

## **APPENDIX J – TERRESTRIAL WILDLIFE POPULATIONS VIABILITY SUMMARY RELATED TO THE AMERICAN AND CROOKED RIVER PROJECT**

### **INTRODUCTION**

The National Forest Management Act (NFMA) requires that vertebrate species populations' viability be maintained across the "planning area." The planning area is generally defined as each national forest. Very few if any vertebrate species' ranges are so limited in geographical extent that they remain within the boundaries of any given national forest "planning area." In assessing species populations viability to meet the intent of NFMA, reconciling disparities between the geographic scale of management actions and the scale of ecological responses (i.e., species' viability) across geographically extensive landscapes is necessary to avoid a gross mismatch of ecological analysis scale which can reduce reliability of the environmental analysis (Ruggiero, L.F. et al., 1994; Noon, B.R. et al. 1999). More appropriately, such analyses must be accomplished through an analysis framework that assesses ecological responses of forest-scale "biological populations" from within the "planning area." Scale issues are also important in impact analysis because individual populations evolving under the unique conditions present in a given local may have acquired characteristics important for that population's persistence (Samson, F.B. 2003).

### **ANALYSIS FRAMEWORK**

The following framework provides an ecological habitat basis that supports species viability assertions for the 2.2 million acre Nez Perce National Forest based on two hierarchically-tiered spatial scales, with the assumption that other environmental variables (e.g., disease, competition) are related to habitat structure and spacing (Rolloff & Haufler, 1997). This framework relies on data summarized from mid-scale subbasin ecological assessments (Planning Unit Assessments), preparatory for Forest Plan revision. Site-specific habitat analyses showing habitats for species at risk species is relatively well distributed on the Forest.

### **SPECIES AT RISK**

The species that require population viability analysis are those whose populations are in declines for various reasons or their habitats have become so modified or in short supply that the species may be in jeopardy of becoming locally extirpated or extinct. Federally listed species all are automatically assumed to fit these "species at risk" general criteria. The Forest Service "sensitive" list represents the most defensible and appropriate list of other, less critical, but uncertain species. The process currently updating this list in USFS Region 1 used "species of concern" lists from the Natural Heritage Programs of Idaho, Montana, North Dakota, and South Dakota with consideration of species identified by the Partners in Flight, BLM sensitive lists, USFWS candidate lists and migratory bird species of concern. Details of this species identification process are documented in the Draft Northern Region Forest Service 2004 Sensitive Species List Update Process for Wildlife, (2-11-04) led by Tom Wittinger of the Missoula office (R1) of the U.S. Forest Service.

Although the Draft R-1 sensitive species list may be a more defensible list on which to assess viability, until the updated R-1 list is finalized and approved by the Regional Forester, this analysis will address species identified in the Interior Columbia River Basin Assessment. Terrestrial vertebrate species from the 145 million acres of public and private lands within the interior Columbia Basin were carefully identified for which there is ongoing concern about population or habitat status. The major management practices considered responsible for key change sin source habitats of these "species of

focus” groups from early European settlement to current time conditions were assessed and their associated impacts, including impacts on habitats from roads, were identified. Habitat management implications and restoration/conservation strategies for each group were provided to public land managers to address each “species of focus” group’s habitat needs with the assumption that implementation of these strategies would occur and validation research and species populations monitoring would be subsequently conducted over time to corroborate the findings.

The Nez Perce National Forest lies within the Central Idaho Mountains Ecological Reporting Unit of the Interior Columbia Basin. At the Forest level “planning area” scale, local representative indicators from the ICBEMP “species of focus” groups were previously selected as Nez Perce Forest Plan management indicator species (MIS), during forest planning and as such, their local populations have been monitored since 1988 as well. Refer to the Forest Plan Monitoring and Evaluation Report summary in the appendix of this document. For the Nez Perce Forest, these species and their representative “species of focus” group (Wisdom, M.J., et al. 2000) include: gray wolf and grizzly bear (group 19), Rocky Mountain bighorn sheep (group 22), Northern goshawk (groups 5 and 25), American marten and fisher (group 5), and the pileated woodpecker (group 6). Other members of “species of focus” groups have been placed on the USDA Forest Service Region 1 Sensitive Species list and receive individual habitat and species impacts analysis through Biological Evaluations designed to prevent management impacts that may lead to population downtrends and federal listing. These include: white-headed woodpecker (group 1), flammulated owl (group 5), black-baked woodpecker (group 9), wolverine (group 15), Canadian lynx (group 16), mountain quail (group 17), and Townsend’s big-eared bat (group 27). Surveys, site-specific habitat use investigation, and incidental monitoring of individual sightings or sign of these species continues.

## **BROAD-SCALE**

Recognition of habitat declines within the United States in the last century and the accelerated rate of species listings during the past decade, have prompted conservationists (e.g., Rickletts, T.H., et al, 1999) to use broad-scale ecosystem based strategies for conserving and restoring habitats, thereby sustaining habitats for all species to prevent further ESA listings and to comply with NFMA “maintenance of viable populations” provisions. The broad-scale, ecosystem based analysis and strategy for the 145 million acre Columbia River Basin identified the most significant changes in habitats and disturbance processes since early European settlement which have degraded habitats for vertebrates which include: 1) dramatic shifts in fire regimes, 2) declines in the early and late stages of forest development, 3) deterioration of riparian habitat conditions, and 4) increases in road density (Quigley, T.M. et al, 1996). **Three major management practices and their associated impacts** are summarized as primarily responsible for the major forest terrestrial habitat changes since European settlement (1850-1890).

- 1) **Large-scale, intensive timber harvest** – (Consequences: early and late seral habitat reductions; disproportionate increases in mid-seral habitats, reduced density of key habitat features such as large snags, induced forest fragmentation effects). The strongest declines in habitats of early and late-seral dependent wildlife were for **low-elevation, old forest habitats** such as ponderosa pine (Wisdom, M.J. et al. 1999, p. 89)
- 2) **Large-scale exclusion of wildfire** – (Consequences: reduced natural recruitment of large snags and logs, vegetation composition changes such as replacement of ponderosa pine on dry sites, changes in frequency/intensity of wildfires, and increased insect/disease infestations). See Figures 2-5 through 2-10 and maps 2-7, 2-8 (USDA, Forest Service/USDI, BLM. 1997).
- 3) **Widespread development of roads** – (Consequences: net habitat loss, induced habitat fragmentation, over-hunting, negative edge effects, and facilitation of increased human harassment & disturbance, (USDA, Forest Service/USDI, BLM. 1997, page 2-178).

L. Pawley, et al. (1998) argues that mitigating the risks to a species is the best conservation strategy, regardless of the nature of the risk. To mitigate a multitude of direct and indirect risks to species persistence identified by the interior Columbia Basin analysis, the document provided three major strategies as preemptive mitigations to increase the probability of terrestrial species persistence.

As with ICBEMP, this analysis is not a quantitative analysis of viable populations, because it is not an explicit model of genetic or demographic risk to species persistence. Rather, it does provide a reasoned series of judgments and inferences about projected amounts and distributions of habitat and the likelihood that broad-scale habitat mitigations will allow terrestrial species to persist in the foreseeable future.

## **MID-SCALE**

### **NEZ PERCE NATIONAL FOREST HISTORY**

Broad scale analysis themes of concern identified above have been recognized as common to the Nez Perce National Forest and were historically documented in the forest planning records. Evidence of their presence across the Forest could be founding early forest planning AMS documents:

1. Conifer age class distributions on the Nez Perce Forest remain weighted too heavily away from historic, pre-European conditions. This condition was recognized TSMRS data and documented in the statement, “The existing age-class structure in the 1964-73 analysis reflects similar problems that still exist today. There is a definite shortage in both the seedling/sapling and pole timber condition classes.” Figure 1 of this document graphed the age class distributions of suitable timber pre-dominantly in the mid-aged categories as well”, (Nez Perce Forest Plan, Background Paper for Analysis of the Management Situation – Timber, page 4-5).
2. Large-scale exclusion of fire from the landscapes of the Nez Perce National Forest were recognized as Forest Planning “issues” even before the completion of the 1987 Plan. This was documented in Issue #11 (Fire Effects) where in the situation statement acknowledged the following: “With a dramatic improvement in firefighting effectiveness over the last 30-40 years, the burned-over acreage on the Forest has been greatly reduced. This exclusion of fire has had a significant effect on vegetative succession, an effect which has become more pronounced over time, and one which has had varying effects on different resources” (Nez Perce National Forest Issues and Concerns, Nez Perce National Forest). Likewise, in the same document within the wildlife, fisheries, big game section, Issue #3 identified a question raised by the public during the scoping process: Question #7 – “How will fire management affect wildlife habitat?”
3. The multi-faceted effects of large numbers of roads on the Nez Perce National Forest were theorized early on and stated as another of the public’s issue related questions expressed in the statement: “Do management activities create too much access to wildlife habitat?” (Nez Perce Forest Plan Background Paper for Analysis of the Management Situation – Wildlife, page 27).

### **HABITAT & ECOLOGICAL PROCESSES TRENDS – PLANNING UNIT ASSESSMENTS (PUA)**

Ecosystem analysis of the 2.2 million acre Nez Perce National Forest was based on (1) three mid-scale, watershed-oriented sub-basins which facilitated scaled-down analysis; and (2) recommendations for application of pre-emptive restoration actions needed to restore terrestrial vertebrate habitats within the South Fork Clearwater River, Selway/Middle Fork Clearwater, and Salmon River sub-basins. Analyses of these units were subdivided and recommendations were applied to Ecological Reporting Units (ERU), within each assessment. For example, the South Fork Clearwater Assessment (SFLA) is subdivided geographically into 13 watershed-based reporting units:

South Fork Canyon, Meadow Creek, Cougar-Peasley Creeks, Silver Creek, Newsome-Leggett Creek, American River, Red River, Crooked River, Tenmile Creek, Wing-Twenty-mile Creek, Johns Creek, Mill Creek, and Camas Prairie.

Each analysis considered an array of comparisons of historic versus current conditions relative to forest seral stages, old growth, disturbance processes, relative habitat patch sizes and other habitat parameters including fire frequencies/intensities. Relative densities of roads were also evaluated along with numerous other resource considerations.

Site-specific conservation and restoration recommendations identified thematic landscape vegetative and disturbance (fire) process changes as well as increased security needs (related to road impacts) within each ERU. By this pattern, the conservation and restoration needs were identified to help ensure sufficient amounts and distribution of habitats to sustain population viability and persistence. Recommendations were provided as guidance for future Forest restoration actions.

### SOUTH FORK CLEARWATER RIVER LANDSCAPE ASSESSMENT (1998)

The process and rationale behind the terrestrial species analyzed is presented in the assessment (USDA, Forest Service, 1998a, page 99). Species were selected based on five broad “guilds” including: ponderosa pine, early seral forest dependent, late forest seral dependent, riparian-associated species, and security-dependent species. Representative “indicator species” were then chosen for in-depth analysis, based principally on species status as either a Forest Plan management indicator or Forest Service sensitive species.

Understanding the effects of changed disturbance regimes for terrestrial and aquatic systems is emphasized throughout the South Fork Clearwater River Landscape Assessment. Restoration of the pattern of disturbance appropriate to a given setting was a key consideration in developing management themes and recommendations (USDA, Forest Service, 1998a, page 7). Relative amounts and distribution of historic versus current habitats for each species were analyzed. A summary of the recommendations for the subbasin are provided on pages 166-172, and includes specific discussion pertinent to larger scale, species persistence-related recommendations. Restoration “themes” and their priorities resulted from the landscape scale analysis for major resources and uses (USDA, Forest Service, 1998a: Table #5, page 165.).

Recommendations address larger-scale ICBEMP habitat restoration activities designed to ensure populations persistence including fire-interval restoration, vegetative repatterning, restoration of late-seral habitats along with snags and logs, road management, aquatic habitat needs, and strategies to address fragmentation issues such as noxious weed spread. To facilitate recommendations which address site-specific actions which are well distributed across the subbasin, management actions are identified for each geographical Ecological Response Unit (ERU) within the subbasin for the Forest’s “at risk” species including **fisher, flammulated owl, Canadian lynx, goshawk, pine marten, pileated woodpecker, wolverine, black-backed woodpecker, wolf, and bald eagle (USDA, Forest Service 1998b).**

Chapter 4 of the South Fork Clearwater River Landscape Assessment (SFLA) summarized habitat needs into wildlife themes and treatment objectives that would help move vegetation patterns and processes closer toward historic norms, theoretically providing the habitat changes necessary to maintain and sustain all “at risk” species in the local landscape.

For American River ERU, three key wildlife habitat restoration themes emerged: 1) Produce early seral habitat (very high priority); important for species such as black-backed woodpecker and Canada lynx; 2) Conserve late seral habitat (Moderate priority), important for species such as fisher, marten, Northern goshawk; and 3) Enhance wildlife security (moderate priority), important for species such as Canada lynx and marten (SFLA, page 140-141).

For Crooked River ERU, two key wildlife habitat restoration themes emerged: 1) Produce early seral habitat (high priority), important for species such as black-backed woodpecker and Canada lynx; and 2) Conserve late seral habitat (low priority); important for benefiting species such as marten, fisher, Northern goshawk (SFLA, page 148).

A discussion of impacts and opportunities for terrestrial species in the subbasin is provided in Chapter 3, pages 125-155.

## **FINE-SCALE: THE AMERICAN AND CROOKED RIVER PROJECT**

The current mountain pine beetle infestation in the Elk City area within the Red River, Crooked River, and American River drainages is killing many thousands of acres of lodgepole pines, most of which are 6 inches in dbh or greater. The relative amounts of acreage planned for harvest by the American and Crooked Project relative to the analysis area acreage (39,000) now under attack by beetles in these drainages amounts to approximately 8 percent. The remaining areas will eventually be regenerated naturally by wildfire as it has done for centuries. Many thousands of acres of dead, standing trees will remain after the project is completed. For this reason, planned harvest treatments will have relatively negligible impact to overall habitat availability for black-backed woodpecker, but will help convert modest amounts of mid-seral timber now in abundance, to early seral habitat, a high priority wildlife habitat restoration theme from the SFLA. Early seral habitat is important for habitat mosaics and forage production used by lynx as well as carrion sources and ungulate prey of wolves and wolverine.

The American and Crooked River Project will protect late seral habitats including all existing old growth stands and generous amounts of future replacement old growth from harvest. This action is consistent with the “conserve late seral” habitat restoration theme and will be beneficial for species such as fisher, pine marten, goshawks, and pileated woodpecker. Regenerating limited, but well-distributed acreages of mid-seral timber ahead of anticipated wildfire disturbances would enhance repatterning of forest vegetation, since no-late-seral stands are taken and due to minor reductions in fuels, may help maintain patches of unburned habitat after expected major wildfire disturbances.

Partial cut harvests will account for just over half of all proposed harvests in the project. The aim of partial harvests is to remove excess fuel loading, while increasing proportions of long-lived, fire-resistant species by restoring or regenerating western larch and ponderosa pine. Larch and ponderosa pine are preferred as snags for pileated woodpeckers and are more likely to become large, wildlife-preferred snags and down logs. Reductions in access through decommissioning of existing roads will also contribute toward enhancement of overall wildlife security. Most of these actions are consistent with viability associated habitat restoration aims cited in both the SFLA and ICBEMP.

Project activities in the American and Crooked River Project will accomplish the following:

- Protects and maintains all existing old growth within the project area. In addition, the project strategically designates and protects abundant future replacement old growth stands located adjacent to or “cluster-related” in their proximity to existing old growth stands. The project protects riparian zones that help serve to connect old growth patches. In doing so, the project contributes to long term populations viability for all old growth related species including but not limited to: goshawk, fisher, marten, and pileated woodpecker.
- Converts 8 percent of the analysis area landscape from mid-seral to early seral conditions needed for several species. Actions also promote, restore, and protect large diameter ponderosa pine and larch in mixed conifer stands.
- Through widely distributed but modest levels of fuel removal, the project helps to reduce likelihood of locally severe fire effects, potentially increasing survivability of nearby old growth habitats, leaving a mosaic of habitat age classes which contribute to maintenance of a diverse habitat landscape after the predicted fire disturbance.

- Reduces and decommissions roads to help enhance wildlife security.

Specifically, the project will accomplish the following:

- Harvest up to a maximum of 3,402 acres (principally lodgepole pine), which amounts to approximately 8 percent of the analysis area.
- No new permanent roads developed, but up to 14 miles of temporary roads (for harvest access) would be developed and later decommissioned.
- Would decommission up to 37 miles of roadway.
- Would convert through harvest a total maximum of 3,402 acres from mid-seral to early-seral conditions.
- Protect from harvest all existing old growth stands and maintain abundant future replacement old growth.
- Incorporates road and stream improvements designed to help restore and maintain aquatic habitats.

#### “AT-RISK” SPECIES DETAILS:

Project details from Alternative D of the American and Crooked Draft Environmental Impact Statement supporting species viability:

#### **FISHER**

Fisher habitat has increased over historical conditions by 188 percent in American River and by 227 percent within the Crooked River drainage (SFLA, Wildlife Technical Report – Fisher). The project harvests no existing old growth timber, protects replacement old growth to promote largest contiguous block sizes, and improves security by decommissioning roadways.

#### **LYNX**

Current (1997) amounts of lynx denning habitat are 18 and 27 percent respectively in the project LAUs. Only 1 percent in each LAU is mapped as unsuitable. The project (Alternative D) would harvest and convert to early seral condition less than 1 percent and less than 3 percent of designated lynx habitats in the American and Crooked River LAUs respectively.

#### **NORTHERN GOSHAWK**

Current (1997) amounts of goshawk habitat are more prevalent than historically. There is approximately 205 percent and 179 percent as much suitable habitat present as historically (SFLA, Wildlife Technical Report – Goshawk). No existing old growth stands would be harvested. Nest trees would be protected by a 10-15 acre buffer.

#### **PINE MARTEN**

The current (1997) extent of available marten habitat in American and Crooked River drainages is 223 percent and 284 percent respectively. No existing old growth stands would be harvested.

#### **PILEATED WOODPECKER**

The current (1997) extent of available pileated woodpecker habitat is 275 percent and 289 percent of historic levels in the American River and Crooked River drainages respectively. Harvest in mixed conifer stands (about 30-35 percent of total harvest) would amount to less than 3 percent of high

quality pileated woodpecker habitats on national forest lands in these drainages. No existing old growth stands would be harvested.

### **WOLVERINE**

The project analysis area lacks seclusion from human influence, has no high elevation cirque basins within the analysis area, but project activities improve potential elk (carrion) habitat suitability as well as wolverine foraging area security by reducing motorized access.

### **BLACK-BACKED WOODPECKER**

The current (1997) extent of suitable black-backed woodpecker habitat is 88 percent and 141 percent of historic levels within the American and Crooked River drainages respectively (SFLA, Wildlife Technical Report – Black-backed woodpecker). Harvest acres would amount to approximately 8 percent of the overall acres of potential black-backed woodpecker habitat in the analysis area. Given the current mountain pine beetle epidemic and risk of fires in the next decade, black-backed woodpecker habitat quality and abundance is rising across the entire analysis area landscape.

### **BALD EAGLE**

The project area is high elevation habitat, well outside the lower elevation river corridors used by wintering bald eagles on the Forest.

### **CONCLUSIONS**

Based on application of carefully-designed actions and habitat restoration strategies in the American and Crooked River Project and in consideration of the species population monitoring data collected to date, the evidence fully supports the conclusion that all monitored terrestrial management indicator and federally listed species are maintaining or increasing local populations and will likely continue to do so after implementation of the American and Crooked River Project.

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