

# **Plumas National Forest**

## **Management Indicator Species Report**

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## Introduction and Background:

The Plumas National Forest signed a Record of Decision (ROD) on its Land & Resource Management Plan (LRMP) in 1988. The ROD for the LRMP states that viability of species not on the Federal Endangered Species List will be maintained if adequate quality habitat is provided. In addition, the ROD states that the Plumas will conduct selected species surveys, if needed, to establish background population levels on those species where information is lacking. The Plumas LRMP lists 20 Management Indicator Species (MIS) for the Forest in Appendix G. These 20 MIS are listed in Table 1 below.

Table 1. Plumas National Forest MIS List

Management Indicator Species	Plumas Forest Plan (1988)	Indicator Species for:	Threatened - Endangered	Sensitive	Special Interest	Harvest Species
Peregrine Falcon	X	cliff nesting habitat		X		
Bald Eagle	X	mature forest adjacent to open water bodies	X			
Spotted Owl	X	mature, mixed conifer conditions		X		
Goshawk	X	mature, mixed conifer and red fir conditions		X		
Golden Eagle	X	open forest			X	
Prairie Falcon	X	early seral/cliff			X	
Canada Goose	X	wetlands				X
Deer	X	early seral/shrub				X
Marten	X	mature, red fir conditions		X		
Trout	X	coldwater aquatic				X
Largemouth Bass	X	warmwater aquatic				X
Constance's Rock Cress ( <i>A. constancei</i> )	X	rare plant habitats		X		
Butte County Fritillary ( <i>F. eastwoodiae</i> )	X	rare plant habitats		X		
Quincy Lupine ( <i>L. dalesae</i> )	X	rare plant habitats		X		
Stebbins' Wild Mint ( <i>M. stebbinsii</i> )	X	rare plant habitats		X		
Closed-throated penstemon ( <i>P. personatus</i> )	X	rare plant habitats		X		
Cryptic Catchfly ( <i>S. invisa</i> )	X	rare plant habitats			X	
Scarlet Huckleberry ( <i>V. coccineum</i> )	X	rare plant habitats			X	
Cantelow's Lewisia ( <i>L. cantelowii</i> )	X	rare plant habitats		X		

Feather River Stonecrop ( <i>S. albomarginatum</i> )	X	rare plant habitats		X		
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Table 1 also displays the other categories for which Plumas MIS species fall under. For species that fall in the category of threatened, endangered or sensitive, these species are addressed at the project level in Biological Assessments and Evaluations for project specific management activities and summarized in the project level MIS analysis.

Appendix A (CWHR Methodology), Appendix B (Breeding Bird Survey data), and Appendix C (Spotkill maps) are incorporated into this MIS analysis by reference, and the information contained in these appendices were reviewed and considered as part of this analysis. Data used in this MIS analysis comes from forest files and cooperating agencies (California Department of Fish & Game, other agencies and contract surveys conducted on the Forest (see references)).

## Forest Plan Monitoring:

### Direction Regarding Monitoring of MIS Population and Habitat Trends at the Forest or Bioregional Scale.

Forest or bioregional scale monitoring requirements for the Plumas NF’s MIS are found in the Monitoring Plan of the LRMP (USDA 1988, Appendix G, pages G1-G2) and in Appendix E of the Sierra Nevada Forest Plan Amendment Final Environmental Impact Statement (FEIS) (USDA 2001), as adopted by the 2004 Sierra Nevada Forest Plan Amendment (SNFPA) Record of Decision (ROD) (USDA 2004).

### Habitat Status and Trend.

The Plumas NF LRMP (USDA 1988) requires forest-scale monitoring of habitat status and trend for select MIS on the Plumas NF. The habitat monitoring requirements for these select MIS are summarized in Table 2 of this report. Habitat status is the current amount of habitat on the Plumas NF. Habitat trend is the direction of change in the amount of habitat between the time the LRMP was approved and the present. The methodology for assessing habitat status and trend is described in detail in this Forest MIS Report (USDA 2006, pages 5-9).

Habitats are the vegetation types (for example, mixed conifer forest) and/or ecosystem components (for example, cliffs or lakes) and any special habitat elements (for example, snags) required by an MIS for breeding, cover, and/or feeding. Required habitat is identified using habitat relationships data, GIS vegetation layers or models. For each terrestrial wildlife MIS on the Plumas NF, the habitat relationship models are from the California Wildlife Habitat Relationship (CWHR) System (CWHR 2005). The CWHR System is considered “a state-of-the-art information system for California’s wildlife” and provides the most widely used habitat relationship models for California’s terrestrial vertebrate species (ibid). In the case of MIS that are also federally threatened or endangered or Forest Service sensitive species that have been studied in detail, additional habitat relationships information may be used to augment the CWHR system. Habitat relationships for fish and plant MIS are identified individually. Detailed information on the habitat relationships for MIS on the Plumas NF and the CWHR System can be found in Appendix A of this report which is incorporated in its entirety (USDA 2006).

MIS habitat trend is monitored using ecological and vegetation data for the Plumas NF. These data include spatial ecological and vegetation layers created from remote-sensing imagery obtained at various points in time, which are verified using photo-imagery, on-the-ground measurements, and tracking of vegetation-changing actions or events (for example, wildland fires).

## Population Status and Trend.

Population monitoring requirements for the MIS on the Plumas NF are identified in either Appendix E of the Sierra Nevada Forest Plan Amendment (SNFPA) FEIS (USDA 2001), as adopted by the 2004 Sierra Nevada Forest Plan Amendment Record of Decision (ROD) (USDA 2004), or the Monitoring Plan of the LRMP (USDA 1988, Table 5-1, pages 1-17).

For Plumas NF MIS (USDA 1988, Appendix G) that are listed in Appendix E of the SNFPA FEIS (USDA 2001), population monitoring requirements are identified in Appendix E. For all other Plumas NF MIS, population monitoring requirements are identified in the LRMP Monitoring Plan (USDA 1988). These documents require monitoring of population status and/or trend for select MIS on the Plumas NF. There are many types of population data, and these documents also identify the type of population monitoring data required for each MIS. The population monitoring requirements for the MIS on the Plumas are summarized in Table 2 of this report. All population monitoring data are collected and/or compiled at the forest or bioregional scale, consistent with the LRMP as amended by the SNFPA and the 2005 Planning Rule that “site specific monitoring or surveying of a proposed project or activity area is not required” (36 CFR 219.14(f)).

Population status is the current condition of the MIS related to the type of population monitoring data (population measure) required in the LRMP for that MIS. Population trend is the direction of change in that population measure over time.

As discussed in Appendix E of the 2001 SNFPA (USDA 2001), there is a wide range of monitoring data that can be used to describe the status and trend (or change) of populations, ranging from describing changes in distribution based on presence-absence data to describing changes in population structure. A distribution population monitoring approach is identified for most MIS listed in Appendix E (Tables E-9 to E-11). Distribution population monitoring consists of collecting presence data for the MIS across a number of sample locations; over time, changes in the distribution of the MIS can be identified and tracked. Presence data is collected using a number of direct and indirect methods, such as surveys (population surveys), bird point counts, tracking number of hunter kills, counts of species sign (such as deer pellets), and so forth.

Presence population data for MIS are collected and consolidated by the Plumas NF in cooperation with State and Federal agency partners (including the California Department of Fish and Game, Department of Water Resources, and USDI Fish and Wildlife Service) or conservation partners (including Partners in Flight and various avian joint ventures). The Plumas NF’s MIS monitoring program for species typically hunted, fished, or trapped was designed to be implemented in cooperation with California Department of Fish and Game (CDFG), consistent with direction in the 1982 Planning Rule to monitor forest-level MIS population trends in cooperation with state fish and wildlife agencies to the extent practicable (36 CFR 219.19(a)(6)). To be biologically meaningful for wide-ranging MIS, presence data are collected and tracked not only at the forest scale, but also at larger scales, such as rangewide, state, province (i.e. bioregional), or at species management units (for example, Deer Assessment Unit or waterfowl migratory routes). Population data at various scales are important to both assess and provide meaningful context for population status and trend at the forest scale.

For several MIS, such as California spotted owl and American marten, Appendix E of the 2001 SNFPA FEIS and Chapter 2 of the 2004 SNFPA SEIS identify other population monitoring requirements. For these species, population data are collected and compiled at the bioregional (Sierra Nevada) scale, not the forest scale (USDA 2006e).

The Plumas LRMP contains 20 Forest MIS. Table 5-1, pages 1-17 outlines monitoring by resource and contains a column titled monitoring objectives for each species. Appendix E of the 2004 Sierra Nevada Forest Plan Amendment also contains monitoring objectives. For these 20 MIS listed in our Forest Plan, that are also listed in Appendix E, population monitoring objectives are taken from Appendix E, and habitat monitoring objectives are taken from Table 5-1 in the LRMP. Where population monitoring objectives for an MIS were not identified in Appendix E, the Plumas LRMP Table 5-1 monitoring objective column would be used. Table 2 below defines MIS monitoring objectives for the 20 species on the Plumas NF.

Table 2. MIS Monitoring Requirements for the Plumas National Forest

Management Indicator Species	Monitoring Objectives	
	Habitat	Population
Peregrine Falcon	None	Distribution population monitoring (USDA 2001, Page E-76) <sup>2</sup>
Bald Eagle	Habitat trends in nesting and wintering Habitat (USDA 1988, Chapter 5) <sup>1</sup>	Determine trends in breeding population (USDA 1988, Chapter 5) <sup>1</sup>
Spotted Owl	Habitat trends in network territories (54 SOHA's) (USDA 1988, Chapter 5) <sup>1</sup>	Distribution and demographic (USDA 2001, Page E-50) <sup>2</sup>
Goshawk	Habitat trends in nest groves (USDA 1988, Chapter 5) <sup>1</sup>	Distribution and demographic (USDA 2001, Page E-50) <sup>2</sup>
Golden Eagle	Habitat trends in designated areas (USDA 1988, Chapter 5) <sup>1</sup>	Distribution population monitoring (USDA 2001, Page E-76) <sup>2</sup>
Prairie Falcon	Habitat trends in designated areas (USDA 1988, Chapter 5) <sup>1</sup>	Distribution population monitoring (USDA 2001, Page E-76) <sup>2</sup>
Canada Goose	None	Distribution population monitoring (USDA 2001, Page E-76) <sup>2</sup>
Deer	None	Distribution population monitoring (USDA 2001, Page E-76) <sup>2</sup>
Marten	Changes in habitat capability (USDA 1988, Chapter 5) <sup>1</sup>	Geographic distribution monitoring (USDA 2001, Page E-56) <sup>2</sup>
Trout	Habitat trends in quantity and quality (USDA 1988, Chapter 5) <sup>1</sup>	Distribution population monitoring (USDA 2001, Page E-76) <sup>2</sup>
Largemouth Bass	Habitat trends in quantity and quality (USDA 1988, Chapter 5) <sup>1</sup>	Distribution population monitoring (USDA 2001, Page E-76) <sup>2</sup>
Constance's Rock Cress ( <i>A. constancei</i> )	None	Distribution and demographic (USDA 2001, Page E-50) <sup>2</sup>
Butte County Fritillary ( <i>F. eastwoodiae</i> )	None	Distribution and demographic (USDA 2001, Page E-50) <sup>2</sup>

Quincy Lupine ( <i>L. dalesae</i> )	None	Distribution and demographic (USDA 2001, Page E-50) <sup>2</sup>
Stebbins' Wild Mint ( <i>M. stebbinsii</i> )	None	Distribution and demographic (USDA 2001, Page E-50) <sup>2</sup>
Closed-throated penstemon ( <i>P. personatus</i> )	None	Distribution and demographic (USDA 2001, Page E-50) <sup>2</sup>
Cryptic Catchfly ( <i>S. invisa</i> )	None	Distribution and demographic (USDA 2001, Page E-50) <sup>2</sup>
Scarlet Huckleberry ( <i>V. coccineum</i> )	None	Distribution and demographic (USDA 2001, Page E-50) <sup>2</sup>
Cantelow's Lewisia ( <i>L. cantelowii</i> )	None	Distribution and demographic (USDA 2001, Page E-50) <sup>2</sup>
Feather River Stonecrop ( <i>S. albomarginatum</i> )	None	Distribution and demographic (USDA 2001, Page E-50) <sup>2</sup>

<sup>1</sup> Plumas NF LRMP, Monitoring Plan (USDA 1988, Chapter 5)

<sup>2</sup> FEIS, Appendix E (USDA 2001)

### **Forest compliance with monitoring objectives:**

#### Peregrine Falcon:

Population Monitoring – the monitoring objective shown in Table 2 above comes from Appendix E. This objective is being met by the Plumas at the forest scale through monitoring of the two known eyries on the Forest. Our sample locations for distribution monitoring are the Bald Rock and Canyon Dam eyries.

#### Bald Eagle:

Habitat Monitoring – the monitoring objective shown in Table 2 above comes from the Plumas LRMP, Table 5-1. This monitoring objective is being met by the Plumas through monitoring of status and trends in habitat within designated Bald Eagle Habitat Area Management Plans (BEHAMP) and areas identified as Bald Eagle wintering areas by Plumas National Forest wildlife biologists. For project level analysis of habitat trends, the habitat indicators that will be tracked include: changes in acres of habitat affected within designated BEHMAP's and changes in acres of habitat within identified wintering areas.

Population Monitoring – the monitoring objective shown in Table 2 above comes from the Plumas LRMP. This objective is being met by the Plumas at the forest scale through monitoring of Bald Eagle Territories on the Forest. The Plumas will monitor 15 territories and PG&E will monitor 8 territories within and adjacent to their water projects.

#### California Spotted Owl:

Habitat Monitoring - the monitoring objective shown in Table 2 above comes from the Plumas LRMP, Table 5-1. This monitoring objective is being met by the Plumas through tracking of habitat trends within the 54 Spotted Owl Habitat Areas designated under the LRMP (i.e. network territories). In an effort to monitor changes in old growth and nesting habitat (CWHR 5M, 5D and 6) at a larger scale, the Plumas will be using data collected under the Herger-Feinstein Quincy Library Group monitoring program for tracking the 10% threshold set for old growth habitat. For project level analysis of habitat trends, the habitat indicators that will be tracked include: changes in acres in the amount of foraging and nesting habitat affected within the respective analysis area for each project.

Population Monitoring – the monitoring objective shown in Table 2 above comes from Appendix E. This monitoring objective is being met by the Plumas through: 1) implementing project level surveys to detect changes in the forest owl population (i.e. new territorial singles or owl pairs that would result in the formation of a Protected Activity Center (PAC); 2) Continued implementation of the Plumas-Lassen Administrative Study as part of the distribution and demographic monitoring from Appendix E (SNFPA, 2001).

#### Goshawk:

Habitat Monitoring - the monitoring objective shown in Table 2 above comes from the Plumas LRMP, Table 5-1. This monitoring objective is being met by the Plumas through monitoring of status and trends within designated nest groves. Designated nest groves are defined as suitable habitat within Goshawk PACs. In an effort to monitor changes in old growth and nesting habitat (CWHR 5M, 5D and 6) at a larger scale, the Plumas will be using data collected under the Herger-Feinstein Quincy Library Group monitoring program for tracking the 10% threshold set for old growth habitat. For project level analysis of habitat trends, the habitat indicators that are tracked include: Changes in acres of habitat within established PACs, and acres of foraging and nesting habitat outside of PACs that are affected within the respective analysis area for each project.

Population Monitoring - the monitoring objective shown in Table 2 above comes from Appendix E. This monitoring objective is being met by the Plumas through: 1) implementing project level surveys to detect changes in the forest Goshawk population (i.e. new territorial singles or Goshawk pairs that would result in the formation of a Protected Activity Center (PAC); 2) Continued implementation of the Goshawk OHV Study as part of the bioregional distribution and demographic monitoring.

#### Golden Eagle:

Habitat Monitoring - the monitoring objective shown in Table 2 above comes from the Plumas LRMP, Table 5-1. This monitoring objective is being met by the Plumas through monitoring of status and trends in habitat within a 1-mile radius of designated or known Golden Eagle nest sites. The habitat within the 1-mile radius of designated or known Golden Eagle nest sites is defined as the designated area under the habitat-monitoring column of Table 2. This designated habitat is being tracked since changes in this 1-mile radius will have the greatest influence on Eagle foraging and nesting. For project level analysis of habitat trends, the habitat indicators that will be tracked include: changes in acres of habitat within the 1 mile radius of designated or known Golden Eagle nest sites, if such a nest site falls within the respective analysis area for a given project.

Population Monitoring – the monitoring objective shown in Table 2 above comes from Appendix E. This objective is being met by the Plumas at the forest scale through monitoring of the nine known Golden Eagle sites on the Forest. Our sample locations for distribution monitoring are the nine known sites, five on the Mt. Hough District and four on the Beckwourth District.

#### Prairie Falcon:

Habitat Monitoring - the monitoring objective shown in Table 2 above comes from the Plumas LRMP, Table 5-1. This monitoring objective is being met by the Plumas through monitoring of status and trends in habitat within a 1-mile radius of designated or known Prairie Falcon nest sites. The habitat within the 1-mile radius of designated or known Prairie Falcon nest sites is defined as the designated area under the habitat-monitoring column of Table 2. This designated habitat is being tracked since changes in this 1-mile radius will have the greatest influence on Falcon foraging and nesting. For project level analysis of

habitat trends, the habitat indicators that will be tracked include: changes in acres of habitat within the 1 mile radius of designated or known Prairie Falcon nest sites, if such a site falls within the respective analysis area for a given project.

Population Monitoring – the monitoring objective shown in Table 2 above comes from Appendix E. This objective is being met by the Plumas at the forest scale through monitoring of the six known Prairie Falcon sites on the Forest. Our sample locations for distribution monitoring are the six known sites, one on the Mt. Hough District and five on the Beckwourth District.

#### Canada Goose:

Population Monitoring – the monitoring objective shown in Table 2 above comes from Appendix E. This objective is being met by the Plumas at the forest scale through distribution monitoring at selected lakes, reservoirs and wet meadows across the Forest. Our sample locations for distribution monitoring include 5 lakes or reservoirs: Lake Davis, Antelope Lake, Little Grass Valley Reservoir, Frenchman Lake, Snake Lake, and 5 wet meadows: Little Last Chance, Ross Meadows, Butterfly Valley, Little Schneider Meadow, and Clarks Creek.

#### Mule Deer:

Population Monitoring – the monitoring objective shown in Table 2 above comes from Appendix E. This objective is being met by the Plumas at the forest scale through distribution monitoring of Mule Deer across the forest. Available data from the California Department of Fish & Game will be used to determine distribution through spotkill maps, and other population data.

#### Marten:

Habitat Monitoring - the monitoring objective shown in Table 2 above comes from the Plumas LRMP, Table 5-1. This monitoring objective is being met by the Plumas through tracking of status and trends in habitat for the Marten. In an effort to monitor changes in habitat (CWHR 5M, 5D and 6), the Plumas will be using data collected under the Herger-Feinstein Quincy Library Group monitoring program for tracking the 10% threshold set for old growth habitat (defined as 5M, 5D and 6). For project level analysis of habitat trends, the habitat indicators that will be tracked include: changes in acres in the amount of 5M, 5D and 6 habitat affected within the respective analysis area for each project.

Population Monitoring – the monitoring objective shown in Table 2 above comes from Appendix E. This monitoring objective is being met by the Plumas through: 1) implementing project level carnivore surveys to detect changes in Marten distribution across forest (i.e. sightings of Marten through protocol carnivore surveys that would lead to a verified detection record); 2) Continued implementation of the distribution monitoring being conducted at the Sierra Nevada scale.

#### Trout Group:

Habitat Monitoring – the monitoring objective shown in Table 2 above comes from the Plumas LRMP. This monitoring is being conducted through Stream Condition Inventories as part of the HFQLG monitoring program. Selected streams are being monitored for habitat quality through inventories for reference stream conditions, pre-treatment stream conditions and post treatment stream conditions across the HFQLG pilot area, which includes the Plumas NF. Habitat quantity is being monitored and tracked through the miles of fish bearing and non-fish bearing streams, and miles of perennial and intermittent streams.

Population Monitoring – the monitoring objective shown in Table 2 above comes from Appendix E. This monitoring on the Plumas is being met through monitoring of selected sample locations on the Forest. Twenty fish bearing stream reaches will be monitored for species distribution across the forest. Additional population information from the Department of Water Resources, California Department of Fish & Game, and other partners will also be used to meet this monitoring objective.

#### Largemouth Bass:

Habitat Monitoring – the monitoring objective shown in Table 2 above comes from the Plumas LRMP. This monitoring is being conducted using lake and reservoir water quality data from partners such as the Department of Water Resources, PG&E and the California Department of Fish & Game. Habitat quantity is being monitored and tracked through the acres of lakes and reservoirs located on the Forest.

Population Monitoring – the monitoring objective shown in Table 2 above comes from Appendix E. This monitoring on the Plumas is being met through monitoring of selected sample locations on the Forest. Reservoirs containing Largemouth Bass such as Antelope Lake, Lake Davis, and Sly Creek Reservoir will be monitored either through creel census or population information obtained from the Department of Water Resources, PG&E, and the California Department of Fish & Game to meet this monitoring objective.

#### Sensitive and Special Interest MIS Plants:

Population Monitoring – the monitoring objective shown in Table 2 above comes from Appendix E. This monitoring on the Plumas is being met through distribution and demographic monitoring of existing MIS plant populations. Distribution and demographic monitoring is being conducted on MIS populations by tracking changes in plant occurrences and number of individuals over time.

### **Bald Eagle:**

The U.S. Fish & Wildlife Service currently lists the Bald Eagle as Threatened. In California, Bald Eagles are not known to nest further than two miles from an open water body, (Lehman 1979, USFWS 1986). The Bald Eagle occurs on the Plumas National Forest as a summer resident and as a winter resident. Nesting bald eagles on the Plumas National Forest are associated with reservoirs or lakes. Wintering eagles on the Plumas are also associated with reservoirs or lakes, as well as broad open valley bottoms such as Indian Valley and Sierra Valley.

In 1999, the Herger–Feinstein Quincy Library Group Forest Recovery Act Final Environmental Impact Statement Record of Decision (HFQLG FEIS ROD) was signed and amended the PNF LRMP. It requires the completion of bald eagle management plans in consultation with the USDI Fish & Wildlife Service. These Bald Eagle Habitat Area Management Plans (BEHAMP) incorporate direction identified in the HFQLG ROD as well as bald eagle management objectives identified in the PNF LRMP. No species-specific bald eagle management direction is identified in the SNFPA ROD.

#### **Habitat:**

Bald Eagle nesting habitat on the Plumas National Forest is associated with reservoirs and lakes. Current lake and reservoir habitat on the Plumas NF is shown in Figure 1 below. This habitat consists of lakes and reservoirs found on the Forest and as delineated on the associated Forest GIS layer (pnflake05\_1).

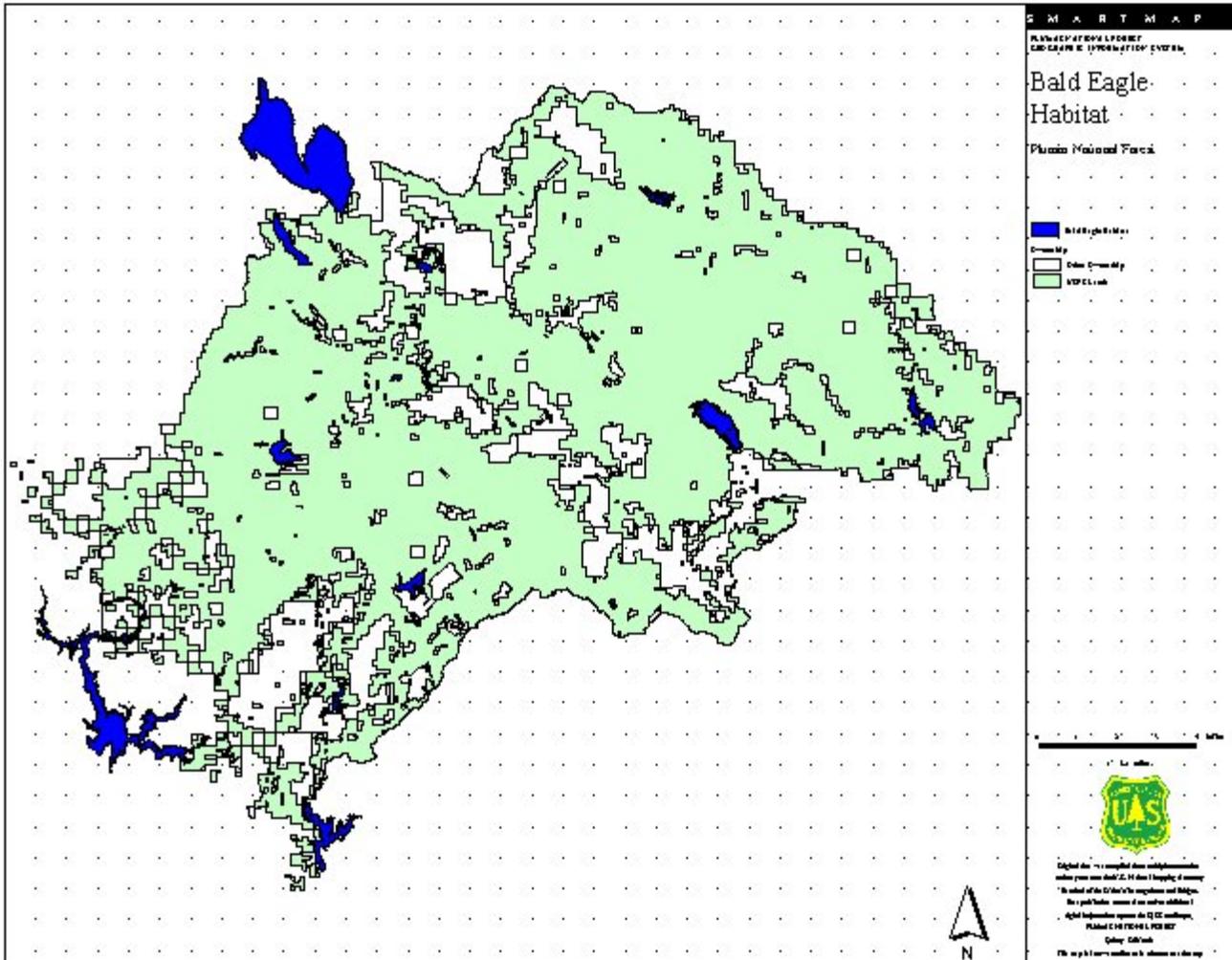


Figure 1. Bald Eagle Habitat, Plumas National Forest.

Bald Eagle habitat shown in Figure 1 includes 32,832 acres of lake and reservoir habitat located on the Forest or immediately bordering Forest Lands on other ownerships. Actual lake and reservoir acres within the Forest boundary are 14,200 acres. Additional terrestrial habitat suitable for nesting and reproduction habitat may range up to 2 miles from the water's edge of these lakes or reservoirs. Wintering Bald Eagles utilize terrestrial habitat associated with the above lakes and reservoirs as well as broad valley bottoms such as Indian Valley and Sierra Valley, in addition to the North Fork Feather River corridor along Highway 70 near PG&E's hydroelectric projects. Wintering habitat on National Forest lands associated with broad valley bottoms and the Highway 70 corridor includes approximately 6,688 acres.

The current habitat trends for Bald Eagles on the Plumas National Forest is stable. This is based on the fact that existing lakes and reservoirs have been maintained on the Forest since development of the Forest Plan. Wintering habitat on National Forest lands has also remained stable with the retention of large trees (>30" dbh) used by wintering eagles for perches adjacent to the broad valley bottoms. This is evident through the continued use of wintering habitat by eagles on Forest lands. Although some lake and reservoir levels fluctuate during the year, suitable foraging habitat is still being maintained and available for Eagle foraging. Terrestrial habitat adjacent to these lakes and reservoirs has also remained stable with the development and implementation of BEHAMP's. Currently, 20,455 acres of terrestrial habitat are managed for Bald Eagles under BEHAMP's. With the exception of the Stream Fire that reduced eagle habitat by 1,379 acres adjacent to Antelope Lake, the remaining terrestrial habitat managed for Bald Eagles under the BEHAMP's on the Plumas has remained stable.

### **Bald Eagle Habitat Status and Trend:**

The habitat status for the Bald Eagle consists of 20,455 acres of Bald Eagle nesting habitat currently managed under approved Bald Eagle Habitat Area Management Plans, and 6,688 acres of wintering habitat on the Plumas National Forest.

The habitat trend for the Bald Eagle is stable. Of the 20,455 acres of nesting habitat under BEHAMP's, only 1,379 acres have been affected (6.7%). However Bald Eagles still use and maintain the territory that was affected by the Stream Fire. This amount of habitat change from 1988 to 2005 is considered minor and reflects a stable trend. Wintering habitat that consists of 6,688 acres has remained stable and has not changed from 1988 to 2006 reflecting a stable trend.

### **Population:**

The Plumas National Forest LRMP Environmental Impact Statement (EIS) stated that the forest was protecting 13 known Bald Eagle territories on or adjacent to the Forest. The PNF contained 12 inventoried Bald Eagle nest sites and administered land proximate to at least one other nest territory. Mid-winter surveys, at that time, had shown as many as 86 Bald Eagles being counted on the Forest.

The LRMP, Table 4-4, outlines minimum management objectives for wildlife habitat. For the Bald Eagle, Table 4-4 listed an objective of providing suitable habitat for the 13 known eagle territories and 13 potential territories for a total of 26 Bald Eagle Territories on the Forest.

Figure 2 below shows the amount of Bald Eagle territories since development of the Forest Plan in 1988 to present.

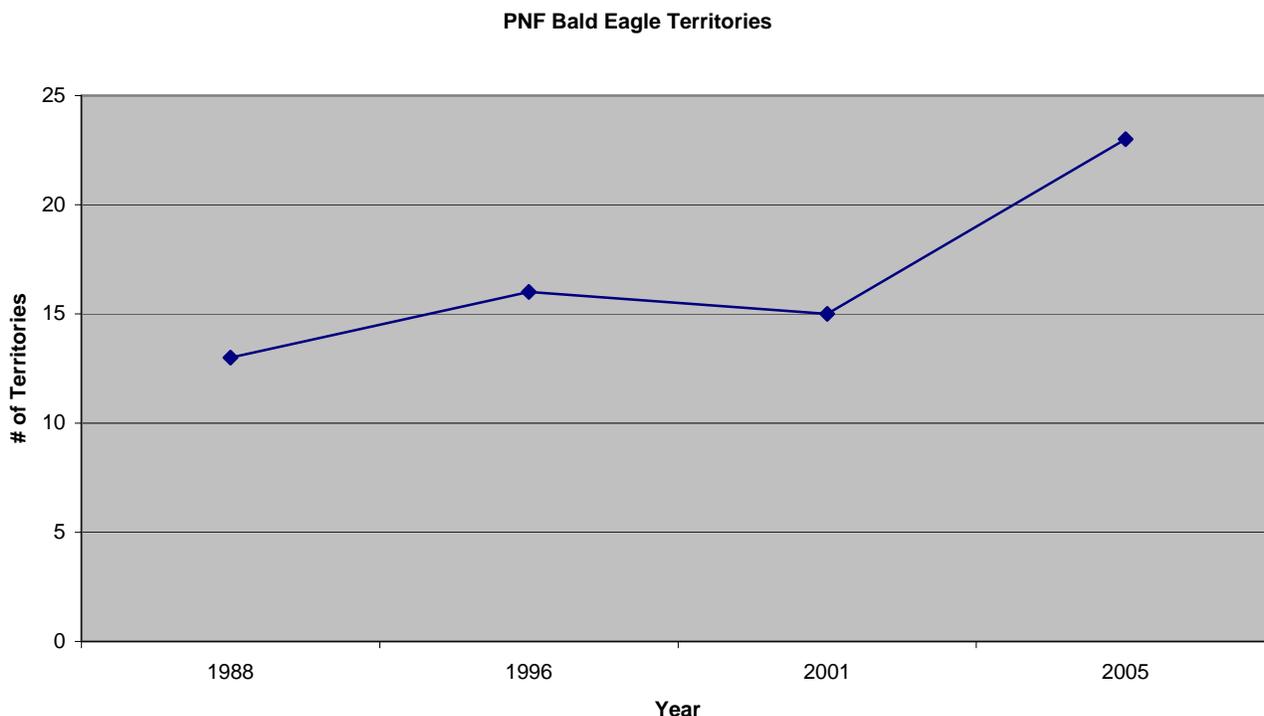


Figure 2. Bald Eagle Territories on the Plumas National Forest, from 1988 to 2005.

Currently, the Plumas National Forest supports 23 Bald Eagle Territories across the Forest. These Bald Eagle Territories are listed in Table 2 below:

Table 2. Current Bald Eagle territories, 2006 occupation status, and young produced on the Plumas National Forest.

<b>Bald Eagle Territory</b>	<b>Ranger District</b>	<b>2006 Occupation Status</b>	<b>Young Produced 1989- 1996</b>	<b>Young Produced 1997 - 2006</b>
Butt Valley Dam	Mt. Hough	Occupied	7	5
Snake Lake	Mt. Hough	Unoccupied	0	0
Butt Valley Dam II	Mt. Hough	Occupied	13	8
Cool Springs	Mt. Hough	Occupied	7	4
Bucks Lake	Mt. Hough	Unoccupied	2	7
Gravel Island	Mt. Hough	Occupied	Not established	6
Grizzly Forebay	Mt. Hough	Occupied	Not established	6
Antelope Lake	Mt. Hough	Occupied	10	7
Antelope Lake II	Mt. Hough	Unoccupied	0	7
Antelope Lake III	Mt. Hough	Occupied	Not established	2
Round Valley	Mt. Hough	Occupied	8	8
Rocky Point Complex	Mt. Hough	Occupied	0	9
Little Grass Valley Reservoir	Feather River	Occupied	4	4
Little Grass Valley Reservoir	Feather River	Unoccupied	Not established	0
Poe	Feather River	Occupied	8	9
French Creek	Feather River	Unoccupied	Unknown	Unknown
Little Butte Creek	Feather River	Occupied	Not established	6
Sly/Lost Creek Reservoirs	Feather River	Unoccupied	Not established	4
Feather Falls	Feather River	Unoccupied	2	2
Bagley Pass	Beckwourth	Unoccupied	Not established	0
Cow Creek	Beckwourth	Occupied	8	5
Mosquito Slough	Beckwourth	Unoccupied	5	9
Frenchman Reservoir	Beckwourth	Unoccupied	10	3

Of the 23 territories on the Plumas, Bald Eagle pairs currently occupy 13. Therefore, the 2006 population of Bald Eagles on the Plumas is 26 individuals. Bald Eagle reproduction is also shown in Table 2. Bald Eagles occupying territories on the Plumas vary in reproductive success from a high of 13 for the Butt Valley Dam II territory to zero for some territories.

In 1996, the Plumas had 16 Bald Eagle territories documented, and Forest personnel at that time predicted one new territory every 2.6 years. From 1996 to 2006, the Plumas has added 7 territories, at a rate of 1 territory every 1.4 years, exceeding the prediction made in 1996.

Breeding Bird Survey data indicates that one of survey routes has detected Bald Eagles on the Plumas NF. This route shows an increasing trend for Eagles on this route from 1966 to 2003 (see Appendix B – Plumas NF BBS Population Analysis).

### **Bald Eagle Population Status and Trend:**

Bald Eagle population status consists of 13 pairs (26 individuals) on the Forest.

The Bald Eagle population trend on the Plumas NF is stable. The 13 territories in 1988 contained 13 pairs (26 individuals) and the 23 territories that exist now contain 13 pairs (26 individuals) based on population monitoring. Monitoring data indicates that Bald Eagle territories have increased in the last 10 years by 7 territories. From 1988 to 2006, Bald Eagle Territories increased from 13 at the time the Forest Plan was developed to the 23 currently being managed by the Plumas.

## **Canada Goose:**

The Canada Goose is known to breed at lakes as high as 6,000 feet in Northeast California, which includes the Modoc, Lassen, Plumas, and Tahoe National Forests. The subspecies of Canada Goose nesting in Northeast California is *Branta Canadensis moffitti* (Birds of NA, #682, 2002). This species breeds near open water (lakes, reservoirs, ponds, rivers, marshes); prefers ponds, marshes and lakes with natural islands and readily nests on human-made islands, rock piles, straw bales and nesting platforms (Ibid). This subspecies nests in broken topped snags on the Lassen and Plumas NF around Lake Almanor (Rotta, personal observation). Migrating flocks traveling between nesting areas in the Great Basin and wintering grounds in the Central Valley infrequently stop to feed and rest in large wet meadows or lakes throughout the Sierra Nevada.

### **Habitat:**

Available Canada Goose habitat on the Plumas National Forest consist of 1,000 miles of streams and 14,200 acres of Lakes and Reservoirs. The breeding habitat has remained relatively stable as the existing lakes and reservoirs have not undergone any substantial change in habitat conditions for geese. Some nest island construction to benefit geese has occurred since development of the Forest Plan at Frenchman lake (6 nesting islands), Lake Davis (12 nesting islands), Antelope Lake (5 nesting islands), Summit Lake (6 nesting islands), Doyle Reservoir (6 nesting islands), while nesting platforms have been constructed and placed at Round Valley Reservoir (5 structures) and Snake/Smith lakes (12 structures). Additional wetland improvements that create nesting habitat for Canada Geese include meadow enhancements, such as pond and moat developments in Long Valley and watershed improvement actions, specifically pond and plug projects, such as those completed on Last Chance Creek that create ponded water from stream courses that enhance wetland meadows. Both of these enhanced sites have produced Canada Geese.

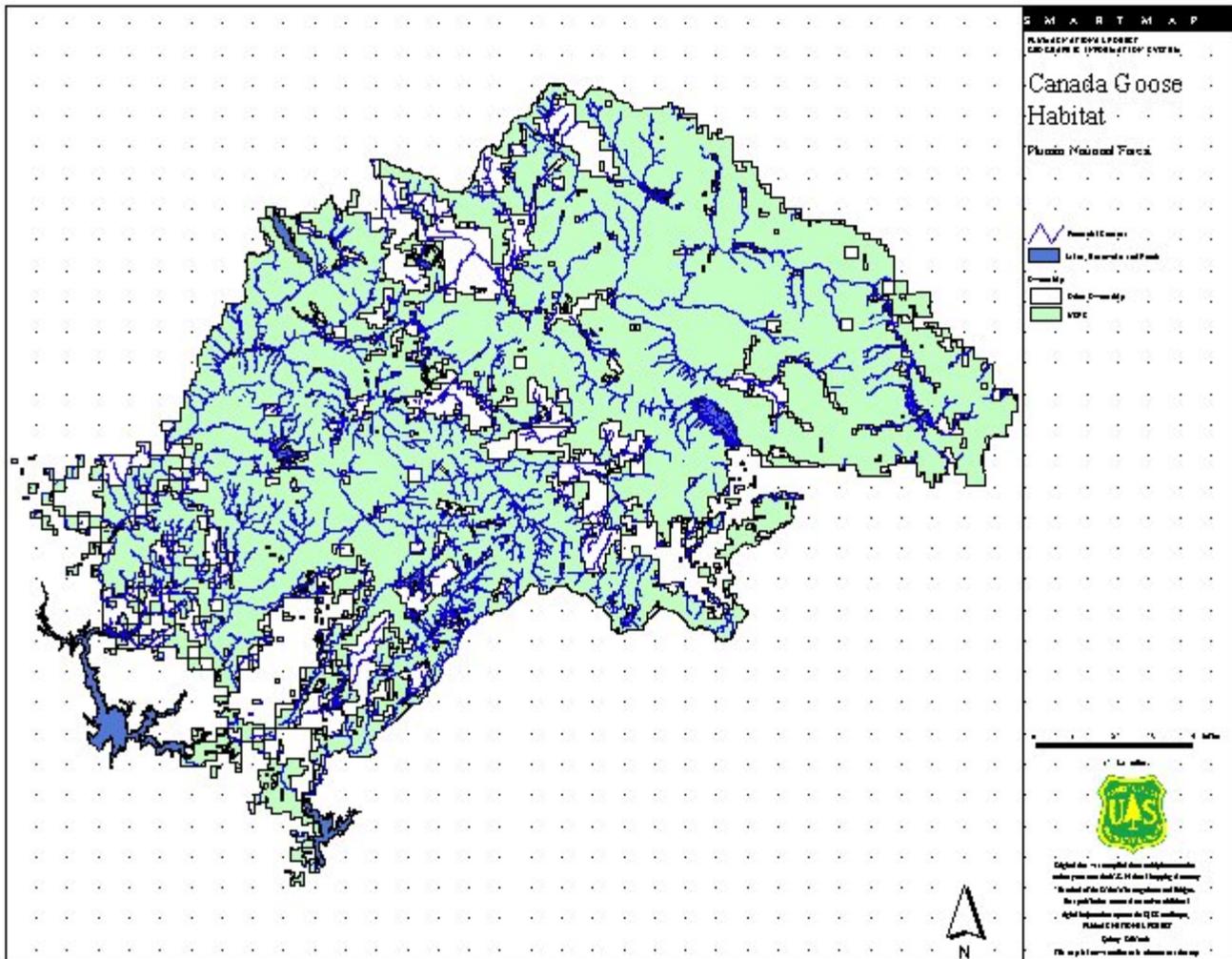


Figure 3. Canada Goose habitat on the Plumas National Forest.

The Plumas LRMP and Appendix E of the 2004 SNFPA do not require habitat monitoring for the Canada Goose.

**Canada Goose Habitat Status and Trend:**

The habitat status for the Canada Goose on the Plumas NF consists of 1,000 miles of streams and 14,200 acres of Lakes and Reservoirs. These miles of stream and acres of lakes on the Plumas NF are being maintained and provide habitat for Canada Goose nesting and foraging.

The habitat trend for the Canada Goose is considered stable to increasing. This is based on the amount of Canada Geese habitat forest-wide that has not changed, and the enhancement of geese habitat at selected lakes, ponds and reservoirs since development of the Forest Plan in 1988 to 2006.

**Population:**

Population goals for geese have been established in management plans prepared for most populations in the Pacific Flyway by the Pacific Flyway Study Committee made up of state and federal biologists in 11 western states. These plans specify threshold population levels at which hunting regulations should be changed. For pacific populations, the breeding population threshold falls between 1,000 and 1,250 pairs. If the breeding population index falls below 1,000 pairs, over a three year average, hunting would be restricted; conversely the harvest strategy could be more liberal when pairs exceed 1,250 (State of

On the Plumas, Canada Geese were monitored annually from 1989 to 1991 and showed an increasing population trend for the forest. Approximately 50 breeding pairs were identified on five reservoirs and four lakes, producing approximately 400 young. An unknown amount of geese are also raised on rivers and streams. The initial Forest Plan estimate indicated a population of 200 Geese. Post plan monitoring from 1989 to 1991 indicates that the Goose population exceeded the population capacity goal set by the Forest Plan of 800 Geese (Figure 4). The trend indicated from 1989 to 1991 data shows a similar trend as the BBS trend for the Sierra Nevada Bio Regional Scale (Figure 5). Select BBS routes on the Plumas NF indicate that two routes have an increasing trend from 1966 to 2003, and one route has a decreasing trend during that same time period. The Sierra Nevada Bio Regional BBS trend from 1968 to 2003 shows an increasing trend. The Forest monitoring data from 1989 to 1991 falls within the BBS timeframe and also indicates an upward trend. The Canada goose is widely distributed on the Forest and is found at reservoirs, lakes, major river systems (i.e. middle fork feather river) and most perennial streams on the Plumas.

Based on Canada Goose monitoring, the Plumas is contributing population numbers to the Pacific Flyway population in order to maintain the threshold index defined by the Study Committee of 1,000 Canada Goose pairs. In addition, monitoring also indicates that the Forest has met and exceeded its population capacity of 800 geese on the Forest.

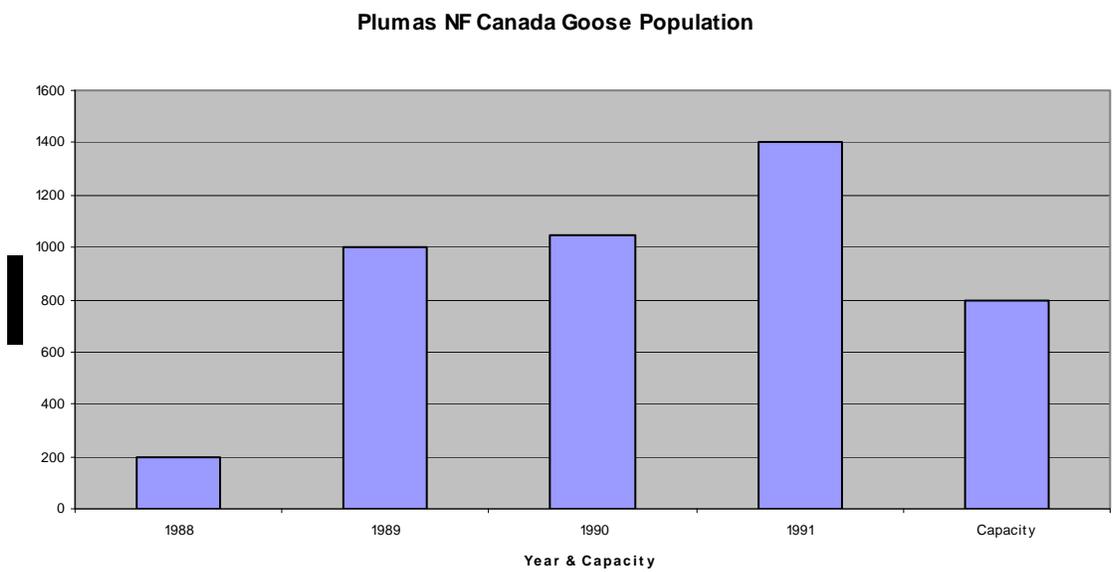


Figure 4. Population monitoring on the Plumas National Forest showing Canada Goose population numbers and goose capacity estimated from the Land & Resource Management Plan.

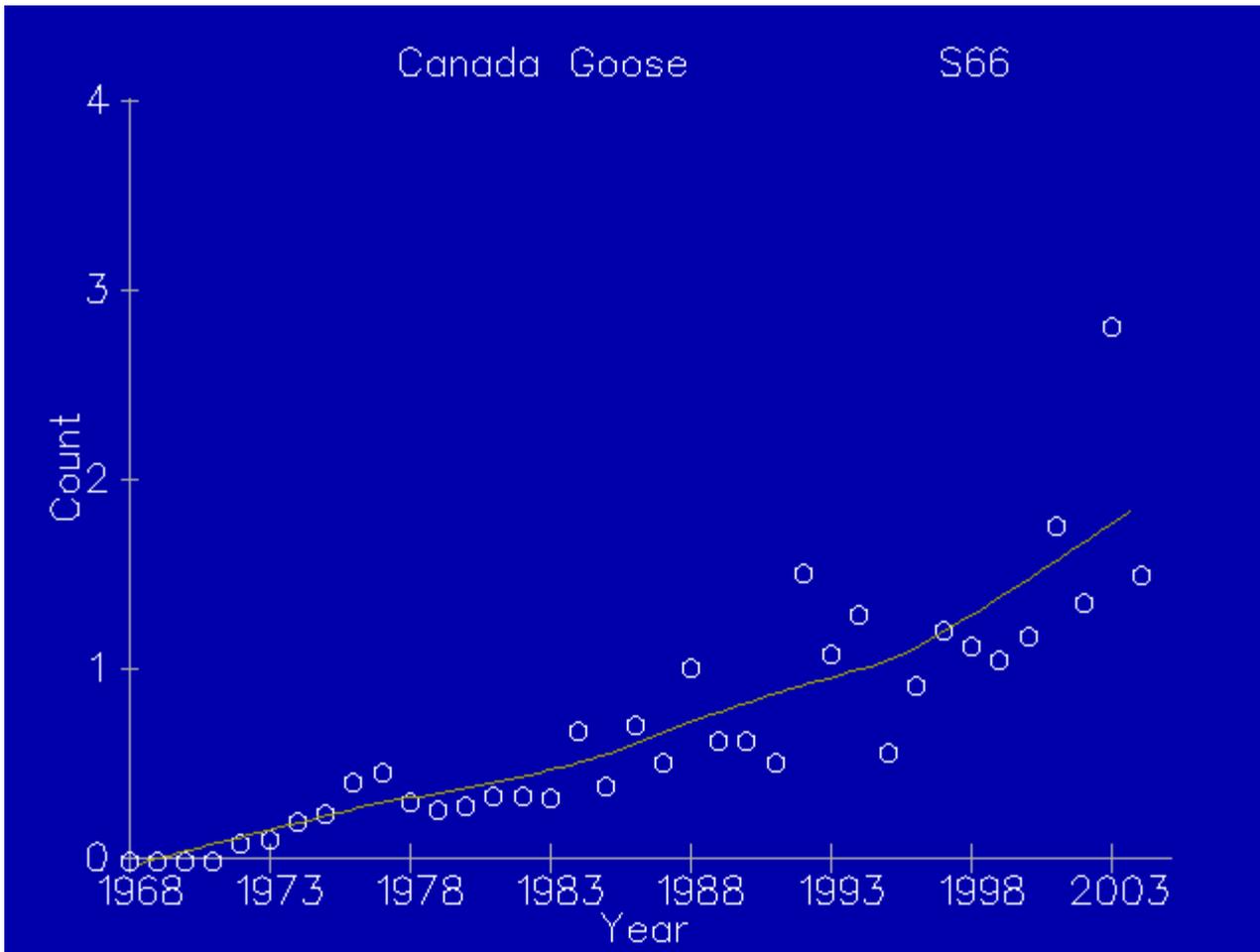


Figure 5. BBS Population Trend for the Sierra Nevada Bioregional Scale (S66) from 1968 – 2003.

**Canada Goose Population Status and Trend:**

The population status for the Canada Goose ranges from 1000 geese to 1400 geese forest-wide.

The population trend for the Canada Goose is considered stable to increasing based on population monitoring and due to the fact that existing habitat has been maintained from 1988 to 2006, and additional habitat improvements have been made for the Goose over that same time span.

**Mule Deer:**

Mule deer range and habitat includes coniferous forest, foothill woodland, shrubland, grassland, agricultural fields, and suburban environments. Suitable habitat is composed of four distinctly different elements: fawning, foraging, cover, and winter range.

Hiding and thermal cover is typically close to the ground, and thick enough to camouflage the outline of the deer, without being so dense as to obscure the approach of potential predators. Thermal cover is similar and generally thought to be denser, with the additional property of sheltering deer from the elements.

Winter range tends to be lower elevation habitats that meet the requirements for forage, hiding, and thermal cover described above. Mule deer migrate seasonally between higher elevation summer range and low elevation winter range.

## **Habitat:**

Mule deer inhabit roughly 64 million acres in California. The California Wildlife Habitat Relationships (CWHR) model calculates 2,262,890 acres of existing suitable mule deer habitat on national forest lands in the Sierra Nevada (SNFPA 2001). This is considerably lower than the Deer Assessment Units (DAU) figures from the California Department of Fish & Game (CDFG 1998), which sum to over 12 million acres.

Deer habitat utility scores were calculated based upon CWHR models (Appendix B, SNFPA 2001) for the 2.3 million acres. These scores predict the changes in relative utility of habitats for deer fawning, foraging, cover, and winter range under implementation of management actions. Overall, deer habitat utility would be expected to decline under the Sierra Nevada Forest Plan Amendment by -6.6% over a five-decade period, which is so small that it may be insignificant (SNFPA 2001). Since mule deer are a common species still occupying their historic range in the Sierra Nevada, it does not seem likely that the small decline in habitat utility values under the 2001 plan amendment would outweigh either natural environmental variations or risk factors beyond the control of the Forest Service to result in the loss of viable, well-distributed populations (SNFPA 2001). A desirable habitat mix for deer consists of a forage to cover ratio of 60:40.

Mule Deer seasonal ranges, as identified in individual deer herd plans, have been mapped across the Plumas and are displayed in Figure 6. Summer range habitat in Figure 6 amounts to approximately 1,454,381 acres, critical summer range is made up of 7,095 acres, fawning areas make up 26,498 acres, winter range makes up 211,169 acres, critical winter range habitat is made up of 21,435 acres, and a known holding area makes up 3,704 acres.

Habitat capability for Mule Deer was evaluated at the forest scale for the Plumas using the CWHR model as outlined in Appendix A. Based on CWHR data, the Plumas currently supports 298,848 acres of moderate capability habitat and 634,247 acres of high capability habitat. This habitat capability is further broken down into 721,680 acres of cover, and 211,415 acres of foraging habitat.

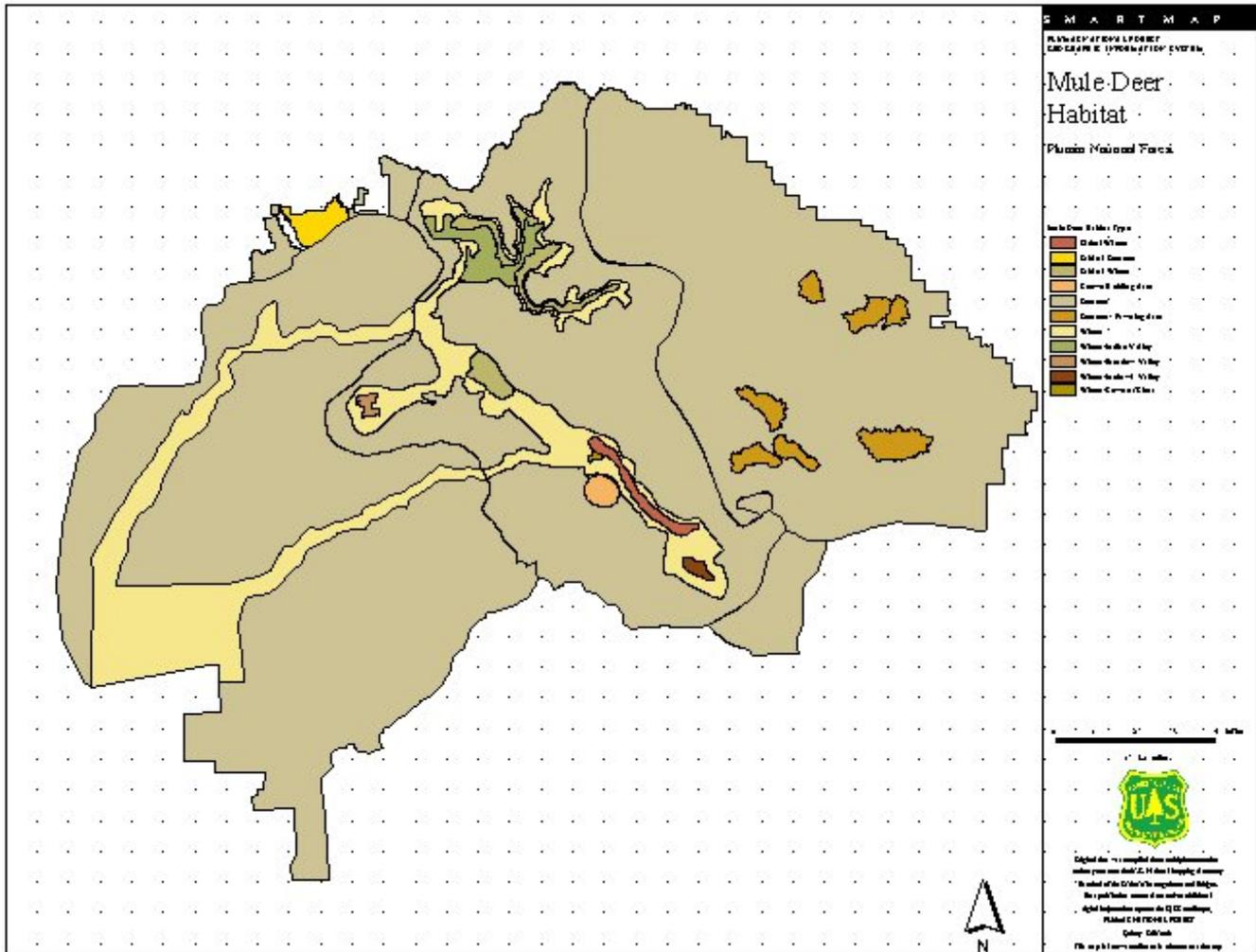


Figure 6. Mule Deer Habitat, Plumas National Forest.

### **Mule Deer Habitat Status and Trend:**

Mule Deer habitat status consists of 298,848 acres of moderate capability habitat and 634,247 acres of high capability habitat. This habitat capability is further broken down into cover (721,680 acres), and forage (211,415 acres). The Plumas NF has an existing forage to cover ratio of 23:77.

Mule Deer habitat trend is considered stable. This trend is based on the availability and abundance of habitat for Mule Deer across the Plumas which has not undergone substantial changes from 1988 to 2006.

### **Population:**

Mule Deer are common game species and widely distributed throughout the State of California. NatureServe gives Mule Deer a *Secure* conservation ranking for the State of California. A *Secure* ranking by NatureServe is defined as the species being common, widespread, and abundant in the nation or state/province.

The State of California is divided into 11 Deer Assessment Units (DAUs) for purposes of analysis. Six DAUs overlap the Sierra Nevada to varying degrees: DAUs 2, 3, 4, 5, 6, and 7 (IBID). Inexplicably, DFG changed the DAU reference numbers between 1998 and 2003. The boundaries and the deer hunting zones within each DAU did not change (on average): the Northeast California zone was changed from DAU 2 to DAU 9; Northeast Sierra Zone was changed from DAU 3 to DAU 10; the South Sierra Zone

was changed from DAU 7 to DAU 6; and the East Sierra Zone was changed from DAU 6 to DAU 8 and 11. Table 3 below (SNFPA 2001 FEIS, Table 4.2.2.1a.) shows estimated deer populations for the Six DAUs in the Sierra Nevada Forest Plan Amendment Project Area (CDFG 1998). These six DAUs total 28,732,160 acres (44,894 square miles).

Totals Deer #	DAU 2 (Changed to DAU 9)	DAU 3 (Changed to DAU 10)	DAU 4	DAU 5	DAU 6 (Changed to DAU 8)	DAU 7 (Changed to DAU 6)	Totals
1952 Highs	100,000	40,000	69,000	150,000	65,000	95,000	519,000
1952 Density	9.8/ sq mi	11.1/sq mi	9.9/ sq mi	14.3/ sq mi	8.7/ sq mi	10.8/sq mi	11.6/sq mi (=0.018/ac)
1992 Average	25,000	10,000	40,000	70,000	11,500	35,000	191,500
1992 Average Density	2.5/ sq mi	3.1/ sq mi	7.9/ sq mi)	6.7/ sq mi	1.5/ sq mi	4.0/ sq mi	4.3/ sq mi (=0.007/ac)

Table 3. Estimated Deer populations by Deer Assessment Units.

#### **Deer Assessment Unit Scale:**

Current trends and population numbers are taken from the Environmental Document for Deer Hunting, produced by the California Department of Fish & Game, April 2003. Deer populations are declining in DAU 4, the Cascade, Northern Sierra Nevada (hunting zones C1-C4).

Deer populations are considered increasing in DAU 5, the Central Sierra Nevada (hunting zones D3-D7). The western portion of the Plumas NF is within DAU 5.

Deer populations are considered stable in DAU 6, 9, 10, (DAU 9 Northeast California, DAU 10 Northeast Sierra, DAU 6 South Sierra). Most notably eastside deer populations (DAU 9, 10) occupying great basin habitats experienced significant declines during 1990-1996. However these populations have appeared to have stabilized based on recent trend estimates (DFG, 2003). DAU 10 is within the Plumas NF.

#### **Hunt Zone Scale:**

DAU 4: Hunt Zone C-4 – Lassen and Plumas National Forest. The 2002 population status in C-4 was approximately 20,100 Mule Deer.

DAU 5: Hunt Zone D-3 – Tahoe and Plumas National Forest. 2002 population status was approximately 21,300 Mule Deer. 39.2% of this DAU (square miles) is NF land.

DAU 10: Hunt Zone X-6a– Plumas National Forest. 2002 population status was approximately 2,490 Mule Deer. 63.1% of this DAU (square miles) is NF land.

DAU 10: Hunt Zone X-6b– Plumas National Forest. 2002 population status was approximately 1,825 Mule Deer. 63.1% of this DAU (square miles) is NF land.

#### **Plumas National Forest:**

The LRMP EIS estimated a maximum potential deer population on forest lands to be 38,000 deer. Based on this number, the LRMP set a population goal for the Plumas of 24,000 deer (LRMP Table 4-2). This number represents the Forest’s contribution or share to the deer population goal embodied in the deer herd plans at the time the EIS was written. The EIS also estimated a deer herd population of 19,100 deer in 1982 for the Plumas. Subsequent monitoring in the years to come showed this number remained relatively stable (Figure 7).

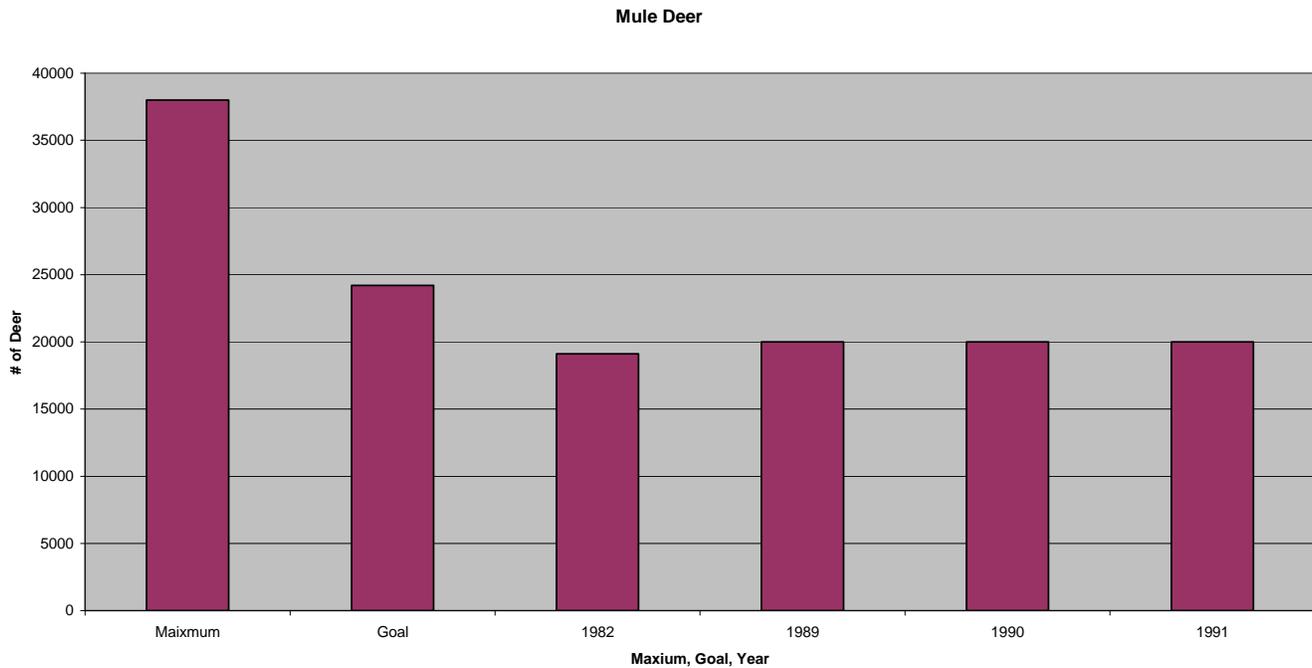


Figure 7. Mule Deer monitoring, Plumas National Forest from 1982 to 1991, indicating a stable trend.

The Plumas National Forest contains portions of 6 deer herds: Bucks Mountain, Doyle, Eastern Tehama, Loyaltton/Truckee, Mooretown, and Sloat. The California Department of Fish & Game has conducted annual population monitoring on the Doyle Deer herd from 1997 to 2005. Population numbers for this deer herd are shown in the trend graph below (Figure 8). The population numbers for the Doyle Deer Herd indicates a stable population trend. The Doyle deer herd is within DAU 10 for which the Department of Fish & Game indicates has a stable trend. This trend is consistent with California Department of Fish & Game’s data that indicates a stable mule deer population trend for the Plumas (J. Lidberg, CDF&G Unit Biologist, personal communication).

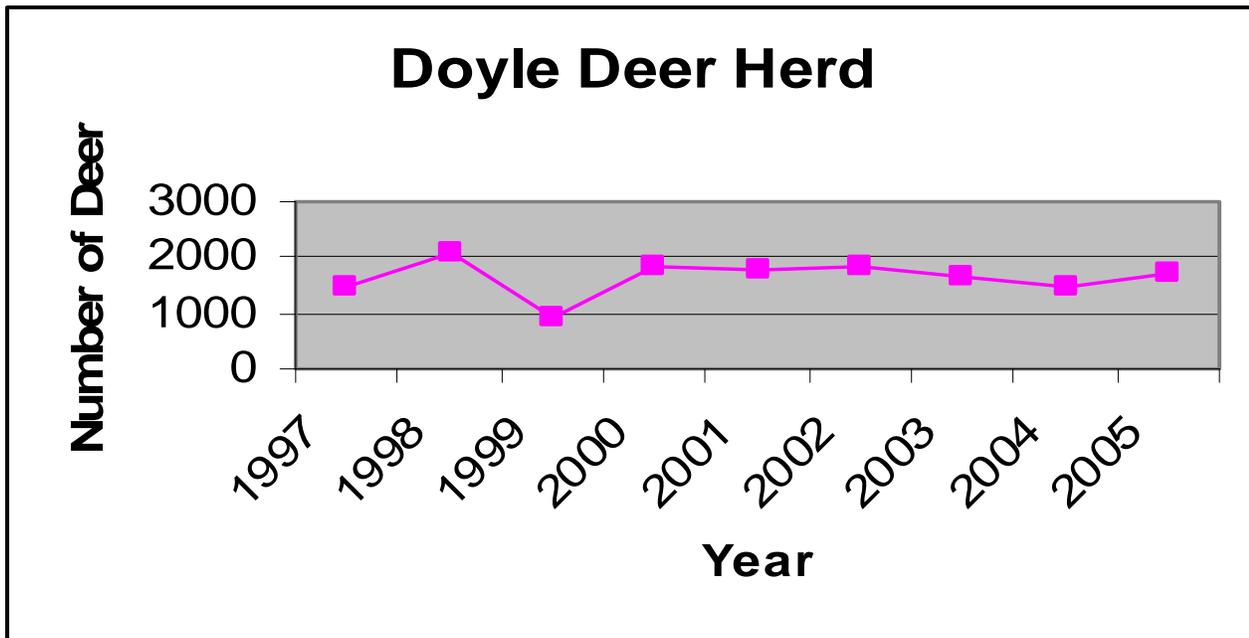


Figure 8. Doyle Deer Herd Population Trend from annual population monitoring (1997-2005).

In addition, Mule Deer are widely distributed across the forest, and found within Plumas National Forest lands that contain suitable habitat. California Department of Fish & Game data from spotkill maps supports the wide distribution of mule deer across the Plumas. Appendix C, Wildlife Management Deer Spotkill Maps, provides data that mule deer are widely distributed across the forest within hunt zones C4, D3, X6a and X6b. Mule Deer data above, from both the Forest and the Department of Fish & Game satisfies the monitoring objective for abundance and distribution monitoring found in Appendix E of the 2004 Sierra Nevada Forest Plan Amendment.

#### **Mule Deer Population Status and Trend:**

The Mule Deer population status for the Plumas NF indicates a population of deer that ranges from 17,397 deer based on California Department of Fish & Game (CDF&G) DAU data to 20,000 deer based on Plumas NF monitoring data.

The Mule Deer population trend for the Plumas NF is considered stable and widely distributed across the Forest. This trend is based on Plumas NF population monitoring, monitoring of the Doyle Deer herd, DAU Hunt Zone Data, and distribution data provided by the CDF&G.

#### **Marten:**

The American Marten is listed as a MIS and as a Regional Forester Sensitive Species for the Plumas. Under the Plumas LRMP, no population monitoring is required for the Marten. In addition, Appendix E of the 2001 SNFPA FEIS does not require population monitoring. The monitoring objectives for both Appendix E and the Plumas LRMP states that the Marten is to be monitored for geographic distribution. These objectives would be met through analysis of habitat capability and through distribution information provided by the CDFG, surveys, and incidental sightings of animals and sign.

#### **Habitat:**

Marten habitat consists of mature red fir, upper elevation mixed conifer, and subalpine forests interspersed with meadows and riparian areas above 6,000 feet. Martens den in trees, snags, downed logs and rocks in structurally complex old forest habitat, which consist of CWHR Classes 5M, 5D and 6.

Effects to old forest habitat (CWHR Classes 5M, 5D and 6) are annually being tracked across the HFQLG Pilot Project, which includes the Plumas. Reductions are documented and a cumulative total is tracked to make sure no greater than a 10% reduction occurs over the life of the Pilot Project. There are currently 186,394 acres of 5M, 5D and 6 in the pilot project area. To date 3,282 acres have or will have, a reduction based on projects with a signed decision. These acres total approximately 1.7% of the acres in 5M, 5D and 6 within the pilot project area. These effects to old forest habitat and denning habitat (i.e. 1.7%) encompass mature red fir habitat that is preferred by the Marten in CWHR Classes 5M, 5D and 6. In addition, the Boulder and Hungry fires affected 198 acres of 5M, 5D and 6 habitat in 2006.

### **Marten Habitat Status and Trend:**

The habitat status for the Marten consists of 182,914 acres of habitat (CWHR Classes 5M, 5D, and 6) within the HFQLG Pilot Project area.

The habitat trend for the Marten is considered stable. This is based on the small acre percentage of Marten habitat affected by projects and wildfires across the HFQLG Pilot Project since 2000, and that the amount of habitat affected on the Plumas is less than the 1.7% currently documented across the pilot area.

### **Distribution:**

The distribution of American marten has substantially changed since the early 1900's and this distribution appears to have decreased in the northern Sierra Nevada and southern Cascade region and populations appear to be discontinuous. Comparing the historical and contemporary locations centered on Plumas County indicate large gaps between detections that were not present historically. Zielinski points out that these gaps are largely areas composed of National Forests that have received more impacts from humans, including timber harvest, road building and – until the mid-1950's – trapping. The reduction in marten distribution is probably more closely linked to the influence of timber harvest and forest management during the historical and the contemporary periods. Based on Zielinski (2005), trends in marten detections in Plumas County, and by inference the Plumas National Forest, from the early 1900's to the late 1900's are downward, primarily due to relatively small amounts of late seral/old-growth forest attributes.

Systematic carnivore surveys have been conducted on the Plumas NF. Approximately 50% of the Plumas NF has been systematically surveyed to protocol using track plates and camera stations (Plumas GIS database). On the PNF, all but about 5 sightings of marten occur within the Lakes Basin-Haskell Peak area, or around Little Grass Valley Reservoir. All of these 5 sightings are unverified reports (verified report consists of photograph, tracks, hair sample, sighting by reputable biologist).

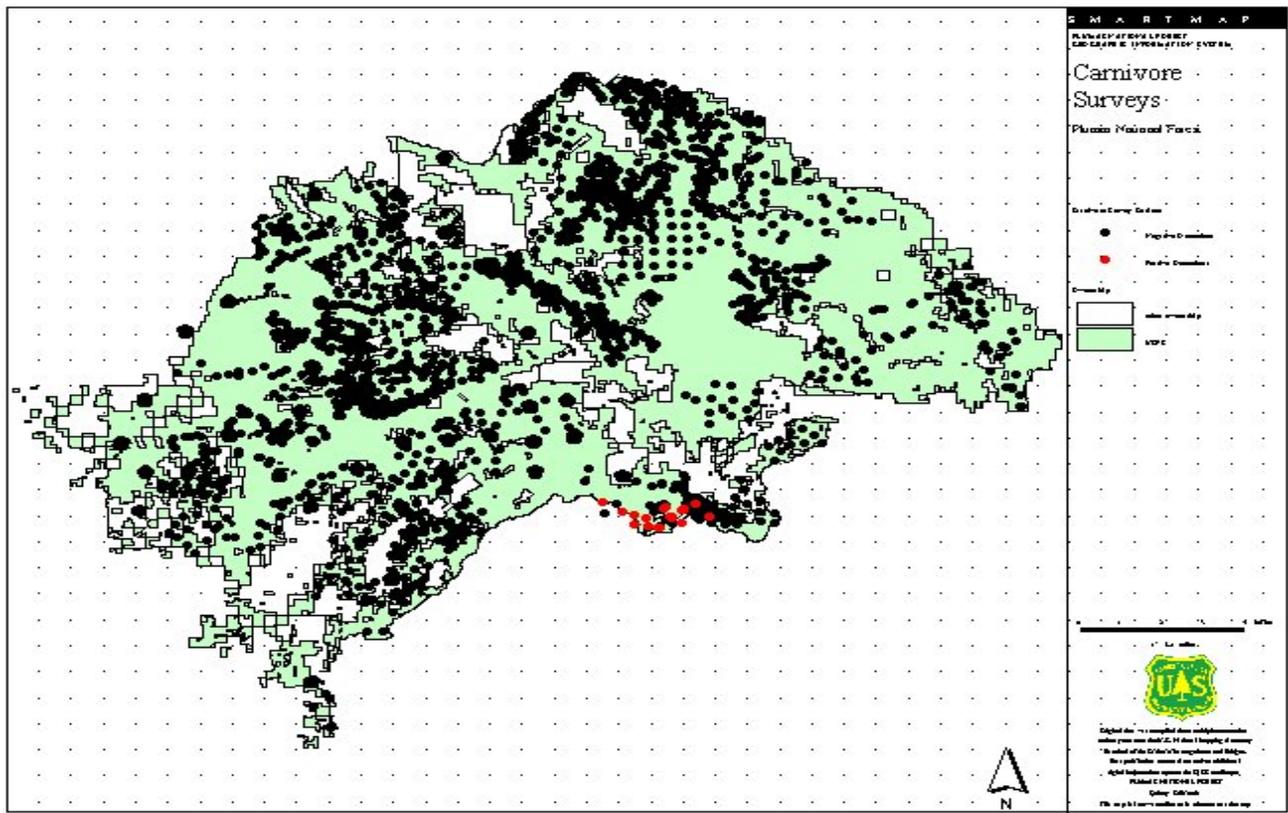


Figure 10. Marten sightings (red), Plumas NF from 2,121 survey stations.

Figure 10, above represents the results geographic distribution monitoring from 2,121 survey stations documenting the distribution and sightings of Marten on the Plumas.

Status and trend monitoring for the Marten is also occurring at the bio-regional scale under the Sierra Nevada Forest Plan Amendment. Status and trend monitoring for the marten began in 2002. This bio-regional monitoring for the Marten occurs on all Forests throughout the Sierra Nevada, including the Plumas. Geographic distribution monitoring involves conducting presence/absence surveys throughout the region to estimate the proportion of sites (primary sample units) annually occupied by Marten, and detect declines over the proposed ten-year monitoring period. During the past four field seasons, 708 primary sample units have been completed (with more than 4,500 individual survey stations and over 45,000 survey nights). During this time, Marten were detected at 84 sites throughout the region, 28 of which occurred in wilderness areas. Detection rates for the Marten over this four-year period are shown in Table 3-A below.

Table 3-A. Marten detection rates based on bio-regional monitoring, 2002 – 2005.

Year	2002	2003	2004	2005
Detection Rates	0.176	0.167	0.144	0.084

This bio-regional monitoring under the Sierra Nevada Forest Plan Amendment has not resulted in new detections on the Plumas NF.

**Marten Distribution Status and Trend:**

The distribution status for the Marten is based on monitoring data collected on the Plumas, as required by Appendix E and the Plumas LRMP. Based on this data, it appears Marten are locally distributed in and around the Lakes Basin area of the Plumas NF.

The distribution trend for the Marten has remained stable since development of the LRMP in 1988.

## Golden Eagle:

The Golden Eagle is listed as an MIS for the Plumas. The Forest LRMP has a minimum management objective for the Golden Eagle to provide suitable habitat for at least 9 territories.

### Habitat:

The Golden Eagle utilizes open and semi open habitats from sea level to 11,900 feet (Poole and Bromley, 1988) – shrublands, brushlands, grasslands, and coniferous forests or in rock cliffs along river drainages. Avoids heavily forested areas but may utilize farmland and riparian habitats.

Within the context of the SNFPA bioregion, the Golden Eagle was lumped into a broad elevational distribution/open habitat use group of raptors stating that Golden Eagles primarily forage in open vegetation types such as grasslands, alpine types, blue oak woodlands, and eastside shrub types. Golden Eagles rarely forage within the conifer forest zone (SNFPA 2001).

For the rock cliff habitat component, forest management activities likely have minimal or indirect effects to this habitat type. Disturbance to these habitats is limited, as most forest activities do not impact cliff, cave, talus or rock outcrops. Effects of forest management activities to coniferous habitats along meadows or large open valleys may have the potential to affect tree nesting habitat for the Golden Eagle. Most forest management effects along meadow edges, however, are limited to the removal of smaller diameter trees that are encroaching on meadow habitats. Larger trees that provide nesting potential for Golden Eagles adjacent to meadows and large open valleys are retained to comply with Forest Plan Standard and Guidelines for the Golden Eagle (LRMP, pg 4-33).

Of the nine nesting territories on the Forest, habitat within a 1-mile radius of each site was delineated as the designated area for monitoring habitat trends at the Forest scale. This designated habitat is being tracked since changes in this 1-mile radius will have the greatest influence on Eagle foraging and nesting. The habitat status within these nine designated areas is shown in Table 3-B below.

Table 3-B. Habitat status within nine Golden Eagle designated areas.

Territory Name →	Mapes Canyon	Cradle Valley	Keddie Ridge	Thompson Peak	Frenchman Lake	Middle Fork Clio	Peel Ridge	Humdrum	Peters
CWHR Habitat Type*↓									
AGS	264	109	128	7	93	215	357	84	20
ASP	-	7	-	6	-	-	-	-	-
BAR	-	4	-	401	-	21	-	4	-
CRP	-	-	404	-	-	-	-	88	416
DFR	-	-	753	-	-	392	44	340	606
EPN	1142	775	-	19	1132	631	-	-	57
MCH	-	-	3	-	-	11	-	-	8
MCP	78	86	-	132	6	12	-	9	20
MHC	8	-	197	11	-	-	26	103	42
MHW	-	-	179	15	-	-	6	83	229
MRI	-	-	-	37	13	8	-	-	-
PPN	-	24	99	-	-	-	138	208	8
SGB	336	25	-	85	501	341	-	-	-
SMC	172	970	220	1287	191	361	1429	1072	594
URB	-	-	7	-	-	8	-	-	-

WAT	-	-	10	-	64	-	-	9	-
<b>Total Acres</b>	<b>2,000</b>								

\* See Appendix A for definition of CWHR Habitat Types

**Golden Eagle Habitat Status and Trend:**

The habitat status for the nine Golden Eagle territories is reflected in Table 3-B above. Each territory contains a core 2,000 acre habitat area centered around the nest site. Forest-wide 18,000 acres of habitat are tracked for habitat changes on the Plumas NF.

The habitat trend for the Golden Eagle is considered stable on the Plumas NF. Habitat within these designated areas has remained stable with the implementation of standard and guidelines for the Golden Eagle under the LRMP (pg 4-33), plus the retention standard applied to HFQLG projects for trees >30” dbh. In addition, cliff and rock outcrops that lie within the nine designated Golden Eagle territories have not been affected by management activities on the Plumas NF.

**Population:**

This species was once a common permanent resident throughout the open areas of California; numbers are now reduced near human population centers, but in general, populations seem stable (Grinnell and Miller 1944, Remsen and Gaines 1973a, Stallcup and Winter 1975a, McCaskie 1975c). Five hundred pairs are estimated to nest in California (Thelander 1974). BBS data taken from individual routes on the Plumas National Forest from 1966 to 2003 indicate one route partially on the Plumas has a downward trend (Appendix B - Plumas NF BBS Population Analysis)

The Plumas National Forest has had as many as 9 known Golden Eagle nesting territories. The Forest LRMP estimated a potential for the Plumas to supply habitat for approximately 20 nesting pairs. The Forest has conducted population monitoring of Golden Eagles since development of the Forest Plan in 1988. Figure 11 shows the number of Golden Eagles based on annual population monitoring reports from 1988 to 1992.

**Golden Eagle Population**

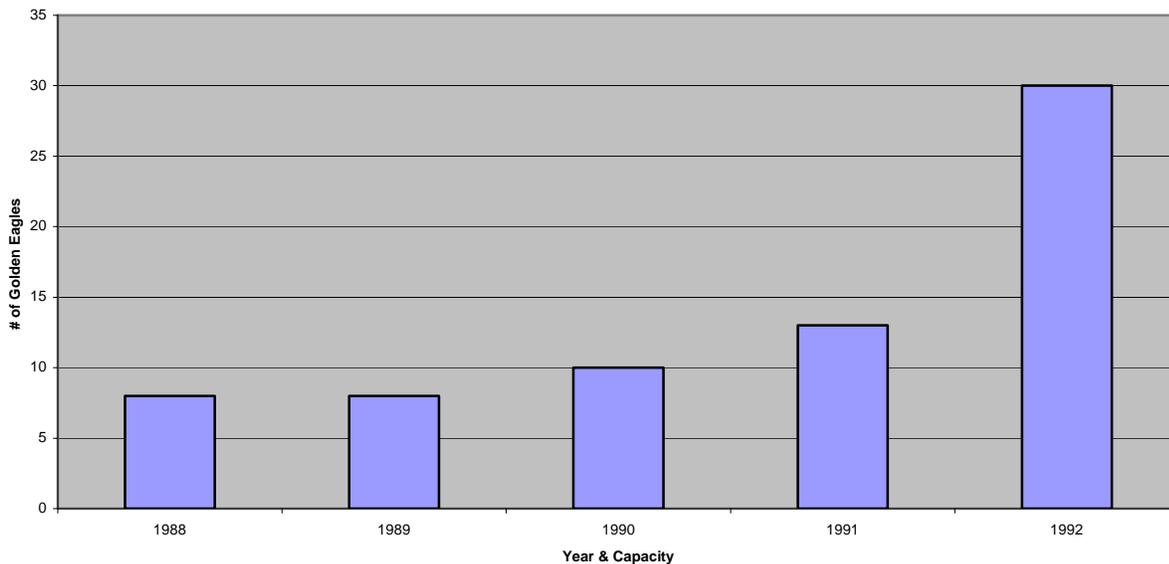


Figure 11. Golden Eagle population based on annual population monitoring from 1988 to 1992.

**Golden Eagle Population Status and Trend:**

The population status for the Golden Eagle on the Plumas NF consists of limited distribution across the forest within the nine existing Eagle territories. Distribution monitoring will occur at the nine known Golden Eagle locations on the Plumas in 2007.

The population trend for the Golden Eagle on the Plumas NF is downward. The Golden Eagle population in 1992 was 30 eagles, and currently consists of limited sightings of eagles at our nine nesting territories.

**Prairie Falcon:**

The Prairie Falcon is listed as an MIS for the Plumas and serves as an indicator for cliff, cave, talus and rock outcrop habitats.

**Habitat:**

Prairie Falcons nest on rock cliffs within forested habitats throughout the transition and eastside zones of the forest. These rock cliffs are often associated with large, open areas. Within the context of the SNFPA bioregion, the Prairie Falcon was lumped into a broad elevational distribution/open habitat use group of raptors stating that Prairie Falcons primarily forage in open vegetation types such as grasslands, alpine types, blue oak woodlands, and eastside shrub types. Prairie Falcons rarely forage within the conifer forest zone (SNFPA 2001). Forest management activities likely have minimal or indirect effects to these species because of the use of open, non-forested habitats. Disturbance to Prairie Falcon habitats is limited, as most forest activities do not impact cliff, cave, talus or rock outcrops.

Of the six known nesting territories on the Forest, habitat within a 1-mile radius of each site was delineated as the designated area for monitoring habitat trends at the Forest scale. This designated habitat is being tracked since changes in this 1-mile radius will have the greatest influence on Falcon foraging and nesting. The habitat within these six designated areas is shown in Table 3-C below.

Table 3-C. Habitat status within designated areas for monitoring habitat trends of six nesting territories.

Territory Name →	Last Chance	Red Rock	Adams Peak	Dixie Mountain	Smith Peak	Mapes Canyon
CWHR Habitat Type*↓						
AGS	108	11	236	45	60	460
ASP	-	-	-	-	8	-
BAR	8	12	34	414	8	118
EPN	991	-	510	157	920	616
JPN	-	-	-	-	28	-
MCP	62	158	269	319	129	43
MHC	3	-	9	-	27	24
MHW	-	-	-	-	-	37
MRI	-	41	-	5	-	-
RFR	-	175	-	-	-	-
SGB	829	266	40	115	24	559
SMC		1037	902	370	763	143
WFR		259	-	575	26	-
WTM		41	-	-	7	
<b>Total Acres</b>	<b>2,000</b>	<b>2,000</b>	<b>2,000</b>	<b>2,000</b>	<b>2,000</b>	<b>2,000</b>

\* See Appendix A for definition of CWHR Habitat Types

### **Prairie Falcon Habitat Status and Trend:**

The habitat status for the six Prairie Falcon territories is reflected in Table 3-C above. Each territory contains a designated 2,000 acre habitat area centered around the nest site. Forest-wide 12,000 acres are tracked for habitat changes on the Plumas NF.

The habitat trend for the Prairie Falcon is considered stable on the Plumas NF. Habitats within these designated areas, including cliff and rock outcrops, have not been affected by management activities on the Plumas NF.

### **Population:**

The Plumas NF currently has six Prairie Falcon nesting eyries on the Forest. Forest Plan monitoring from 1989 to 1992 showed 11 falcons in 1989 and 1990, 15 in 1991, and 12 in 1992. This population trend is shown in Figure 12 below and indicates a stable population trend for the Plumas. Due to no changes in habitat at the six Prairie Falcon sites, there is no reason to indicate that this trend has changed. In 2006, the Plumas conducted monitoring of the Red Rock nesting territory. The Red Rock eyrie was active in 2006.

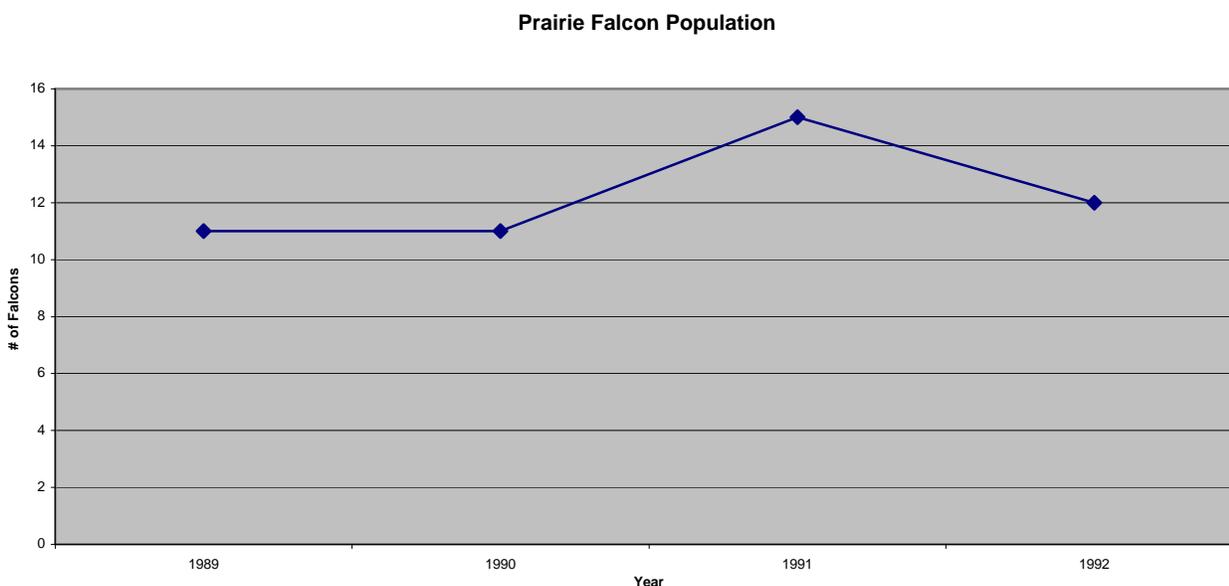


Figure 12. Prairie Falcon population trend, Plumas National Forest.

### **Prairie Falcon Population Status and Trend:**

The population status for the Prairie Falcon on the Plumas NF consists of limited distribution across the forest. Distribution monitoring will occur at the six Prairie Falcon locations on the Plumas in 2007.

The population trend for the Prairie Falcon on the Plumas NF is considered downward. The Prairie Falcon population in 1992 was 12 falcons, and currently consists of limited sightings of Falcons at our six nesting territories.

## **Peregrine Falcon:**

The Peregrine Falcon is a MIS and a Regional Forester Sensitive Species on the Plumas NF. Since 1984, the Plumas has implemented actions to meet or exceed the population objective of at least one nesting pair of Peregrine Falcons on the Forest. This goal was originally assigned to the Plumas under the Peregrine Falcon Recovery Plan at the time the Falcon was listed under the Endangered Species Act.

### **Habitat:**

Peregrine Falcons nest on rock cliffs within forested habitats throughout the transition and eastside zones of the forest. Biologists have reviewed habitat for the Peregrine Falcon on the Plumas NF extensively since the early 1980's. Habitat needs for the Peregrine consists of two rock cliff sites on the Forest, located at Bald Rock and Canyon Dam. Disturbance to these habitats is limited, as most activities do not impact the rock cliffs/outcrops used for nesting. Currently these habitats/sites are considered relatively secure. The habitat status for the two active sites on the Plumas are listed below in Table 3-D.

Table 3-D. Habitat status within designated areas of two Peregrine Falcon nesting territories.

Territory Name →	Bald Rock Dome	Canyon Dam
CWHR Habitat Type*↓		
AGS	-	4
BAR	261	10
DFR	617	-
MCH	78	-
MCP	3	23
MHC	381	27
MHW	578	9
SMC	67	1,852
WAT	15	-
WFR	-	75
<b>Total Acres</b>	<b>2,000</b>	<b>2,000</b>

\* See Appendix A for CWHR definitions

The Plumas LRMP and Appendix E of the 2004 SNFPA do not require habitat monitoring for the Peregrine Falcon.

### **Peregrine Falcon Habitat Status and Trend:**

The habitat status for the two Peregrine Falcon territories is reflected in Table 3-C above. Each territory contains a designated 2,000 acre habitat area centered around the nest site. Forest-wide, this designated habitat consist of 4,000 acres on the Plumas NF.

The habitat trend for the Peregrine Falcon is considered stable on the Plumas NF. Habitats within these designated areas, including cliff and rock outcrops, have not been affected by management activities on the Plumas NF.

### **Population:**

The Peregrine Falcon on the Plumas has been documented at two of three sites from 1989 to present. From 1989 to 1992, Peregrine's were crossed fostered at the Dixie Mountain site. A total of 7 Peregrine chicks fledged from Dixie during this time. Monitoring occurred at this site from 1993 to 1996. No Peregrines were seen at Dixie in 1993 and 1994. Peregrines were seen at Dixie in 1995 and 1996, but

were not nesting. Peregrines have not been seen at Dixie since 1997. Prairie Falcons currently occupy the Dixie site (see Prairie Falcon section of this report).

The Bald Rock site has been used by Peregrines consistently since development of the Forest Plan. Bald Rock has been occupied every year and is currently an active eyrie.

The Canyon Dam site became an active eyrie in 1998. Monitoring of the Canyon Dam site has occurred sporadically from 1998 to 2005. This site is currently active in 2006 with a pair.

Both Bald Rock and Canyon Dam were monitored in 2006. Based on known information and population monitoring the trend for Peregrine Falcons is shown in Figure 13. The Forest is currently maintaining the Forest LRMP objective of maintaining two peregrine falcon nest sites (LRMP, Table 4-4).

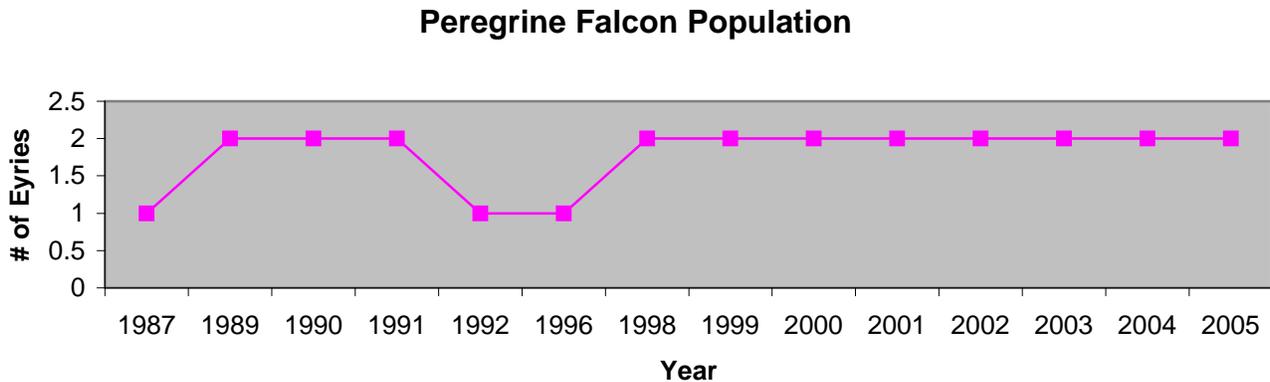


Figure 13. Peregrine Falcon Population Trend, Plumas National Forest.

**Peregrine Falcon Population Status and Trend:**

The population status for the Peregrine Falcons consists of 2 pairs. This is based on monitoring of the two nest sites on the Plumas NF.

The population trend for the Peregrine Falcon is stable on the Plumas National Forest (see figure 13).

**Goshawk:**

The Goshawk is a MIS and a Regional Forest Sensitive Species. The Forest LRMP EIS stated that the Plumas has the habitat capacity for 100 Goshawk pairs. The Forest LRMP, Table 4-2, predicts the number of Goshawk pairs after the 1<sup>st</sup> decade (1986 – 1995) to be 86 pairs, and in the 2<sup>nd</sup> decade (1996 – 2005) to be 81 pairs. This would indicate that the Plumas LRMP anticipated a downward population trend for the Plumas as of 2005 (i.e. end of the 2<sup>nd</sup> decade). The Forest LRMP, Table 4-4, displays a minimum management objective for the Goshawk to provide suitable habitat for a Forest-wide network of 60 Goshawk territories. This would represent a minimum threshold for Goshawks on the Plumas NF.

**Habitat:**

The northern goshawk requires mature conifer and deciduous forest with large trees, snags, and downed logs, dense canopy closure for nesting and forests with moderately open overstories, open understories interspersed with meadows, brush patches, or other natural or artificial openings and riparian areas for

foraging. Recent studies indicate that goshawks typically select for canopy closures greater than 60% for nesting (Hall 1984, Richter and Callas 1996, Keane 1997).

The following affected CWHR types provide high nesting habitat capability: Sierran Mixed Conifer, White Fir, Montane Hardwood-Conifer, and Montane Riparian (6, 5D, 5M, 4D, 4M), Ponderosa Pine, Jeffrey Pine, and Lodgepole Pine (5D, 5M, 4D, 4M) and Red Fir (5D, 5M). The following CWHR types are rated as providing moderate nesting habitat capability: Aspen (6, 5D, 5M, 4D, 4M), Eastside Pine (5D, 5M, 4D, 4M, 3D, 3M), Red fir (4D, 4M), and Lodgepole Pine (3D, 3M) (SNFPA FEIS Vol3, Chap.3, part 4.4 pg 116).

Effects to high capability nesting habitat can be related to the amount of CHWR size classes 5M, 5D and 6 that have been tracked across the HFQLG Pilot Project, which includes the Plumas. Reductions are documented and a cumulative total is tracked to make sure that no greater than a 10% reduction occurs over the life of the Pilot Project (1999 to 2009). There are currently 186,394 acres classified as 5M, 5D and 6 in the project area. To date 3,282 acres have or will have a reduction, based on projects with a signed decision. These acres total approximately 1.7% of the acres in 5M, 5D and 6 within the Pilot Project.

Most of the projects affecting the Goshawk on the Plumas have been HFQLG projects, so the amount of 5M, 5D, and 6 affected by HFQLG appears to be a good indicator of habitat trend for nest groves. The 1.7% affected to date is relatively low compared to the overall amount of suitable habitat available across the pilot area. In addition, the Boulder and Hungry Fires affected 198 acres of 5M, 5D and 6 in 2006.

On the Plumas National Forest, habitat trends in nest groves will be tracked through changes in habitat within established Goshawk PACs. Currently, the Plumas has 144 PACs established on the Forest. Each PAC is delineated at 200 acres for a total of 28,800 acres of suitable Goshawk habitat. Table 3-D reflects these acres and shows changes to PAC habitat from 2000 to 2006.

Table 3-D. Changes in habitat within 144 Goshawk PACs on the Plumas National Forest.

Goshawk PACs Forest-wide	PAC acres Forest-wide	PAC acres affected (2000 – 2006)
144	28,800	0

**Goshawk Habitat Status and Trend:**

The habitat status for the Goshawk consists of 183,112 acres of 5M, 5D and 6 within the HFQLG Pilot Project area. In addition there are 28,800 acres of suitable habitat within the 144 Goshawk PACs found within the Plumas NF.

The habitat trend for the Goshawk is considered stable. This is based on the small acre percentage of Goshawk nesting habitat affected by projects and wildfires across the HFQLG Pilot Project since 2000, and that the amount of habitat affected on the Plumas NF is less than the 1.7% currently documented across the pilot area.

**Population:**

The Plumas National Forest establishes a Protected Activity Center (PAC) surrounding all known and newly discovered breeding territories detected on National Forest System Lands. PAC designation is based upon the latest documented nest site and location(s) of alternate nests. If the actual nest site is not located, the PAC is designated based on the location of territorial adult birds or recently fledged juvenile

goshawks during the fledgling dependency period. A Goshawk PAC is established at a minimum of 200 acres.

Currently, the Plumas has 144 Goshawk PACS. Figure 14 displays the number of Goshawk PACS on the Forest since development of the Forest LRMP (1988) through 2005. Based on Figure 14, the Plumas met its minimum LRMP objective (i.e. threshold) of 60 Goshawk PACs in 1996. The current 2005 numbers exceeds the minimum LRMP objectives by more than double, and the predicted capacity of 100 PACs by 44 PACs. Goshawk PACs on the Plumas have increased since development of the Forest Plan. From 1988 to 2005, the number of PACs has increased by an average of 7 PACs per year over this 17-year period.

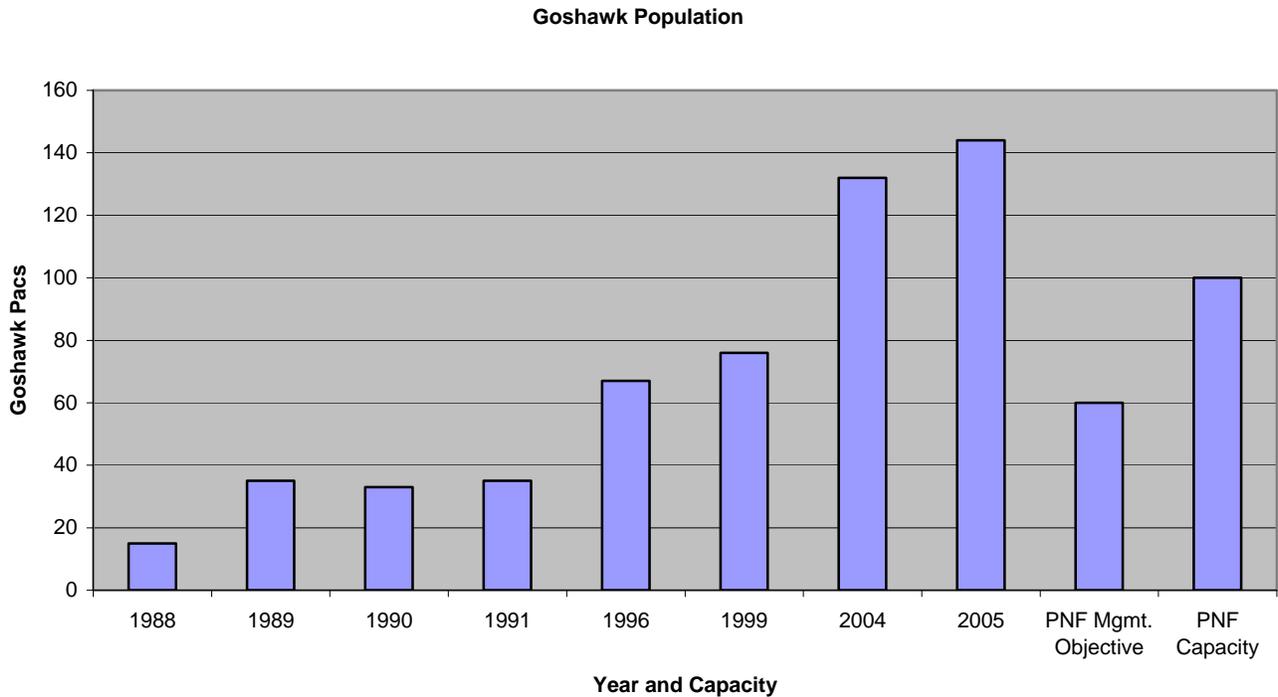


Figure 14. Goshawk PACs on the Plumas National Forest.

The Redwood Science Lab (RSL), of the Pacific Southwest Research Station, is currently conducting a Goshawk OHV study on the Plumas National Forest where they are annually evaluating and monitoring the effects of OHV noise on Goshawks as part of the distribution and demographic monitoring required by Appendix E of the 2004 SNFPA. The attached map (Figure 15) shows active nest site locations, in red, that have been evaluated and monitored for behavior and/or telemetry noise disturbance.

In 2004, the RSL monitored 38 active nests on the Plumas NF. Of the 38 active nests monitored, 24 successfully reproduced (young >30 days old), 8 nests failed, and 6 resulted in an unknown status.

In 2005, the RSL monitored 28 active nests on the Plumas NF. Of the 28 active nests monitored, 16 successfully reproduced, 3 nests failed, and 9 resulted in an unknown status.

In 2006, the RSL monitored 21 active nests on the Plumas NF. Of the 21 active nests monitored, 11 successfully reproduced, and 10 nests failed.

Although the Goshawk OHV study has only been going on a few years, the RSL is showing a reproductive success rate of 63%, 57%, and 52% for the number of active nest monitored in 2004, 2005 and 2006 respectively.

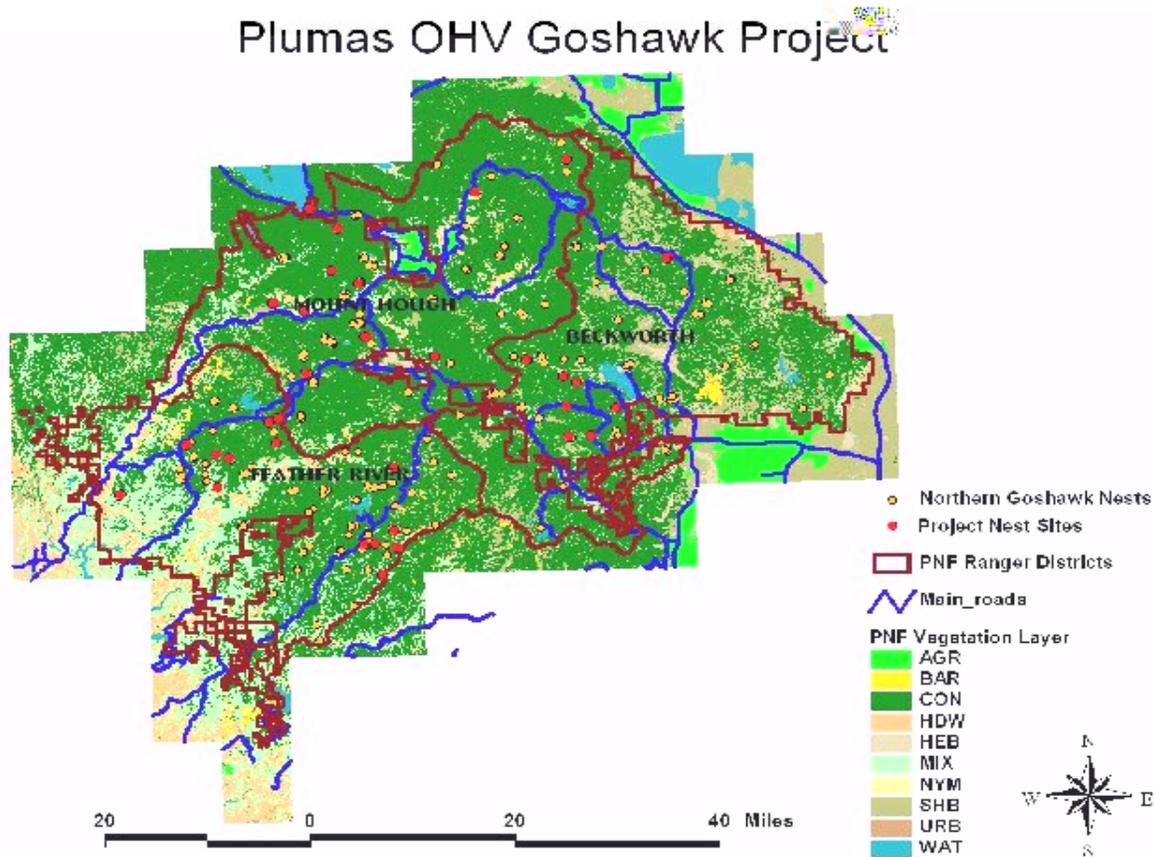


Figure 15. Goshawk OHV Study showing nest sites monitored by RSL in 2004, 2005.

**Goshawk Population Status and Trend:**

The Goshawk population status for the Plumas National Forest consists of 144 PACs. Of this number of PACs, 38 Goshawk pairs were monitored in 2004, 28 Goshawk pairs monitored in 2005, and 21 pairs in 2006.

The Goshawk population trend for the Plumas National Forest is considered relatively secure with a stable trend. This trend is based on the number of new pairs found or territorial singles found that have resulted in the establishment of a new Goshawk PAC on the Plumas NF. On average 7 new PACs have been established per year over the life of the Plumas LRMP (1988 – 2005).

**California Spotted Owl:**

The California Spotted Owl (CSO) is a MIS and a Regional Forester Sensitive Species. The Forest LRMP EIS estimated habitat capacity for the CSO on the Plumas to be 125 pairs.

**Habitat:**

Spotted owls preferentially use areas with at least 70 percent canopy cover, use habitats with 40 to 69 percent canopy cover in proportion to their availability, and spend less time in areas with less than 40 percent canopy cover than expected if habitat were selected randomly (70 Federal Register 35610).

Suitable nesting habitat on the west side of the Sierra Nevada is found in foothill riparian/hardwood forest (1.6% of known sites), ponderosa pine/hardwood forest (6.7% of known sites), mixed-conifer forest (81.5% of known sites) and red fir forest (9.7% of known sites). In general, stands typically have two or more canopy layers, dominant and co-dominant trees in the canopy averaging at least 24 inches in dbh, at least 70% canopy closure, and higher than average levels of very large, old trees, and higher than average levels of snags and downed woody material (70 Federal Register 35610). Owls consistently use stands with significantly greater canopy closure, total live tree basal area, basal area of hardwoods and conifers, snag basal area, and dead-and-downed wood when compared with random locations within forests (Verner et al, 1992) (Table 5). Nests and roosts within the Sierra Nevada occur within the following CWHR classes (SNFPA, 2001): 32% in CWHR 6, 18% in structural class 5M, 14% as 4D, 11% as 4M, 9% as 5D, 7% as 5P, and 5% as 4P, with 2% or less of the 5S, 4S, 3D, 3M, and 3P classes (SNFPA 2001). Owl nests were consistently located in sites with 75% canopy cover, 120 stems/ac, and 1,133 cubic feet/ac of foliage volume.

Table 5. Range of mean values of some attributes in suitable habitat for spotted owls in Sierra Nevada mixed-conifer forests (from Verner et al. 1992:96 and SNFPA EIS (2001)).

<b>Attribute</b>	<b>Nesting &amp; Roosting Habitat</b>	<b>Foraging Stands</b>
Percent Canopy Cover <sup>1</sup>	70-95	50-90
Total live tree basal area <sup>2</sup>	185-350	180-220
Total snag basal area <sup>3</sup>	30-55	15-30
Basal area of large snags <sup>2,3</sup>	20-30	7-17
Downed woody debris <sup>4</sup>	10-15	10-15

<sup>1</sup> Mostly in canopy >30 feet high, including hardwoods;

<sup>2</sup> Square feet per acre;

<sup>3</sup> Dead trees >15 inches dbh and >20 feet tall;

<sup>4</sup> Tons per acre

The four nest types used regularly by the spotted owl are (1) cavity nests placed in natural cavities resulting from decay; (2) broken-topped trees and snags; (3) platform nests placed on remnant platforms built by other species, or on debris accumulations; and (4) dwarf mistletoe brooms. Data analyzed from 124 nest sites within the Sierra indicated that nest trees averaged 45 inches dbh, and more than 70% of all nest trees surveyed were larger than 30 inches dbh (Verner et al. 1992). Sixty-three percent of nests were in live trees, and 37% were in snags.

Suitable foraging habitat is found in the same forest types listed above for nesting habitat (CWHR 6, 5D, 5M) as well as 4D, and 4M. Stands considered to be suitable for foraging have at least two canopy layers, dominant and co-dominant trees in the canopy averaging at least 12 inches in dbh, at least 40% canopy closure, and higher than average levels of snags and downed woody material (70 Federal Register, June 21, 2005). Although canopy covers down to 40% are suitable for foraging, they appear to be only marginally so (based on owl occurrence and productivity threshold at around 50% canopy cover, Ibid). In the red fir type, stands with 30% or greater canopy cover should be considered suitable for foraging (SNFPA 2001).

California Spotted Owl foraging and nesting habitat on the Plumas NF is set aside under three land designations under management guidance found in the 1988 LRMP and in the subsequent 2004 SNFPA. These land designations are Spotted Owl Habitat Areas (SOHAs), Protected Activity Centers (PACs) and Home Range Core Areas (HRCAs). The 54 SOHAs found on the Plumas were established under the 1988 LRMP as the designated network territories for monitoring habitat trends, and each are made up of 1,000 acres. PACs are established as a result of owl surveys that result in a detection of an owl pair or a territorial single. The Plumas NF currently has 296 PACs, each made up of the best 300 acres of owl

habitat centered around the nest core. HRCA are established around each of the 296 PACs and each HRCA contains 700 acres of the best suitable owl habitat adjacent to the PAC. Together the PAC and HRCA make up 1,000 acres. Table 5-A below details the amount of owl habitat found within 54 SOHAs, 296 PACs, and 296 HRCAs found on the Plumas. Table 5-A also shows the cumulative impact to the habitat found within these designations since 2000.

Table 5-A. California Spotted Owl Habitat within designated areas on the Plumas NF.

<b>Land Designation</b>	<b>Acres Forest-wide</b>	<b>Acres affected (2000 – 2006)</b>
SOHA	54,000	0
PAC	88,800	0
HRCA	207,200	2,696

SOHA = Spotted Owl Habitat Area, PAC = Protected Activity Center, HRCA = Home Range Core Area

Effects to CSO nesting habitat can be related to the amount of CHWR size classes 5M, 5D and 6 that have been tracked across the HFQLG Pilot Project, which includes the Plumas, Lassen and Sierraville District of the Tahoe. Reductions are documented and a cumulative total is tracked to make sure that no greater than a 10% reduction occurs over the life of the Pilot Project (1999 to 2009). There are currently 186,394 acres classified as 5M, 5D and 6 in the pilot project area. To date 3,282 acres have or will have a reduction, based on projects with a signed decision. These acres total approximately 1.7% of the acres in 5M, 5D and 6 within the Pilot Project. In addition, the Boulder and Hungry fires affected 198 acres of 5M, 5D and 6 habitat in 2006.

### **Spotted Owl Habitat Status and Trends:**

Spotted Owl habitat status on the Plumas consists of 54,000 acres of habitat within SOHAs (network territories), 88,800 acres of habitat within PACs, and 207,200 acres of habitat within HRCA's.

Spotted Owl habitat trends on the Plumas are considered stable. This is based on the following habitat monitoring; no changes in habitat within SOHA's (network territories) or PACs have occurred since 2000. Within HRCA's approximately 2,696 acres have been affected since 2000. This amounts to a change of 1.30% of the overall habitat forest-wide within HRCA's. In addition, most of the projects affecting the CSO on the Plumas have been HFQLG projects, so the amount of 5M, 5D, and 6 affected by HFQLG also appears to be a good indicator of habitat trend. The 1.7% of 5M, 5D and 6 habitat affected to date, plus acres consumed by wildfire, is relatively low compared to the overall amount of suitable nesting habitat available across the pilot area. The Plumas share of this total would be less than the 1.7%.

### **Population:**

The Plumas LRMP EIS, Table 2-1 showed a base year of 1982 with a population of 61 owl pairs. The EIS also estimated the habitat capacity on the Forest, at the time, to support a potential population of 125 owl pairs. The Plumas LRMP, Table 4-4, set a minimum management objective of providing suitable habitat for a Forest-wide network of 54 spotted owl habitat areas (SOHAs). The Plumas LRMP established this minimum objective in order to provide for owl viability on the Forest. In addition, Table 4-2 from the LRMP estimated 69 owl pairs in the 1<sup>st</sup> decade (1986 – 1995) and maintaining that same number of pairs over the 2<sup>nd</sup> decade (1996 – 2005). Data collected from Forest Plan monitoring efforts and surveys over the years to track compliance with the minimum management objective and estimated owl pairs over the first two decades is displayed in Table 6 below. PACs are designated when field surveys result in a detection of territorial owls and delineated based on; most recent documented nest site, most recent known roost site when a nest location remains unknown, and a central point based on repeated daytime detections when neither nest or roost locations are known.

Table 6. Owl population attributes from monitoring and surveys, from Forest Plan development to 2005.

Year	1982	1991	1992	1993	1994	1995	1996	2005
Known Owl Population Attributes	61 owl pairs	150 owl pairs, 128 single owls	135 owl pairs, 142 single owls	166 owl pairs, 62 resident singles, 33 single owls	163 owl pairs, 59 resident singles, 34 single owls	163 owl pairs, 59 resident singles, 37 single owls	245 PACs	296 PACs

1982 data – from Forest Plan, Table 4-2.  
 1991 data – from Spotted Owl Summary, (10/07/92)  
 1992 data – from FY92 Accomplishments, (2/17/93)  
 1993 data – from 1993 Research, Development and Application Program  
 1994 data – from 1994 Research, Development and Application Program  
 1995 data – from 1995 Research, Development and Application Program  
 1996 data – from 1996 Forest Monitoring Report  
 2005 data – from Forest GIS Corporate files

The Forest calculated occupancy rate information from 1991 data on the 54 Spotted Owl Habitat Areas (SOHAs) being monitored under the forest plan at that time. The 1991 occupancy rates showed that owl pairs at the time occupied 74% of the habitat areas, singles occupied 22%, and that 4% of the sites had no owls or were unoccupied.

Figure 16 plots the data contained in Table 6 above. When the data is compared to the Plumas LRMP projection of 69 owl pairs during the 1<sup>st</sup> and 2<sup>nd</sup> decade, the forest exceeded that projection in 1991 and has maintained those numbers through 2005. The viability threshold defined by the Plumas LRMP of maintaining 54 Spotted Owl Habitat Areas (SOHAs) has been accomplished since 1991. In addition, the 296 California spotted owl PACs currently delineated on the Plumas are widely distributed forest-wide where suitable habitat is present and available.

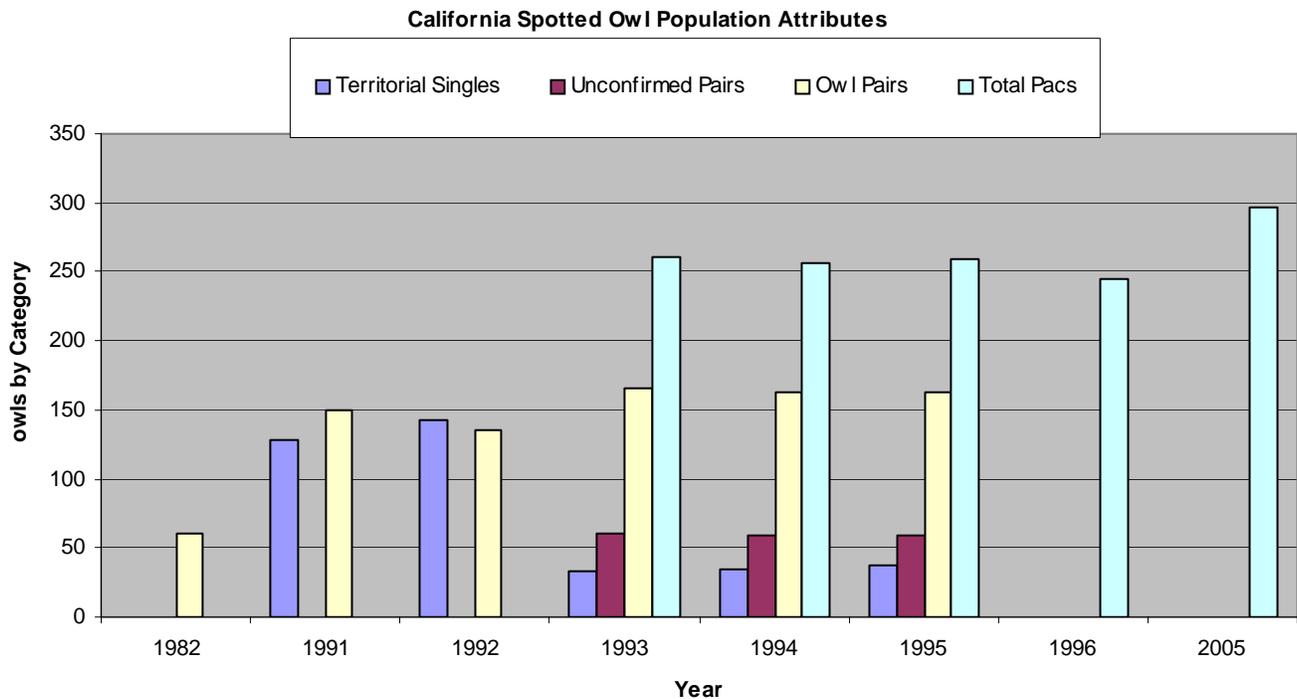


Figure 16. CSO Population attributes from 1982 to 2005 based on known CSO data, Plumas NF.

Distribution and demographic monitoring under the 2004 SNFPA Appendix E is being conducted as part of the Plumas Lassen Administrative Study (PLAS) spotted owl module. The PLAS has been gathering owl presence/occupancy information within specific survey areas (Treatment Units) on the PNF for the last three years. In 2004, the study located 50 spotted owl sites. Of these 50 spotted owl sites, 43 had pairs and 7 had single owls. Therefore, pairs occupied 86% of the sites located in 2004, while single owls occupied 14%. In 2005, 103 spotted owl sites were located. Of the 103 sites, 76 contained pairs, 17 contained unconfirmed pairs (one member of pair confirmed as territorial single, plus single detection of opposite sex bird), and 10 single owls. Therefore, in 2005, pairs occupied 74% of the sites, 16% were occupied by unconfirmed pairs, and 10% by single owls. This 2005 PLAS occupancy data strongly resembles 1991 occupancy data from the Plumas NF. Over this 14 year period, the occupancy rates for owls on the Plumas NF has remained stable. The PLAS as also established a crude density estimate of 0.075 owls/km<sup>2</sup> (0.075 owls/247.1 acres) over the study area.

In addition to the PLAS, other distribution and demographic monitoring efforts have been ongoing throughout the Sierra Nevada. This distribution and demographic data was used in the meta-analysis (Blakesly et al., 2006) and considered by the U.S. Fish & Wildlife Service in making its determination that the California Spotted Owl did not warrant listing under Endangered Species Act. The data from the meta-analysis shows that the owl has maintained a stable to slightly upward population trend bio-regionally (see Figure 16-A).

Figure 16-A. Annual estimates of population trends for the California Spotted Owl within 4 study areas across the Southern Cascades and Sierra Nevada bio-region. Notes: ELD = El Dorado Study Area, LAS = Lassen Study Area, SIE = Sierra Study Area, SKC – Sequoia Kings Canyon National Park.

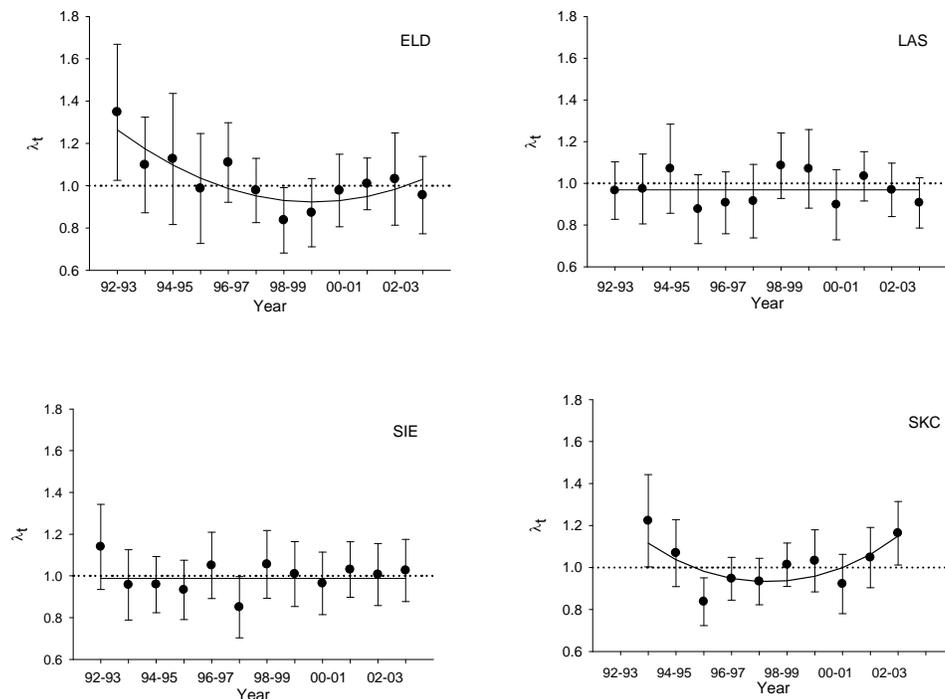


Table 6-A represents the same data as figure 16-A, showing that a lambda of 1.0 falls within the upper and lower 95% confidence intervals for each of the four study areas.

Study Area	Lambda	Standard Error (SE)	Lower 95% Confidence Interval	Upper 95% Confidence Interval
------------	--------	---------------------	-------------------------------	-------------------------------

Lassen NF	0.973	0.014	0.946	1.001
Sierra NF	0.992	0.013	0.966	1.018
SEQ-KC NP	1.006	0.031	0.947	1.068
El Dorado NF	1.007	0.029	0.952	1.066

**California Spotted Owl Population Status and Trend:**

The Spotted Owl population status on the Plumas National Forest consist of 296 PACs. Based on monitoring data collected on the Forest, these PACs contain a range of 135 to 163 owl pairs, and 93 to 142 single owls (refer to Table 6).

The Spotted Owl population trend is based on distribution and demographic monitoring and the latest U.S. Fish & Wildlife Service listing determination that indicates a stable to slightly upward population trend for the California Spotted Owl. Occupancy rates of owl sites also indicate a stable trend based on Plumas NF data from 1991 and PLAS data from 2005. Plumas National Forest data indicates that spotted owls are widely distributed across the forest where suitable habitat is currently present.

**Trout Group:**

The trout MIS group on the Plumas NF consists of Rainbow, Brown and Brook Trout. As MIS, the trout group is an indicator of the habitat requirements of cold-water fish species. All three species are considered game species by the CDFG, and are allowed to be taken by the public under the California Sport Fishing Regulations. CDFG still maintains a system of “put-n-take” where catchable sized rainbow trout are stocked in state waters, including waters on the Plumas NF.

**Habitat:**

Trout habitat on the Plumas National Forest consists of approximately 1,000 miles of streams, including 658 miles of perennial streams and 341 miles of intermittent streams. Trout also utilize 64 lakes, reservoirs and ponds within and bordering the PNF, with an aggregate surface area of about 14,200 acres. Perennial trout habitat is shown in Figure 17.

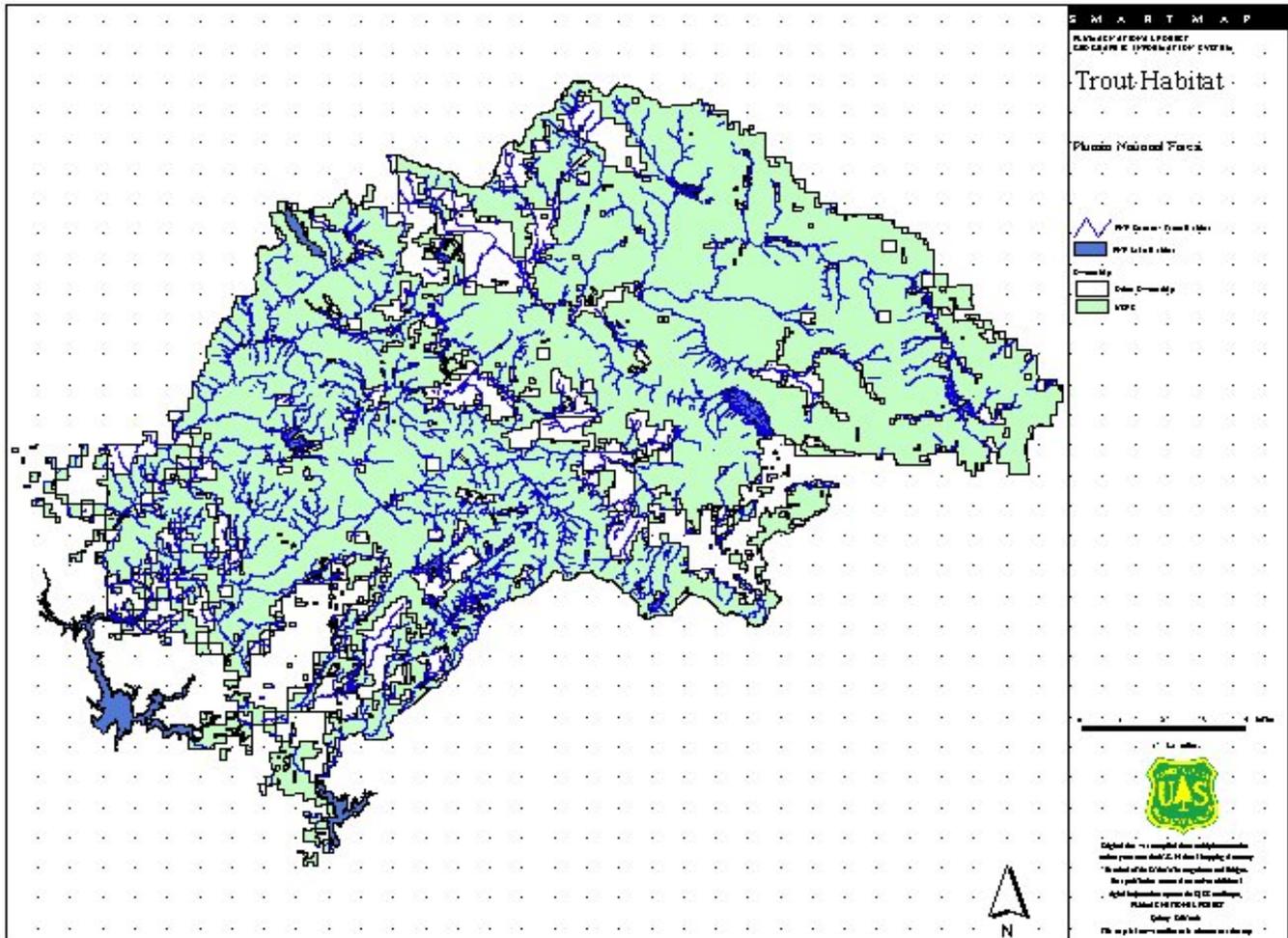


Figure 17. Trout Habitat, Plumas National Forest (intermittent streams not shown).

Figure 17 represent Trout habitat, where lakes and reservoirs within the Forest boundary make up approximately 14,200 surface acres of suitable trout habitat, and 658 miles of perennial streams. There are an estimated 341 miles of intermittent streams that trout occupy that are not depicted in Figure 17. There are 658 miles of perennial streams and 341 miles of intermittent streams make up the 1,000 miles of trout habitat on the Forest.

Trout habitat has been affected by several forest management activities including vegetation management, grazing, mining, roads, road crossings (i.e. culverts, bridges), hydropower, recreation, recreational fishing, and catastrophic wildfires since development of the Forest Plan. To evaluate these effects to trout habitat, the HFQLG pilot project has been monitoring stream channel conditions and riparian attributes. Stream attributes collected under this effort include; channel morphology, fish habitat type and condition, macroinvertebrate diversity and abundance, substrate size and distribution, slow-fast water, pool tail fins, and temperature. These attributes are indicators of water quality, stream type and condition. Streams sampled are of two types; 1) References streams, which are representative of a stream in a semi-prestine condition with minimal management, and are used similar to experimental controls to assess a range of variation due to natural events, and 2) Pre-Post Project streams, which are used to assess stream condition before and after implementation of a HFQLG activities. In 2005, four pre-post project streams were monitored. Comparison of stream monitoring made prior to and after implementation of these four projects was consistent in that no major changes in stream condition were evident in any of the four projects monitored. In general, management activities have improved for salmonids. Activities within streams and riparian zones have been for the benefit of these streams and riparian dependent species. For example, approximately 67% of the forest road network has been inventoried to identify barriers that limit

fish movement and passage. The Forest is in the process of prioritizing and repairing these known barriers in order to improve fish passage and create contiguous habitat for these MIS.

### **Trout Habitat Status and Trend:**

The habitat status for trout on the Plumas consists of 1,000 miles of streams and 14,200 acres of lakes, reservoirs and ponds.

The habitat trend for trout on the Plumas is considered abundant and well distributed across the Forest, and has remained relatively constant since development of the Forest Plan. Habitat trend for trout on the Plumas is considered stable.

### **Population:**

The Plumas National Forest has been actively involved in hydropower Relicensing in the North Fork of the Feather River (Upper NFFR, Rock Creek Cresta, Poe and Bucks), and in the South Fork of the Feather River. Fish community, distribution, abundance and population surveys have been conducted since 1992 to present, and findings show that there is an overall increasing trend in rainbow trout populations. These surveys have found that trout populations are within the historical range of variability (Stillwater Sciences, 2006).

Trout population data was taken from standing stock surveys conducted by the Department of Water Resources in seven streams on the Plumas National Forest from 1988 to 2004. This timeframe runs from adoption of the Forest Plan, 1988, and serves to indicate a trend in trout populations over this 16-year period.

The seven Plumas streams where standing stock surveys were conducted for the trout group include; Hungry Creek, Lights Creek, Red Clover Creek, Ward Creek, Little Last Chance Creek, Big Grizzly Creek, and Crystal Creek. Standing stock surveys were conducted at sampling stations within each creek. Each station length varied, but fell within a range of 135 feet to 289 feet. Standing stock surveys were done using the two-count method of Seber and LeCren (1967) or the multiple pass method of Leslie and Davis (1939) with limits of confidence computed using a formula proposed by DeLury (1951). This method was used for the seven streams during all years of the surveys. The results of the population estimates are shown in Figure 18 below. Population estimates (i.e. number of trout per station) for all seven streams were averaged by year and plotted on Figure 18. The black trend line indicates an increasing population trend for the Trout Group on the Plumas National Forest.

Trout Group Population

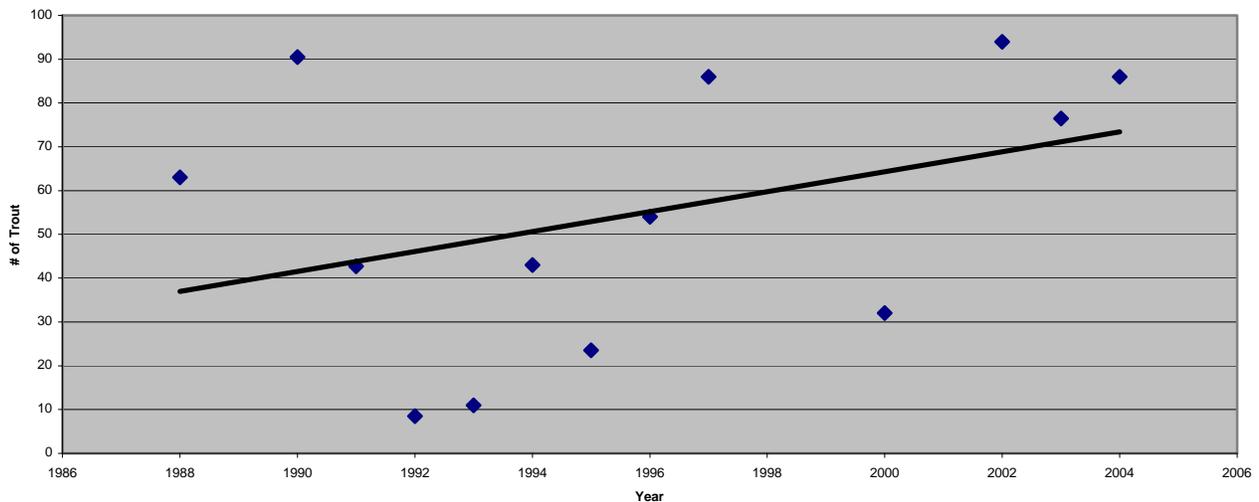


Figure 18. Trout group population trend for the Plumas National Forest.

**Trout Population Status and Trend:**

The population status for trout on the Plumas NF consists of populations that are well distributed across the Forest. Trout are found within 424 miles of fish bearing perennial streams on the Plumas NF.

The population trend for trout on the Plumas NF is considered increasing based on monitoring conducted within selected stream reaches on the Forest (Figure 18) from 1988 to 2005.

**Largemouth Bass:**

Largemouth Bass (LMB) are a MIS for Lake habitat on the Plumas NF and represent the requirements of warm water fish species. LMB are considered a game species by the CDFG, and are allowed to be taken by the public under the California Sport Fishing Regulations. Bass have been introduced by the CDFG into most reservoirs on the Plumas NF with the intent of providing sport fishing opportunities for the public and/or controlling populations of introduced baitfish.

**Habitat:**

Available LMB habitat on the Plumas National Forest consists mainly of the 12,900 acres of Reservoir and pond habitat on the Forest. LMB occupy the following reservoirs; Antelope Lake, Little Grass Valley, Bucks Lake, Butt Valley, Sly Creek, Ponderosa, Lake Davis, Lost Creek and occur in those portions of the following reservoirs that border or intrude on National Forest Lands which include Lake Almanor, Lake Oroville and Bullards Bar. LMB are found in low numbers within the North Fork Feather River. The amount of LMB habitat has remained relatively stable as the existing lakes and reservoirs have not undergone any substantial change in habitat conditions. LMB reservoir habitat is shown in Figure 19 below (does not include North Fork Feather River).

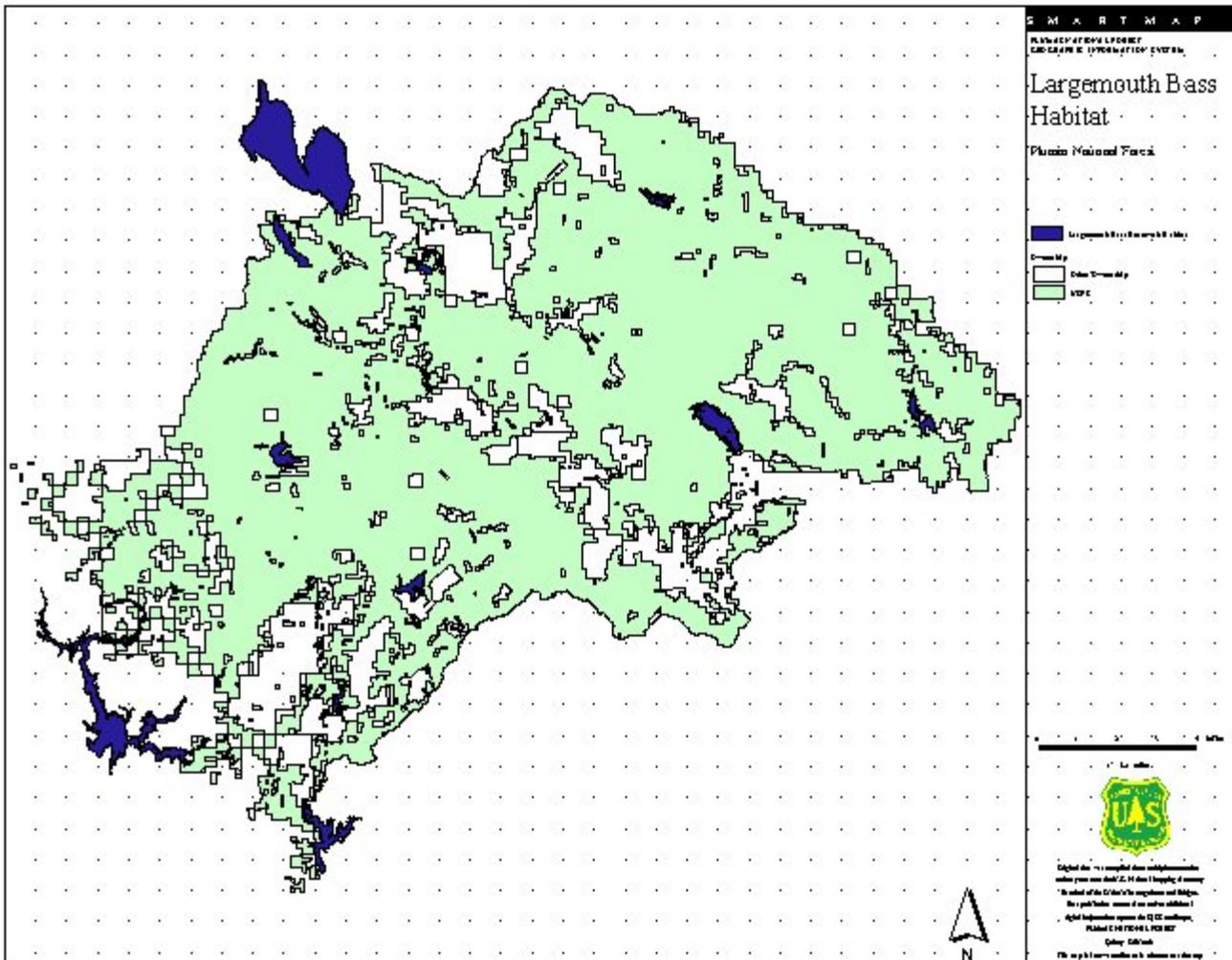


Figure 19. Largemouth Bass habitat on the Plumas National Forest.

Largemouth Bass habitat quality varies based on the type of warm water habitat. Bass can survive in a wide variety of habitat types from cool high mountain reservoirs, warm river systems, sloughs, farm ponds and even irrigation canals. Bass prefer warm, shallow (<6 m) waters of moderate clarity and beds of aquatic plants. Largemouth bass can persist in water temperatures that approach 36-37°C during the day with dissolved oxygen levels as low as 1 mg/liter (Moyle, 2002). Habitat quality has been measured in lakes and reservoirs on the Forest. For example, survey data obtained by the Department of Water Resources at Antelope Lake indicates that habitat quality is being maintained for Largemouth Bass when compared to the requirements described by Moyle, 2002. Antelope Lake data taken at the surface to 6 meters, showed water temperatures ranging from 17.3°C to 15.8°C, and dissolved oxygen levels ranging from 8.0 to 5.7 mg/liter.

### **Largemouth Bass Habitat Status and Trend:**

The habitat status for Largemouth Bass consists of 12,900 acres of reservoir and pond habitat on the Plumas National Forest. The habitat quality for Largemouth Bass is within acceptable levels for temperature and dissolved oxygen based on monitoring data collected on the Forest.

The habitat trend for Largemouth Bass is considered stable. This is based on the amount of LMB habitat forest-wide and the fact that much of this habitat has not undergone any substantial change since the development of the Forest Plan.

### **Population:**

Largemouth bass, being voracious predators, are extremely vulnerable to angling, which is one of the main reasons they are such popular game fish. This means, however, that in many reservoirs at least half the population of legal-size fish is caught each year. If such fishing is sustained for a number of years, the catch rate declines and the fish caught are, on average, smaller. For this reason size and bag limits on bass are increasingly restrictive, and catch-and-release fishing is encouraged. In many reservoirs a decline in bass populations occurs regardless of fishing pressure. Such declines are often associated with reservoir aging. For a variety of reasons, new reservoirs often develop outstanding populations of bass and other game fishes, which gradually decline as the reservoir matures. In some situations the manipulation of reservoir water levels to increase food availability or spawning success may maintain relatively large populations of bass. Such manipulation, however, is seldom possible because it is likely to conflict with uses for which the reservoir was originally intended, such as irrigation and power production (Moyle 2002). However, some hydropower operations, such as recreational white water activities within the North Fork Feather River have the potential to effect the “nests” of this species and lower the productivity of the species.

Data available on file for Largemouth Bass was taken from Lake Davis and Antelope Lake. Available LMB data from Lake Davis was plotted on Figure 20 and was taken from 1992 data from a frequency chart of bass sampled at Lake Davis found in the Forest files. 1993 data comes from California Department of Game & Fish sample forms found in the Forest files of bass sampled at Lake Davis in 1993. 2002 to 2004 data comes from CDFG Northern Pike website. Antelope Lake data was plotted on Figure 21. All data from Antelope Lake comes from the Department of Water Resources. Data from 1996, 1999, 2002, and 2005 come from creel census conducted by DWR at Antelope Lake.

Based on the data available from Lake Davis, there appears to be a downward population trend for Largemouth Bass (black trend line). This downward trend at Lake Davis may be attributed to the Northern Pike found in Lake Davis. Efforts to eradicate the Pike at Lake Davis are currently in the planning stage. Removal of Pike at Lake Davis will also result in the removal of LMB. However, this population will not be re-established after treatment of Lake Davis by the CDFG.

Based on data available from Antelope Lake, there has been an upward trend for Largemouth Bass (black trend line) over the last 10 years. Initially, 99 Largemouth Bass were stocked at Antelope Lake in 1981 in order to provide an alternative sport fishing choice for anglers. Recent creel census reports from the DWR are showing that Bass are increasing part of the sport fishery and sportsmen’s creel at Antelope Lake. Creel census data from 1996 to 2005 indicate an upward trend for Bass at Antelope Lake (Figure 21). Bass are considered to be increasing at Antelope Lake by the DWR (Ralph Hinton, DWR Biologist, personal communication).

Lake Davis Bass Trends

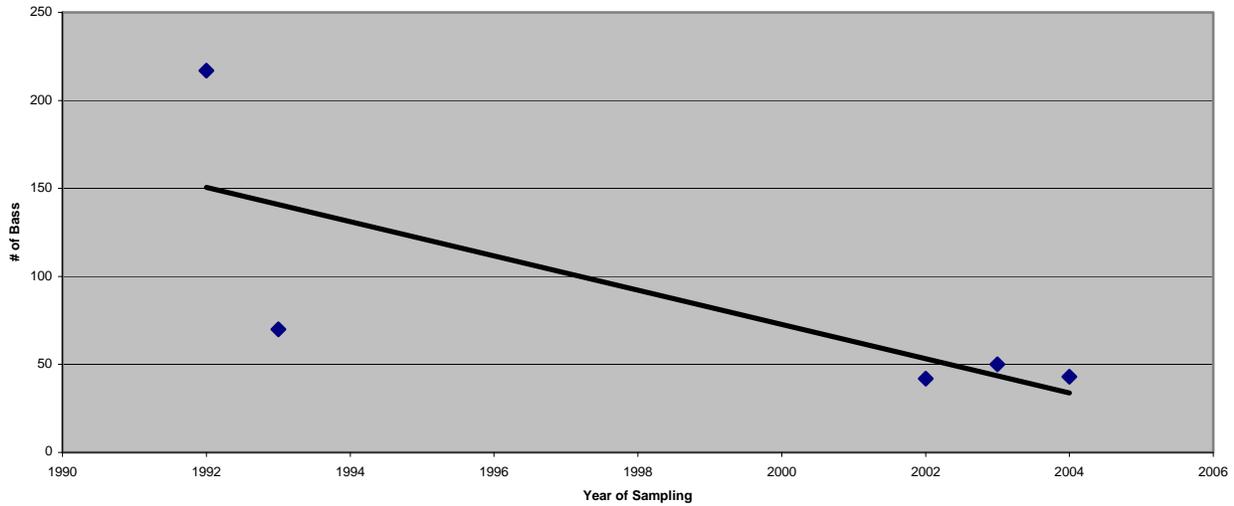


Figure 20. LMB Population trend, Lake Davis, Plumas NF.

Antelope Lake Creel Census

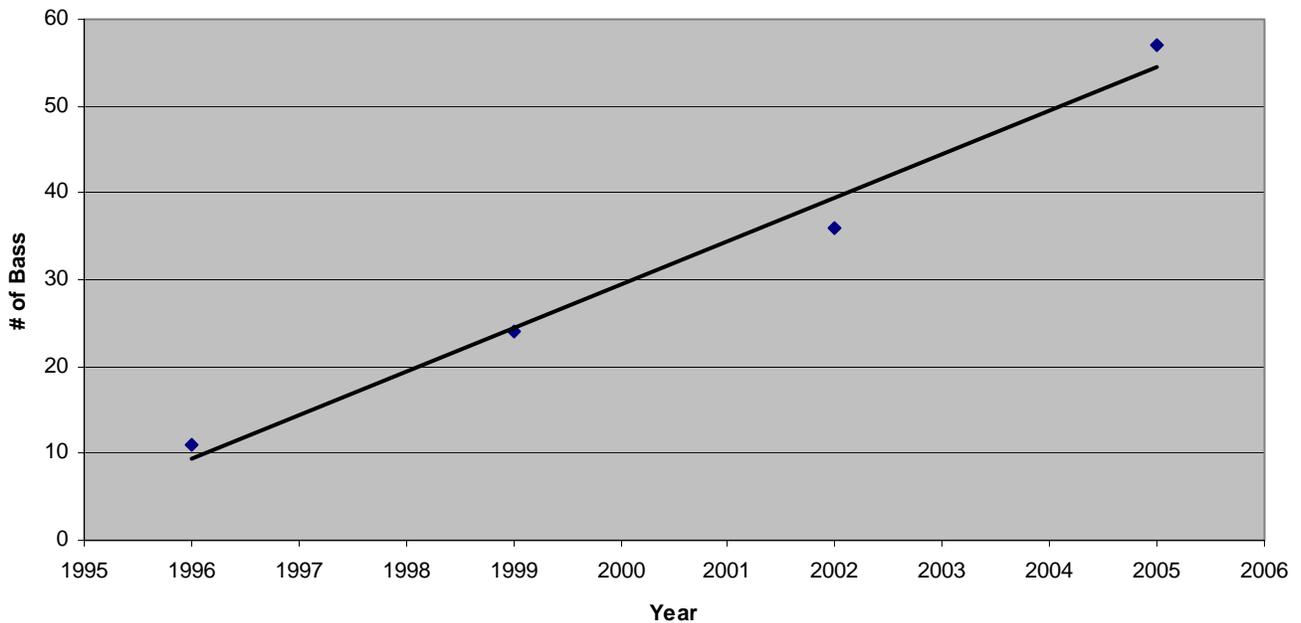


Figure 21. LMB Population trend, Antelope Lake, Plumas NF.

**Largemouth Bass Population Status and Trend:**

The population status for Largemouth Bass consist of populations distributed within the following reservoirs; Antelope Lake, Little Grass Valley, Bucks Lake, Butt Valley, Sly Creek, Ponderosa, Lake Davis, Lost Creek, and in those portions of the following reservoirs that border or intrude onto the National Forest boundary which include Lake Almanor, Lake Oroville and Bullards Bar.

The population trend for Largemouth Bass is considered stable based on monitoring data collected on the Forest (see Figure 20 and 21). Although Lake Davis is showing a decrease in Bass numbers, due primarily to the Pike and will not be re-stocked after treatment, Antelope Lake is showing an increase in Bass over the last 10 years which results in a stable trend forest-wide.

## **Constance's Rock Cress:**

*Arabis constancei* is a Region 5 Sensitive Species on the Lassen and Plumas National Forests. It is also a Plumas National Forest Management Indicator Species within the Sensitive Plant Group found in Appendix G of the Forest Land & Resource Management Plan.

Threats to this plant from management activities include mining, timber harvest, road construction, off-road vehicle use, and recreational collecting of serpentine rock.

Management concerns from risks and threats have been addressed through Interim Management Prescriptions for Sensitive Plants and Special Interest Plants on the Plumas National Forest. The management prescription for *Arabis constancei* includes – Protect all plant occurrences from ground disturbance. To the extent feasible, protect small occurrences from prescribed fire actions. Around larger occurrences, avoid lighting fires within occurrences, but allow fire to creep/back into occurrences from adjacent terrain if the fuel loading permits. Hand thin and lop and scatter around occurrences if fuel treatment prior to burning is needed. Prescribed fire may only be applied to the landscape around known occurrences in the fall. Fires may be ignited within occurrences only with an approved monitoring plan.

### **Habitat:**

This plant occurs on undisturbed serpentine derived soils in scattered locations in the Plumas National Forest and the southernmost part of the Lassen NF, in Plumas and Sierra Counties. In some occurrences on the Plumas NF, the species grows on serpentine rock and in other areas, on a developed serpentine soil. Some locations on developed serpentine soils appear threatened by shading of encroaching conifer stands.

*Arabis constancei* currently occurs on a limited number of serpentine bands in the northern Sierra Nevada. Serpentine habitats are distinct both geologically and ecologically due to their low nutrient levels, potentially high concentrations of heavy metals, and low soil moisture availability. The soil chemistry and physical characteristics of serpentine habitats make them particularly vulnerable to increased rates of erosion from activities such as off-road vehicle use, rock collection and mining, and management activities.

The current habitat for *Arabis constancei* within the Northern Sierra Nevada consists of Serpentine soil outcrops or bands within the Lassen and Plumas National Forests.

### **Habitat Status and Trend:**

The current habitat status for *Arabis constancei* consists of approximately 769 acres of occupied serpentine habitats on the Plumas National Forest.

The current habitat trend for *Arabis constancei* on the Plumas National Forest appears to be stable. Serpentine soils, outcrops and bands are still present on the forest in relatively the same amounts that existed during Forest Plan development in 1988.

### **Population:**

This plant is presently known from Plumas and Sierra counties in the northern Sierra Nevada. All documented occurrences are found either exclusively or partially on USFS lands (CNDDDB 2005). The California Natural Diversity Database (Rarefind) documents 52 occurrences in California.

On the southernmost part of the Lassen National Forest, only one occurrence is known, and it occurs within a late-successional reserve under existing land management plan direction.

On the Plumas NF, there are currently 36 documented occurrences found in several parallel bands of serpentine. Occurrences range in size from a few individuals on small serpentine outcrops to over a hundred individuals within larger areas of productive serpentine soil. An occurrence is defined as all plant locations within ¼ mile of each other. For *Arabis constancei*, there are 208 plant locations that make up the 36 occurrences currently on the Plumas.

### **Population Status and Trend:**

The population status for *Arabis constancei* consists of 208 plant locations that make up the 36 occurrences currently on the Plumas NF.

The population trend for *Arabis constancei* appears to be stable on the Plumas National Forest. When the Forest Plan was developed in 1988, documented occurrences of *Arabis constancei* were 7 for the Plumas. Many of the occurrences documented since development of the Forest Plan are attributed to increased survey efforts for Sensitive Plants across the Forest as a result of pre-project planning and landscape assessments. The implementation of Interim Management Prescriptions have also helped maintain a stable population trend on the Plumas National Forest.

### **Butte County Fritillary:**

*Fritillaria eastwoodiae* is a Region 5 Sensitive species on the Plumas National Forests. It is also a Plumas National Forest Management Indicator Species within the Sensitive Plant Group found in Appendix G of the Forest Land & Resource Management Plan.

Threats to this species from management activities include timber harvest, grazing, OHV activities, fire suppression, prescribed fire activities, and road building.

Management concerns from risks and threats have been addressed through Interim Management Prescriptions for Sensitive Plants and Special Interest Plants on the Plumas National Forest. *Fritillaria eastwoodiae* has a prescription to lessen effects from Forest management actions that includes – protecting occurrences from surface disturbance until above-ground plant parts are dormant in late summer to fall, not to disturbing bulbs to maintain partial shade conditions, opening and removing some canopy and litter if it is done when the plants are dormant and if the bulbs are not disturbed.

### **Habitat:**

The known range of this species has historically been Shasta, Butte, Yuba, Nevada, Placer, and Tehama counties in five distinct stable population centers. There is a single report of the species from Napa County. In the Sierra and Cascade foothills, it is known from 360 to 4,320 feet. This species occurs on the Plumas National Forest, Tahoe National Forest, and Shasta-Trinity National Forest.

### **Habitat Status and Trend:**

The habitat status on the Plumas NF consists of 440 acres of occupied suitable habitat.

The habitat trend for *Fritillaria eastwoodiae* appears to be stable on the Plumas NF.

### **Population:**

The California Natural Diversity Database currently shows 101 occurrences for *Fritillaria eastwoodiae* in California. It is found on unprotected private land inholdings, and National Forest System lands, mostly within the boundaries of the Plumas NF. There are about 54 known occurrences on the Plumas NF, 7 on the Tahoe NF, and at least 2 on the Shasta-Trinity NF. Four of the 7 Tahoe occurrences are clustered within an area that is less than a one-mile radius (maybe sub-occurrences). The northernmost populations are near Shasta Lake in the Shasta Lake Ranger District of the Shasta-Trinity NF. These occurrences are not documented in Rarefind.

On the Plumas NF, there are currently 54 documented occurrences. An occurrence is defined as all plant locations within ¼ mile of each other. For *Fritillaria eastwoodiae*, there are 153 plant locations that make up the 54 occurrences currently on the Plumas. The range is roughly a 9-mile band on the western side of the Plumas NF in the Feather River Ranger District.

### **Population Status and Trend:**

The population status for *Fritillaria eastwoodiae* consists of 153 plant locations that make up the 54 occurrences currently on the Plumas.

The population trend for *Fritillaria eastwoodiae* appears to be stable on the Plumas National Forest. When the Forest Plan was developed in 1988, documented occurrences of *Fritillaria eastwoodiae* were 17 for the Plumas. Many of the occurrences documented since development of the Forest Plan are attributed to increased survey efforts for Sensitive Plants across the Forest as a result of pre-project planning and landscape assessments. The implementation of Interim Management Prescriptions has helped contribute to this stable trend.

## **Quincy Lupine:**

*Lupinus dalesiae* is a Region 5 Sensitive Species on the Lassen and Plumas National Forests. For the Plumas, it is also a Management Indicator Species within the Sensitive Plant Group found in Appendix G of the Forest Land & Resource Management Plan.

Risks and threats to the species include road construction and maintenance, timber site preparation and release, landing placement, mining activity, urban development and OHV use.

Management concerns from risks and threats have been addressed through Interim Management Prescriptions for Sensitive Plants and Special Interest Plants on the Plumas National Forest. For *Lupinus dalesiae* the following interim management prescriptions apply. Establish a set of key occurrences to protect at least 30% of the known occurrences within a Level 5 Watershed from all ground disturbing actions (*Lupinus dalesiae* – A Botanical Investigation 1989). In selecting Key Occurrences, give priority to those residing in settings undisturbed (at least recently) by management activities. Additional occurrences may be protected with appropriate rationale. The level of impact to be incurred by non-key occurrences should be determined as each project is designed and analyzed, and should follow the following strategy. Avoid building landings, temporary roads, and fire control lines through known occurrences. Avoid sub-soiling through known occurrences. Strive to apply mechanical treatments after seed-set. Avoid machine piling within known occurrences. To the degree possible, lop-and-scatter hand fuel treatments to avoid creating piles within known occurrences. If pile burning is necessitated by other

resource issues, work with the District Botanist to avoid placing piles on individual plants within the occurrence to the degree feasible. Strive to apply prescribed fire in the fall.

**Habitat:**

*Lupinus dalesiae* occupies sites of open canopy in mixed conifer forests on metasedimentary or metavolcanic soils mainly in the Highway 70/89 corridor from Lake Almanor to Sloat in central Plumas County with isolated occurrences in Butte, Yuba, Sierra, and Nevada counties, California. *Lupinus dalesiae* has a limited range but is abundant within its specific habitat.

**Habitat Status and Trend:**

The habitat status for *Lupinus dalesiae* consists of 1,713 acres of occupied suitable habitat within the Forest.

The habitat trend for *Lupinus dalesiae* on the Plumas NF appears to be stable.

**Population:**

Within its known range on the Plumas and Lassen National Forests there are 131 and 19 occurrences respectively; as well as scattered occurrences on adjacent private lands. The California Natural Diversity Database documents 162 occurrences in California.

**Populations Status and Trend:**

The population status on Plumas National Forest consists of 131 known occurrences. An occurrence is defined as all plant locations within ¼ mile of each other. For *Lupinus dalesiae*, there are 564 plant locations that make up the 131 occurrences on the Forest.

The population trend for *Lupinus dalesiae* appears to be stable on the Plumas National Forest. At the time the Forest Plan was developed in 1988, the number of occurrences for *Lupinus dalesiae* was simply stated as “many”. The number of known occurrences has increased over the years since development of the Forest Plan. These occurrence records are attributed to increased survey efforts for Sensitive Plants across the Forest as a result of pre-project planning and landscape assessments. The implementation of Interim Management Prescriptions has helped maintain this stable trend on the Forest.

**Stebbins’ Wild Mint:**

*Monardella stebbinsii* is a Region 5 Sensitive species on the Plumas National Forests. It is also a Plumas National Forest Management Indicator Species within the Sensitive Plant Group found in Appendix G of the Forest Land & Resource Management Plan.

Threats to this plant from management activities include road maintenance, rock quarries, and potential mining activities.

Management concerns from risks and threats have been addressed through Interim Management Prescriptions for Sensitive Plants and Special Interest Plants on the Plumas. *Monardella stebbinsii* has a prescription to lessen effects from Forest management actions that includes – protect all occurrences from ground disturbance (January, 2005)

**Habitat:**

This species is known to grow on barren, sandy to gravelly ledges on steep outcrops or steep scree slopes of serpentine in the North Fork Feather River drainage. It is found in extremely isolated occurrences on the Plumas National Forest.

### **Habitat Status and Trend:**

The habitat status for *Monardella stebbinsii* within the Plumas National Forest consists of 5.65 acres of an occupied band of serpentine that extends along Hwy 70, in the vicinity of Caribou Rd. and Red Hill.

The habitat trend for *Monardella stebbinsii* is considered stable. This is due to the isolated, steep, unstable scree habitat. Much of the species' potential habitat is inaccessible.

### **Population:**

The California Natural Diversity Database currently documents 8 occurrences of *Monardella stebbinsii* in California.

All of the known occurrences on the Plumas National Forest are found in Plumas County. On the Plumas NF, there are currently 5 documented occurrences. An occurrence is defined as all plant locations within ¼ mile of each other. For *Monardella stebbinsii*, there are 12 plant locations that make up the 5 occurrences currently on the Plumas.

### **Population Status and Trend:**

The populations status for *Monardella stebbinsii* consists of 12 plant locations that make up the 5 occurrences currently on the Plumas.

The population trend for *Monardella stebbinsii* appears to be stable on the Plumas National Forest. When the Forest Plan was developed in 1988, documented occurrences of *Monardella stebbinsii* were documented as a “few” for the Plumas. Many of the additional occurrences documented since development of the Forest Plan are attributed to increased survey efforts for Sensitive Plants across the Forest as a result of pre-project planning and landscape assessments. Interim Management Prescriptions for *Monardella stebbinsii* helps to maintain the stable trend on the Forest.

### **Closed-throated Penstemon:**

*Penstemon personatus* is a Forest Service Sensitive Species as well as a Plumas National Forest Management Indicator Species under the Forest Land & Resource Management Plan, Appendix G.

The primary threats to this plant include: road use, construction, and maintenance; mechanical vegetation treatments; development; off-highway vehicle use; reforestation; lack of fire; stock trampling; mining; and spring prescribed burns.

It has been observed that *Penstemon personatus* is adversely impacted by group selection harvest on south and southwest aspect slopes (Hanson, personal communication, 2005).

Management concerns from risks and threats have been addressed through Interim Management Prescriptions for Sensitive Plants and Special Interest Plants on the Plumas National Forest. The management prescription uses guidance in the Preferred Alternative of the approved *Penstemon personatus* (PEPE) Species Management Guide of 1987 to develop a set of key PEPE Areas (occurrences or portions of occurrences) within each Level 5 Watershed, which will be protected from management disturbances. These key areas would be established within occupied habitat to maintain geographic and genetic variety within the species. Priority for the delineation of key areas would be given to those occurrences that currently exhibit what is believed to be the best state of vigor and the least need for

vegetative treatment. Renew or revise these areas every 10 years. Within and adjacent to the rest of the occupied habitat develop vegetation management prescriptions (primarily thinning and prescribed fire or occasional small group selections) that, over the long run, maintain or enhance PEPE habitat. When project planning occurs within Watersheds with undefined PEPE key areas, apply this strategy to occurrences within the project boundary. Avoid building landings or temporary roads through known occurrences. Avoid sub-soiling through known occurrences. Strive to apply mechanical treatments after seed-set. Avoid machine piling within known occurrences. To the degree possible, lop-and-scatter hand fuel and mechanical fuel treatments to avoid creating piles within known occurrences. If other resource issues necessitate pile burning, work with the District Botanist to avoid placing piles on individual plants within the occurrence to the degree feasible. Strive to apply prescribed fire in the fall. Ongoing inventory and botanical investigation will continue and may result in revising the set of Key areas. Treatments in Key areas may be conducted if an approved monitoring plan is established.

**Habitat:**

*Penstemon personatus* falls in the gap-phase and general openings Guild.

The general opening Guild contains opportunistic species that germinate or invade open areas. The openings may result from natural events such as landslides, avalanches, or windstorms, as well as from mechanical soil disturbance and opening of the canopy. Species in this guild also respond well to secondary fire effects, such as sunlight from canopy loss and bare soil from duff loss. Some forest-edge species or species that occur under open canopies along artificial forest margins, such as stabilized roadsides and old skid trails, are included in this guild. Gap-phase development is a term used to describe openings no larger than one-half acre. A small disturbance creates a gap in the canopy, without the major soil disturbances and edge effects associated with most forest management activities. The gap-phase model can apply not only to forests, but can be extended to any vegetation type, to imply a periodic disturbance regime resulting in small scale disruption of the dominant vegetation plus bare soil, followed by several years without subsequent disturbance.

Gap-phase species are disturbance followers that do not respond well to major disturbances, but do increase with infrequent, small-scale disturbance. These are matrix species (in other words, not confined to discrete, patchy habitats) that depend on a periodic disturbance pulse, followed by stable conditions. The disturbance event causes an increase in light reaching the ground, and a gap in plant cover, creating favorable conditions for new seedlings to grow. After the seedlings are established, stable conditions favor growth of the seedlings to maturity and reproductive status. Some forest edge species or species that occur under open canopies along artificial forest margins, such as stabilized roadsides and old skid trails, are included in the gap-phase guild. (HFQLG Final Supplemental EIS Biological Evaluation/Assessment 2004 p35-40).

**Habitat Status and Trend:**

Currently, *Penstemon personatus* occurs over approximately 4,564 acres on the Forest. There are no widespread threats to *Penstemon personatus* habitat.

Overall habitat trend is considered stable on the Plumas National Forest.

**Population:**

The California Natural Diversity Database documents 24 occurrences in the state of California.

This species is known from locations in Butte and Plumas County within the Plumas National Forest. On the Plumas NF, there are currently 10 documented occurrences. An occurrence is defined as all plant locations within ¼ mile of each other. For *Penstemon personatus*, there are 116 plant locations that make up the 10 occurrences currently on the Plumas.

When the Forest Plan was developed in 1988, documented occurrences of *Penstemon personatus* were 14 for the Plumas. These occurrences were likely defined differently than the ¼ mile criteria used today. This assumption is made since more plant locations have been documented since development of the Forest Plan. These additional plant locations are attributed to increased survey efforts for Sensitive Plants across the Forest as a result of pre-project planning and landscape assessments. With the implementation of Interim Management Prescriptions, the population trend for *Penstemon personatus* appears to be stable on the Plumas National Forest.

### **Population Status and Trend:**

The population status for *Penstemon personatus*, consists of 116 plant locations that make up the 10 occurrences currently on the Plumas NF.

The population trend for *Penstemon personatus* appears to be stable on the Plumas NF. In 1988 the forest documented 14 occurrences and in 2005 there are 10 occurrences. The difference in occurrences from 1988 to 2005 is based on the definition of an occurrence and not that less plants are present. In fact more plant locations have been documented since development of the Forest Plan.

### **Cryptic Catchfly:**

*Silene invisa* is a Special Interest species on the Plumas National Forests. It is also a Plumas National Forest Management Indicator Species within the Sensitive Plant Group found in Appendix G of the Forest Land & Resource Management Plan.

Threats to this plant from management activities include timber harvest activities, grazing, road building, mining, and facility developments.

Management concerns from risks and threats have been addressed through Interim Management Prescriptions for Sensitive Plants and Special Interest Plants on the Plumas. *Silene invisa* has a prescription to lessen effects from Forest management actions that includes assessing the genetic contribution to species diversity and viability of an occurrence should be evaluated at the site specific level during both project planning and environmental analysis phases of a project.

### **Habitat:**

This species occurs on 953 acres of suitable habitat on the Plumas National Forest.

Habitat for *Silene invisa* appears to be in and adjacent to red fir forest stands and on the eastern edge of the range of the species in mixed conifer stands. This species is also found along the upland margins of alder thickets, meadow edges, ephemeral stream banks, and forest edges. The habitat trend for *Silene invisa* appears to be stable on the Plumas National Forest.

### **Habitat Status and Trend:**

Currently, *Silene invisa* occurs over of 953 acres of suitable habitat on the Plumas NF.

Overall, habitat trend for *Silene invis*a is considered stable on the Plumas NF.

**Population:**

The California Natural Diversity Database currently has no data on *Silene invis*a.

This species is known from scattered locations within the Plumas National Forest. On the Plumas NF, there are currently 26 documented occurrences. An occurrence is defined as all plant locations within ¼ mile of each other. For *Silene invis*a, there are 134 plant locations that make up the 26 occurrences currently on the Plumas.

When the Forest Plan was developed in 1988, documented occurrences of *Silene invis*a were 4 for the Plumas. Many of the occurrences documented since development of the Forest Plan are attributed to increased survey efforts for Sensitive Plants across the Forest as a result of pre-project planning and landscape assessments. With the implementation of Interim Management Prescriptions, the population trend for *Silene invis*a appears to be stable on the Plumas National Forest.

**Population Status and Trend:**

The population status for *Silene invis*a consists of 134 plant locations that make up the 26 occurrences currently on the Plumas NF.

The population trend for *Silene invis*a is considered stable on the Plumas NF.

**Scarlet Huckleberry:**

*Vaccinium coccineum* is a Region 5 Sensitive species on the Plumas National Forest. It is also a Plumas National Forest Management Indicator Species within the Sensitive Plant Group found in Appendix G of the Forest Land & Resource Management Plan.

Threats to this plant from management activities include Threats to this moist habitat include mining, timber harvest, fuelwood gathering, livestock grazing, road construction and maintenance, and recreational activities.

Management concerns from risks and threats have been addressed through Interim Management Prescriptions for Sensitive Plants and Special Interest Plants on the Plumas. *Vaccinium coccineum* has a prescription to lessen effects from Forest management actions that includes – Protect at least 50% of each known occurrence (within a project boundary) from ground disturbance associated with vegetation treatments. Avoid sub-soiling, machine piling, building landings and temporary roads, and stand conversion prescriptions within all occurrences. Apply prescribed fire to no more than 50% of the known occurrences within a Level 5 watershed within a 5-year period.

**Habitat:**

The current distribution of the "Scarlet Huckleberry" is from Nevada County north to southern Oregon. In the Klamath Range and in Oregon this plant isn't as habitat specific. This plant is known to grow in moist slopes, near creeks, drainages and meadows usually in semi-shade or afternoon shade within mixed conifer or red fir forest. It is assigned to the riparian forest guild. It is believed that periodic fire may benefit this plant.

**Habitat Status and Trend:**

Currently, *Vaccinium coccineum* occupies 1,810 acres of suitable habitat on the Forest.

The habitat trend for *Vaccinium coccineum* on the Plumas NF appears to be stable.

### **Population:**

The California Natural Diversity Database currently has no occurrence data on *Vaccinium coccineum*.

On the Plumas NF, there are currently 33 documented occurrences. An occurrence is defined as all plant locations within ¼ mile of each other. For *Vaccinium coccineum*, there are 220 plant locations that make up the 33 occurrences currently on the Plumas.

When the Forest Plan was developed in 1988, documented occurrences of *Vaccinium coccineum* were 11 for the Plumas. Many of the occurrences documented since development of the Forest Plan are attributed to increased survey efforts for Sensitive Plants across the Forest as a result of pre-project planning and landscape assessments. With the implementation of Interim Management Prescriptions, the population trend for *Vaccinium coccineum* appears to be stable on the Plumas National Forest.

### **Population Status and Trend:**

The population status for *Vaccinium coccineum*, consist of 220 plant locations that make up the 33 occurrences currently on the Plumas NF.

The population trend for *Vaccinium coccineum* is considered stable for the Plumas NF.

### **Cantelow's Lewisia:**

*Lewisia cantelowii* is a Sensitive species on the Plumas National Forests. It is also a Plumas National Forest Management Indicator Species within the Sensitive Plant Group found in Appendix G of the Forest Land & Resource Management Plan.

Threats to this plant from management activities include road development and maintenance; recreation activities including trail development and dispersed camping; mining; hydroelectric power development; prescribed fire; poaching; rock collecting; and lack of protection on private land. One of the Shasta-Trinity occurrences will be inundated if Shasta Dam is raised, as proposed by the Bureau of Reclamation.

Management concerns from risks and threats have been addressed through Interim Management Prescriptions for Sensitive Plants and Special Interest Plants on the Plumas. *Lewisia cantelowii* has a prescription to lessen effects from Forest management actions that includes – protect all plant occurrences, not to advertise locations to minimize poaching and maintain hydrologic and geologic conditions of the habitat (January, 2005).

### **Habitat:**

This species grows on wet metamorphic and granitic rock cliffs and outcroppings in the Feather and Yuba River drainage systems in Butte, Plumas, Sierra and Nevada Counties, and in Shasta County along the Sacramento River above Shasta Reservoir (Skinner and Pavlik 1994).

This plant is known to occur in broadleaved upland forest, chaparral, cismontane woodland, and lower montane coniferous forest, frequently growing in moss or club moss growing on wet metamorphic and granitic rock formations within river canyons. It is assigned to the riparian forest and cliff guilds.

**Habitat Status and Trend:**

The habitat status for *Lewisia cantelowii* consist of 23 acres of suitable habitat on the Plumas National Forest.

The habitat trend for this species appears to be stable on the Plumas NF. Most rock cliffs and outcroppings on the Forest are not affected by Forest management activities

**Population:**

The California Natural Diversity Database currently has 57 documented occurrences of *Lewisia cantelowii* in California.

Twenty-five occurrences are known from the Tahoe National Forest and 16 occurrences are known from the Plumas National Forest. Five occurrences are found within the boundaries of the Shasta-Trinity National Forest. In the last five years, monitoring on the Tahoe National Forest has shown that some occurrences that are accessible have been reduced or eliminated by what is believed to be poacher activity. Individual plant numbers range from 100 to over 1,000 per occurrence.

On the Plumas NF, there are currently 16 documented occurrences. An occurrence is defined as all plant locations within ¼ mile of each other. For *Lewisia cantelowii*, there are 30 plant locations that make up the 16 occurrences currently on the Plumas.

When the Forest Plan was developed in 1988, documented occurrences of *Lewisia cantelowii* were 5 for the Plumas. Many of the occurrences documented since development of the Forest Plan are attributed to increased survey efforts for Sensitive Plants across the Forest as a result of pre-project planning and landscape assessments. With the implementation of Interim Management Prescriptions, the population trend for *Lewisia cantelowii* appears to be stable on the Plumas National Forest.

**Population Status and Trend:**

The habitat status for *Lewisia cantelowii*, consist of 30 plant locations that make up the 16 occurrences currently on the Plumas NF.

The population trend for *Lewisia cantelowii* is considered stable on the Plumas NF.

**Feather River Stonecrop:**

*Sedum albomarginatum* is a Special Interest species on the Plumas National Forests. It is also a Plumas National Forest Management Indicator Species within the Sensitive Plant Group found in Appendix G of the Forest Land & Resource Management Plan.

Threats to this plant from management activities include road construction and maintenance, mining, horticultural collecting, and rock source use.

Management concerns from risks and threats have been addressed through Interim Management Prescriptions for Sensitive Plants and Special Interest Plants on the Plumas. *Sedum albomarginatum* has a prescription to lessen effects from Forest management actions that includes – protect all occurrences from ground disturbance. In addition, locations are not advertised to minimize poaching.

**Habitat:**

This plant grows in serpentine rock cliffs, outcrops, and slopes in mixed-conifer forests. Oftentimes, sites are shaded for part of the day, either by trees or other rock outcrops. It is found on both east and west facing slopes, generally in very steep areas. This plant has not been observed on disturbed sites.

*Sedum albomarginatum* is found scattered in serpentine areas in Butte and Plumas counties in the northern Sierra Nevada.

### **Habitat Status and Trend:**

Currently *Sedum albomarginatum* occurs on 503 acres of suitable serpentine habitat on the Plumas NF.

The habitat trend for *Sedum albomarginatum* is considered stable on the Plumas NF.

### **Population:**

The majority of occurrences are found in the Feather River drainage on the Plumas National Forest. All but one of the known occurrences are found on USFS lands (CNDDDB 2005).

On the Plumas NF, there are currently 11 documented occurrences. An occurrence is defined as all plant locations within ¼ mile of each other. For *Sedum albomarginatum*, an occurrence on the Plumas NF ranges from a few individuals occupying less than 10 ft<sup>2</sup> to hundreds of individuals scattered in an area. There are 36 plant locations that make up the 11 occurrences currently on the Plumas.

When the Forest Plan was developed in 1988, documented occurrences of *Sedum albomarginatum* were 3 for the Plumas. Many of the occurrences documented since development of the Forest Plan are attributed to increased survey efforts for Sensitive Plants across the Forest as a result of pre-project planning and landscape assessments. With the implementation of Interim Management Prescriptions, the population trend for *Sedum albomarginatum* appears to be stable on the Plumas National Forest.

### **Population Status and Trend:**

The population status for *Sedum albomarginatum* consist of 36 plant locations that make up the 11 occurrences currently on the Plumas NF.

The population trend for *Sedum albomarginatum* is considered stable on the Plumas NF.

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