Evaluation Report

Terrestrial Wildlife Habitat

DRAFT: 8/2006

Prepared for:
USDA Forest Service, Northern Region

Clearwater National Forest

Introduction

This report documents the evaluation and development of direction for terrestrial wildlife habitat for the Clearwater National Forest. This report reflects various discussions and works done by the Wildlife Working Group from the Clearwater/Nez Perce National Forests, US Fish and Wildlife Service, Idaho Fish and Game and the Nez Perce Tribe. The information and processes described in this technical paper is intended as supporting documentation for the planning record for the Nez Perce National Forest Land and Resource Management Plan (LRMP).

Because of potential changes in the draft proposed forest plan this is a working document intended to be "draft" until the Forest Plan revision is signed, after which the document should be considered a "living" document for the same reasons.

Area of Consideration

The Clearwater National Forest (CNF) is responsible for the resource management of 1.8 million acres on the Clearwater. The majority of the land administered by the Clearwater National Forest is located in Latah, Clearwater and Idaho counties with small portions in Shoshone and Benewah counties in Idaho. The National Forest System lands within these counties make up the area for this analysis. The Clearwater National Forest is bordered on the east by Montana and by Washington State to the west.

Habitat Features and Components

The desired condition snag and down wood habitat components are based on the following research.

> Bull, Evelyn L., Catherine G. Parks, and Torolf R. Torgersen. 1997. *Trees and logs important to wildlife in the Interior Columbia River Basin.* Gen. Tech. Rep. PNW-GTR-391. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 55 p.

Other desired habitat component criteria for wildlife was integrated into the Vegetation Management section. Other design criteria are available in the sources listed in Appendix A.

Habitat Security

In wildlife working group meetings comments were made about determining the impacts of roads on wildlife security. Road densities have traditionally been used to quantify and qualify security from an elk management standpoint. However, road densities cannot show the spatial impact of a motorized transportation network on habitat.

A review of the best available science from various sources including; published literature, and various linkage and connectivity studies by non-government organizations, determined that methodology was available using GIS technology to assess the spatial influence of open roads and motorized trails on wildlife habitat. Published literature consisted of research on managing for linkage zones for grizzly bears, determining the effects on elk habitat use, and assessing the cumulative effects of linear recreation routes on wildlife habitat. A hybrid of the methods used in four published studies, the first three using a "distance-band approach", was developed to assess the existing condition of motorized routes on wildlife habitat. The studies are…

1. Servheen, Chris; John S. Waller, and Per Sandstrom. 2003. *Identification and Management of Linkage Zones for Wildlife between the Large Blocks of Public land in the Northern Rocky Mountains"*.
2. Gaines, William L.; Peter H. Singleton, and Roger C. Ross. 2003. *"Assessing the Cumulative Effects of Linear recreation Routes on wildlife habitats on the Okanogan and Wenatchee National Forests"*. Gen Tech. Rep. PNW-GTR-586.
3. Rowland, Mary M.; Michael J. Wisdom, Bruce K. Johnson; and Mark A. Penninger. 2005. *"Effects of Roads on Elk: Implications for Management in Forested Ecosystems"*. The Starkey Project.
4. Hillis, J.M., M.J. Thompson, J.E. Canfield, L. Jack Lyon, C.L. Marcum, P.M. Dolan, and D.W. McClerrey. 1991. *Defining elk security: the Hillis Paradigm.* Pages 38-43 *in* Proceedings of a symposium on elk vulnerability. Montana Chapter of the Wildlife Society, Montana State University, Bozeman, MT. April 10-12, 1991.

Procedures

Base information includes; 1) the existing Forest open road and motorized trail coverage, 2) the Forest landscape with existing wilderness and/or roadless areas, 3) existing riparian conservation areas, 4) areas with little or no vegetative cover, and 4) public and private landownership.

The existing Forest open road and motorized trail network was mapped and five buffer widths were applied based on the type of trail or road and functional class. The buffer widths represent the zones of influence from Gaines et.al. and supported by Rowland et al. These buffers are applied to each side of all open roads and motorized trails in a watershed (5th or 6th Code) by the distances shown in Table 1.

Table 1: Road and Trail Buffers

Road or Trail Type	Zone of Influence (each side)
Motorized trails	300 meters
Closed road but open to all terrain vehicles	300 meters
Local and Collector Roads	900 meters
Arterial Roads	1000 meters
Major highways (i.e. Hwys 8, 12 & 14)	1300 meters

[Note: Early trial analyses used 500 meter buffer width on all open roads and motorized trails for wide-ranging carnivores. However, the end results were not much different than from the variable width buffers therefore further assessment work was standardized on the variable-width approach.]

While the buffer width (zone of influence) may be modified based on topography adjacent to the road or motorized trail, neither the time or GIS resources were available to digitize adjusted buffer widths for the thousands of miles of roads present on each National Forest.

The proportion of the habitat in the watershed within and outside of the buffers was determined. The watersheds were categorized into a security ranks based on the amount of acres outside the influence (buffers) of the motorized routes. The amount of acres within the buffers was subtracted from the overall total watershed acres. Three relative ranking categories were used.

1. High Security = greater than 70 % of the acres are outside the road influence zone/buffer.
2. Moderate Security = between 50 to 70 % of the acres are outside the road influence zone/buffer.
3. Low Security = less than 50 % of the acres are outside the road influence zone/buffer.

The habitat patches outside the road influence zone/buffers were identified based on whether they were 250 acres or more in size or less than 250 acres, and color-coded accordingly. This indicated their relative security value based on the following research on the relative value of large habitat patches for elk security.

> Hillis, J.M., M.J. Thompson, J.E. Canfield, L. Jack Lyon, C.L. Marcum, P.M. Dolan, and D.W. McClerrey. 1991. *Defining elk security: the Hillis Paradigm.* Pages 38-43 *in* Proceedings of a symposium on elk vulnerability. Montana Chapter of the Wildlife Society, Montana State University, Bozeman, MT. April 10-12, 1991.

Outputs

1. Forest-wide map showing buffered roads and trails, areas less than and greater than 250 acres in size (color-coded) with geographic area boundaries.
2. Forest wide map with security ranks by 6th Code watershed.

3. GIS report quantifying Forest-wide and HUC conditions.

Link to the wildlife security map:

Winter Range Re-mapping

On August 29, 2003 the USDA-Forest Service Washington Office issued a letter in support of two agreed upon action items to implement the Rocky Mountain Elk Foundation/Forest Service Partnership Action Plan. One action item was…*"Where applicable, use the Rocky Mountain Elk Foundation elk habitat maps (M.A.P. Habitat™) during land and resource management plan revisions"*. In 1997, the Rocky Mountain Elk Foundation launched M.A.P. Habitat™ as a tool to provide maps depicting occupied elk habitat.

In the spring and early summer of 2004 during Wildlife Working Group meetings it was discussed that the existing winter range maps were based on elevational (1987 Forest Plans) verses landform-based criteria. The wildlife biologists agreed that depicting winter range by landform setting would be more realistic. This was compatible with the approach in vegetation management as to describe and use three landform settings, breaklands, uplands and subalpine, to characterize forested and non-forested landscapes. It was decided to apply the M.A.P. Habitat™ data to revising the winter range map for the Clearwater/Nez Perce Planning Zone.

Procedures

During the winter of 2004/2005 the planning wildlife biologist and GIS specialist accessed the M.A.P. Habitat™ winter range shape files. A comparison was made between the existing 1987 Forest Plan winter range coverage and the M.A.P. Habitat™ winter range coverage. The M.A.P. Habitat™ winter range coverage depicts a greater area than what is depicted in the 1987 winter range coverage.

The M.A.P. Habitat™ winter range coverage was then applied to the defined landform settings with the assumption that breakland settings characterize areas typically used by most big game species as winter range. The exceptions would likely be mountain goat and moose that use specific habitats or areas.

M.A.P. Habitat™ winter range coverage was found to be depicted at a larger scale than the landform setting coverage, and RMEF winter range lines extended beyond the defined breaklands and also encompassed a great deal of uplands and some subalpine sites (mountain tops) that were inclusions within the overall upland setting.

In conversations with George Pauley, IDFG Regional Wildlife Biologist, who had participated in the RMEF mapping process, the scale used in drawing the lines was 1:250,000 which resulted in broad depiction across the landscape. The areas depicted were based on available IDFG sightability data from periodic aerial flights through hunting units by IDFG biologists.

Forest Service biologists on the Clearwater and Nez Perce Forests indicated that there was a need to make the two coverages more compatible and accurate. Meetings with George Pauley and the wildlife biologists on the Clearwater and Nez Perce NFs resulted in fine-tuning the lines based on professional experience and IDFG sightability information. RMEF winter range depictions on the Palouse Ranger District needed adjustments based on the experience of Harry Jageman, former wildlife biologist on the Palouse Ranger District. He provided a coverage for the Palouse R.D., which was accepted by George Pauley, based on Harry's knowledge of winter range usage in that area.

Outputs

Final winter range maps were produced depicting the RMEF winter range and revised depictions. Link to the revised winter range map:

Conclusions

The Clearwater National Forest has identified a strategic landscape-based approach to identifying wildlife security conditions at the watershed level and developing desired conditions and objectives in the draft forest plan to improve security in those watersheds during the next Forest Plan cycle.

In order to successfully implement this strategy it would need to be integrated into the existing vegetation management, access, watershed and invasive weed management programs, with coordination with other federal, state agencies, and tribal governments where appropriate.

The development of a coordinated monitoring strategy with key partners would provide a basis for resource managers and decision-makers to direct limited resources to address wildlife security and other access management needs proactively. The implementation of plan components for invasive weeds could be monitored through the Environmental Management System at the Forest and Regional levels.

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Key Contacts

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Moroz, Paul. Ecosystem Staff Officer - Clearwater National Forest. Personal communications with Alan Dohmen. 2005/2006, and Terrestrial Wildlife Working Group participant.

Pauley, George. Regional research Biologist - Idaho Dept. of Fish and Game. Kamiah, Idaho. Personal communications with Alan Dohmen. 2005/2006.

Roy, Johnna L. Wildlife Biologist – U.S. Fish and Wildlife Service. Boise, Idaho. Personal communications with Alan Dohmen. 2005/2006.

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Sauder, Joel. Regional Non-game Biologist - Idaho Dept. of Fish and Game. Lewiston, Idaho. Personal communications with Alan Dohmen. 2005/2006, and Terrestrial Wildlife Working Group participant.

Talbert, Dennis. Wildlife Biologist - Clearwater National Forest. Personal communications with Alan Dohmen. 2004/2005/2006, and Terrestrial Wildlife Working Group participant.

Appendix A: Sources of Other Design Criteria

Habitat

General

Other Sources of Design Criteria: FSM 2600-Wildlife, Fish and Sensitive Plant Habitat Management; FSH 2609.13-Wildlife and Fisheries Program Management; FSM 2550-Soil Management; FSM 5150-Fuel Management; FSH 2509.18-Soil Management; the Endangered Species Act (1973); and Wildland Fire in Ecosystems: Effects of Fire on Fauna (2000).

Wildlife Security/Connectivity

Sources of Design Criteria: Identifying and Managing Wildlife Linkage Approach Areas on Public Lands (2004); Identification and Management of Linkage zones for Wildlife Between the Large Blocks of Public Land in the Northern Rocky Mountains (2003); and Lynx Linkages Areas (2003), Assessing the Cumulative Effects of Linear Recreation Routes on Wildlife Habitats on the Okanogan and Wenatchee National Forests (2003).

Threatened and Endangered Wildlife Species

Grizzly Bear

Other Sources of Design Criteria: Grizzly Bear Recovery Plan (1993); the Interagency Grizzly Bear Committee Guidelines (1986).

Bald Eagle

Other Sources of Design Criteria: Habitat Management Guide for Bald Eagles in Northwestern Montana (1991); Pacific States Bald Eagle Recovery Plan (1986); and the Bald and Golden Eagle Protection Act (1940).

Gray Wolf

Other Sources of Design Criteria: Northern Rocky Mountain Wolf Recovery Plan (1987); and Idaho Wolf Conservation and Management Plan (2002), Wolves: Behavior, Ecology and Conservation (2003).

Canada Lynx

Sources of Design Criteria: The Lynx Conservation Assessment and Strategy (LCAS), Ecology and Conservation of Lynx in the United States (1999) and Lynx Conservation Assessment and Strategy (LCAS) (2000).

Species of Concern and Species of Interest

General

Other Sources of Design Criteria: FSH 1909.12, Chapter 40-Land Management Planning Handbook; FSM 2600-Wildlife, Fish, and Sensitive Plant Habitat Management; FSH 2609.13-Wildlife and Fisheries Program Management Handbook; Source Habitats for Terrestrial Vertebrates of focus in the Interior Columbia River Basin (2000); Wildlife Habitat Relationships in Oregon and Washington (2001); and Idaho Comprehensive Wildlife Conservation Strategy (2005); and Old-growth Habitats and Associated Wildlife Species in the Northern Rocky Mountains (1990).

Invertebrates

Other Sources of Design Criteria: Land Mollusk Surveys on USFS Northern Region Lands (2006); and Land Snail Survey of the Lower Salmon River Drainage, Idaho (1997).

Birds

Other Sources of Design Criteria: The harlequin duck conservation assessment and strategy (1996); Flammulated, boreal, and great gray owls in the United States: A technical conservation assessment (1994); Habitat conservation assessment for Mountain Quail (1995); Mountain quail (*Oreortyx pictus*) distribution and conservation in the eastern part of its range (2002); and A Conservation

Assessment of the Northern Goshawk Black-backed Woodpecker, Flammulated Owl, and Pileated Woodpecker in the Northern Region (2006).

Forest Carnivores

Other Sources of Design Criteria: The Scientific basis for Conserving Forest Carnivores: American Marten, Fisher, Lynx and Wolverine in the Western United States (1994); Conservation Assessment for Fisher in Idaho (1995); Forest Carnivores in Idaho: Habitat conservation assessments and conservation strategies (1995); and Conservation Assessment for wolverine in Idaho (1995).

Snag-associated Species

Other Sources of Design Criteria: Trees and Logs Important to Wildlife in the Interior Columbia River Basin (1997).

Bats

Other Sources of Design Criteria: Habitat conservation assessment and conservation strategy for the Townsend's big-eared bat (1995); and Idaho Bat Conservation Plan (Draft 2005).

Migratory Landbirds

Sources of Design Criteria: Migratory Bird Treaty Act (1918); Migratory Bird Conservation Act (1929); Neo-tropical Migratory Bird Conservation Act; Executive Order (EO) 13186 (2001); Montana Partners in Flight Bird Conservation Plan (2000); and Idaho Partners in Flight Bird Conservation Plan (2000).

Big game

Other Sources of Design Criteria: North American Elk Ecology and Management (2002); Evaluating and Managing Elk Habitats and Populations in Central Idaho (1997); The Starkey Project: A synthesis of long-term studies of elk and mule deer (2005); Coordinating Elk and Timber Management/The Montana Cooperative Elk Logging Study (1985); Defining Elk Security; and Hillis Paradigm (1991); and A Process for Finding Management Solutions to the incompatibility between Domestic and Bighorn Sheep (2001)

Appendix B: Summary of Data Sources Reviewed

Data Sources	Data Description	Data Quality[1]	Missing Data[2]	Age of Data
Forest Inventory and Assessment (FIA)	Vegetation condition	High	Limited	2000 - 2002
Sub-basin assessments	Watershed and habitat conditions	Moderate	Moderate	1997 - 2006
Northwest Power Planning and Conservation Council Sub-basin Plans	Watershed and habitat conditions	Moderate	Moderate	2000 - 2006
Forest Watershed assessments	Watershed and habitat conditions	Moderate	Moderate	1997 - 2006
1987 Forest Plans	Management Direction	Low	Moderate	1987
Lynx Conservation Assessment and Strategy	Conservation and Management Direction	Moderate	Moderate	2000
Lynx Science Team	Lynx science	High	Limited	Ongoing
Forest Plan Monitoring Reports	Annual wildlife habitat accomplishments and trends	High	Limited	1988 - 2005
Biological Opinions	Conservation measures	High	Limited	1988 - present
Biological Assessments	Forest/project-level habitat conditions	High	Limited	1988 - present
Bald Eagle Recovery Plan	Management Direction	High	Limited	1986
Habitat Management Guide for Bald Eagles in NW Montana	Management Direction	High	Limited	1991
Northern Rocky Mountain Wolf Recovery Plan	Management Direction	High	Limited	1987
INFRA databases	Habitat improvements	Moderate	Moderate	Updated annually
Idaho Conservation Data Center – Comprehensive Wildlife Conservation Strategy	Status and conservation measures	High	Limited	2005
Nature Serve	Species Status & Information	Moderate	Moderate	Updated annually
ICBEMP	Broad scale status and methods	Moderate	Moderate	1997
Idaho Department of Fish and Game	Species distribution and status	High	Limited	Updated annually
Professional Peer Panel	Individual Professional Judgments	Moderate	Moderate	2003 - present
Nez Perce Tribe	Species distribution and status	High	Limited	Updated annually
Peer reviewed literature	Published and non-published contract reports	High	Limited	Varies

[1] High – peer reviewed; Moderate – some peer review, rigorous internal review; Low – observational data.
[2] Moderate – known to contain incomplete data, useful for broad-scale planning; Limited – repeatable results, rigorous internal review.