

CRITIQUE OF THE 2007 DRAFT NORTHERN SPOTTED OWL RECOVERY PLAN



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EXECUTIVE SUMMARY

The Northern Spotted Owl was listed in 1990 due to substantial reductions in old-growth forests from logging and lack of protections that threatened the species with eventual extinction. In April 2006, the U.S. Fish & Wildlife Service assembled a multi-stakeholder team to draft a recovery plan for the owl; however, the makeup of this team was unusual as it did not include any of the well-recognized, independent owl scientists¹. Nevertheless, a draft recovery plan was completed in September 2006 by the recovery team; however, this plan was rejected by a “Washington Oversight Committee,” consisting of high ranking officials from the Interior and Agriculture departments². The oversight committee directed the recovery team to develop a plan that (1) de-emphasized science linking owl performance to old-growth forests; (2) placed Barred Owls above habitat as the highest priority for recovery thereby effectively diminishing the need for habitat protections; (3) “de-linked” the recovery plan from the Northwest Forest Plan (NWFP); and (4) developed options that do not rely on fixed habitat reserves. In this critique, I identify 8 primary deficiencies in the draft recovery plan, including:

- (1) erroneous statements about the science underlining both options 1 and 2;
- (2) reductions in the amount of owl habitat in both options and/or potential for premature delisting of the owl (e.g., Option 1 reduces capable habitat by 27%

¹ The recovery team included state and federal managers, timber and conservation representatives.

² Included Mark Rey (Under Secretary of Agriculture), Julie MacDonald (Assistant Deputy Secretary of Interior), Lynn Scralett (Deputy Secretary of Interior) and several other departmental officials.

- relative to the NWFP reserves and Option 2 reduces another 823,000 acres of suitable and 1.6 million acres of capable owl habitat compared to Option 1);
- (3) turns the selection of large habitat blocks over to local Forest Service and BLM managers without providing adequate regulatory assurances or oversight;
 - (4) misinterprets, misapplies, and ignores “new science,” including cautions from the very same researchers it cites in developing habitat provisions and ignores new science on the well-documented impacts of post-fire logging;
 - (5) makes use of out-date population persistence models that do not take into account the negative effects of Barred Owls on spotted owl persistence and correspondingly the need for larger reserves for spotted owls;
 - (6) does not adequately recognize the need for an expanded demography study area network for owls, particularly on nonfederal lands where owl populations are declining rapidly;
 - (7) arbitrarily sets a low priority status level for owls at a time when the species is declining; and
 - (8) sets up a spotted owl coordination groups that excludes scientists from implementation measures.

Based on my participation as a recovery team member for the past year and my critique of this draft plan, I 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. Therefore, the plan needs to be redone by recognized owl experts and not by interested stakeholders.

BACKGROUND

The Northern Spotted Owl was listed as a federally threatened species in 1990 due primarily to two factors: (1) loss and adverse modification of suitable habitat caused by logging of old-growth forests; and (2) inadequacy of regulatory mechanisms that placed the owl at risk of extinction and in need of protections afforded to it under the Endangered Species Act. In 1992, a draft recovery plan was finalized for the owl (U.S. Fish & Wildlife Service - USFWS 1992) but never officially adopted as it was assumed by the Secretary of Interior that the NWFP would serve as a *de facto* recovery plan for the owl and other late-successional species within the owls’ range (USDA Forest Service and USDI BLM 1994). In 2004, a series of lawsuits required the USFWS to develop a recovery plan for the owl, conduct a status review, and do a reevaluation of critical habitat determination (anticipated in June 2007). In April 2006, the USFWS assembled a multi-stakeholder recovery team to develop a draft recovery plan for the owl. The recovery team, however, did not include any of the highly recognized, independent owl

biologists, which is unusual as recovery plans are typically designed by species experts and not by interested stakeholders.

From April to September 2006, the recovery team worked under a consensus process in drafting a recovery plan that was submitted to USFWS on September 29, 2006. Shortly after, the recovery team learned of the existence of a Washington DC Oversight Committee consisting of high ranking officials from the Department of Interior and Department of Agriculture (see DellaSala 2007 for details). The September draft was rejected by this oversight committee, which instructed the recovery team to: (1) emphasize “new science;” (2) “flip and switch” the presentation of the draft by placing the Barred Owl upfront and by de-emphasizing habitat protection (note the September draft treated them equivalently); (3) de-link the recovery plan from the NWFP (this was the basis for Option 2); and (4) develop options that do not rely on fixed habitat reserves or mapped reserve boundaries (Option 2).

The purpose of this document is to provide a point-by-point critique of the draft spotted owl recovery plan. Documentation regarding political interference in the recovery planning process is covered in testimony submitted to the House Natural Resources Committee on May 9, 2007 (DellaSala 2007). Here, I argue that the recovery plan: (1) includes provisions that do not meet the fundamental requirements of the ESA regarding “*measurable, objective criteria*;” (2) departs from the best available science in several ways; and (3) inadequately addresses two of the major listing factors for the owl – habitat loss and regulatory uncertainty. Consequently, the draft recovery plan is overly optimistic in projecting that de-listing of the owl can occur in 30 years as the owl’s decline has been accelerating (Anthony et al. 2006) and habitat protections are being reduced or managed at low levels in this plan compared to the existing reserve network under the NWFP. Therefore, based on the primary deficiencies noted below, I believe this recovery plan needs to be scrapped and redone by recognized owl experts in order to ensure a recovery plan for the owl is based on the best available science.

KEY DEFICIENCIES OF THE DRAFT RECOVERY PLAN

The primary deficiencies that make the draft owl recovery plan inconsistent with the best available science are summarized as follows:

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

- *Both Options 1 and 2, because they reduce habitat at a time when owl populations are declining, are not based on best available science, and Option 2, in particular, is based on an untested model - shifting mosaic approaches – that if implemented could trigger the future need to up-list the species to endangered status.* I can find no scientific basis in support of a conservation strategy that is not rooted in fixed reserves and it is nearly impossible to evaluate Option 2 without having definitive lines on a map. 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 the situation for the spotted owl would be bleaker today if not for the NWFP. Yet Option 2 provides no science in support of an alternative that departs from the fixed reserves under the NWFP and provides no estimates of total habitat managed for owls (i.e., fails to meet the “measurable objective criteria” requirements of recovery plans). Likewise, Option 1 omits several of the Designated Conservation Areas (DCAs) from Thomas et al. (1990) that were the foundation for the Managed Owl Conservation Areas (MOCAs) and it likewise is based on questionable science. I can find no science in support of options that propose recovery by reducing habitat at a time when a listed species is declining rapidly (by 7% per year in Washington, see Anthony et al. 2006) and is facing increasing threats. Thus, while there are similarities in between the options, neither is consistent with scientifically defensible assumptions of the NWFP, both are riskier to the owl and other late-seral associated species than the NWFP, and Option 2 would incur even greater risks because it is based on untested shifting mosaic habitat models. The shifting mosaic concept, in particular, was

recognized by Courtney and Franklin (2004) as a conservation strategy for use in specific Habitat Conservation Plans (HCPs) and not for use across large regions like the Pacific Northwest. It should also be noted that Judge Dwyer in 1991 lifted the injunction on logging in the Pacific Northwest declaring at the time that the NWFP was both the backbone to species recovery (i.e., it was more than just the owl) and the bare minimum necessary to satisfy the viability requirements of the National Forest Management Act. Both options 1 and 2 go below bare minimums of the NWFP and are therefore scientifically indefensible. Finally, 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 Option 2 is a complete reversal of this statement as it is not based on sound scientific principles.

Key Deficiency #2 - Not enough habitat is protected in both options and this could lead to reductions in old-growth habitat compared to the NWFP, and premature delisting of the owl due to inappropriately low habitat thresholds proposed in each of the provinces.

- *Inadequate protection of habitat under Option 1.* Option 1 reduces habitat and may trigger premature delisting of the owl 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 the reductions are due primarily to 15 DCAs that were omitted from the MOCAs – compare Tables F1 and F2 in Appendix F (errata copy) of the draft recovery plan vs. Table F1 and Table 3-8 in Lint 2005); (2) premature delisting of the owl could take place when habitat levels within the MOCAs reach the low habitat thresholds inappropriately derived from just 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); and (4) delisting could be triggered when an arbitrary

80% of the MOCA network has met the artificially low regional habitat thresholds (see criterion 4, page 32). As an example, habitat in the northern California provinces already exceeds the low thresholds established for this region (percent suitable habitat is 73-75% vs. the 50% threshold, Appendix E). In addition, the habitat percentages in the northern and more mesic forests are unusually low (70%). I can find no justification for these low percentages as there is no evidence of a quadratic relationship in the northern range and there are no data to suggest that the 70% thresholds were appropriately derived from disturbance ecology or stochasticity theory.

- *Inadequate protection of habitat under Option 2.* This option would result in further habitat reductions when compared to the already inadequate habitat levels in Option 1. 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 DC 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 0.25 (accounting for territory overlap). The rule set also anchors the block selection in existing protected areas (parks, wilderness) from which all other habitat block locations are then chosen. This approach results in over-representation of protected areas in the habitat block design (see page 66 #4-a). 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 Option 1 (also compare Option 1 map vs. Option 2 “illustration” for block size reductions in Appendix B). In fact, based on an unpublished exercise performed by the recovery team in February 2007, implementation of Option 2 could result in the elimination 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 (compare maps in Appendix B of

options 1 vs. 2). This option was primarily designed so the Forest Service and BLM could move away from the NWFP reserves during plan revisions, including BLM's Western Oregon Plan Revisions. There was no such cap on block size in Thomas et al. (1990) or in the draft owl recovery plan that established the DCAs from which the MOCAs were derived.

- *Insufficient attention to managing the “matrix” on federal lands for connectivity, dispersal, and demographic needs of the owl.* There is no provision in the recovery plan for the “matrix” on federal lands and thus the matrix could become an even greater population “sink” for owls (it may already be an owl sink even under the NWFP). Both options are a significant set-back from the current retention guidelines in the matrix as established under the NWFP.
- *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. In addition, both options omit key areas necessary to support owl demography, including the northern portion of the Oregon Coast Range (state lands) and the southwest Washington lowlands. CSAs were either avoided in these areas or little direction was provided on managing owl habitat for demographic support. This represents a significant departure from the 92 recovery plan which called for DCAs in these areas. Given that owl populations are declining on the Olympic Peninsula without additional habitat to connect this isolated population to other owl meta-populations either translocations will be needed for genetic exchange or the owl may be extirpated on the peninsula under both options.

Key Deficiency #3– the recovery plan fails to provide adequate regulatory mechanisms for protecting owl habitat, essentially turning over the location of habitat blocks to local Forest Service and BLM managers.

- *By turning over 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 by BLM in western Oregon where the agency is developing an option that maximizes timber volume and minimizes reserves in response to an industry lawsuit. In particular, the draft recovery plan contains an “escape clause” specifically designed for BLM and the Forest Service to make large changes to the reserve network that could result in eliminating existing reserves (e.g., LSRs) during forest planning revisions. This is detailed under the “changes in management approaches” section on page 19.

- *Conservation actions are biased against accounting for habitat losses from ongoing logging, particularly in comparison to threats from Barred Owls and fire.* 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 conservation actions consistently place habitat losses from logging at the lowest levels (level 3) vs. fire (level 2) and Barred Owls (level 1). For instance, according to Courtney and Franklin (2004) approximately 2.3% of owl habitat was lost to fire (no severity provided) 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). In comparison, habitat losses on federal lands from logging during the same period also averaged 0.23% per year but for 4 provinces annual rates exceeded fire “losses” (Table C1 page 128). Notably, while logging on federal lands has been reduced substantially by the NWFP, harvest levels remain relatively high in each of the Oregon provinces and in the California Cascades where it is higher than the 10 year average (see Table C1). In addition, annual harvest levels are 4-6 times higher on nonfederal lands (see Table C2 page 129). When logging related losses are fully considered on federal lands they rival losses from fire and insects (which are temporary and restricted primarily to dry provinces). Further, when nonfederal lands are included logging-related losses eclipse fire. Notably, logging related losses are occurring range-wide and these habitat losses are usually permanent (due to short rotations and removal of most legacy components) compared to fire effects that are temporary and restricted primarily to the dry provinces. Thus, the draft recovery plan inappropriately

assigns low rankings to conservation actions associated with ongoing logging related habitat losses and these actions should at least rival the priorities assigned to fire. Although the plan appropriately discusses the variability in owl response to fire (e.g., recent 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 in terms of prioritizing fire risk reduction actions. It should also be noted that the NWFP was designed to accommodate losses due to natural disturbances through redundancy in the reserve network so that individual reserves lost to fire or other natural events would not impact the reserve network at the provincial or regional levels. This type of “risk-spreading” strategy is widely acknowledged in the conservation biology literature (Lindenmayer and Noss 2004). In addition, the NWFP contains standards and guidelines for managing fire risks within LSRs in the dry fire-prone provinces.

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” reported in the plan 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 home range 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). However, the Olson owl fitness model attributed only 16% of the variance in owl fitness to habitat due to the coarse level of habitat measurements involved (i.e., remote sensing). Consequently, Olson et al. (2004:1052) specifically cautioned against the application of their findings to management of owl habitat until further studies are completed. The authors state “..we do not recommend that forest managers use

our modeling results as a prescription for managing habitat either within the Oregon Coast Range or elsewhere until other similar studies have been conducted.” Notably, a third study, Dugger et al. (2005) that included some of the same researchers was conducted in a nearby study area in the eastern Siskiyou’s of Jackson County, Oregon and could not confirm this relationship. Instead they found that owl performance was positively associated with 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. Notably, figure D2 in the draft recovery plan is based on only 6 “data points” (which are actually illustrations of a larger data set from figure 5 in Olson et al. 2004). The recovery team used 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 and the scale problems associated with extrapolating findings from owl territories to entire provinces.

- *Post-fire logging guidelines for MOCAs and large habitat blocks are inadequate and fail to address new science (see Appendix E) – the ‘92 draft recovery plan for the owl recommended protection of all “legacy” trees (generally trees >21 in dbh). In addition, there have been several new studies on the impacts of post-fire logging on ecosystem processes and habitat structures (see Lindenmayer et al. 2004, Lindenmayer and Noss 2006, DellaSala et al. 2006, Donato et al. 2006). Not a single study has documented ecosystem benefits from post-fire logging yet the recovery plan does not include this new science in developing post-fire guidelines for large habitat blocks and MOCAs. Instead, the recovery plan (both options) relies on an untested model that provides general guidelines for evaluating post-fire logging impacts without specifying how delays in recovery of late-seral processes will be determined, ignoring the new post-fire logging science (see Appendix E). Thus, the draft recovery plan (2007) should at least be as protective of owl habitat in reserves as the 92 draft plan and especially in light of the new science on post-fire logging. At a minimum, post-fire logging of legacy*

components (live and dead trees >20 in dbh) should be prohibited within reserves affected by natural disturbances.

- *Uncertainty regarding the level of suppression needed for Barred Owls warrants more, not less, habitat protection for the spotted owl.* The draft recovery plan appropriately recognizes the growing threat recently posed by the range expansion of the con-specific Barred Owl. The plan proposes removal experiments in 18-20 study areas (~576 barred owls) that if successful could trigger large-scale Barred Owl suppression efforts. The efficacy and costs of large scale suppression raise many questions. Particularly, whether it locks federal agencies into Barred Owl suppression in perpetuity. Alternative strategies including expanding the size of habitat blocks for spotted owls to provide “refugia” from invasions and determining whether spotted owls and Barred Owls can eventually coexist as the size of habitat blocks is increased needs to receive at least equivalent attention. Extirpation events caused by competition among sympatric species are extremely rare; however, loss of habitat continues to be the ultimate factor driving species extinctions. Unfortunately, by emphasizing Barred Owl suppression as a level 1 priority and de-emphasizing habitat protections as a level 3 priority, this plan is not likely to recover the spotted owl and further diverts attention away from much needed habitat protections at a time when threats to spotted owls are increasing.
- *Biased interpretations of “flexibility” that can result in uncertainty regarding recovering 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 invasive species and potential climate change effects. 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. Principles of adaptive management warrant consideration of cumulative effects and coordination among threat abatement measures through development of management options that encourage managers to increase the reserve network in response to growing and cumulative threats. Notably, the draft

recovery plan allows managers to reduce (by 5% in the case of minor adjustments) the MOCA network and to make large scale changes to the reserve network. However, there is no guidance to managers to increase the reserve network in response to growing threats.

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.

- *Persistence likelihood functions for the spotted owl need to be adjusted to account for the negative influence of Barred Owls (updated viability assessments are essential).* 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, an updated persistence probability model is needed that includes Barred Owl effects. Barred Owl suppression coefficients may be obtained either from modeling or results of recovery action 6 (page. 45). In the meantime, based on conservation biology it is likely that the size of the habitat blocks will need to be increased (not decreased) to achieve stable persistence probabilities in the face of this invasion.

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 2.4 times greater than federal lands (Anthony et al. 2006).

- *Population monitoring needs to more definitely support the continuation and expansion of demographic study areas.* The demographic study areas have provided more than two decades of vital data on owl performance, demography, and habitat use (Anthony et al. 2006). Replacing this monitoring effort with another “statistically valid” yet less costly method, as possible under criterion 3 (see p. 31), would greatly compromise the value of long-term demography studies and their associated data that are priceless to researchers and ongoing owl

monitoring efforts. Consideration of other statistically valid monitoring approaches need to appropriately factor into decision making the tradeoffs posed by starting from scratch with a new program that may not yield comparable information.

Key Deficiency #7 – owl populations are declining rapidly (by 7% in Washington) yet the recovery plan reports that the priority status level for owls was decreased 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 increase (not decrease) in response to 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). In particular, “*approved recovery plans are subject to modification as **dictated by new findings**, changes in species status, and the completion of recovery actions*” (page II draft owl recovery plan, emphasis added). Thus, USFWS should reconsider its priority levels based on the new findings of Anthony et al. (2006). Accordingly, priority levels need to be adjusted upward in importance, particularly on the Olympic Peninsula where populations may “wink” out over time.

Key Deficiency #8 – the “NSO Work Group” (recovery action 1, page 43) excludes scientists and it is likely that coordination efforts would also not be based on the best available science.

- *The recovery plan needs to be redone by owl experts.* This recovery action appears to exclude scientists from the NSO working group and the lack of scientific representation on the owl recovery team has rendered this plan inadequate in meeting the requirements of the ESA regarding best available science.

CONCLUSIONS

A recovery plan is needed for the owl, particularly given that the species is in rapid decline, logging of old-growth forests continues (especially on nonfederal lands), and there are increasing threats from Barred Owls and climate change. As a member of the recovery team for the past year, however, I documented several deficiencies that have resulted in a plan based more on politics (DellaSala 2007) than science. As far back as September 2006, I requested that the USFWS conduct a structured peer review of the draft recovery plan with owl scientists to determine if the plan, and especially the owl habitat provisions, was based on the best available science and whether the habitat provisions and other management criteria were consistent with the seminal work that owl scientists have done in the Pacific Northwest for more than two decades. It is unfortunate that this plan misses the mark in many respects and it needs to be redone as neither option 1 or 2 is based on best available science and implementation of the plan is likely to increase extinction risks for the owl, resulting in the potential future need for up-listing that could lead to tighter restrictions on forest management.

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