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August 17, 2007

Paul Phifer
U.S. Fish & Wildlife Service: Region 1
Eastside Federal Complex, 911 N.E. 11th Ave.
Portland, OR 97232-4181

Re: Comments on the April 26, 2007 Draft Recovery Plan for the northern spotted owl (summary cover letter and attached detailed comments and related documents)

Dear Paul:

Thank you for the opportunity to assist the U.S. Fish & Wildlife Service (FWS) in the preparation and now the review of the draft recovery plan for the federally threatened northern spotted owl. Throughout our participation as recovery team members, we have been especially impressed by the professionalism and dedication of FWS staff and the Interagency Support Team (IST). The IST and technical and support staff of the FWS have been an asset to the recovery team and we are grateful for their assistance.

While the recovery team labored from April through September 2006 to produce a draft plan on what seemed to be an arbitrarily short time line, we did manage to initially agree on a number of key points, particularly that **a fixed reserve network anchored in the Northwest Forest Plan (NWFP) is the most scientifically credible approach** to addressing the threat of habitat loss to the owl (although we did not reach agreement on the specific habitat provisions within the reserve network). The draft recovery plan acknowledges that the NWFP reserve network is the most scientifically credible approach for the owl, yet, unfortunately does a complete reversal in proposing Option 2. This option is not a product of the recovery team but instead was the result of political interference that began almost immediately after the submission of the recovery team's draft document on September 29, as documented in congressional testimony submitted to the House Natural Resources Committee on May 9 and again on July 31 (attached). We

therefore request that you include this testimony in the record of comments and respond to the questions raised below that arise as a result of this interference.

We are especially concerned with statements that have been made by Department of Interior and other administrative officials that Option 1 is a "*product of consensus*," which it was not and that we were the only ones on the recovery team having misgivings about Option 2, which also was not the case. You may recall that back in September we agreed that the habitat provisions were at a point where peer review was warranted. Both our organizations and the state of Washington repeatedly urged FWS to submit the habitat provisions to owl scientists for peer review prior to publication of the draft in the Federal Register. We were told by the FWS that there was not enough time for peer review, yet 7 months elapsed while the agency held off on peer review. Therefore, we request that you do not communicate our support of either of the options in this plan in any way or intimate that we supported releasing the habitat provisions prior to publication of the plan. The decision to go forward in September was based on our understanding (and request) that the habitat provisions would be reviewed by owl scientists prior to publication in the draft owl recovery plan (see July 31 testimony as supporting evidence). Because this request was not honored, the September 29 draft was interfered with by the Washington D.C. Washington Oversight Committee ("Washington Oversight Committee"), and the science inappropriately applied and ignored in several places, as recently confirmed by independent peer review of the draft recovery plan, we do not support either option in the draft recovery plan. In addition, because after September 29 the process was shifted by FWS from consensus to the recovery team increasingly responding to the Washington Oversight Committee (see below and July 31 testiomony) this created concerns raised by many members of the recovery team and not just us.

More specifically, and as detailed in our meeting notes, the recovery team gave conditional approval of the September 29 draft—upon thorough scientific peer review and any necessary revisions, particularly to the habitat thresholds in recovery criterion 4, resulting from that review prior to the release of the plan. However, after September 29 draft, the Washington Oversight Committee directed[1] the IST to:

- alter ("*flip and switch*") the sequence of topics in the draft plan by placing the barred owl above habitat loss;
- de-emphasize past science that linked owl survival to old-growth forests by focusing primarily on two studies in the owls' southern range that showed owls using a mixture of forest types;
- de-emphasize threats of habitat loss to the owl by limiting the discussion of habitat loss to a single page (direction to FWS from Interior Deputy Director Lynn Scarlett, see attached testimony);
- "de-link" the recovery plan from the NWFP and link recovery actions to individual agency land and resource management plans (LRMPs), which, notably, can be revised without a NEPA process under a new Forest Service regulation

[1] As summarized from our meeting notes and in notes taken by FWS at recovery team meetings – see attached congressional testimonies, which we are submitting in support of our comments.

(this direction came primarily from the Forest Service and BLM as documented in our congressional testimony attached);

- provide options that do not rely on fixed habitat reserves (i.e., "eliminate the MOCAs" – Managed Owl Conservation Areas); and
- change the definition of MOCAs from Mapped Owl Conservation Areas to "Managed" Owl Conservation Areas.

This post-September direction from the Washington Oversight Committee resulted in a shift in the process by which the recovery team operated from consensus to responding to direction from the Washington Oversight Committee (as documented in the July 31 attached congressional testimony). In addition, after September, the FWS was increasingly responding to direction from the Washington Oversight Committee to make the recovery plan more "*flexible*" to the forest planning needs of the Bureau of Land Management (BLM), which is revising its plans through its Western Oregon Plan Revisions (WOPR). The Forest Service also repeatedly resisted habitat protection measures proposed by the recovery team arguing against post-fire logging restrictions and even against the use of scientifically defensible terms such as "protected areas" or "reserves" (hence the change from mapped to managed owl conservation areas as reported above). Consequently, this inappropriate pressure mainly from the Forest Service and BLM apparently directed by the Washington Oversight Committee resulted in a recovery plan that is not a product of the best available science but was based on preconceived outcomes (see attached July 31 testimony).

Contrary to assertions that the plan was based on "*new science*," the draft recovery plan contains numerous flaws that render the habitat provisions inconsistent with the best available science as also noted by all the independent peer reviews conducted (The Wildlife Society – TWS – Society for Conservation Biology –SCB – and American Ornithologists' Union – AOU – and reviews provided by Drs. Dugger and Franklin). Among these flaws are: (1) scientifically indefensible and arbitrarily low levels of habitat thresholds in both recovery plan options under criterion #4 (see all scientific society peer reviews and reviews provided by Drs. Dugger and Franklin); (2) misinterpretation and misapplication of two studies in the owls southern range (Franklin et al. 2000, Olson et al. 2004, also reviews by Drs. Dugger and Franklin); (3) failure to fully consider a third study by some of the same authors (Dugger et al. 2005, review by Dr. Dugger) that did not confirm the findings of the aforementioned studies; (4) adoption of an arbitrary standard that only 80% of MOCAs/habitat blocks need to achieve the habitat thresholds before delisting can be considered (see Dugger and Franklin peer review); and (5) failure to consider recent studies on habitat loss in Washington (e.g., Pierce et al. 2005) and the pervasive impacts of post-fire logging on ecological processes and forest functions (e.g., Lindenmayer et al. 2004, Karr et al. 2004, Beschta et al. 2004, Noss and Lindenmayer 2006, Lindenmayer and Noss 2006, Hutto 2006, Reeves et al. 2006, Donato et al. 2006, DellaSala et al. 2006, Thompson et al. 2007). Each of the noted flaws was recognized by independent peer review, including some of the very same scientists whose seminal work was misapplied by FWS (see attached letter from Dr. Olson to Congressman Jay Inslee, letter from Dr. Franklin to the FWS dated November 21, 2006, and peer reviews by Drs. Dugger and Franklin).

In general, the recovery plan contains ten fatal flaws and a number of related problems detailed in our comments. Most serious among these flaws is that neither Option 1 nor Option 2 provides adequate levels of habitat for delisting the spotted owl under criterion 4 (see reviews by TWS, SCB-AOU, Drs. Dugger and Franklin), at a time when the species is experiencing a precipitous decline (Anthony et al. 2006). Consequently, the recovery plan fails to address one of the primary factors for which the owl was listed under the ESA - "*destruction and adverse modification of habitat*." Further, because Option 2 turns over the responsibility to identify habitat blocks to local Forest Service and BLM managers, it will likely fail to address another of the key factors for which the owl was listed – "*inadequacy of regulatory mechanisms*." Both of these concerns have been raised by the independent peer reviews. Notably, the FWS, not the Forest Service and BLM, has the primary responsibility to decide the location of habitat blocks in the reserve network. Therefore, while Option 2 was designed to provide "*flexibility*" for managers, if implemented the lack of regulatory certainty could trigger the future need to up-list the owl to endangered status, resulting in further restrictions (less flexibility) on land use activities (see review by TWS). Notably, several recent evaluations of the NWFP and five year status review of the owl have concluded that the NWFP is rooted in an adaptive management approach that is "*flexible*" and responsive to change (see Courtney et al. 2004, DellaSala and Williams 2006, peer review by Dr. Franklin). There is no such scientific support for shifting mosaic approaches, such as Option 2, which are far more risky and unproven scientifically (all peer reviews noted the same problem).

We are also very concerned that the Washington Oversight Committee directed the recovery team, through the IST, to develop Option 2 so that it could better meet the timber demands of the Forest Service and BLM (see attached May 9 and July 31 testimony regarding memos and recovery team meeting notes documenting how the FWS was continually making adjustments to the recovery plan based, in part, on pressure from the BLM regarding its WOPR and the Forest Service regarding future forest plan revisions). In our view, this inappropriate influence compromised the fundamental responsibilities and mission of the FWS, which is to ensure that adequate habitat for wildlife, and especially listed species, is sufficiently safeguarded. The timber demands or land use planning needs of federal agencies should never have been a principal concern of the recovery team as the ESA is clear on this point – recovery plans need to be based on the best available science[2] not the demands of other federal agencies. These issues would have better addressed in Section 7 consultation using an open and transparent decision-making process whereby the action agencies propose projects and the FWS determines whether they are consistent with the recovery plan through transparent

[2] FWS is required to make listing and delisting decisions "solely on the basis of the best scientific and commercial data available," 16 U.S.C. § 1533(b)(1)(A). A recovery plan must also be based on the best scientific and commercial data available because its purpose is to conserve the species, i.e., allow the species to be delisted. See also FWS, Notice of Interagency Cooperative Policy on Information Standards under the Endangered Species Act, 59 Fed. Reg. 34,271 (June 1, 1994) that commits FWS to ensuring information used to develop and implement recovery plans is reliable, credible, and represents the best scientific and commercial data available.

evaluation criteria in biological opinions and jeopardy decisions in compliance with the ESA.

We repeat that the habitat thresholds for criterion 4 in both options 1 and 2 were based on untested assumptions and misapplication of a handful of studies that are far too preliminary or site and territory specific to represent a scientifically sound theory on habitat selection by owls (nor were they intended by the researchers to be applied in this manner or at this scale – see attached letters from Dr. Olson and Dr. Franklin, statements in their publications referenced in our detailed comments, peer review conducted by TWS, SCB-AOU, and peer review by Drs. Dugger and Franklin). We request that you include all of these materials in the final recovery plan. The failure to heed cautions by the same researchers whose seminal work was cited in the draft recovery plan appears to violate the provisions of the Data Quality Act and the provisions of the ESA and regulations that require the FWS to base recovery plans on: (1) *best available science (see footnote #2 above)*, and (2) *measurable objective criteria*[3].

In particular, because Option 2 is based on a rule set that could yield multiple outcomes (none of which have been tested or modeled for their ability to contribute to recovery or owl viability) it is not only impossible to evaluate its recovery potential, but it also raises implementation problems for the Forest Service and BLM as well as oversight problems for the FWS (e.g., according to SCB-AOU peer review, *"the administrative complexity associated with the implementation of Option 2 renders it unworkable").* Again, Section 4 (f) of the ESA requires recovery plans to include site-specific management actions (see footnote#3) and because Option 2 yields multiple outcomes it is impossible to assess site specific actions and therefore does not meet the intent of the ESA and is probably illegal.

The action agencies in the case of Option 2 typically lack sufficient resources or expertise to ensure that the location of habitat blocks will be based on the best available science, and the oversight problems this alternative raises for the FWS seem insurmountable given declining agency budgets. Further, there are no assurances in the draft recovery plan (or incentives) for managers to choose options that maximize rather than minimize habitat within large habitat blocks or MOCAs. Notably, Option 1 allows for both minor reductions (5%) in MOCAs and large-scale changes to the reserve network but provides no direction for managers to expand protections based on increasing or cumulative threats and/or declining owl populations. This is especially troubling given that the owl is facing multiple threats and stabilizing populations will likely require more habitat, not less, in

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[3] ESA section 4(f) describes the recovery planning duties of FWS as follows: *(1) The Secretary shall develop and implement plans (hereinafter in this subsection referred to as "recovery plans") for the conservation and survival of endangered species and threatened species listed pursuant to this section, unless he finds that such a plan will not promote the conservation of the species. The Secretary, in developing and implementing recovery plans, shall, to the maximum extent practicable –…(B) incorporate in each plan – (i) a description of such site-specific management actions as may be necessary to achieve the plan's goal for the conservation and survival of the species; (ii) objective, measurable criteria which, when met, would result in a determination, in accordance with the provisions of this section, that the species be removed from the list; and(iii) estimates of the time required and the cost to carry out those measures needed to achieve the plan's goal and to achieve intermediate steps toward that goal.*

addition to other protective measures. We raised these concerns before in previous reviews of the draft plan (see attached February draft comments) but they were largely ignored by FWS and therefore we have submitted them again as part of our comments on the most recent draft owl recovery plan.

We request that the FWS respond to the following questions in the final recovery plan regarding the role and identity of the Washington Oversight Committee so the public can understand the full involvement of the Washington Oversight Committee:

- Who was on the Washington Oversight Committee and what was its purpose (the identity of the committee should be included, at a minimum, in the opening acknowledgements of the recovery plan)?
- How often did they meet and with whom?
- What was the role of Assistant Deputy Interior Secretary Julie MacDonald in providing direction to FWS or participating in decisions involving the recovery team's September 29 draft and subsequent plan revisions and at what point did she recuse herself from this committee (e.g., recovery team meeting notes indicate she was part of the Washington Oversight Committee at least through January 2007)?
- Did outside groups or individuals meet with the Washington Oversight Committee during its deliberations over the recovery plan and, if so, what was discussed and with whom did this committee meet with?
- What specific science did the Washington Oversight Committee use in directing the recovery team (through the IST) to develop Option 2 (non fixed reserves) and to "*eliminate the MOCAs*?"
- What did Under Secretary of Agriculture Mark Rey mean by his statement to the FWS that the reserves in the NWFP are a "*failed theology*," what science is this based on, and how did this thinking influence Option 2 in the recovery plan?
- What did Dave Wesley mean when he told the recovery team in an October 2006 meeting that the Washington Oversight Committee wanted a "*Bush plan, not a Clinton plan*" and how did this thinking influence the two options in the recovery plan?

We would like to point out that during a recovery team meeting in Portland on February 7, FWS Pacific Regional director Ren Lohoefener, indicated that the Washington Oversight Committee was "*responding to outside influences*," yet he gave no details on who these influences were or about their role in advising the FWS on the recovery plan. Upon further questioning from the recovery team, he indicated that the outside influences were representatives from the timber industry. If this is true, why did the Washington Oversight Committee only consult with industry in this process and what influence did the industry have on the draft recovery plan as a result of its contacts with the Washington Oversight Committee? This needs to be acknowledged in the public record for full disclosure and transparency (e.g., how many meetings took place, what was discussed and with whom, what were the outcomes of these meetings, etc?).

In addition, we want to document for the official record the political interference that resulted in this draft recovery plan, and, most notably the role of the Washington Oversight Committee that instructed the recovery team to: (1) de-emphasize past science that linked spotted owl survival to old-growth forests; (2) place barred owls above habitat as the highest priority threat to recovery (the September 29 draft treated them both as equivalently high priorities, which is supported by all of the independent peer reviews); (3) "de-link" the recovery plan from the NWFP; and (4) provide options that do not rely on fixed habitat reserves. We request that you include this specific direction from the Washington Oversight Committee in the final recovery plan as well as what specific science was used to respond to this direction. We note that while it is not unusual for administrations to make use of oversight committees, the way in which this committee operated, which gave specific direction to the recovery team that was not based on the best available science, is consistent with other documented interferences by department officials as noted in a recent Office of Inspector General's report on former Interior Assistant Deputy Secretary Julie MacDonald and documented in testimony submitted to the House Natural Resources Committee (testimonies attached). Because the interference that took place in this recovery plan by the Washington Oversight Committee is on par with other noted department missteps currently under congressional and Department of Interior investigation, the draft recovery plan should be part of internal reviews and reforms recently announced by Secretary Kempthorne.

Based on our participation as recovery team members and our critique of this draft plan, we believe the recovery plan is not based on the best available science and is likely to result in the need for future up-listing of the owl to endangered status due to a lack of sufficient habitat in criterion 4, options based on untested models (e.g., shifting mosaics and non fixed reserves of Option 2 are not based on measurable, objective criteria), inadequate regulatory mechanisms (e.g., by turning over selection of large blocks to the action agencies), and other deficiencies noted in our detailed comments (these findings are also supported by the independent peer reviews). Therefore, we urge the FWS to take the following corrective actions:

- dismiss this recovery team and assemble a new recovery team consisting of independent owl scientists and rewrite the plan using the best available science (also see TWS peer review as well);
- assign qualified owl scientists and ecologists, rather than stakeholders or the action agencies, to define the biological imperative, objectives, and de-listing criteria for the spotted owl (consistent with TWS peer review);
- use the NWFP reserves as a baseline of current habitat conditions on federal lands below which suitable owl habitat can not decline or be degraded by management (see our comments in Appendix A regarding the NWFP as a "floor" below which suitable habitat must not decline – this is consistent with all peer reviews);
- recalculate the persistence likelihood functions for the spotted owl based on new population and habitat models that incorporate barred owl effects on spotted owl occupancy and persistence (consistent with the SCB-AOU review regarding the use of out-dated models in the recovery plan); and

- develop a risk assessment that can be used to evaluate different recovery options based on a baseline of habitat (i.e., suitable habitat protected in LSRs – see Appendix A) and recovery measures that meet or exceed this baseline (consistent with habitat recommendations of all scientific society peer reviews).

Our detailed comments have identified the following ten flaws in the recovery plan that deviate from the best available science and require the immediate attention of the FWS in the final recovery plan:

1. Erroneous statements about there being "*no differences in the underlying science between options 1 and 2*" when, in fact, differences do exist and both depart from the more scientifically credible NWFP (and depart from even the inadequate 1992 draft owl recovery plan – see Appendix A – also – consistent with all scientific society peer reviews).
2. The amount of habitat needed to allow delisting (recovery criterion 4) is too low, and this could lead to reductions in old growth habitat compared to the NWFP, and is likely to result in premature de-listing (consistent with all scientific society peer reviews and with Drs. Dugger and Franklin).
3. Inadequate regulatory mechanisms (consistent with TWS peer review) for protecting owl habitat by essentially granting the authority to decide the location of habitat blocks or MOCA boundaries to local Forest Service and BLM managers that may not have a regional perspective or may be subject to local timber demands that conflict with national interests in the conservation of endangered species (e.g., such as the BLM WOPR).
4. Misapplication of science (consistent with all peer reviews) in several ways, including (1) ignoring cautions from owl researchers in the southern range, which include statements made in their publications, letters to the FWS, recovery team phone conferences with the noted researchers, and congressional testimony by scientists calling on the FWS not to use the habitat study results in the southern range in habitat prescriptions at this time (also see reviews by Drs. Dugger and Franklin and attached letters from Drs. Olson and Franklin); (2) misapplication of scale in applying habitat information from owl territories to entire provinces, including using extremely small "sample sizes" to construct criterion 4 habitat relationships (e.g., figure D2 in the recovery plan is statistically invalid as it includes only 6 "data points" that were inappropriately extrapolated in the development of habitat thresholds for entire provinces – this concern is consistent across all peer reviewers and therefore represents scientific consensus that the plan is inadequate regarding criterion 4); (3) virtually ignoring conflicting findings by some of the same researchers (Dugger et al. 2005 and Duggers' peer review comments) from a nearby study area that did not find an association between owls and young forests (as reported by Franklin et al. 2000, Olson et al. 2004); (4) complete omission of new science regarding the pervasive and detrimental impacts of post-fire salvage logging on ecosystem processes and functions (e.g., Lindenmayer et al. 2004, Karr et al. 2004, Beschta et al. 2004, Noss and Lindenmayer 2006, Lindenmayer and Noss 2006, Donato et al. 2006, DellaSala et al. 2006, Thompson et al. 2007, and new studies by Dr. Anthony's

grad student Darren Clark); and (5) overemphasis of the barred owl as the primary threat to spotted owls in spite of a lack of scientific evidence that this is indeed the case (consistent with all scientific societal peer reviews).

5. Use of out-dated population persistence models for the spotted owl (consistent with all scientific societal peer reviews), which were the basis for the habitat block sizes in Option 2, and do not include new information on the threat of barred owl invasions or climate change effects.
6. Lack of specific actions for expanding the number of demographic study areas, particularly on nonfederal lands where owl populations are declining at more than twice the rate as on federal lands (consistent with TWS review).
7. Failure to provide a scientific basis for a related decision to lower the priority level status of the owl from 3C to 6C in 2004 given that owl populations are experiencing an accelerated decline (Anthony et al. 2006 – also see TWS review).
8. Overlooking the role of scientists in implementation and coordination efforts in the NSO Working Group (also see TWS review).
9. Lack of provisions in Option 2 to coordinate the location of conservation areas with adjacent non-federal lands, including Habitat Conservation Plans (HCPs).
10. Failure to adequately address, through an expanded reserve network, the potential impacts of climate change and of the barred owl on the persistence of the spotted owl and especially the old-growth forest ecosystem the owl depends on for its survival.

In sum, the draft recovery plan: (1) includes provisions that do not meet the fundamental requirements of the ESA regarding *"measurable, objective criteria"* for achieving de-listing; (2) departs from the best available science in several ways; (3) inadequately addresses two of the major listing factors for the owl *–destruction of habitat and the inadequacy of regulatory mechanisms*; and (4) contains numerous inconsistencies and implementation problems that ironically hinder the "*flexibility*" requested by federal agencies. Consequently, the draft recovery plan is overly optimistic in projecting that de-listing of the owl can be achieved in as little as 30 years (consistent with TWS peer review). This is astonishing given the owl's decline is accelerating (Anthony et al. 2006) and habitat protections could be reduced (through revisions in forest planning such as the BLM WOPR) or managed at unscientifically low levels in criterion 4 compared to the existing reserve network under the NWFP. In contrast, the NWFP, with much stronger habitat protections assumed a functional reserve network would not be in place across the range of the owl for 50-100 years (see Appendix A). This is largely because 40% of the reserves are mainly previously logged forests and the reserve network is not yet fully functional (Strittholt et al. 2006).

We request that you provide scientific documentation regarding how the draft recovery plan can recover the owl faster than the projections of the NWFP when the owl's decline is accelerating and criterion 4, the Option 1 MOCA network, and the Option 2 habitat block "rule set" all would lower habitat levels compared to the NWFP. These reductions need to be evaluated along with the recent exemption by FWS of 1.5 million acres of critical habitat for the owl because they represent cumulative habitat losses at a time when owl declines are accelerating. We note that in previous attempts to down play the

importance of old-growth forests to owl viability the courts have ruled against the agencies (see attached 1994 legal declaration provided by Dr. Daniel Doak). Therefore, FWS needs to withdraw the low levels of habitat proposed in criterion 4 relative to the NWFP because they may be found illegal.

The NWFP should be the baseline for comparisons of recovery plan alternatives and the recovery plan needs to be linked (not de-linked) to the NWFP because the NWFP is more consistent with the provisions of the ESA regarding **conserving the ecosystems** upon which spotted owls depend (Appendix A, B). In the five-year status review of the owl, Courtney and Franklin (2004) concluded that there was no scientific reason to depart from the NWFP and the situation would be much bleaker today for the owl without the plan. Thus, by de-linking the recovery plan from the NWFP, which is the only large-scale ecosystem management approach on federal lands in the owl's range, the recovery plan departs from the ecosystem intent of the ESA and promulgating regulations (see 50 CFR Part 17, *The Federal Register* for Friday, July 1, 1994 (Vol. 59), p. 34274)[4]. Moreover, the National Forest Management Act (NFMA) requires that populations of vertebrate species on national forests be managed to ensure viability. Because the owl recovery plan and related critical habitat determination each release from protection (or manage owl habitat at lower levels) over a third of current habitat for the owl (Appendix B and TWS peer review), it is unlikely that the Forest Service will be able to meet the provisions of NFMA with respect to owl viability.

Given the track record of political interference in this recovery plan, we request that FWS:

(1) dismiss the recovery team and assemble a new team of independent scientists, owl experts, and ecologists to redo the plan free of political interference and stakeholder positions (also see TWS peer review);
(2) put the draft critical habitat determination for the owl on hold as it is tied to this flawed recovery plan;
(3) give equal weight to the TWS peer review as the SCB-AOU peer review because TWS used experts with 30 years experience in the ecology of owls, population ecology and conservation biology, forest management, and wildland fire; and
(4) include a point-by-point, web-posted response by FWS to each of the peer reviews, including the TWS review and the reviews by Drs. Franklin and Dugger (and Dr. Olson's letter to Congressman Inslee and other materials should she choose to submit them to FWS).

Finally, we have included in our comments a more detailed review below and supporting materials that we request you also include in the final recovery plan. In addition, we highlight in bold face our responses to the latest request for additional information posted on the FWS website on August 14 and note that this request was made by FWS just 10

[4] *July 1994 - The Fish and Wildlife Service and National Marine Fisheries Service (hereafter referred to as Services) announce interagency policy to incorporate ecosystem considerations in Endangered Species Act actions regarding listing, interagency cooperation, recovery and cooperative activities (this policy is still in affect).*

days prior to the end of the public comment period when it should have been made at the start of the public comment period.

Thank you for considering our concerns in this review of the draft owl recovery plan and we look forward to your written response in the final plan.

Sincerely,

Dominick A. DellaSala, Ph. D.
Chief Scientist and Executive Director
National Center for Conservation Science & Policy

Timothy P. Cullinan
Director of Science and Bird Conservation
Audubon Washington

Attachments

- #1 - Testimony to the House Natural Resources Committee May 9 hearing on *Implementation of the Endangered Species Act: Science or Policy*?
- #2 - Testimony to the House Natural Resources Committee July 31 hearing on "*Crisis of Confidence: The Political Influence of the Bush Administration on Agency Science and Decision-Making.*"
- #3 – February NCCSP comments on Options 1 & 2
- #4 – February Audubon comments on Options 1 &2
- #5 – May 16, 2007 letter from Dr. Olson to Congressman Inslee
- #6 – November 21, 2006 letter from Dr. Franklin to FWS
- #7-19 – relevant publications: Hutto (2006), Lindenmayer et al. (2004), Pierce (2005), Carroll (in review), Beschta et al. (2004), Reeves et al. (2006), Strittholt et al. (2006), Karr et al. (2004), Lindenmayer and Noss (2006), Noss and Lindenmayer (2006), DellaSala et al. (2006), Thompson et al. (2007), Pearson and Livezey (2007)
- #20 – 1994 legal declaration on the NWFP by Dr. Daniel Doak

KEY DEFICIENCIES OF THE DRAFT RECOVERY PLAN – A COMPREHENSIVE REVIEW

There are 10 key deficiencies in the draft recovery plan that represent a failure to: 1) apply the best available science, and 2) adopt or adequately describe feasible procedures for implementation of the plan. In some cases, both of these apply as noted below.

Key Deficiency #1 – the draft recovery plan erroneously states there are *"no differences in the underlying science between options 1 and 2"* (see page VII).

- *Both options depart from the scientific underpinnings of the NWFP* - The conservation foundation of the NWFP, which is rooted in fixed reserves, has been broadly supported in the scientific literature (see Courtney et al. 2004, Lint 2005, DellaSala and Williams 2006 for reviews). In a five-year status review of the owl, Courtney and Franklin (2004) concluded that there was no reason to depart from the NWFP and that the situation for the spotted owl would be bleaker today if not for the NWFP (also see Appendix A of our comments). The recovery plan states on page 59 that the conservation reserve strategy under the NWFP was based on sound scientific principles that have not substantially changed since the species was listed. Yet it does a complete reversal by proposing Option 2, which is not based on sound scientific principles. It should be noted that Judge Dwyer in 1994 determined that the NWFP was both the backbone to owl recovery throughout the region and the bare minimum necessary to satisfy the viability requirements of the NFMA (Appendix A). Both options (and especially Option 2) go below the bare minimums of the NWFP and in doing so do not meet either the viability provisions of NFMA or, more to the point, the recovery plan standards of the ESA pertaining to best available science. If the FWS continues to ignore the science and proposes Option 2 in the final plan it should provide a peer-reviewed risk assessment of potential outcomes and persistence likelihoods for the owl under both options in comparison to each other, the 1992 draft recovery plan, critical habitat (1992 and 2007), and the NWFP. Otherwise, the recovery plan cannot be appropriately evaluated to determine cumulative effects of related policies such as the proposed critical habitat reductions and the BLM WOPR LSR reductions.
- *Shifting mosaic approaches (Option 2) have never been tested or modeled at the scale of the owls' range and this alternative, if implemented, is likely to result in the need for future up-listing of the owl to endangered status* – We can find no scientific support for a conservation strategy that is not rooted in fixed reserves. If such support exists, it needs to be presented in the recovery plan so we can evaluate the science behind it. In contrast, fixed reserves as a conservation hallmark widely recognized in the conservation biology literature (see Noss and Cooperrider 1994, Lindenmayer and Franklin 2002 for reviews). Moreover, it is nearly impossible to evaluate Option 2 because it is not based on fixed reserves and it therefore does not meet the provisions of the ESA regarding "*measurable, objective criteria*" for listed species. The shifting mosaic approach that Option 2 ostensibly was derived from Courtney and Franklin (2004); however, in their review of the NWFP they noted that shifting mosaics were a potential strategy for HCPs (as it remains untested) and not federal lands (see section 2.2.2 of their

report). In particular, there is no population viability model for either option (although option 1 is based somewhat on previous efforts), so it is impossible to predict outcomes or even compare the options regarding their efficacy in meeting the stated recovery objectives, especially criterion 4.

Based on these concerns, we request that the agency respond to the following questions:

- What specific scientific justification is there to conclude that the "shifting mosaic" model proposed by Option 2 will achieve recovery?
- The draft states that both options *"recognize the continuing importance of maintaining suitable habitat for the spotted owl"* (p. VII). If Option 2 truly recognizes the importance of maintaining suitable habitat, why does it allow such a risky approach as reducing habitat below the NWFP?
- What science was used to justify lower levels of habitat in criterion 4 of Option 2 compared to the NWFP? Why did FWS ignore the cautions from Olson et al. (2004) and Franklin et al. (2000), including letters from these researchers received by FWS before the peer review, in extrapolating study findings to provincial targets? What justification does FWS have in making extrapolations to provincial habitat targets from very small "sample sizes" (e.g., figure D2 is completely inadequate and is a misapplication science as the points on the figure are from illustrations – not data – of the original work) and from just two studies where the researchers warned against such extrapolations?
- The draft states that *"Option 2 recognizes the dynamic nature of forest ecosystems,"* thus implying that it is the only option that does so. Is this the case? If so, how does Option 1 *not* recognize the dynamic nature of forest ecosystems?
- Didn't FEMAT select the LSR network upon which the MOCAs were partially based in consideration of natural disturbances by ensuring the reserves were redundant and widely dispersed (see Courtney et al. 2004 for review) and therefore doesn't the NWFP recognize the dynamic nature of forest ecosystems?
- How will evaluation of spotted owl population performance, distribution, and habitat be accomplished without a spatially explicit plan (e.g., Option 2) that includes mapped conservation areas?
- What was the rationale for not incorporating the retention standards of the matrix in the NWFP (both options) as the NWFP, in addition to the LSR network, included retentions to provide more protection for the owl than reserves alone?

Key Deficiency #2 - Not enough habitat is provided in recovery criterion #4 (both options) as the habitat provisions are too low and were based on misapplication of owl studies primarily in the owls' southern range. These artificially low habitat thresholds would allow management of owl habitat below minimum levels of old-growth forests prescribed in the NWFP at a time when population declines are accelerating (Anthony et al. 2006).

- *Inadequate protection of habitat (i.e., low habitat thresholds in criterion 4) under Option 1* - Option 1 provides less habitat than the NWFP at a time when owl population declines are accelerating (Anthony et al. 2006) in three ways: (1) the network of reserves under Option 1 would result in an estimated 27% reduction in

habitat capable acres for owls in comparison to the NWFP (although this comparison was not included in the draft recovery plan but should have been). The reductions apparently are due to 15 DCAs that were omitted from the MOCAs – see Tables F1 and F2 in Appendix F [errata copy] of the draft recovery plan vs. Table F1 and Table 3-8 in Lint 2005 – also see attached paper in review by Dr. Carroll and summary of his work in Appendix B and peer review of TWS); (2) low habitat levels could contribute to premature delisting of the owl when habitat levels within the MOCAs reach the low habitat percentages (in addition to meeting other criteria) inappropriately derived from two studies in the southern range (i.e., the 50-70% thresholds within the MOCAs on page 33 are much lower than the 100% goals for late-seral forests within the LSRs under the NWFP); (3) in checkerboard ownerships these low habitat thresholds can be met using foraging habitat rather than nesting habitat (see footnote 6 page 33 in the draft recovery plan); and (4) delisting could be triggered when an arbitrary 80% of the MOCA network has met the artificially low regional habitat thresholds (criterion 4, page 32 – also see peer review by Dr. Dugger) in addition to meeting other recovery criteria. As an example, habitat in the northern California provinces already exceeds the low thresholds established for this region (existing percent suitable habitat is 73-75% and the criterion threshold is 50%, Appendix E of the draft recovery plan). In addition, the habitat percentages in the northern and more mesic forests are also artificially low (70%). We can find no justification for these low percentages and according to Dr. Carroll's preliminary findings (Appendix B and attached manuscript) the quadratic relationship in late-successional habitat occurs at much higher levels than set by criterion 4.

- What data, habitat models, or scientific studies does the FWS cite in justifying the 70% thresholds used in the mesic (northern) provinces?
- What scientific basis does the FWS have for asserting that the MOCAs and CSAs will protect enough habitat to recover spotted owls?
- What is the rationale for deleting from Option 1 several of the DCAs in the 1992 draft recovery plan, whose DCA network was the foundation for the MOCAs?
- How does criterion 4 thresholds in the draft recovery plan compare with the preliminary findings and habitat model provided by Dr. Carroll, who provides a much more thorough model of habitat relationships than Appendix D of the recovery plan?

- *Reductions in large habitat blocks in criterion 3 under Option 2 compared to the NWFP and Option 1* – Option 2 would result in further habitat reductions (via low habitat thresholds and caps on block size) when compared to the already inadequate levels in Option 1 and in comparison to the NWFP (also see Dr. Carroll's preliminary findings and all societal peer reviews as this was a common criticism). Option 2 does not rely on fixed habitat reserves but instead turns over the selection of large habitat blocks to local BLM and Forest Service managers following a modified "rule set" adapted from Thomas et al. (1990). The option was developed in response to direction from the Washington Oversight

Committee to *"de-link the recovery plan from the NWFP."* Notably, the rule set places a cap on the size of owl clusters at 20 pairs (see page 163) and this cap is then used to develop the size of habitat blocks by multiplying 20 pairs by the median provincial home ranges of owls (provincial estimates in acres) and by 0.75 (accounting for territory overlap). In comparison, there was no cap on owl pairs in the original rule set developed by Thomas et al. (1990) and consequently block sizes were larger (also see peer reviews by Drs. Dugger and Franklin). The draft recovery plan's proposed rule set anchors the block selection in existing protected areas (parks, wilderness) from which all other habitat block locations are then located. This approach could result in over-representation of existing protected areas in the habitat block design (see page 66 #4-a) and will undoubtedly influence the selection of block locations that minimize the amount of habitat protection at the project and provincial scales (again – inadequate habitat thresholds in criterion 4). There are also a number of other rule sets for the Olympic Peninsula (page 67 numbers 3 and 4) that result in significant reductions in the size of existing blocks whether in comparison to the NWFP reserves or to Option 1. **The reductions in block sizes on the Olympic need to be dropped and the amount of habitat increased as owl population declines are greatest in this area (this comment pertains to the August 14 FWS web-posted request for information)**. Notably, based on an unpublished exercise performed by the recovery team in February 2007, implementation of Option 2 (compare the maps in Appendix B of the recovery plan for an illustration of block size differences between options) could result in future reduction of ~823,000 acres of suitable owl habitat and 1.6 million acres of capable owl habitat in comparison to the already deficient Option 1. This option was ostensibly designed so the Forest Service and BLM could move away from the NWFP (especially the LSRs) during plan revisions, most notably, the BLM's WOPR. Thomas et al. (1990) never intended block sizes to be reduced to 20 pair clusters and this is confirmed by the independent peer review provided by the 3 professional societies.

- *Insufficient attention to managing the "matrix" on federal lands for connectivity, dispersal, and demographic needs of the owl* – There are no specific provisions in the recovery plan for managing connectivity within the "matrix" on federal lands and thus the matrix could become a population "sink" for owls (it may already be an owl sink even under the NWFP). Both options represent a significant set-back from the matrix standards and guidelines of the NWFP and therefore do not provide adequate levels of habitat under criterion 4. Notably, reserves alone are not sufficient for sustaining wildlife populations and complementary management in "matrix" areas is needed as part of comprehensive conservation approaches (see Lindenmayer and Franklin 2002).
- *Inadequate protection for owl habitat on nonfederal lands* – Both options would streamline Habitat Conservation Plans (see action 35, page 41) without evaluating the efficacy of HCPs in achieving conservation objectives and whether the "take" guidelines are creating owl population sinks on nonfederal lands. For instance, the Washington DNR HCP openly acknowledges that it will function as a population sink as follows.

From the 1996 DNR HCP FEIS (merged), pg 4-64 (http://www.dnr.wa.gov/hcp/publications.html):

To account for the dynamic nature of the spotted owl population and landscapes within NRF management areas and how this may impact future take of spotted owls that use these landscapes, the following analysis was conducted. Three simplifying assumptions were made. The first assumption is that after the first decade, ***spotted owl habitat on DNR-managed lands outside of NRF management areas will be insufficient to support territorial spotted owls (emphasis added)****. The estimated incidental take of spotted owls according to the above analysis for owl circles outside of NRF management areas will occur during the first decade. This assumption focuses the current analysis on site centers with median home range-sized circles that include NRF management areas.*

The second assumption relies on the concept of source-sink population dynamics. Across their range spotted owls occupy habitat at varies in quality. Source sub-populations are those which occupy areas of high quality habitat where natality exceeds mortality. Sink sub-populations occupy areas of lower quality habitat were mortality exceeds natality. In general, source sub-populations are net exporters of individuals and sink sub-populations are net importers (see Criterion 4: Demographic Support for a more detailed discussion of source and sink dynamics). ***It is anticipated that the average owl habitat conditions on federal reserves will eventually support a source sub-population of spotted owls (emphasis added)****, and that the* ***average habitat conditions on DNR-managed lands will support a sink sub-population (emphasis added)****. Habitat conditions on federal lands are, and will continue to be, the most important factor determining the size and distribution of the spotted owl population in the western Washington planning units. Federal reserves account for 55 percent of the spotted owl habitat on all ownerships in the five west-side planning units. In contrast, DNR manages 6-14 percent of the total habitat in these planning units. Habitat conditions on federal reserves will improve over time.* ***Overall levels of habitat on DNR-managed lands would decline under all HCP alternatives (emphasis added****). Thus, federal reserves are considered the "source" population for spotted owls that use NRF management areas now and in the future. Third, it was assumed that the results of Burnham et al. (1994) provide a reasonable approximation of h, the population's rate of change. There are two demographic study areas that apply to Washington spotted owl provinces - the Olympic Peninsula study area and the Cle Elum study area. The values for h were averaged for these two study areas to give a rate of population change of .9356. This equates to an* ***annual rate of decline of 6.4 percent (emphasis added)****. As discussed in the FSEIS for the President's Forest Plan USDA and USDI 1994a p. 3&4-233), such a rapid rate of decline seems inconsistent with observations from population density studies. The average of the 95 percent confidence interval for this rate is 0.8789 to 0.9922. The upper limit, which equates to annual rate of decline of 0.8 percent, may be a somewhat lower rate of decline than what is actually occurring, but is likely closer to reality than the mid-point. We use .992 as the value for h in the following analysis.*

In sum, the Washington DNR HCP assumes that DNR lands will be a population sink, that habitat conditions will decline, and that the population projections at the

time are flawed and so the HCP inappropriately uses the upper end of the confidence interval (0.8% rather than 6.4% rate of decline) for lambda as an estimate of population change. Notably, owl populations on the Washington DNR HCP and the Plum Creek HCP have plummeted yet this is not even mentioned in the draft recovery plan which instead seeks to "streamline" an HCP "sink" process. Why wasn't the "sink" problem of HCPs even mentioned in the recovery plan? Why does FWS want to streamline a process that will result in the creation of owl population "sinks?" What is the cumulative effect of sink areas from multiple HCPs on owl recovery?

Based on these concerns, we request that FWS include an analysis of the impacts of HCPs on loss of nest sites, demographic support areas, owl nesting clusters, etc before streamlining a habitat and population sink process. In addition, both options omit key areas on nonfederal lands necessary to support owl demography, including the northern portion of the Oregon Coast Range (state lands) and the southwest Washington lowlands (also see TWS peer review). **At a minimum, the 2007 recovery plan needs to adopt the recommendations made by the 1992 recovery plan regarding demographic support areas for owls in the Oregon Coast Range to provide for connectivity and viability of nearby demographic support areas (this comment pertains to the August 14 FWS web-posted request for information)**. We would like to know what science was used to omit these key areas in owl recovery and how does this science differ from the 1992 draft owl recovery plan that recommended inclusion of these areas? According to our meeting notes, the avoidance of mapped CSAs in this region was based on concerns expressed by the Oregon Department of Forestry. We request that you provide the science as to why nonfederal lands within the Oregon Coast Range were not included as mapped demographic support areas for the owl as this represents a significant departure from the 1992 recovery plan (also see TWS peer review).

- *Inappropriate comparisons of habitat loss vs. recruitment* – Estimates of habitat recruitment reported in Appendix C (p. 130) of the draft recovery plan are likely skewed toward younger forests that have aged from 70 to 80 years in the past decade, and this type of recruitment, while important as future replacement for older forests, is not the same as older forests that most often have more complex structure and functions. In addition, these younger forests are not replacement for older forests still being logged both on federal and nonfederal lands. The gain in 20 inch dbh tree size classes also reported in Appendix C of the recovery plan has the same resolution problems as it too does not distinguish between 20 inch or larger (and older) trees and assumes suitability is equivalent across size and age classes, which it may not be for the owl based on the unique functions and structural importance of large trees to owls (e.g., as quality nest sites). This is especially important as it is impossible to determine if habitat recruitment levels can be directly compared to habitat losses if different methodologies were used to assess suitability and define age-class characteristics, which appears to be the case. Even if in-growth has led to a recent increase in older forests in the past decade, that increase pales in comparison to the substantial reduction in old-growth forests from 50-70% of their historic extent to the present 15-20% (see

Strittholt et al. 2006). This estimated in-growth also is specific to federal lands while logging levels (which include old-growth forests) are 4-6 times higher on nonfederal lands (Table C2 page 129). We request that you clearly include this historic decline and redo this section as these crude findings have been inappropriately used in news stories that suggest the amount of old-growth forests have increased in the past decade based on these comparisons and the narrow time frame reported (one decade rather than many decades). Further, the section on habitat loss in the recovery plan does not even mention the recent inventory of habitat loss on federal and non-federal lands in Washington by Pierce et al. (2005) which is particularly surprising given that John Pierce is listed as a member of the scientist panel in the recovery plan credits. The following findings by Pierce et al. (2005) for logging-related habitat losses over a nine year period (1996-2004) in Washington need to be included in the recovery plan:

- 56,400 acres of suitable owl habitat (as defined by the Washington Forest Practices Rules).
- 21,000 acres of suitable habitat within Spotted Owl Special Emphasis Areas (SOSEAs).
- 16,100 acres of suitable habitat within HCP landscapes, and 19,000 acres in owl circles.

These habitat declines overlap with the demographic study areas in Washington that reported some of the most rapid declines in owl populations over this same time period that can be attributed, at least in part, to ongoing habitat losses. The decline in habitat in the SOSEAs is especially alarming as the Washington Forest Practices Rules recommend that SOSEAs not decline below 40% owl suitability yet suitability currently ranges from 18% to 34% across Washington and is clearly below the recommended thresholds (note: the low habitat suitability recently lead to an injunction on Weyerhauser logging of suitable owl habitat in southwest Washington by federal judge Marsha Pechman and the implications of this ruling regarding owl habitat on nonfederal lands needs to be recognized in the final recovery plan).

Based on the habitat loss findings and concerns about barred owl competition, Pierce et al. (2005) concluded:

"the nature of the relationship between these two species is not clear, but the negative effects of a strong competitor like the Barred Owl would likely interact with the effects of habitat loss for Spotted Owls."

Similarly, Pearson and Livezey (2007) imply that both barred owls and timber harvest act together in reducing spotted owl viability:

"With the combination of timber harvest and pressure from Barred Owls, there is no guarantee that Spotted Owls will be able to maintain their numbers in reserves, much less increase their numbers to foster recovery."

Thus, both of these conclusions underscore our concerns that the influence of barred owls on spotted owl populations cannot be disentangled from habitat loss and therefore both need to be treated as equivalent and interrelated threats (also see peer review findings as there is scientific consensus that the recovery plan inappropriately placed the barred owl above habitat loss and this stems from the interference by the Washington Oversight Committee that directed the recovery team to do this after the submission of the September draft to the D.C. office).

In addition, although Pearson and Livezey (2007) reported barred owls displacing spotted owls from LSRs, there is no reason to abandon or reduce reserves as the foundation for spotted owl recovery. We do not know whether the current wave of barred owls will result in dense barred owl populations being maintained over time. Often waves of immigrants peak and then decline in density over time. Thus, it would be unwise to abandon any existing reserves due to barred owl invasions, an option that would provide less flexibility in the future.

Based on the above concerns, we request that you consider these questions in the final recovery plan:

- The draft states, *"The MOCAs are likely to support stable and well-distributed populations of spotted owls, as long as provisions are in place to ensure that sufficient suitable habitat is maintained…"* (p. 16). What evidence is available to support this claim?
- What is the definition of *"sufficient suitable habitat?"* How will FWS determine what is sufficient habitat for the owl?
- The draft defines suitable habitat as *"habitat quality similar to that used by 90 percent of the known spotted owl pairs nesting or roosting in that province."* This is based on a "Biomapper" style habitat typing system that relies on remote-sensed data algorithms to determine if a stand is suitable habitat. Remote sensing data do not determine if other key habitat components such as downed woody debris or snags are present. What efforts have been made to determine the appropriateness and accuracy of this method of suitable habitat determination?
- Why didn't FWS include the Pierce et al. (2005) study in the section on habitat loss and why weren't the conclusions of Pierce et al. (2005) regarding the interrelated threats of barred owls and habitat loss considered? We request that this study be included in the final recovery plan and that FWS specifically examine (through modeling) the interaction of habitat loss and barred owls on spotted owl viability and develop more relevant criteria and actions (i.e. an interaction term that considers the co-related effects of barred owls and habitat loss rather than treating them as independent factors with different priority levels in the conservation actions). We also request that the habitat recovery actions be bumped up in priority level to rival that of the barred owl in recognition of Pierce's conclusions and the recommendations of other well respected owl scientists that remain concerned about ongoing habitat losses at a time

when spotted owls are facing multiple threats (e.g., Anthony et al. 2006, peer review by Dr. Franklin and all societal peer reviews).

Key Deficiency #3– the recovery plan fails to provide adequate regulatory mechanisms and guidance to land managers for protecting owl habitat, essentially turning over responsibility for the location of habitat blocks or MOCA boundaries to local Forest Service and BLM managers. This is not an abstract concern: in the 2000 DEIS for the roadless conservation rule, the Forest Service openly acknowledged that the legacy of leaving roadless area decisions to local managers had resulted in degradation of roadless areas because local managers did not always recognize the national importance of these lands.

> *"It became clear that local planning efforts might not adequately recognize the national significance of roadless areas and the values they represent, especially given the increasing development and urbanization of the nation's landscape."* Roadless Conservation Rule DEIS 2000:1-5.

- *Delegating the authority for the selection of large habitat blocks to local Forest Service and BLM managers could result in "low balling" habitat protections –* By turning over authority for deciding the location of habitat blocks to local managers, Option 2 would result in regulatory uncertainty. This is particularly problematic in light of forest plan revisions currently under way such as the BLM WOPR, whereby the agency is developing options that maximize timber volume and minimize reserves (both LSRs and riparian reserves are being reduced significantly) in response to the settlement of an industry lawsuit. In addition, Option 1 contains an "escape clause" specifically designed for BLM and the Forest Service to make large changes to the reserve network, providing that FWS determines whether such changes "*significantly increase the length of time necessary to achieve recovery or render recovery unlikely (page 19)*." This standard is not grounded in the requirements for recovery plans and fails to identify any methods for how FWS would even make this determination. What procedure would be used to make such determinations and what science is it based on?
- *Implementation of the habitat blocks provision in Option 2 is not well defined* - The plan assumes that implementation will be achieved by the federal land management agencies. Determining the location of habitat blocks, however, is not identified as a recovery action. Consequently, no responsible parties are identified for this task. Likewise, no action duration is specified, and no costs are listed in the tables starting on page 86. This raises a multitude of questions about how and when the habitat blocks would be identified.
    - Who within the federal land management agencies will select the Option 2 conservation areas, and when?
    - What qualifications are necessary for the personnel selecting the Option 2 habitat blocks?

- Do the land management agencies have the necessary staff and fiscal resources to identify the Option 2 habitat blocks?
- How will the location of habitat blocks be coordinated at the provincial and inter-provincial scales?
- How much will identifying habitat blocks cost?
- Does the recovery plan estimated costs include funding for conducting habitat assessment, spotted owl inventory, risk analysis, and collecting other information vital to the successful implementation of identifying habitat blocks under Option 2? If not, why?
- How did the recovery plan predict costs and estimated time to delist under Option 2 (page 82)? The draft states, *"the timeline is based on the successful … development and maintenance of sufficient habitat*." How can this be predicted when it is not known yet how much habitat will be provided under Option 2, or where that habitat will be located?
- What sources of information will be used to establish the conservation areas/habitat blocks in Option 2?
- The rule set requires that *"as many acres as possible of currently suitable habitat in Federal lands and as many known locations of spotted owls as possible"* must be included in the Option 2 habitat block network. What new sources of population data, owl presence, and owl abundance will be used to determine the location of Option 2 conservation areas? What habitat data will be used?
- How will the *"as many acres as possible of currently suitable habitat*" provision be determined and then enforced?
- How often can federal land management agencies revise the large habitat block network?
- Is the designation of large habitat blocks (or "conservation areas," depending on the terminology used) intended to occur only once during the life of the recovery plan, or can it occur each time the LRMP is revised, or more frequently?
- Is there any minimum size (acreage) on "*small habitat blocks*?"
- What is to prevent implementers from designing a network in which all "*small habitat blocks*" are merely single-pair "blocks" spaced 7 miles from each other?
- What assurances will FWS have that local managers will have a regional (and not just local) perspective on the importance of old-growth forests to owls and how will this be monitored by FWS?
- What assurances does FWS have that local managers can make this decision without compromising owl habitat compared to the lack of assurances indicated by the Forest Service in the roadless conservation rule of 2000?

- *The draft plan fails to specify the oversight or enforcement role the FWS will have in determining the location of habitat blocks in Option 2.*
  - What oversight function does the FWS have in Option 2?

- What recourse does the FWS have if identification of conservation areas is not done, or is done incorrectly?
- Given that LRMP revisions are now considered by the Forest Service to be exempt from NEPA, how will the public obtain opportunities to review and comment on the identification and designation of habitat blocks?
- The last paragraph of appendix C (p. 133) states: *"As the Federal agencies develop new LRMPs, they will consider the conservation needs of the northern spotted owl and the goals and objectives of the Recovery Plan." If needed, actions to implement Federal land use plans will be accompanied with either plan or project level consultations to assure management actions align with recovery goals."* How will Section 7 consultation be achieved? When will it occur? Will Section 7 consultation be done during the LRMP revision, or on a project-by-project basis? If the latter, then how will cumulative effects be addressed? How will FWS determine whether federal land use plans align with recovery goals – e.g., using what standard or baseline for comparison?
- In the passage quoted in the previous point, what is the definition of "*if needed*," and under what circumstances will need be determined?
- What criteria will be used to determine if there is a need for plan or project level consultations? This appears to imply that consultation will occur at some point, but it is unspecified, and there does not appear to be any requirement that consultation occur. How will FWS enforce the condition of consultation?
- Can a "*project level*" consultation adequately assess the potential impacts on the spotted owl population and on the likelihood of achieving recovery?
- If plan or project level consultation is needed *"to assure management actions align with recovery goals,"* then why isn't this a stated recovery action?

- *Option 1 of the draft plan allows the Forest Service and the BLM to make unlimited adjustments to MOCA boundaries and to delete up to five percent of the MOCA acreage under the guise of "flexibility."* The draft plan states, *"the need for flexibility has been recognized throughout previous recovery efforts and is well documented"* (p. 18). This statement is misleading, because the type and magnitude of change accommodated by previous recovery documents is vastly different from the type and amount being proposed in this one. The 1992 draft recovery plan recognized the need for potentially *"changing and improving the implementation of the recovery plan*" but this was made within the context of research, monitoring, and adaptive management. Furthermore, the need for change to improve operational efficiency was recognized in the 1992 draft plan within the context of "*maintaining* or *increasing* the level of protection for owls over time" (emphasis added). By contrast the 2007 draft recovery plan allows adjustments for operational efficiency without such safeguards, and actually allows a five percent *decrease* in the level of protection for spotted owls (in

addition to other potential decreases noted throughout our comments), at a time when populations are rapidly declining.

- Does the reference to "*previous recovery efforts*" mean previous recovery plans for the northern spotted owl, or for other species?
- If the latter, then which "*previous recovery efforts*" are referred to here?
- Does the level of flexibility in those plans equal the amount provided in the 2007 draft owl recovery plan and how does this compare to the flexibility in the NWFP?
- Is there a legal precedent for allowing federal agencies other than the FWS to unilaterally delete up to five percent of the habitat from a recovery plan?
- Are there other recovery plans in which federal land managers were granted the authority to make changes to habitat reserves or other recovery areas?
- Is there an established procedure for revising recovery plans to take into consideration new information and adaptive management? If so, then why doesn't the 2007 draft owl recovery plan propose to use this established procedure to adjust MOCA boundaries?
- Is there a limit on the total amount of acreage in a MOCA that can be affected by boundary changes? Besides the 5% restriction, is it allowable to move the other 95% of the MOCA acres to a new location, provided the suggested amount of habitat capable acres is maintained, and the spacing rule is met?
- Is the MOCA boundary adjustment process a one-time adjustment, or will federal land managers have the authority to make multiple adjustments over a series of years?
- The draft plan states, "*Cumulative boundary adjustments to an individual MOCA … should be undertaken with a goal of minimizing the net loss of habitat-capable acres*" (p. 19). It is not clear how merely minimizing the loss of "*habitat-capable acres,*" rather than suitable habitat acres, will promote recovery.
    - Why is "*habitat capable acres*" the currency used in this guideline? Shouldn't the correct currency be suitable nesting habitat (which is the limiting factor in most of the range)?
    - If a federal land manager is merely required to maintain 95% of the *habitat capable* acres in a MOCA, without any guidance regarding the condition of the habitat, could this lead to a "shell game" where suitable habitat is traded for capable habitat? How will FWS monitor whether this will occur?
    - What safeguards will be in place to prevent a land manager from trading large expanses of lower quality habitat outside a MOCA by adjusting the boundary to include cutover or less suitable acres in the MOCA while deleting currently suitable (high quality) habitat from that MOCA?

- The draft states, *"some minor adjustments may be necessary to align the MOCA boundaries to coincide with recognizable physiographic features, e.g., major ridge lines, perennial streams, and permanent roads"* (p. 19). The draft fails to explain why this is necessary.
    - What evidence exists that northern spotted owl home range boundaries coincide with such physical features such as perennial streams and permanent roads?
    - Why is it necessary that MOCA boundaries be *"recognizable"* by land managers on the ground? Don't federal land management agency personnel have access to GPS equipment to delineate MOCA boundaries in the field?

- *The "Changes in Management Approaches" section of Option 1 (p. 19) could be interpreted to allow broad-scale changes in federal land management plans without sufficient public oversight* - While the purpose of this section is not immediately apparent to the reader, we assume the reference to *"approaches other than those described in Federal land use plans"* is to allow the BLM to propose a "shifting mosaic" approach or to eliminate reserves entirely in its WOPR (see alternative 3 of the BLM WOPR). This section, however, is so open-ended that it provides no guidance to—and no limits on—federal land use agencies in proposing management plans that depart significantly from the NWFP baseline. This would result in the LRMPs driving the actions in the recovery plan, rather than the recovery plan providing guidance on management actions for the LRMPs. Furthermore, this section appears to give false assurances that substantive changes in LRMPs will be subject to NEPA and public oversight, especially in light of the Forest Service's rule change in late 2006 exempting its LRMPs from NEPA.
    - What is the purpose of this *"Changes in Management Approaches"* section?
    - Do these "approaches" refer to the proposed "shifting mosaic" alternative in the impending BLM WOPR? If so, then why isn't this stated explicitly?
    - What evidence does the FWS have to suggest that this approach (shifting mosaic – Option 2) *"may be shown to be effective in accomplishing recovery goals and objectives*?" How can FWS make this statement when there are no data or models (owl viability or persistence likelihood) on the efficacy of shifting mosaic approaches for the owl?
    - Where else in the range of the northern spotted owl has this approach been tried, and been shown to have worked?
    - What population and habitat models were used to arrive at this conclusion?
    - Does this section also apply to Forest Service LRMP revisions?
    - How does the FWS define *"substantive changes?"*
    - The draft plan states *"Substantive changes to existing, underlying Federal land use allocations and management plans that the MOCAs and some CSAs are based upon will follow the process of public involvement required under the National Environmental Policy Act of 1969…"* How is

this statement consistent with the Forest Service's December 2006 rule that exempts LRMP revisions from NEPA?
    - What is the threshold level of change in an LRMP that must occur in order to trigger NEPA review?
    - What safeguards are in place to prevent federal land managers from eliminating or seriously reducing all MOCAs when the LRMPs are revised?
    - How does Option 2 compare to the proposed alternatives in the BLM WOPR that reduce LSR and riparian buffers?
    - What are the cumulative effects of reductions in reserves under the BLM WOPR, reductions in critical habitat under the recent proposed critical habitat exemptions, and the lower habitat levels in criterion 4 of this recovery plan?

- *The draft plan fails to specify the oversight or enforcement role the FWS will have in adjustments made to MOCA boundaries under Option 1* - Option 1 allows the Forest Service and BLM to make limited revisions to the MOCA boundaries, and thus to the recovery plan, without oversight or approval by the FWS. At a minimum, it would seem that such recovery plan revisions would have to be done in consultation with and be approved by the FWS. But the draft plan merely requires that FWS *"compile"* the boundary changes annually. There is no provision in this draft plan that allows FWS to reject proposed changes that it does not agree with. The statement that boundary adjustments *"should"* be consistent with the objectives of the MOCA network is nonbinding, and does not ensure that such adjustments will advance recovery.
    - Is there a legal precedent for delegating the authority for recovery plan revisions solely to the action agencies?
    - Is there a provision in the ESA that grants legal authority for recovery plan revisions to agencies other than FWS and NMFS?
    - What oversight function does the FWS have in this process?
    - What recourse does FWS have if identification of conservation areas isn't done, or isn't done correctly or in good faith?
    - What will be done with the annual compilation of data regarding MOCA boundary adjustments?
    - Will there be any cumulative effects analysis of these data?
    - The draft plan states *"Thus, how change will be accounted for and monitored becomes a critical factor,"* but does not describe how this will be done. How will change be monitored and counted for?
    - What will the northern spotted owl work group do with the data?
    - Are there provisions in the plan to allow the work group to overrule decisions by federal land managers, or to halt the alteration of MOCA boundaries if they conclude that the process is being abused or misapplied?

- *Conservation actions do not adequately address the threat of habitat destruction from ongoing logging, particularly in light of interacting threats from barred*

owls and some fires. Consequently, this could result in lack of regulatory oversight in project level decisions related to pre- and post-disturbance management – The recovery plan prioritizes conservation actions according to three levels: level 1 is essential to prevent extinction, level 2 is needed to arrest significant declines, and level 3 is deemed necessary to recovery (see page 82 and associated priority table). The proposed conservation actions consistently place habitat at the lowest rankings in spite of similarities in range-wide losses in habitat from logging (level 3) and fire (level 2) and the conclusions of Pierce et al. (2005) that habitat loss and barred owls are interrelated threats (also see societal peer reviews and peer review by Dr. Franklin). For instance, according to Courtney and Franklin (2004) approximately 2.3% of owl habitat was lost to fire (no severity reported) over a ten-year period from 1994-2004 (0.23% annual – when insect losses are included this figure is ~3% or 0.3 percent per year), which is well within historic bounds. In comparison, habitat losses on federal lands from logging during that same time period also averaged 0.23% per year, but in four provinces exceeded fire "losses" (Table C1 page 128). Notably, while logging on federal lands has been reduced substantially by the NWFP, logging levels remain relatively high in each of the Oregon provinces and in the California Cascades where it is much higher than the 10 year average (see Table C1). In addition, annual logging levels are 4-6 times higher on nonfederal lands (see Table C2 page 129). When logging related losses are considered on federal lands they rival "losses" from fire and insects (which are temporary and restricted primarily to dry provinces) but when nonfederal lands are included logging-related losses eclipse fire, occur range-wide, and are permanent (due to short rotations and removal of most legacy components). Thus, the draft recovery plan inappropriately assigns low rankings to conservation actions associated with habitat losses (particularly from ongoing logging – also see peer reviews from all 3 societies and Dr. Franklin). Habitat action priorities should not be assigned the lowest priorities but rather should receive rankings at least equivalent to those for the barred owl actions. Notably, although the draft recovery plan appropriately discusses the variability in owl response to fire (e.g., telemetry and demography research indicate owls are unaffected or may even benefit from low-to-moderately severe fires), it treats all fire as a "loss" by designating fire risk reduction actions as level 1 priorities. It should also be noted that the NWFP was designed to accommodate natural disturbances through redundancy in the reserve network such that individual reserves lost to fire or other natural events would not impact the reserve network at the provincial or regional scale (see Courtney et al. 2004 for review). This type of "risk-spreading" is widely acknowledged in the conservation biology literature (Lindenmayer and Franklin 2002). Based on these concerns, we request that the FWS conduct a more thorough review of the literature on owl response to fires and consult with Dr. Anthony, who has a graduate student specifically working on use of burned forests in southwest Oregon by spotted owls (see TWS peer review). We request that this consultation and these new studies be included in the final recovery plan. If not included, FWS should explain why this new science was ignored, particularly given that the recovery plan purports to be based on "new science."

Key Deficiency #4 – the recovery plan purports to make use of "*new science*;" however, science was misapplied in several ways, rendering the plan inconsistent with the best available science.

- *"New science" was misapplied in developing both options 1 and 2* – In reality, the "*new science*" is based on two studies from the owl's southern range – one on the inland side of the Oregon Coast Range near Roseburg (Olson et al. 2004) and the other in the Klamath Province of northern California (Franklin et al. 2000). Both studies documented a quadratic relationship in owl fitness at the territory scale in relation to the amount of late-successional habitat (i.e., as the level of late-successional habitat increased, owl fitness eventually leveled off and began to decline). The Olson model, however, attributed only 16% of the variance in owl fitness to habitat due to the coarseness of vegetation classifications using remote sensing techniques. In recognition of these limitations, Olson et al. (2004:1052) specifically cautioned against the application of their findings to management prescriptions until further studies are completed.

> "*…we do not recommend that forest managers use our modeling results as a prescription for managing habitat either within the Oregon Cost Range or elsewhere until other similar studies have been conducted."* (also see attached letters from Drs. Olson and Franklin that were entered into the congressional record at the May 9 hearing on the ESA in the House Natural Resources Committee and peer review by Dr. Franklin).

Notably, a third study (Dugger et al. 2005) by some of the same researchers was conducted in a nearby study area in the eastern Siskiyous of Jackson County, Oregon. This study did not confirm a quadratic relationship and instead found that owl performance was positively related to increasing levels of late-seral forests at the territory scale. This is significant as the Olson and Franklin studies were used to develop the habitat thresholds presented in both options while Dugger et al. (2005) was largely ignored (also see peer review by Dr. Dugger). What is the draft recovery plan's rationale for dismissing the Dugger study results in developing the criterion #4 thresholds? Notably, Figure D2 in the draft recovery plan is based on only 6 "data points" (which are really illustrations [not data points] from figure 5 in Olson et al. 2004). Further, only two of those points are at the upper end of the curve and therefore curve fitting would yield unreliable confidence intervals (confidence intervals were not even reported in this figure and they should have been). The recovery plan uses this extremely small sample (illustrations) to develop the low habitat threshold values for entire provinces in spite of the specific warnings from these authors not to apply their results to habitat prescriptions at this time and the scale problems presented by inappropriately extrapolating this relationship to entire provinces (also see peer review from all scientific societies and from Drs. Franklin and Dugger). This type of misrepresentation of scientific studies and extremely small sample sizes with no confidence intervals appears to violate the Data Quality Act and provisions of the ESA regarding best available science.

- *Provisions for prohibiting salvage logging in MOCAs and large habitat blocks are inadequate and fail to include new science (see Appendix E)* – The 1992 draft recovery plan for the owl recommended protection of all "legacy" trees (generally trees >20 inches dbh). In addition, since then there have been many studies that document the substantial impacts of post-fire logging on ecosystem processes and habitat structures (e.g., see Beschta et al. 2004, Lindenmayer et al. 2004, Noss and Lindenmayer 2006, Donato et al. 2006, Thompson and Spies 2007). Additionally, based on a February meeting of owl biologists that we attended in Portland on the latest science regarding spotted owls, new science is coming out on the negative effects of post-fire logging on owls (e.g., graduate student Darren Clark at OSU). In sum, not a single study has documented ecosystem benefits from post-fire logging, yet the recovery plan does not include this new science in developing habitat provisions or specific actions to protect reserves from logging after fire (this was largely because the Forest Service and BLM opposed additional restrictions during recovery team meetings). Instead, the recovery plan (both options) relies on an untested model that provides general guidelines for assessing post-fire logging impacts (Appendix E) without specifying how delays in recovery of late-seral processes will be determined and ignores this new science that demonstrates delays and disruption of forest regeneration and recovery processes are typical of post-fire logging operations (also see TWS peer review). Thus, the current draft recovery plan should be at least as protective of owl habitat as the 1992 draft, especially in light of the new science on post-fire logging. At a minimum, post-fire logging of legacy components (e.g., live and dead trees >20 in dbh) should be prohibited within reserves affected by natural disturbances. **We request that you review and include this new science, particularly the recent studies by Dr. Anthony and his students, in the recovery plan and revise Appendix E by incorporating, at a minimum, prohibitions on post-fire logging of legacy trees >20 inches dbh(this comment pertains to the August 14 FWS web-posted request for information)**. This particular recommendation would address the peer review (see TWS review) regarding weaknesses and vagueness of the post-fire logging guidelines in Appendix E of the draft recovery plan (see TWS review).
- *Uncertainty regarding the level of suppression needed for barred owls warrants more, not less, habitat protection for the spotted owl* – The draft recovery plan recognizes the growing threat recently posed by the range expansion of the con-generic barred owl. The plan proposes removal experiments in 18-20 study areas (up to 576 barred owls) that if successful could trigger large-scale barred owl suppression efforts. The efficacy and costs of large scale suppression efforts raise many questions, however, particularly whether it will eventually lock federal agencies into barred owl suppression in perpetuity while downplaying habitat loss and much needed habitat protections. Unfortunately, emphasizing barred owl suppression as a level 1 conservation priority and de-emphasizing habitat protections as a level 3 priority is not likely to recover the spotted owl and further diverts attention away from the need to strengthen habitat protections at a time when threats to spotted owls are increasing. Thus, additional habitat protections (i.e., higher thresholds on criterion 4) are necessary for spotted owl survival and

recovery; addressing barred owls while lowering habitat protections relative to the NWFP will not recover the species and may in fact result in the future need to uplist the spotted owl to endangered.

- *Biased interpretations of "flexibility" that can result in uncertainty regarding recovery of the northern spotted owl* – The draft recovery plan purports to be based on adaptive management concepts to allow managers "*flexibility*" in responding to changing conditions. However, for recovery efforts to be truly adaptive they should include options to expand (not shrink) habitat protections to accommodate shifts in owl populations caused by barred owl invasions and potential climate change effects. Further, they should include specific contingencies that, should spotted owl populations continue to decline, the reserve network will be expanded and further restrictions on logging will become warranted. Flexibility cuts both ways but this plan includes two options, both of which reduce protections for owl habitat relative to the NWFP and to each other, and include provisions for further reducing existing protections. Principles of adaptive management warrant consideration of cumulative effects and coordination among threat abatement measures that encourage managers to increase the reserve network in response to growing threats. Notably, the draft recovery plan allows managers to only reduce (by 5% in the case of minor adjustments) the MOCA network and also allows managers to make large-scale changes to the network. However, the draft plan never discusses that changes in the network may result in the need to increase habitat protections by expanding the size and number of habitat blocks should the owl continue to decline. We have heard FWS officials repeatedly make statements to the press implying that the reserve network can be increased under Option 2 but nowhere in this recovery plan do we see a specific action or incentive for managers to increase the network. Where in the recovery plan (what action?) does it state that the size of the reserve network can be expanded?

Key Deficiency # 5 – population persistence functions for the owl, which were the basis for the habitat block sizes noted above, are out-dated and need to be revised (also see SCB-AOU review).

- *Persistence likelihood functions for the spotted owl need to be adjusted (new modeling) to account for the negative influence of barred owls co-linked to habitat losses* - Lamberson et al. (1994) assumed a leveling off of spotted owl persistence as owl cluster sizes increased above 20 pairs (i.e., persistence changed little with incremental gains in cluster sizes). However, much has changed since this model was developed, including the emergence of barred owls as a threat to the spotted owl. Thus, we request that FWS provide an updated persistence probability model that includes barred owl effects on spotted owl viability. This is not merely an academic issue as the habitat blocks were based on these outdated models and therefore they were not based on the best available science. Barred owl suppression coefficients may be obtained either from recent studies on barred owl and spotted owl interactions that may be used to derive interaction terms. In the meantime, the principles of conservation biology suggest that the size of the habitat blocks will likely need to be increased (not decreased) to

achieve stable persistence probabilities in the face of this invasion. As the size and number of habitat blocks are increased they should be able to accommodate more spotted owls [spotted owl persistence likelihood should increase] and some, by chance alone or because of differences in habitat use between con-generic owls, may serve as refugia from invading barred owls.

- If the MOCAs are based on currently existing reserves in LRMPs, is it valid to assume that they will still support stable populations of spotted owls? The persistence modeling for 20-pair DCAs was conducted in the early 1990s, before the barred owl was abundant and widely distributed in the range of the spotted owl. Can the same assumptions about persistence be made today? Will FWS do a revised persistence model for the spotted owl with new coefficients and if not why not?
- Because it is unlikely the threats from the barred owl will be able to be addressed everywhere, shouldn't reserves be re-designed by increasing them to incorporate a barred owl effect?
- The persistence models are very sensitive to survival rates and should be updated with the most recent demographic performance data from Anthony et al (2006). The original modeling predicted modest declines over the next 50-75 years with populations starting to increase as habitat recovered. Given the current rates of decline, are these assumptions that underpin the NWFP still valid?

Key Deficiency #6 – Given the declining spotted owl population, monitoring efforts should be increased by expanding the number of demographic study areas, particularly on nonfederal lands where owl populations are declining at more than twice the rate of federal lands (Anthony et al. 2006).

- *Recovery actions regarding population monitoring need to more definitively support the continuation and necessary expansion of demographic study areas* – The demographic study areas have provided more than two decades of vital data on owl performance (fitness), demography, and habitat use. Replacing this monitoring effort with another "*statistically valid*" yet less costly method, as possible under criterion 3 (action#13, p. 31), would greatly compromise the value of long-term demography studies and their associated data that are priceless to researchers and owl monitoring efforts. The disadvantages posed by starting over from scratch with a new program should receive full consideration before other statistically valid monitoring approaches are considered. We request you include this additional language regarding new monitoring methodologies.

Key Deficiency #7 – Owl populations are declining rapidly (by 7% in Washington) yet the recovery plan reports that the priority level for owls was decreased by FWS from level 3C to 6C in 2004 (1 is highest, 18 is lowest priority – see page 16 and 23).

- *Priority levels for the owl need to reflect the new science on owl demography in Anthony et al. 2006* – There is no scientific basis for reducing priority levels for owls at a time when populations are declining faster than originally projected (i.e., by the NWFP in 1994). Priority levels need to be re-examined based on this new

data set and adjusted upward, particularly on the Olympic Peninsula and throughout Washington where owl populations have declined by 7% each year (Anthony et al. 2006).

- What scientific justification was used for reducing the priority status of the owl and is this still relevant in lieu of the more recent findings by Anthony et al. (2006) regarding accelerated owl declines? If not, the priority status of owls needs to be up-graded to account for this new information on accelerated owl declines.

Key Deficiency #8 – The provision for establishing a "*NSO Work Group*" (recovery action 1, page 43) overlooked the role of scientists in implementation and coordination efforts and therefore implementation of the recovery plan also may not be based on the best available science.

- *The recovery plan needs to be redone by owl experts* – The failure to explicitly include independent owl scientists in the NSO working group and the lack of representation by independent owl scientists on the owl recovery team has rendered this plan inadequate in meeting the requirements of the ESA regarding the best available science. FWS should provide examples of other recovery plans that did not involve the full complement of species experts throughout the recovery planning process and indicate why they chose to depart from this otherwise well accepted approach to recovery plans.

- *Recovery action 1, which calls for the establishment of an inter-organizational "NSO Work Group," is vague and open-ended* - It does not give sufficient guidance regarding the mission, role, composition, or authority of the work group. This is a serious flaw in the draft recovery plan because many of the other recovery actions are not described in sufficient detail, so the work group will likely need to play a prominent role in the implementation of the plan. For this reason, it is imperative to more clearly describe the rules under which the work group will operate.
    - How would the NSO work group be composed? Who would be represented? How many members would it have?
    - What expertise would be necessary to serve on the work group?
    - What role will scientists, particularly independent owl scientists, have in the working group?
    - Would there be an attempt to balance representation by the various stakeholders?
    - What would be the limits of the work group's authority?
    - Would the work group have any fiduciary responsibility over the recovery plan?
    - Would the work group have any authority to make and enforce decisions?
    - What is meant by the statement "The NSO Work Group is not intended to be a technical or policy 'approval' committee?" Why not? This statement appears to exclude owl scientists.

- If the work group is not an "approval" committee, how will it implement or enforce its decisions?

Key Deficiency #9—Option 2 does not contain provisions to coordinate the location of conservation areas with habitat on adjacent non-federal lands. The CSAs in Washington are based on the SOSEA network. SOSEAs were established based on the existence of LSRs and DCAs—places designated as sites on the federal landscape where populations of breeding owls would be maintained. If the recovery plan (Option 2) eliminates MOCAs (which are rooted in many of the LSRs and DCAs) and conservation areas are moved to other locations, how will that affect the ability of adjacent state/private landowners to contribute to recovery? For example, if a SOSEA was established to provide demographic support for a cluster of spotted owls on adjacent federal land, and the federal agencies remove that cluster, what happens to the SOSEA? The same argument can be made for HCPs. Most HCPs were designed to provide demographic or dispersal support to existing clusters of breeding spotted owls protected by LSRs. If these protected areas are removed or relocated pursuant to Option 2, it could undermine the goals and objectives of the adjacent HCPs. Furthermore, Option 2 appears to be inconsistent with recovery action 19, which is to encourage the development of HCPs and Safe Harbor Agreements.

- How can you convince private/state land managers to adopt HCPs when there is not a stable land base on federal lands dedicated to owl management?
- Most HCPs are done on at least a 50-year time frame, and most rely on federal management—i.e. the goals and objectives of the HCPs are integrated with existing management of LSRs. If the LSRs are moved under Option 2, how will that affect the HCPs?
- HCPs in the range of the northern spotted owl comprise 2.9 million acres. If habitat for breeding clusters at the periphery of federal land (i.e. tied to HCPs) is eliminated, moved, or reduced under Option 2, how will the loss of that habitat be compensated and how will this affect the responsibilities of nonfederal managers for owl habitat?
- Will there be additional expectations of non-federal land managers to provide enhanced demographic support if federal habitat is reduced relative to the NWFP? If not, then how will the FWS prevent or mitigate the reduction in spotted owl populations that will inevitably result when LSRs in close proximity to HCP lands are eliminated or reduced in size?
- HCPs are reliant on the principle of regulatory stability and predictability. How will the FWS convince landowners to do HCPs in light of the unpredictability of Option 2? Will the FWS reconsider its approval of owl HCPs in light of the recovery plan? Will it reevaluate existing HCPs if LSRs are eliminated or moved under Option 2 or reduced through small or large scale changes under Option 1?

Key Deficiency #10 – The draft recovery plan fails to adequately address the potential impacts of climate change on the persistence of the owl and especially the old-growth forest ecosystem it depends on for its survival.

- *An expanded reserve network that includes all remaining old-growth forests should be considered as necessary to account for the effects of climate change-* While climate change is mentioned in the draft, addressing its effects does not come up high in the priority actions. Further, we can find no scientific basis for drawing down old-growth forests, which this draft plan would enable the federal agencies to do, at a time when shifting regional climates may further reduce owl habitat due to losses attributed to fire, insects, and other disturbance agents associated with climate change. With climate change effects looming, every acre of old-growth forest will matter to owl survival. Therefore, the NWFP should be the baseline from which the amount of additional owl habitat that is not currently protected (e.g., old-growth forests in the "matrix") should be incorporated into an expanded reserve network design to adequately protect and recover spotted owls. We therefore request that FWS analyze another option that includes an expanded reserve network to accommodate shifts in owls and habitat potentially caused by climate change effects.

INCONSISTENCIES AND IMPLEMENTATION PROBLEMS

In addition to the numerous deficiencies noted above, the draft recovery plan contains internal inconsistencies that may interfere with its implementation, or cause confusion about how it is to be implemented. This is compounded by the lack of detail regarding how some aspects of the plan should be implemented, particularly the designation of habitat blocks in Option 2 and the salvage guidelines in Appendix E. Furthermore, the draft contains several statements that are inaccurate, and do not reflect the actions or deliberations of the recovery team. These shortcomings are described in detail below, followed by questions intended to clarify and improve the final plan.

There is inconsistent use of terminology to describe the areas designated for owl management under Option 2. The terms "habitat block" and "conservation area" are used to describe the unmapped owl cluster areas under Option 2. For example, "The flexibility to identify the <u>conservation areas</u> based on provincial, ecological and management situations, as well as natural disturbances (e.g., catastrophic fire) is intended to ensure the effectiveness and implementation of this recovery plan" (p. VII-VIII). Are the terms "habitat block" and "conservation area" synonymous?

One stated recovery objective is that northern spotted owl populations must be "sufficiently large…such that the species no longer requires listing…" There is no recovery criterion, however, for population size, and there is no provision for measuring either rangewide or provincial population size. Why is there a recovery objective based on population size, but no recovery criterion for population size or action to measure it? Without a specific criterion for population size, this objective is inconsistent with the requirements of the ESA regarding "***measurable, objective criteria*** (emphasis added)."

The draft states that recovery plans must include "objective, measurable criteria that, when met, will allow the species to be delisted" (p.14). It goes on to say, however,

"judging when a species is recovered requires an adaptive management approach that is sensitive to the best available information and risk tolerances" (p. 14). These two statements appear to be inconsistent.

- If you have objective, measurable criteria, then what is the role of adaptive management?
- Is the sentence about adaptive management intended to mean that the criteria can be changed? If so, what procedure would be used?
- How would adaptive management be used to measure whether the recovery criteria have been met?
- How would recovery criteria be changed through adaptive management?

In addition to the statement that recovery plans must include objective, measurable criteria, the recovery criteria and actions section for each option states, "Each recovery criterion includes a parameter to be measured and, when known, a threshold to be reached." Recovery criteria 1 and 2 do not appear to include measurable parameters or thresholds.

- What are the parameters and the thresholds in recovery criteria 1 and 2?
- Does the lack of parameters and thresholds in these criteria fail to comply with the ESA's mandate that recovery plans must be based on measurable criteria?

The draft also states that recovery plans must include "a description of site-specific management actions necessary for conservation and survival of the species" (p. 14). This appears to be inconsistent with all of Option 2 because that option does not provide site-specific information about where habitat blocks will be located, or where habitat management actions will occur. How does the unmapped reserve or "shifting mosaic" approach in Option 2 meet the requirement that description of management actions must be site-specific?

Recovery criterion 3 is inconsistent with the biological principles used to build the MOCA network in Option 1 or with the "rule set" that directs the establishment of habitat blocks in Option 2. The MOCA/habitat block strategy was designed to identify areas that are large enough (or *were* large enough, prior to the invasion of the barred owl) to accommodate 20 breeding pairs of spotted owls. Recovery criterion 3, however, allows delisting to occur when 80 percent of these areas have as few as 15 breeding pairs. This could lead to delisting when the habitat network is performing at only 60% of the capacity for which it was designed[5].

- Why is the delisting criterion set at only 0.75 the capacity for which the MOCAs/habitat blocks were designed[6]?
- What is the rationale for requiring that only 80% of the MOCAs/habitat blocks achieve the 15 breeding pair threshold?

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[5] Assuming that the MOCAs or habitat blocks were designed for 20 pairs each, if you delist when only 80 percent of the MOCAs/habitat blocks support only 15 pairs, then your MOCA/habitat block network is only occupied 0.60 of capacity (0.80 x 15/20).

[6] Even though reserves are designed for 20 owl pairs, the delisting criterion allows delisting when 15 pairs (or 0.75) of the target number is reached.

- What science (studies or relevant data) was used to develop the 80% threshold?

The draft recovery plan states, "The Plan's foundation was the Northwest Forest Plan (NWFP)…" (p.15). Three paragraphs later, the draft states, "The foundation of this Recovery Plan is a network of Managed Owl Conservation Areas (MOCAs)…"

- Aren't these two statements inconsistent? The owl conservation provisions under the NWFP and in the MOCA network are clearly different.
- Isn't it more accurate to state that the 1992 Draft Recovery Plan was the foundation for the current plan?
- If the plan is based on the NWFP, then why does it allow de-listing when the amount of suitable habitat in MOCAs in some provinces reaches as little as 50%, compared to the 100% required in the LSRs?
- The draft plan does not clearly state that the MOCAs are a hybrid of the DCAs in the 1992 draft recovery plan and the LSRs under the NWFP. Why is this not mentioned?

The recommendations in the draft recovery plan are not consistent with the need for actions to address specific threats to the northern spotted owl. In its description of historic threats to the spotted owl, the draft plan notes that "threats to the spotted owl included low populations, declining populations, limited habitat, declining habitat, inadequate distribution of habitat or populations, isolation of provinces, predation and competition, lack of coordinated conservation measures, and vulnerability to natural disturbance (USFWS 1992b)" (p. 16). Since the first draft recovery plan was written in 1992, only one of these threats has been addressed—the lack of coordinated conservation measures. Spotted owl populations are declining at an accelerated rate (Anthony et al. 2006), habitat is still limited and declining (particularly on non-federal lands), there is still an inadequate distribution of habitat within reserves, some provinces are increasingly isolated (particularly the BLM checkerboard), climate change is a new and increasing threat, and competition is greater today than in 1992 when barred owls were not considered a serious threat. The 2007 draft recovery plan not only fails to address most of these threats (with the exception of the barred owl), it exacerbates some of them.

The 1994 Northwest Forest Plan brought coordination to conservation measures by implementing a map-based conservation network on federal lands to provide secure habitat for the meta-population of spotted owls. Unfortunately, if Option 2 in the 2007 plan is adopted, the designation of spotted owl conservation areas will be decided at the local level rather than on a range-wide scale. We suspect that this will result in lack of coordination of conservation efforts on federal land. Because the MOCA network under Option 1 reduces the amount of habitat designated for the map-based conservation network from the levels in the 1992 draft recovery plan or the NWFP, then habitat will remain limited and continue to decline. Furthermore, elimination of mapped conservation areas from the Western Washington Lowlands and the northern part of the Oregon Coast Range provinces will compound the problems of inadequate distribution of habitat and the further isolation of some provinces (e.g. the Olympic Province). **At a minimum, demographic support areas should be established on the Olympic Peninsula to connect owl populations in the Olympic National Park and surroundings with the**

southwest Washington lowlands that need to be restored as future owl habitat and as part of a recovering owl population on the peninsula (this comment pertains to the August 14 FWS web-posted request for information).

- How does the 2007 draft recovery plan address the threats of low and declining spotted owl populations?
- Will implementation of the plan result in population increase? Or will implementation of the plan result in arresting the decline of the spotted owl population?
- Will the plan increase the amount of habitat available to spotted owls compared to that available at the time of listing?
- Will implementation of the recovery plan improve the distribution of habitat across the range? If so, explain how this will occur, particularly under Option 2 compared to the NWFP?
- Will it reduce the threat of isolation of provinces?
- If Option 2 is adopted, how will it maintain the level of coordination that currently exists under the NWFP?

The 2007 draft recovery plan acknowledges "While the 1992 draft Recovery Plan was never finalized, the plan remains the most-recent spotted owl-specific analysis of habitat needed to provide for a sustainable population of spotted owls across the species' range" (p 140). The directive from the Washington Oversight Committee to emphasize "new science" and de-emphasize "old science" is inconsistent with this statement. The 2007 draft also notes "The 2004 Scientific Evaluation of the Status of the Northern Spotted Owl (Courtney *et al.* 2004)...acknowledged this conservation strategy [the strategy laid out in the ISC and 1992 draft recovery plan] was based on sound scientific principles which have not substantially changed since the species was listed" (p. 140).

- If the 1992 draft recovery plan "remains the most-recent spotted owl-specific analysis of habitat needed to provide for a sustainable population of spotted owls across the species' range," then why was Option 2 developed and what was the science underlying this option compared to the NWFP, which is rooted in a well established fixed reserve design?
- Does "the most-recent spotted owl-specific analysis of habitat needed" qualify as "old science" or "new science?" How does the conclusion of the FEMAT analysis that the 1992 draft recovery plan was inadequate (see above) square with the current draft recovery plan's reliance on the 1992 draft?
- If the mapped reserve approach proposed in Option 1 "was based on sound scientific principles which have not substantially changed since the species was listed," then why did the Washington Oversight Committee reject the fixed reserve approach and direct the IST to develop Option 2, an approach that is not based on those sound scientific principles?
- Do "sound scientific principles which have not substantially changed since the species was listed" qualify as "old science" or "new science?"
- What are the scientific qualifications of the Washington Oversight Committee and does anyone on the committee have background in owl science or any other science for that matter? This is important as scientific advances are most often made in recognition of previous work. Science or scientists do not de-emphasize,

downplay, or ignore previous findings but rather they build on or refute prior findings based on objectivity and deductive reasoning that has nothing to do with preconceived or politically driven outcomes. Where in the scientific literature or methodology does it say – "de-emphasize past science?"

A recovery objective under both options states, "Adequate habitat is available for spotted owls and will continue to exist to allow the species to survive without the protection of the ESA." It is not clear, however, how progress toward this objective can be measured under Option 2, which does not include a spatially explicit strategy for habitat conservation. Furthermore, the draft recovery plan does not explain how a determination can be made that adequate spotted owl habitat "will continue to exist" under Option 2, given that habitat blocks can be deleted and/or revised by federal land management agencies at any time.

- How will the determination be made that "adequate" habitat exists under Option 2 without a spatially explicit accounting of habitat?
- How will FWS evaluate whether habitat is adequate when Option 2 can yield multiple outcomes at the local level and how will coordination take place across ownerships (BLM vs. Forest Service vs. nonfederal) and project planning areas (BLM districts and national forests)?
- How will the determination be made that "adequate" habitat "will continue to exist" under Option 2 if federal land management agencies have the authority to move or delete designated habitat blocks at unspecified intervals?
- Will it be necessary to conduct inventories of habitat to determine if this objective (or criterion 4) is being met each time LRMPs are revised and new habitat blocks are identified?
- What is the definition of "adequate" and what science will be used to make this determination?
- Will the definition of "adequate" change over time, e.g., when research yields more information about the spatial relationships between barred owls and spotted owls?

The draft plan states, "The Plan recognizes the guidance the existing LRMPs provide for the conservation of the spotted owl" (15). "Recognizes the guidance" is not very descriptive, and thus raises questions about future implementation of recovery efforts. Moreover, this guidance largely consists of the adoption of the NWFP in each of the existing LRMPs, yet the draft recovery plan options both provide less protection for owls and their habitat than the NWFP.

- Does this mean Option 1 relies upon the provisions of the LRMPs that contribute to spotted owl conservation? If so, which ones?
- Does this mean that if LRMPs are revised, the guidance for recovery of the spotted owl on federal lands also changes? If this is the case, then doesn't the LRMP revision process become a *de facto* recovery plan revision process without the checks and balances of the FWS?
- Won't this allow the federal land management agencies too much latitude to change recovery actions, without sufficient lead agency or public oversight?

The draft plan predicts that under either Option 1 or Option 2, the estimated cost to delist the spotted owl is $198 million and the estimated time to delisting is 30 years. It is unclear how these estimates were derived. As noted above, the NWFP, which protects more habitat than recommended in the 2007 draft recovery plan, estimated that the time needed to merely stabilize the spotted owl population was 50 years.

- How can the recovery plan arrive at the conclusion that the spotted owl can be recovered in 30 years while protecting less habitat than the NWFP?
- How can the recovery plan predict costs and estimated time to delist under Option 2, considering that it is not yet known how much habitat will be made available to spotted owls, or where that habitat will be managed?
- The draft states "The timeline is based on the successful management of the barred owl and development and maintenance of sufficient habitat." But the draft plan also notes that there is significant uncertainty in these estimates. How was the 30-year estimate to delist the owl arrived at in light of these uncertainties? What science was used to derive this 30-year estimate and how does it compare to the estimates in the NWFP?

The last paragraph of Appendix C states, "As the Federal agencies develop new LRMPs, they will consider the conservation needs of the northern spotted owl and the goals and objectives of the Recovery Plan. If needed, actions to implement Federal land use plans will be accompanied with either plan or project level consultations to assure management actions align with recovery goals" (p. 133).

- Does "consultations to assure management actions align with recovery goals" mean official ESA Section 7 consultation?
- What is the definition of "if needed" and under what circumstances will such need be determined?
- What criteria will be used to determine if there is a need for plan or project level consultations? This appears to imply that consultation will occur at some point, but it is unspecified, and there doesn't appear to be any requirement that consultation will occur at all.
- How will the FWS enforce the condition that consultation must occur?
- If consultation is done at the project level, how will cumulative effects be addressed?
- Can a project level consultation adequately assess the potential impacts on the spotted owl population and on the likelihood of achieving recovery?

Appendix E provides guidance to managers to "compare the length of time it would take for the habitat-capable acres in a provincial home range-size area around the proposed salvage unit to meet the prescribed levels given the post disturbance conditions with and without the proposed salvage action" (p. 38). In addition to the flaws in this proposed action described above (i.e. it is untested and does not include new studies on the impacts of post-fire logging), the procedure described in Appendix E is so vague and poorly defined as to make it nearly impossible to implement in the field (i.e., this is not based on measurable, objective criteria). For instance, the qualifier in recovery action 22, which states, "Specific guidance on the analysis process will be developed at a later date," is

inappropriate in a recovery plan. It does not offer sufficient detail to allow the public to evaluate the recovery action.

- Is there a standard definition for "be required…to meet owl nesting and roosting habitat?"
- Is this based on habitat structure, or merely on years? If the latter, do the number of years vary depending on the elevation and latitude? If the former, what procedure will foresters use to calculate the number of years a disturbed stand will require to achieve owl nesting and roosting habitat?
- Who will do these evaluations?
- How are foresters supposed to implement this guidance? Do they have the expertise to calculate how long it will take under no-salvage conditions for a salvage logging unit to grow into spotted owl habitat?
- How many "legacy" trees are needed to conclude that a stand can return to suitable habitat in 80 years? What is the definition of "legacy tree?" Why wasn't a diameter limit (e.g., >20 inches dbh) used to define legacy trees as, for example, provided in the 1992 draft owl recovery plan?
- Does the term "acres of habitat present" refer to any habitat, or strictly to spotted owl nesting and roosting habitat? It is necessary to clarify this because this recovery plan appears in some instances to define lands in any seral stage as "habitat" (e.g. "prey-producing habitat").
- Is there a standard procedure for quantifying specific impacts of various levels of salvage on the expected duration of nesting/roosting habitat recovery? As noted above, recent research has indicated that post-fire salvage logging itself can delay regeneration of conifer stands indefinitely. How will such delays be estimated and how will they be factored into the equation for predicting duration to achievement of criterion 4 levels of nesting/roosting habitat?
- What is the maximum level of legacy tree removal that can occur before recovery of such habitat is delayed by 10 years? Twenty years? Thirty years?
- How does the draft plan define "enough legacy trees… so as to not significantly increase the length of time necessary to reach the required habitat criterion levels?" How would one go about calculating "enough?" What science is this based on?
- The description of the salvage impacts assessment process implies that the number of 20" or greater dbh trees is the only factor that must be assessed to determine whether achievement of criterion 4 habitat conditions will be met. Are there other habitat structure variables that must be assessed (e.g. canopy closure, canopy lift, stem density, etc.) to determine whether achievement of appropriate amounts of nesting/roosting habitat will be delayed? If so, how does one calculate the amount of time such achievement will be delayed by salvage logging?
- Why wasn't new science on post-fire logging included and considered in Appendix E? **We request that you include a literature review of post-fire logging impacts and use this new science as the foundation for precluding post-fire logging in MOCAs and large habitat blocks (this comment pertains to the August 14 FWS web-posted request for information)**..

Recovery action 21 specifies that MOCAs/habitat blocks be managed at levels to meet or *exceed* the criterion 4 percentages. It goes on to note "The intent of this action is not to remove or modify spotted owl habitat to meet or reach the Recovery Criterion 4 percentages," implying that in MOCAs/blocks where the habitat levels currently exceed the listed percentages, habitat should not be considered surplus that can be removed to bring the level *down* to the criterion 4 percentage. The first paragraph of Appendix D, however, states "The landscape percentage at which lambda (h) (Franklin *et al.* 2000) was maximized was selected as the provincial goals (*sic*) listed in Criterion 4" (p. 134). Why does this statement refer to the percentages in recovery criterion 4 as "goals?" This is inconsistent with the principle that the percentages listed in the recovery criteria are merely thresholds under which a de-listing team may be triggered. Is there a danger that expressing the criterion 4 percentages as "goals" will create an incentive to "manage down" to those percentages?

Some additional implementation problems are noted as follows:

- How will the monitoring plan, especially the inventory of spotted owl distribution (p. 122), be accomplished if the large habitat block network is revised at intervals shorter than the life of the recovery plan?
- Why do some tables report "habitat loss" as negative numbers (C1, C3), and some as positive numbers (C2)? If the caption on the table refers to habitat "loss" or "lost," then do negative numbers mean that there was actually a net gain in habitat?
- Why does application of the Option 2 rule set yield a solid block on the Olympic Peninsula that includes areas (e.g., high elevation, rock and ice!) that are not habitat capable (see map on page 122)?
- Why were solid blocks used for the checkerboard lands in Option 2 compared to Option 1 which displays these same areas as checkerboard ownerships (this is misleading as it implies the entire block is unbroken or reserved habitat)?
- What are the total acres of capable and suitable owl habitat that would be managed under options 1 and 2 (simulation example) compared to each other and to the NWFP? How do these acres compare to the 1992 spotted owl recovery plan, the 1992 critical habitat determination, the 2007 proposed critical habitat determination, and the BLM WOPR? Note - the recovery plan lacks a cumulative effects analysis with other ongoing or foreseeable agency actions and those actions have not been analyzed or disclosed. Such a cumulative effects analysis is requested in the comparison of related agency actions referred to in this comment.

SPECIFIC RECOMMENDATIONS REGARDING MOCAs AND CRITERION 4 HABITAT PROVISIONS

This particular section was included in response to the August 14 web-posting by FWS and the request for additional information. In response, we recommend the following

changes to the draft recovery plan be included in the preferred option in the final recovery plan:

- Include all LSRs in the MOCA network under Option 1 as the bare minimum needed to maintain habitat blocks and to provide regulatory assurances that meet the recovery listing factors for the northern spotted owl (see Appendix A and all societal peer reviews for scientific support regarding this recommendation).
- Provide specific guidance to managers that should spotted owls continue to decline the reserve network will be expanded along with barred owl suppression and other threat abatement measures consistent with an adaptive management approach.
- Provide detail maps of the CSAs in Oregon and include demographic support areas on nonfederal lands in the northern Oregon Coast Range and southwest Washington lowlands to provide connectivity and support to MOCAs in response to peer review by TWS and the recommendations of the 1992 draft owl recovery plan.
- Place off-limits to logging all suitable owl habitat outside MOCAs until the species has fully recovered (this recommendation also was made by Dr. Eric Forsman during the June 21 scientist workshop sponsored by the FWS and attended by the recovery team).
- Revise upward the habitat thresholds under criterion 4 based on the findings of Dr. Carroll (see Appendix B and attached manuscript).
- Abandon Option 2 as it is not based on measurable, objective criteria (yields multiple outcomes), is inconsistent with the science on fixed reserves, is a product of the Washington Oversight Committee's direction, and will result in habitat losses to the owl due to the caps on block sizes and the exclusion of LSRs under the NWFP.

CONCLUSIONS

In closing, we acknowledge that a recovery plan is needed for the owl, particularly given that the species is in rapid decline, logging of suitable habitat continues (especially on nonfederal lands), and there are growing threats from barred owls and climate change. As members of the recovery team, we pointed out these issues on numerous occasions yet our concerns were largely ignored by FWS because it was continually responding to direction from the Forest Service, the BLM, and later on, the Washington Oversight Committee. As far back as September 2006, we requested that the FWS conduct a structured peer review of the habitat provisions in what is now Option 1 of the draft plan with owl scientists to determine if the provisions were based on the best available science (which according to the peer review they are not) and whether they were consistent with the seminal work these scientists have done in the Pacific Northwest for over two decades (which, again, they are not). It is unfortunate that this plan misses the mark in many respects and needs to be redone as neither option is based on best available science, and implementation is likely to increase extinction risks for the owl, resulting in the future

need for up-listing and eventually tighter restrictions on forest management. We are especially concerned that the flawed recovery plan is tied to the equally flawed critical habitat determination for the owl that relies heavily on the recovery plan (see August 10, 2007 critical habitat comments submitted by Earth Justice to K. McMaster under separate cover). The combination of low habitat levels proposed in the recovery plan and proposed critical habitat reductions represent cumulative habitat losses to the owl at a time when the species is declining at an accelerated rate and this places the future viability of the owl in jeopardy. In particular, we request that the final recovery plan examine the cumulative losses to the owl from the draft recovery plan reductions in habitat compared to the NWFP, draft critical habitat determination compared to the 1992 determination, BLM WOPR, and Survey and Manage changes. A flawed recovery plan provides little regulatory assurance that the FWS is capable of making an objective, science-based decision on whether forest plan revisions, such as BLM's WOPR, and related policy changes jeopardize the continued existence of the owl. It is obvious that this recovery plan, while non-regulatory, will set the stage for habitat reductions through a series of interrelated management and policy decisions that individually and cumulatively reduce habitat for the owl. Finally, it seems unusual that this recovery plan has no estimate of owl abundance previously (1990 or 1992), currently, or 30 years from now when the FWS projects recovery. An estimate of owl abundance seems critical to the evaluation of whether the species indeed has recovered and should be included in the final.

We urge you to redraft the plan by assembling a new team consisting of independent owl scientists so that the best available science can truly see the light of day and that the process remain free from political meddling (also see TWS peer review). We are concerned that the reputation of the FWS and public trust in the agency has been substantially eroded (see attached July 31 testimony) by the lack of transparency and by interference in the recovery planning process that not only has weakened the owl recovery plan by not providing the best available science, but has resulted in an equally flawed critical habitat determination. In addition, to better assure that the recovery plan is based on the best available science, the habitat provisions need to be scraped and new ones provided based on much higher thresholds (see Dr. Carroll's attached manuscript and Appendix B). Option 2 needs to be dropped entirely as it does not provide regulatory assurances, raises serious implementation problems (see TWS review), has problems with meeting the measurable, objective criteria standards of the ESA, and is inconsistent with the conservation literature on fixed reserves and the independent reviews of scientific societies and noted scientists. In our view, protecting more habitat (by revising up the habitat thresholds in criterion 4– this is confirmed by the peer reviews as well) and ensuring the FWS has proper oversight in choosing large blocks (rather than the Forest Service or BLM) is the best way to meet the regulatory responsibilities of the FWS and statutory requirements of the ESA.

Finally, we request that you clearly state in any statements to the press, that we as recovery team members and our organizations do not support this draft recovery plan in any way or form nor the process that was used to prepare the draft plan for public release following the September 29 submission. We never agreed to the habitat provisions in

this plan and we repeatedly requested that they be peer reviewed prior to publication, yet this never took place, and it has been improperly communicated by department officials. We also heard statements by department officials to members of Congress and members of the press that the recovery plan was drafted through consensus and with the assistance of diverse stakeholders, including conservation groups. While this statement may have been true at the time of the September 29 draft submission (pending results of peer review requested at that time but not honored by FWS within the timeline we requested), it is certainly not true today. Therefore, in closing, we would like to have the following statement inserted in the final recovery plan (acknowledgments section) -- **our organizations, while consulted throughout this process, do not support this recovery plan in any shape or form because it was not based on the best available science and FWS did not allow a minority opinion.**

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APPENDIX A
WHY THE NORTHWEST FOREST PLAN'S NETWORK OF RESERVE AREAS AND HABITAT PROTECTIONS IS, AT BEST, THE BARE MINIMUM LEVEL OF PROTECTION LEGALLY REQUIRED FOR THE NORTHERN SPOTTED OWL.

Summary: By de-linking the 2007 draft owl recovery plan (Option 2) from the Northwest Forest Plan (NWFP), the U.S Fish and Wildlife Service (FWS) proposes a recovery plan with lower levels of habitat protections for the owl than the NWFP, which has been recognized as the bare minimum for the owl by the courts. Further, by "de-linking" from the NWFP, primarily through Option 2, the FWS leaves the door open for the Bureau of Land Management (BLM) to deviate from the NWFP and take a different path. Based on the best available science, however, as well as core Endangered Species Act (ESA) principles for species protection and recovery, it is apparent that the habitat provisions of the NWFP are a floor or starting point for any legally adequate spotted owl recovery plan. While some parts of the NWFP also benefit other late-successional species, the ecological assessment of the plan (FEMAT) never considered the parts of the NWFP inseparable. Nor did it indicate which parts could be omitted or reduced and still attain a viability finding for the owl. Greater protection of the owl and its habitat, as for example by specifying higher levels of suitable owl habitat in criterion 4 (both options) is almost surely needed for the recovery plan to provide adequate regulatory assurances for recovering the owl. We request that FWS include in the final recovery plan a response to each of the main points raised below regarding the NWFP as a floor for owl recovery and how options 1 and 2 lower the amount of habitat in criterion 4 relative to the recognized minimums of the NWFP.

1. When Judge Dwyer approved the NWFP, he noted that the strategy chosen – "Option 9" – was the least restrictive plan likely to pass legal muster. Any reduction in habitat levels below this minimum would be inadequate.

In 1994, Judge Dwyer found that Option 9 was the bare minimum likely to comply with the nation's environmental laws. In his opinion upholding the NWFP as adequate to meet the requirements of the National Forest Management Act (NFMA) and National Environmental Policy Act (NEPA), *SAS v. Lyons*, 871 F.Supp 1291 (W.D. Wash. 1994), Judge Dwyer noted the agencies' own conclusion that the NWFP had adopted the least restrictive alternative likely to be legal. He wrote "[t]he Secretaries have noted, however, that the plan will provide the highest sustainable timber levels from Forest Service and BLM lands of all action alternatives that are likely to satisfy the requirements of existing statutes and policies" (USDA Forest Service and USDI BLM 1994:61). In other words, "any more logging sales than the plan contemplates would probably violate the laws." 871 F.Supp at 1300 (quoting the NWFP ROD).

Elsewhere in his decision, Judge Dwyer also noted the agencies' duties under the ESA. He stated that one purpose of the ESA is to "***provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved,***" 871 F.Supp at 1303 (emphasis added; quoting 16 U.S.C. § 1532(3)). Further, Judge Dwyer

noted that the ESA defines "conserve" as meaning the use of "all methods and procedures which are necessary to bring listed species to the point of recovery." Id. However, the Court did not decide that the provisions of the NWFP actually would be sufficient to meet the recovery requirements of the ESA because that issue was not before the Court. This implies, however, that the NWFP is a minimum or floor for owl recovery below which recovery options will likely be deemed inadequate.

It is worth noting that Judge Dwyer also wrote in *SAS v. Lyons* that "[c]areful monitoring will be needed to assure that the plan, as implemented, maintains owl viability. New information may require that timber sales be ended or curtailed" 871 F.Supp at 1321. Recent demography studies indicating that the owl's decline has accelerated, and that there is remains an association between owl survival and old-growth forests (Franklin et al. 2000, Dugger et al. 2005, and several other earlier studies cited in the main text of our comments), certainly suggest that monitoring has now shown a need to *increase* protection of the owls' old growth habitat and further curtail logging. Any attempt to move in the opposite direction and reduce existing old-growth forests on federal lands by, for example, specifying artificially low levels of habitat in criterion 4 of the owl recovery plan, would likely jeopardize the survival of the owl and violate a number of other environmental laws. Because the draft recovery plan proposes two options, both of which could lead to increased logging of old-growth forests relative to the protections of the NWFP (i.e., because criterion 4 habitat provisions are inadequate), it also does not appear that the draft plan can meet the requirements of the ESA for a legally adequate recovery plan.

In addition, we would like to direct FWS to 50 CFR Part 17 (*The Federal Register* Friday, July 1, 1994 (Vol. 59), p. 34274) that is particularly relevant to the ecosystem provisions upon which the ESA and recovery plans are supposed to be based upon:

> *C. Recovery*
>
> *(1) Develop and implement recovery plans for communities or ecosystems where multiple listed and candidate species occur (emphasis added).*
>
> *(2) Develop and implement recovery plans for threatened and endangered species in a manner that restores, reconstructs, or rehabilitates the structure, distribution, connectivity and function upon which those listed species depend. In particular, these recovery plans shall be developed and implemented in a manner that conserves the biotic diversity (including the conservation of candidate species, other rare species that may not be listed, unique biotic communities, etc.) of the ecosystems upon which the listed species depend (emphasis added).*

This regulation and the intent of the ESA support our view that recovery plans are supposed to protect the ecosystems upon which listed species depend upon, which this recovery plan (especially Option 2) fails to do by lowering habitat protections relative to the NWFP.

2. The 2007 Draft Recovery Plan for the spotted owl is based on the ISC strategy and a previous 1992 draft recovery plan. Both were deemed inadequate in the NWFP. Consequently, the draft owl recovery plan is likewise inadequate.

The 2007 Draft Recovery Plan is based on two previous owl management analyses: the 1990 ISC Strategy (Thomas et al. 1990) and the 1992 draft recovery plan (USFWS 1992). However, the reserve network of the NWFP is *more* protective than either of these prior efforts as it includes more owl habitat in reserves and other measures. The NWFP was made more protective specifically because these previous efforts were found to provide inadequate protection for the owl's viability. The ISC itself acknowledged that in "a worst-case scenario, we estimate that the strategy could result in a 50 to 60% reduction in current owl numbers" (Thomas et al. 1990:34). Correcting the inadequacy of the 1990 ISC strategy was one of the purposes of the NWFP, and a key factor forcing the development of the more protective Option 9 framework.

While the 1992 draft recovery plan was more protective of spotted owl habitat than the 1990 ISC strategy, in the FEMAT analysis of the alternatives prepared for the NWFP, Option 7 – which was based on the 1992 Recovery Plan – was found to provide less than an 80% likelihood of maintaining the well-distributed, viable owl population required by the National Forest Management Act (NFMA). The 1994 ROD for the NWFP noted that Option 7 was based on prior management directives (including the 1992 draft recovery plan) which are "now deemed inadequate." *SAS vs. Lyons* at 1305, 1319-20.

These earlier, inadequate frameworks included fewer acres in reserves and imposed fewer restrictions on logging both within reserves and in the unreserved "matrix" lands. In fact, compared to Option 7, Option 9 included about 4 million more acres in reserves (*SAS v. Lyons* at 1305). The analysis of the proposed alternatives in FEMAT (p III-19) noted with respect to Option 7: "Cutting of trees and salvage of dead trees in Late-Successional Reserves would be restricted to that provided by the Final Draft Recovery Plan (USDI Fish & Wildlife Service 1992:68) as interpreted by the federal agencies. This could allow significant cutting in the future in Reserves on the Bureau of Land Management lands."

Because both options in the draft recovery plan are based on the 1990 ISC strategy and Option 2 attempts to de-link the recovery plan from the NWFP, the new draft plan does not appear to meet even the viability requirements of the NFMA, let alone the recovery plan requirements of the ESA. Further, Option 1 proposes to reduce by 27% habitat capable acres for owls, primarily because several of the Designated Conservation Areas (DCAs) of the 1992 draft recovery plan were omitted (see our main comments). As well, both options 1 and 2 lower the bar on habitat in criterion 4 from both the 1992 draft plan and the NWFP. Thus, neither option in the draft recovery plan would appear to be based on the best available science, and neither would appear to meet the ESA standards for recovery plans.

3. The NWFP also includes protections for the spotted owl beyond the network of late successional reserves, and these protections are necessary to ensure owl conservation.

As noted above, measures beyond the late-successional reserve (LSR) network were added to the NWFP to increase the likelihood that the plan would provide adequate protection for owl viability. The NWFP is premised on the science of maintaining large blocks of suitable habitat while providing opportunities for owls to safely travel between reserves (i.e., matrix retentions and riparian corridors) as a way of ensuring genetic exchange among metapopulations. Among these additional measures are Standards and Guides that restrict the amount of logging in the matrix and riparian reserves, the requirements to retain at least 15% of late successional forests at both the stand and watershed levels, no cut buffers around owl clusters, adhering to restrictions in the underlying forest plans, the Aquatic Conservation Strategy, and the Survey and Manage requirements. All of these measures provide additional benefits to spotted owls beyond the network of LSRs.

That logging restrictions in the matrix were necessary to take Option 9 above the 80% likelihood of viability threshold strongly suggests that the reserve network, standing alone, would not have been found a legally adequate plan to maintain the viability of the northern spotted owl. We note that the 2007 recovery plan, in addition to having inadequate reserves, does not include appropriate matrix management guidelines to reduce the impact of logging outside reserves and is thus inadequate in this respect as well. This is especially true for Option 2, which proposes to delink from the NWFP. By delinking from the NWFP, the Forest Service and BLM may choose to either eliminate reserves entirely and/or eliminate matrix management provisions as the agencies undergo forest plan revisions (e.g., as is currently happening with the BLM WOPR).

a. The NWFP represents the starting point for the federal contribution to owl recovery. Efforts to de-link from it or reduce habitat protections depart from the minimum protections needed for owl conservation.

Federal officials have claimed in various ways that the network of LSRs designated under the NWFP is all that is needed for the federal contribution to owl recovery. These officials point to statements like the following, in the response to comments on the NWFP contained in the 1994 FSEIS *(USDA Forest Service and USDI BLM 1994b)*:

> *"the preferred alternative would provide the federal lands' contribution to spotted owl recovery and also includes as standards and guidelines elements of the Final Draft Spotted Owl Recovery Plan.*
>
> *Late-Successional Reserves delineated in the SEIS will become the focal points for spotted owl recovery planning* (emphasis added).

> *It is the intent of the joint lead agencies that management under the selected alternative will provide* ***the federal contribution to spotted owl recovery*** *(emphasis added)."*

As the NWFP ROD indicates, however, "[t]his decision is intended to aid in the recovery of listed species …" 1994 ROD:50. The use of the word "**aid**" supports the view that the NWFP was not considered sufficient by itself to provide for owl recovery even on federal lands. Certainly, "de-linking" the NWFP from the recovery plan (Option 2) and/or lowering habitat protections in criterion 4 relative to the NWFP (both options 1 and 2), cannot provide for owl recovery consistent with the requirements of the ESA, for all of the reasons discussed. Thus, while some parts of the NWFP also benefit other species, FEMAT never considered the parts of the NWFP separately. Nor did it indicate which parts could be omitted and still attain a viability finding for the owl. It did, however, clearly indicate that the LSRs were the focal or anchor points for spotted owl recovery planning and the federal contribution to recovery. Thus, because Option 2 proposes to delink from the NWFP and because both options provide less habitat in criterion 4 than the NWFP, the recovery plan is inadequate.

b. No finding has ever been made that the NWFP adequately provides for owl recovery, even on federal lands alone. An adequate recovery plan would go above, not below, the NWFP protections.

Neither the FWS nor the courts have ever made a finding that the NWFP alone would adequately provide for owl recovery, even on federal lands. The absence of such a finding suggests that an adequate owl recovery plan must go beyond what the NWFP provides. In support of this assumption, we provide excerpts from recent evaluations of the efficacy of the NWFP by scientists (including agency scientists) concluding that the NWFP is a baseline or "floor" for owl recovery. We request that you include these excerpts in the final recovery plan and discuss how Option 2 measures up against these key findings.

From Lint (2005):

- *..... the results from the first decade of monitoring do not provide any reason to depart from the objective of habitat maintenance and restoration as described under the Plan. The Plan's contribution to habitat management remains a cornerstone of the conservation and* <u>recovery</u> *of the spotted owl, but future spotted owl conservation efforts may need to address more than habitat management*[7]*. … Habitat maintenance and restoration, as currently envisioned under the Plan, remain essential to owl recovery …*
- *The primary contribution of the Northwest Forest Plan (the Plan) to* <u>conserving</u> *the northern spotted owl (the owl) was the federal network of reserved land use allocations designed to support clusters of reproducing owl pairs across the species' range. These "reserves" include late-successional reserves, adaptive*

[7] Notably – this comment supports our view that more, not less, habitat may be needed to recover the owl.

management reserves, congressionally reserved lands, managed late-successional areas, and larger blocks of administratively withdrawn lands (fig. 3-1).

- *Will implementing the Plan reverse the declining population trend and maintain the historical geographic range of the northern spotted owl? Based on the results of the first decade of monitoring we cannot answer this question because not enough time has passed to provide the necessary measure of certainty. However, the results from the first decade of monitoring do not provide any reason to depart from the objective of habitat maintenance and restoration as described under the Plan*[8].
- *The Plan's contribution to habitat management remains a cornerstone of the conservation and* recovery *of the spotted owl, but future spotted owl conservation efforts may need to address more than habitat management.*

From Courtney et al. (2004):

- *In both assessments used to estimate Northern Spotted Owl habitat trends, the USFWS (USDI 2001, 2004) used the Forest Plan baseline. They required a reference condition for habitat, against which to evaluate changes in suitable habitat acreage over time. They ideally sought a habitat baseline with particular characteristics. The USFWS stated (USDI 2004:2) that: We sought a habitat baseline with particular characteristics. The habitat baseline needed to be: range-wide in scale; developed with a consistent methodology across that range; consistently applied over a number of years to allow for change over time to be evaluated; and recognized and accepted as a reasonable approach to this complex problem by the agencies responsible for managing Federal lands.*
- *The habitat baseline developed for the Northwest Forest Plan (Forest Plan) was used as a reference condition because it has all of these characteristics. It is a spatially unified database that covers 57 million acres of the Spotted owl's range in the Pacific Northwest. Temporally the Forest Plan baseline (1994), spans a time period close to a decade, thus allowing for a reasonable calculation of a rate of change over time and is comparable in length to that evaluated in 1990 at the time the Spotted owl was listed.*
- *The Forest Plan habitat baseline was formally adopted by the land management agencies in 1994 with the signing of the Record of Decision for Amendment to Forest Service and BLM Planning Documents within the Range of the Northern Spotted Owl. This database includes Spotted owl baseline habitat values for all administrative units within the Forest Plan boundaries and serves as the habitat baseline for this report."*
- *The strength of the Forest Plan suitable habitat baseline lies in its consistency across the entire range of the Northern Spotted Owl. It was developed with the best methods available at the time and attempts to portray habitat believed, by local biologists, to be used by owls.*

[8] Based on this conclusion, how can FWS justify Option 2, which clearly departs from the fixed reserves of the NWFP?

- *The Forest Plan baseline was considered suitable for broad-scale analyses such as comparison of management alternatives in FEIS (USDI 1993, 2004).*
- *Many, but not all of the scientific building-blocks of this plan have been confirmed or validated in the decade since adoption. Largely the successes of NWFP are ascribable to good design and implementation.*
- *Instead, we recognize that the NWFP has made important conservation contributions, and without the plan the situation of Northern Spotted Owls would be far bleaker.*
- *Indeed, one strength of the NWFP, its intended flexibility and adaptability, may yet prove key in responding to unexpected challenges*[9].
- *The NWFP focused on a strategy of conservation of late-successional forests, as these were regarded as prime habitat for Northern Spotted Owls throughout the subspecies' range (recognizing that in some areas, e.g. the coastal redwood region, structure could lead to owls using substantially younger habitat types). Notwithstanding the associations of owls with younger forests with complex structure in some areas (see chapter 5), there is still a strong association of owls with late-successional forests. Hence there is no reason to call into question this basic tenet of the plan*[10].

c. A recovered species that is not threatened with extinction must be at least as secure as a viable species under NFMA.

The key legal requirement that the NWFP was crafted to address – NFMA's "viability rule" – requires the Forest Service to protect habitat sufficient to maintain species viability. A recovery plan for a species already listed under the ESA must provide security for the species that at least meets – and may need to exceed – the security provided for a viable species.

The NFMA viability rule provides protection for species that have not declined to the point of listing under the ESA because it calls for the Forest Service to maintain an amount of habitat sufficient to protect "viable populations," "well-distributed" across the planning area. (See 36 CFR 219.19, 219.26 and 219.27.) In the context of a species that is already listed, such as the spotted owl, the ESA's "recovery" requirement, contained in the definition of "conservation" under the law (see 16 U.S.C. § 1532(3), sets a bar that is at least as high as the viability requirement of NFMA. This is because to demonstrate "recovery" the land-management agencies must show that the species has not only reached a self-sustaining, well-distributed population level (i.e., viability) but that the threats that led to its listing have been removed and it is no longer threatened with extinction in the foreseeable future. Depending on the nature of the threat to the species, the recovery standard may require protecting even more habitat than would be necessary to sustain current viability as in the case of the NWFP acting as a "floor," and, for

[9] The statement regarding the built-in "flexibility of the NWFP supports our view that the NWFP is not only a baseline for owl recovery, but already has the desired flexibility the action agencies are seeking.
[10] This statement supports our view that the underlining science of the NWFP remains unchanged.

example, where – as here – the species requires additional habitat to address threats like the barred owl or global warming.

4. New information about the declining status of, and rising threats to, the northern spotted owl further indicate that the NWFP itself may not be sufficient to meet the requirements of a recovery plan under the ESA.

The spotted owl is declining rapidly across much of its range (Anthony et al. 2006), at a rate that is both in excess of that anticipated by the NWFP (especially in Washington), and inconsistent with the owls' recovery. It faces a number of threats not anticipated in the NWFP, including potential displacement by the invading barred owl and the impacts of global warming. Both rapid decline and the increased number and intensity of threats are arguably causes to reconsider and increase the protections of the NWFP. These factors also counsel strongly against viewing the NWFP as fully sufficient to provide for the recovery of the owl. At best, the NWFP provides a floor or starting point for constructing a scientifically adequate recovery plan. Because criterion 4 in both options 1 and 2 of the draft recovery plan lowers the habitat bar below this floor, the habitat criterion for the 2007 recovery plan is inadequate. Consequently, we request that FWS develop additional recovery plan options that include the NFWP habitat provisions as a floor and an additional option that considers habitat protection above and beyond that afforded by the NWFP. All options should be evaluated based on a risk or viability assessment similar to what FEMAT did for the viability determinations for the owl under the NWFP.

a. New information about the rate and extent of spotted owl decline further confirms that the NWFP framework must be viewed as a floor and not a ceiling for owl recovery.

Current science (Anthony et al. 2006) shows that spotted owl populations are declining more rapidly than anticipated by the NWFP, particularly in the northern portion of the species' range. This unanticipated rate of decline must be addressed directly in an effective strategy to provide for the recovery of the owl by providing a recovery plan that meets the requirements of the ESA. Such a plan would have to exceed the protections of the NWFP to be effective. We request that FWS explain how options 1 and 2, which lower habitat in criterion 4 relative to the NWFP, will meet the requirements of the ESA when, in fact, the best currently available scientific information indicates that habitat in the NWFP is a minimum (see above) and likely needs to be increased to provide for effective owl recovery. FWS should provide a table that includes each of the habitat provisions in the NWFP (land-use designations and Standards and Guides) compared to the habitation provisions in the 1992 owl plan, options 1 and 2 in the 2007 plan, the 1992 critical habitat and 2007 proposed critical habitat determinations. To more fully address cumulative effects of habitat losses from related proposed actions, this table should include the BLM WOPR alternatives. FWS must explain its justification for lowering the habitat provisions in criterion 4 relative to the NWFP, the 1992 owl recovery plan, proposed critical habitat determination, and other policies likely to contribute to habitat

losses. Specifically, how will recovery be achieved if related federal actions are drawing down habitat? FWS must disclose what science it relies on to address these related habitat losses, and explain why the agency is now proposing a recovery plan and critical habitat determination that departs from the habitat minimums in the NWFP.

> b. New information about the extent and magnitude of threats to the owl, many of which were not contemplated in the NWFP, suggest that the NWFP should be viewed as a starting point, not an end-point, for owl recovery.

A number of potentially serious threats to the spotted owl have emerged that were not anticipated in the NWFP's strategy for owl viability. The number and magnitude of these threats suggests that an adequate owl recovery plan will need to add to the owl protection measures of the NWFP, not reduce or eliminate (i.e., de-link) them. These threats include the barred owl and climate change. While FWS has provided specific actions for experimental removal of the barred owl, it has not discussed the interaction of reduced habitat levels in criterion 4 (relative to the NWFP) against the backdrop of increasing threats from barred owl invasions and anticipated climate change consequences.

We request that FWS address how ongoing habitat losses will affect owl recovery in the context of cumulative impacts from climate change and barred owl invasions (i.e., do a comprehensive risk analysis). Additionally, we request that FWS include the effect of habitat reductions on nonfederal lands (which, as noted in the draft recovery plan, are 4-6 times greater than those on federal lands - Table C2 page 129) and the proposed reductions in habitat in criterion 4 relative to the NWFP, in the context of barred owl invasions and loss of habitat due to anticipated climate change effects. Models should include new population persistence likelihoods that estimate the contribution of each of these factors to owl persistence, and how various reserve designs (NWFP, Option 1, Option 2, and larger reserves) affect population persistence and the cumulative and interacting effects of habitat loss, climate change, and barred owl invasions.

All citations used in Appendix A are in the literature section above.

APPENDIX B
SUMMARY OF PRELIMINARY FINDINGS OF DR. CARLOS CARROLL[11]

Summary - the attached paper by Dr. Carroll currently in review with a scientific journal demonstrates: (1) based on a range-wide habitat model for the northern spotted owl, the habitat thresholds need to be much higher than the 50-70% levels proposed under criterion 4 of the recovery plan; (2) the proportion of the owl population contained within the MOCAs and habitat blocks of the draft recovery plan is predicted to be 20-33% less than the proportion currently protected under the NWFP; and (3) the proportion of the owl population contained within the related proposed critical habitat exemptions for the owl is predicted to be 38% less than that protected within the 1992 critical habitat designations. Notably, the higher levels recommended by Dr. Carroll are consistent with all scientific society reviews that noted the thresholds were set too low, and this concern is consistent with the views of well respected owl scientists such as Drs. Alan Franklin and Robert Anthony who during conference calls with the recovery team stated that the thresholds in criterion 4 were set too low (see attached July 31 congressional testimony and reviews by Drs. Dugger and Franklin). These findings also support a counter proposal that the National Center for Conservation Science & Policy made to the recovery team on August 22, 2006 regarding higher habitat thresholds in criterion 4 that, at the time, were dismissed due to opposition from industry, the Forest Service and BLM. Therefore, we request that this new analysis by Dr. Carroll and the peer reviews be used in place of the criterion 4 thresholds as there is ample scientific consensus that those thresholds were set too low and the MOCA and habitat block networks are inadequate for a species in rapid decline. If FWS continues to ignore scientific consensus regarding these concerns, this further demonstrates that the recovery plan was not based on the best available science.

<u>Key Findings Provided By Dr. Carroll</u>

1) The analysis was performed at a landscape scale (the scale of owl territories, ~24 km^2) using nest site data from throughout the range. It used newly developed techniques that better account for uneven survey effort than have previous studies. The results showed contrasts in habitat relationships between northern, central, and southern portions of SPOW range (southern portion defined as zone where woodrat dominates SPOW diet).

2) The best models in all 3 subregions included positive relationship with proportion of old-growth and mature forest, either as separate variables (central region) or as a combined proportion (southern and northern region). Where models included old-growth and mature forest as separate variables, old-growth had a more positive effect on owl

[11] Dr. Carroll is the director of the Klamath Center for Conservation Research, Orleans, CA and Conservation Science Advisor for the Wilburforce Foundation, Seattle, WA. He received his Ph.D. in Forest Science from Oregon State University in 2000. His research focuses on the use of habitat and viability models in conservation planning in western North America. His publications have appeared in peer-reviewed journals such as Biological Conservation, Bioscience, Conservation Biology, Ecological Applications, Journal of Applied Ecology, and Studies in Avian Biology.

abundance than did mature forest. The forest age class data used Strittholt et al. (2006) to define the mature forest age class as stands 50-150 years in age. Thus, the mature class included stands >100 years in age that were often placed in the oldest forest age class in previous owl habitat studies (e.g. Dugger et al. 2005). The fact that stands >100 years in age have substantial habitat value is the likely reason that the top model in the southern and northern subregions was based on the combined proportion of old-growth and mature forest age classes. A model with old growth and mature forest as separate variables was the closest competing model in these subregions.

3) The best model showed a quadratic relationship with older forest in the southern subregion and a pseudo-threshold relationship in the central and northern subregion. However, because the quadratic inflection in the model for the southern subregion occurs in landscapes with 95% old growth and mature forest, the model effectively portrays a threshold relationship at levels >80% old growth and mature forest. Similarly, although the best model for the northern and central subregions technically showed a pseudo-threshold form, the large coefficients for old growth and mature forest caused this to approximate a linear increasing relationship with owl abundance.

4) The proposed MOCA conservation strategy is predicted to reduce the proportion of the owl population protected by 20% from that currently protected in LSRs. The proposed habitat block conservation strategy is predicted to reduce the proportion of the owl population protected by 33% from that currently protected in LSRs. This prediction is practically identical to that based on an analysis using Biomapper habitat value (Davis and Lint 2005). The 2007 proposed critical habitat is predicted to reduce the proportion of the owl population protected by 38% from that protected by 1992 proposed critical habitat. An analysis using Biomapper habitat value (Davis and Lint 2005) predicts a 28% decline in protection from 1992 to 2007 critical habitat.

All citations are provided in the attached manuscript by Dr. Carroll.