37.</p>
Rc-41	B. Byrd C. Hanson, WEG and EII	<p>There is not now any scientifically valid reason for allowing even less protective forest practices to commence – as contemplated by the Draft Revised Recovery Plan. The very limited demographic information on the owl that does exist shows recent declines in Arizona and New Mexico and a New Mexico population that appears to be declining at 6% per year. In this light, “adaptive management” simply would not allow the Forest Service to conduct even more aggressive forest management practices, as contemplated by the Draft. This is especially true in light of the Forest Service’s failure to complete the CMMRP in order to provide important information on the effect of its aggressive WUI actions. This was one of the big issues around the CMMRP and the Lincoln Capability Assessment. Forest Service management desired to bring the basal area down in the Penasco and Forest Service research said the research didn’t support the target numbers being used in the Capability Assessment.</p>	<p>The points made in this comment are addressed under a number of previous comments.</p>

No.	Signator, Affiliation	Current Management (CM) Comment	Response
CM-1	B. Hotze, FWS-UT	In 2010, Frank Howe et al. were given permission to survey on Ute Tribal Lands in Uinta County, Utah, and found 7 owls: a pair and a single in Chandler Canyon and a pair and two singles in Florence Canyon. This information should be included in the text on pages P6-177 and in Table B.2.	Table II.1 has been updated, and a currency date has been added since the spotted owl records will change through time. We did not include specific information regarding Ute tribal management of canyon habitat in Utah as it was not provided by the Ute Tribe.
CM-2	T. Rambler, San Carlos Apache Tribe (SCA)	Traditional Apache culture and a deep abiding respect and love for the land, the water and all species inform the Tribe's management of the San Carlos Apache Reservation ("Reservation"), management of the land and associated natural resources and environmental protection of all plant and animal species. Traditional Tribal ecological knowledge ("TEK") is a key and fundamental principle of species conservation and land management on the Reservation. TEK incorporates concepts of an ecosystem-based approach to land and species management and conservation. It incorporates concepts of adaptive management by the Tribal government, the Tribal leaders and elders and the Apache people in land and species management and preservation.	This text and that of the following 5 comments has replaced the text in the public-review draft.
CM-3	T. Rambler, SCA	Consistent with TEK, the Tribe has adopted a Strategic Plan in September of 2004. The Strategic Plan was developed with the Tribe's vision, goals, and objectives, to serve as an action plan for all resources on the Reservation. In February of 2004, the Tribe adopted its Mexican Spotted Owl Conservation Plan for the San Carlos Apache Reservation ("MSO Conservation Plan"). The Tribe's Conservation Plan was designed and drafted with the assistance, among others, of U.S. Fish and Wildlife Service ("USFWS") staff. TEK was a paramount consideration and guiding principle in the drafting of the MSO Conservation Plan. The MSO Conservation Plan has been actively implemented on the Reservation since its adoption.	See response to comment CM-2.
CM-4	T. Rambler, SCA	The MSO Conservation Plan has delineated Protected Activity Centers ("PACs") around known owl sites in all forested habitat of the reservation. The Conservation Plan ensures that Tribal land-management activities and policies do not jeopardize the continued existence of Mexican Spotted Owls on the Reservation. Jeopardizing the existence of any species would be counter to the Apache cultural belief that all things were created for a purpose and have value MSO habitat has been identified and delineated throughout the Reservation. Approximately 90% of tribally identified nesting, roosting, and foraging habitats are on lands inoperable for timber harvest and therefore are not in the commercial timber base.	See response to comment CM-2.
CM-5	T. Rambler, SCA	In October of 2003, the Tribe adopted the San Carlos Apache Tribe Forest Management Plan ("FMP") for the planning period 2004 to 2015. The FMP was also drafted with consideration of TEK. Indeed, the FMP addressed significant sections of the plan to wildlife, threatened and endangered species and fisheries, including addressing the specific needs of the Mexican Spotted Owl. The FMP has been actively implemented on the reservation since January of 2004. The FMP was, of course, available and considered by the team which drafted the MSO Conservation Plan.	See response to comment CM-2.

No.	Signator, Affiliation	Current Management (CM) Comment	Response
CM-6	T. Rambler, SCA	Since the adoption of the MSO Conservation Plan, the Tribe and its responsible departments have interfaced and worked with USFWS staff in the implementation of the MSO Conservation Plan. Similarly, departments within the Tribe have worked to implement the MSO Conservation Plan. For instance, consideration is given to MSO habitat, including designated MSO PACs, prior to any commercial timber sales on the Reservation. Consultation is undertaken with USFWS staff prior to the implementation of commercial timber sales so as to minimize, if not eliminate, MSO impacts.	See response to comment CM-2.
CM-7	T. Rambler, SCA	Furthermore as called for under the MSO Conservation Plan and the FMP, wildfire management actions are implemented throughout the Reservation as funding allows. These actions include forest thinning and prescribed burns. MSO habitat has benefitted from the management of Tribal forest resources. Indeed, the forest management practices employed on the Reservation are believed to have been a significant factor in reducing and minimizing the devastation of the 2011 Wallow Fire, the largest forest fire in recorded Arizona history.	See response to comment CM-2.
CM-8	T. Rambler, SCA	The Tribe submits that the Tribe's MSO Conservation Plan and FMP focus on the same goals and objectives as the DRP. The Tribe's implementation of the MSO Conservation Plan and the FMP has borne fruit in achieving the objectives and goals of the DRP and the DRP's recovery criteria. The Tribe will revisit its MSO Conservation Plan for consistency and compatibility with the DRP in the final form in which it is adopted.	We appreciate and support the tribe's suggested approach.
CM-9	B. Byrd C. Hanson, WEG and EII	In some fashion, the Draft Recovery Plan needs to address the history of the Forest Service's implementation of the original Recovery Plan, the 1996 Standards and Guidelines, and the various RPAs/ITSs it has received in Section 7 consultations. The reality is that the Forest Service has a flawed track record in connection with the MSO. The Draft Recovery Plan is bound to fail unless it candidly acknowledges and addresses the Forest Service's institutional inability/unwillingness to take required measures to protect and conserve the MSO.	While the FWS hopes that the revised Recovery Plan is fully implemented by all parties, we cannot mandate as much. Section 7 consultation prohibits Federal agencies from jeopardizing listed species or critical habitat, but does not require implementation of recovery plans.
CM-10	B. Byrd C. Hanson, WEG and EII	Instead of becoming more conservative with respect to MSO management issues, the Forest Service's management actions became more aggressive in the 2000s at the expense of the MSO and its habitat. In large part, the increasingly aggressive Forest Service management actions stemmed from the Forest Service's adoption of the National Fire Plan in 2000, which was intended by the Forest Service to refocus the agency's efforts on the abatement of wildfire risk. The Forest Service's fuels management program is only bound to become even more aggressive and widespread as a result of the fires in Arizona and New Mexico in 2011.	The Fish and Wildlife Service believes that the management recommendations in the Revised Recovery Plan strike the appropriate balance between aggressive treatments to reduce the risk of stand-replacing fire and manage for the habitat attributes that are key to owl persistence on the landscape. The unprecedented rate of large-scale fires in recent years attests to the need to manage for forest resiliency.
CM-11	B. Byrd C. Hanson, WEG and EII	The Draft Recovery Plan must acknowledge that Forest Service management activities have resulted in an amount of incidental take of Mexican spotted owls that approaches or exceeds the amount of incidental take authorized by the ITS of the 1996 BiOp; that the Forest Service has not implemented the monitoring program that was required by the ITS incorporated into the 1996 BiOp and that was also required by the 1996 Standards and Guidelines; and that the Forest Service has not consistently applied the management recommendations of the 1996 Standards and Guidelines in the design and implementation of national forest management activities in Arizona and New Mexico.	It is not within the purview of a recovery plan to review incidental take records, nor judge whether a given agency has historically followed its standards and guidelines. The intent is to provide management recommendations to move forward with owl recovery. This plan does so.

No.	Signator, Affiliation	Current Management (CM) Comment	Response
CM-12	B. Byrd C. Hanson, WEG and EII	For example, the proposed Bonito Forest Restoration Project on the Lincoln National Forest prescribes a basal area in mixed conifer of 80 to 100 ft <sup>2</sup> per acre (Forest Service 2010). This prescription includes PACs outside of core areas and slopes greater than 40% (Forest Service 2010). The prescription calls for trees up to 34" in diameter to be "thinned." The project calls for 4 miles of new road construction (Forest Service 2010).	It is not within our purview to recount specific projects in this recovery plan.
CM-13	B. Byrd C. Hanson, WEG and EII	The Maquinita Decision Notice on the Carson National Forest will harvest approximately 2,346 acres for saw timber (6,018 MBF) including 4 trees per acre larger than 18" diameter and 4 miles of road construction (Forest Service 2009). The project will treat 4, 154 acres of restricted habitat (Forest Service 2009). The Jim Lewis Project Decision notice on the Lincoln National Forest calls for commercial thinning on up to 4,798 acres of mixed conifer forest with a target basal area of 80 to 100 ft <sup>2</sup> per acre (Forest Service 2010b).	See response to comment CM-12.
CM-14	B. Byrd C. Hanson, WEG and EII	There is not now any scientifically valid reason for allowing even less protective forest practices to commence – as contemplated by the Draft Revised Recovery Plan. The very limited demographic information on the owl that does exist shows recent declines in Arizona and New Mexico and a New Mexico population that appears to be declining at 6% per year. In this light, "adaptive management" simply would not allow the Forest Service to conduct even more aggressive forest management practices, as contemplated by the Draft. This is especially true in light of the Forest Service's failure to complete the CMMRP in order to provide important information on the effect of its aggressive WUI actions. This was one of the big issues around the CMMRP and the Lincoln Capability Assessment. Forest Service management desired to bring the basal area down in the Penasco and Forest Service research said the research didn't support the target numbers being used in the Capability Assessment.	While we agree there is not a definitive scientific answer to this difficult dilemma, what we do have is strong evidence that wildfire has taken a significant toll on spotted owl habitat as evidenced by the recent fires, which exceed in severity and extent all fires in the recorded history of the Southwest. The demographic data referenced by the commenter is of such limited spatial and temporal scope that no conclusions can be reached on spotted owl population trends. We believe that more aggressive stand treatments are warranted going forward. Please see our discussion of this issue in Box III.1.