Evaluating Recreational Activities in Wildlife Habitats

COLOR BOARD



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Presentation Overview

Understand how recreational activities influence wildlife

Review an example recreation model

•Discuss modeling possibilities to inform recreation management decisions

Gaines, William L.; Singleton, Peter H.; Ross, Roger C. 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. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 79 p.



Recreation & Wildlife Conservation Goals

Stemilt-Squilchuck Vision Plan

 Shared Vision and Goals for the Landscape

WDFW

Mission Statement

Recreation's Cumulative Effects

March-November 2009, Coleman Canyon



Stemilt-Squilchuck Community Vision Plan

Table 5.2 Traffic Counter Summary

Start/End Date	Total Count	Average/Month	Peak Month
4/6 - 11/20/2007	10,004	1,434	May (3,073)
4/6 - 11/20/2007	7,384	923	May (1,988)
4/6 - 11/20/2007	9,123	1,140	May (2,353)
8/2006 - 3/2008	5,344	267	October (892, 863)
1/15 - 3/9/2008	2,095	N/A	N/A
	Start/End Date 4/6 - 11/20/2007 4/6 - 11/20/2007 4/6 - 11/20/2007 8/2006 - 3/2008 1/15 - 3/9/2008	Start/End Date Total Count 4/6 - 11/20/2007 10,004 4/6 - 11/20/2007 7,384 4/6 - 11/20/2007 9,123 8/2006 - 3/2008 5,344 1/15 - 3/9/2008 2,095	Start/End Date Total Count Average/Month 4/6 - 11/20/2007 10,004 1,434 4/6 - 11/20/2007 7,384 923 4/6 - 11/20/2007 9,123 1,140 8/2006 - 3/2008 5,344 267 1/15 - 3/9/2008 2,095 N/A

*Count number has been divided by two, accounting for vehicles entering and exiting

** This counter was installed to track snowmobile use during the winter months

¹² Informal estimate provided by Stemilt Recreational Technical Subcommittee, March 9, 2008.

Types of Interactions

Hunting

Harvest

- Poaching
- Collisions
- Trapping

Movement/Dispersal interference

Habitat Modification

- **Direct and Indirect Fragmentation**
- **Reduction of Habitat**
- **Changes in Edge Effect**
- Change in Pred/Competition Access

Displacement/Avoidance

Disturbance

- Stress Hormones
- Rearing of young sites
- Reduced Foraging

Consensus of the Available Literature





Recreational Management Discussions for Wildlife Avoidance/Disturbance

- Current management recommendation:
 - Road/Trail Density
 Thresholds
 - Buffer Distances

Species Specific Recreational System Reviews using Buffers or Road Density

Buffers

- Elk
- Deer
- Bighorn sheep
- Bears
- Mt. Goats
- Spotted owls
- Northern Goshawks
- Brown creepers
- Pygmy nuthatch
- White-breasted nuthatch
- Golden Eagle
- Riparian habitat influence
- White-headed woodpecker
- Three-toed woodpecker
- Pileated woodpecker

Road Density Thresholds

- Wolves
- Lynx
- Wolverines
- Water shrew
- Riparian habitat route density

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Understanding Buffer Distances

Increased Probability of Use

Neutral Probability of Use



Buffer Model Output

• Zone of Influence: percentage of a landscape that is affected by human disturbance for a given species

(Buffer Area / Defined Area) x 100 = Zone of Influence



A Hypothetical Model for the Stemilt Basin

- 1. Define analysis area
- 2. Classify the recreation GIS data
- 3. Determine buffers for each rec activity
- 4. Account for any other variables
- 5. Calculate the **Zone of Influence**
- 6. Model results for the current condition
- 7. Model results for recreation alternatives

Hypothetical Model: Summer Elk Habitat





Stemilt Bulls: Summer Home Range



Recreation Type & Appropriate Buffers

	Recreation	ZI Buffer(m
	Hiking trails	86
	Horseback riding	*
	Mt. biking	*
	Motorized trails	300
	Low traffic road	900
	>0 to 1/12 hrs	
	Mod traffic road	1000
	>2 to $\leq 4/12$ hrs	
	High traffic road	1300
	>4/12 hrs	
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Forest Security Cover



Elk Security Cover:

All conifer stands of >70% canopy cover and > 250 acres were excluded from the zone of influence

Forest Security Cover

Topographic Complexity

Line-of-Sight Analysis instead of buffers

Topographic Complexity

Zone of Influence Scale for Elk

Low

Moderate

High

<30% 30-50%

>50%

Recreation Modeling Possibilities



Forest Service Pacific Northwest Research Station General Technical Report PNVA-GTR-686 November 2003

United States Department of

Agriculture

Assessing the Cumulative Effects of Linear Recreation Routes on Wildlife Habitats on the Okanogan and Wenatchee National Forests

William L. Gaines, Peter H. Singleton, and Roger C. Ross

STEMILT-SQUILCHUCK COMMUNITY VISION





THE TRUST & PUBLIC LAND PARTNERSHIP



MAP 5.8 WILDLIFE RESOURCES: SIGNIFICANT BIRD HABITAT

Wildlife

Area

Mission Ski Area

Reads and other travel reades depicted on this

map are approximate. Additional sta-specific

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information shown on this map. Not all reads

depicted are open to the public, and all galax

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Primary Cavity Excavator Habitat Assessment White-headed & Pileated woodpecker

Based on modeling completed by the Wenatchee National Forest, this map represents significant bird habitat for the white-headed woodpecker, MacGillivray's warbler, pileated woodpecker, and northem goshawk. Areas in purple represent existing species and associated habitats. In all, habitats span the spectrum from talus slopes and old, dense forests to wetlands and dry, open forests.

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MAP 5.10 WILDLIFE RESOURCES: FOREST STRUCTURE AND TREE SIZE

Late-Successional Forest Assessment Northern goshawk Northern spotted owl

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MAP 5.9 WILDLIFE RESOURCES: FISH-BEARING STREAMS AND OTHER RIPARIAN AREAS

Riparian Habitat Assessment Winter/non-winter Zone of Influence/Density Index

All of the major streams and creeks in the watershed are identified as fish-bearing and/or riparian habitat. Stemilt Creek and Squilchuck Creek are considered fish-bearing for 100 percent of their length; the mouths of the creeks provide habitat for anadromous fish for short extents until major barriers are reached. Orr Creek and Little Stemilt Creek are identified as fish-bearing for 98 and 88 percent of their length, respectively. Whether fish-bearing or not, all streams provide habitat for fish, wildlife, insects, and other riparian-dependent species for all or some part of the year.

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Wildlife

Area

Beehive

Squilchuck

State Park

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Recreation effect models provide a method to evaluate the cumulative effects recreation has on wildlife

The modeling is easily manipulated to investigate current conditions and potential alternatives

