

Landscape Analysis of a Proposed North Cascades National Monument



Pacific Biodiversity Institute

Cover photograph: Tarn and stream near Kangaroo Pass, in the North Cascades Additions (Peter Morrison).

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Introduction

The proposed North Cascades National Monument consists of over 314,000 acres in Washington State's North Cascade Mountains. The proposed National Monument is made up of a western section in the Skagit River Basin and an eastern section in the Methow River Basin. Both sections are adjacent to the existing North Cascades National Park (Figure 1).



The area proposed for a National Monument includes some of the most spectacular mountainous landscape in North America. It contains extensive tracts of pristine, old-growth forest (Figure 2). In some places these forests have trees in excess of 10 feet in diameter in cathedral-like settings. The proposed national monument contains many species listed as endangered or threatened as well as other animals and plants of conservation concern. It offers optimal habitat for species dependent on late-successional forests (e.g. northern spotted owl [*Strix occidentalis*]) as well as extensive, wild, mountainous country for large carnivores (grizzly bear [*Ursus arctos*], gray wolf [*Canis lupus*], wolverine [*Gulo gulo*], lynx [*Lynx Canadensis*], and cougar [*Felis concolor*]). The area has an interesting geologic history and contains numerous areas of significant geologic interest. The proposed National Monument also contains significant sites of archeological, cultural and historic interest. Additionally, it is an important recreation area.





Proposed Area

The proposed North Cascades National Monument consists of an eastern section and a western section (Figure 3).

The eastern section is located on the Methow Ranger District, Okanogan National Forest in western Okanogan County and eastern Skagit County, Washington. The western border of the east section follows the boundary of the North Cascades National Park. The northern boarder of the east section follows the Pasayten Wilderness boundary. The southern border of the east section follows the Chelan-Sawtooth Wilderness boundary.

The western section is located on the Mount Baker District of the Mount Baker – Snoqualmie National Forest in Skagit County, Washington. The eastern border of the west section follows the boundary of the North Cascades National Park.

Ownership and Management

The proposed North Cascades National Monument is almost entirely on National Forest Land (Table 1, Figure 3). The majority of the US Forest Service land, 66%, is in the Okanogan National Forest and the remaining 34% is in the Mount Baker - Snoqualmie National Forest. Both the eastern and western sections of the proposed National Monument border the North Cascades National Park.

Table 1. Land Ownership for the proposed North Cascades National Monument

Land Owner	Area in acres (percent of total)
US Forest Service	309,967 ac (97.4%)
Private	3,818 ac (1.3%)
Washington State	665 ac (0.3%)

Although the proposed National Monument is in one of the most spectacular forest and mountain landscapes in the United States, it has no permanent protection status. Thousands of visitors enjoy the area every year – and make the incorrect assumption that it is part of the surrounding National Park or Wilderness Areas. Much of the proposed National Monument receives some administrative protection under the Forest Plans of the Okanogan (US Forest Service 1989) and Mount Baker – Snoqualmie (US

Forest Service 1988) National Forests. Significant parts of the proposed monument, 184,185 acres (57.9% of the total area), are also designated as late successional reserves in the Northwest Forest Plan (US Forest Service 1996). Portions of the proposed National Monument receive no administrative protection and are designated as Matrix in the Northwest Forest Plan. The Matrix is the portion of the landscape dedicated to timber production and other extractive uses.

The proposed National Monument boundary contains nine US Forest Service inventoried roadless areas (Figure 4). These Inventoried Roadless Areas comprise approximately 266,980 ac or 83.9% of the total proposed area. An additional 23,782 acres of uninventoried roadless areas over 1000 acres in size, as mapped by Pacific Biodiversity Institute, exists within the proposed boundary. The uninventoried roadless areas account for 7.5% of the total proposed area.

Vegetation and Land Cover

The general land cover of the proposed North Cascades National Monument is mostly coniferous forest (Table 1, Figure 5). The proposed National Monument contains a great diversity of vegetation types (Table 1, Figure 5). Many of these vegetation types are not well represented in the adjacent North Cascades National Park. The existing North Cascades National Park contains large amounts of high alpine terrain covered by glaciers, snowfields and bare rock (Figure 5). In contrast, the proposed National Monument contains extensive mid and low elevation forests and a diversity of other vegetation types.

Table 1. General land cover types of the proposed North Cascades National Monument

Cover Type	Percent of Area
Alpine meadow	2.2%
Bare and rock	8.2%
Big sagebrush shrub-steppe	0.0%
Bitterbrush shrub-steppe	0.1%
Douglas-fir / mixed conifer	3.8%
Engelmann spruce	0.4%
Herbaceous shrub-steppe	0.2%
Low elev. herbaceous	0.2%
Low elev. lush herbaceous	0.0%
Lush subalpine meadow	4.8%
Montane herbaceous	2.2%
Montane mosaic	0.4%
Montane shrub	2.9%
Mountain hemlock	19.5%
Orchards and crops	0.0%
Pacific silver fir	16.2%
Ponderosa pine	0.4%
Ponderosa pine / Douglas-fir	2.0%
Riparian deciduous forest	0.4%
Shadow	1.2%
Slide alder / lush shrubs	0.6%
Snow and ice	4.9%
Subalpine fir / Lodgepole Pine	8.6%
Subalpine grouseberry-huckleberry	2.4%
Subalpine heather meadow	3.0%
Subalpine larch	0.1%
Subalpine meadow	3.3%
Subalpine mosaic	0.4%
Unknown	0.0%
Upland deciduous forest	2.0%
Water	1.1%
Western Hemlock	7.9%
Westside second-growth Douglas-fir	0.3%
Wet soil and gravel	0.0%
Whitebark pine	0.1%

In 1990, Morrison et al mapped late-successional forests in the Mount Baker – Snoqualmie National Forest. They identified approximately 44,900 acres in the western section of the proposed North Cascades National Monument as old-growth forest and other ancient forest types (Figure 7). In the eastern section of the proposed National Monument, there is no map of late-successional forests adequate for the scale of this project. The initial estimate by Pacific Biodiversity Institute, based on US Forest Service Late-Successional and Old-growth data, is that 101,000 acres of late-successional forest exists in the eastern section of the proposed National Monument.

Rare, Threatened and Endangered Species

The Washington Department of Fish and Wildlife and the Washington Department of Natural Resources Natural Heritage Program maintains records of 162 sightings of 34 species of conservation concern in the area proposed for a National Monument (Table 2, Table 3, Figure 8). These rare species have either state or federal status as endangered, threatened, sensitive, or candidate species. All species listed below have declined well below natural and historic levels and are impacted adversely by human activities. Many of these species are dependent on habitat provided by the extensive late-successional forests located in the proposed National Monument and/or the remote mountain terrain.

Table 2. Sightings of vertebrate species of conservation concern

Common Name	Scientific Name	Number of Sightings
Lynx	<i>Lynx canadensis</i>	12
Wolverine	<i>Gulo gulo</i>	8
Fisher	<i>Martes pennanti</i>	1
Grizzly Bear	<i>Ursus arctos</i>	15
Gray Wolf	<i>Canis lupus</i>	8
Western Gray Squirrel	<i>Sciurus griseus</i>	1
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	25
White-tailed Ptarmigan	<i>Lagopus leucurus</i>	2
Spruce Grouse	<i>Dendragapus canadensis</i>	1
Northern Goshawk	<i>Accipiter gentilis</i>	13
Osprey	<i>Pandion haliaetus</i>	13
Bald Eagle	<i>Haliaeetus leucocephalus</i>	18
Golden Eagle	<i>Aquila chrysaetos</i>	7
Tailed Frog	<i>Ascaphus truei</i>	5
Columbia Spotted Frog	<i>Rana luteiventris</i>	17
Prickly Sculpin	<i>Cottus asper</i>	2
Coastrange Sculpin	<i>Cottus aleuticus</i>	5
Largescale Sucker	<i>Catostomus macrocheilus</i>	1

Table 3. Known occurrences of plant species of conservation concern

Scientific Name	Common Name	Number of Observations
<i>Botrychium Lanceolatum</i>	Lance-Leaved Grape-Fern	4
<i>Botrychium Minganense</i>	Victorin's Grape-Fern	4
<i>Carex Heteroneura</i>	Different Nerve Sedge	1
<i>Carex Magellanica Ssp Irrigua</i>	Poor Sedge	3
<i>Carex Saxatilis Var Major</i>	Russet Sedge	2
<i>Cryptogramma Stelleri</i>	Steller's Rockbrake	1
<i>Draba Aurea</i>	Golden Draba	2
<i>Galium Kamtschaticum</i>	Boreal Bedstraw	2
<i>Listera Borealis</i>	Northern Twayblade	6
<i>Lycopodium Dendroideum</i>	Treelike Clubmoss	1
<i>Packera Cymbalaria</i>	Alpine Meadow Butterweed	1
<i>Platanthera Sparsiflora</i>	Canyon Bog-Orchid	1
<i>Poa Arctica Ssp Arctica</i>	Gray's Bluegrass	1
<i>Potentilla Nivea</i>	Snow Cinquefoil	1
<i>Saxifraga Cernua</i>	Nodding Saxifrage	1

The proposed North Cascades National Monument also harbors a wide diversity of fish species. Six species of resident fish have been recorded within the boundary (Table 4, Figure 9 [Source: Washington Department of Fish and Wildlife StreamNet data]). A stronghold for bull trout is found in within the proposed monument. It is listed as a federally threatened species. Eight resident fish species occur in rivers running adjacent to the proposed National Monument. While these eight resident species may not directly inhabit the proposed area, its tributaries contribute significantly to the flow of those rivers. Thus, land management practices within the proposed North Cascades National Monument could affect the quality of habitat for those fish species occurring in adjacent waterways.

Table 4. Resident fish species in the proposed North Cascades National Monument area.

Common Name	Occurs within proposed area
Mountain Whitefish	X
West Slope Cutthroat	X
Rainbow Trout	X
Largescale Sucker	X
Longnose Dace	
Bull Trout	X
General Sculpin	X

Additionally, the proposed North Cascades National Monument is a stronghold for anadromous fishes including species federally listed as threatened and endangered salmonids. Both summer and winter steelhead run in waterways through the proposed National Monument (Figure 10). Spring, summer and fall runs of Chinook salmon are also found in the proposed area (Figure 11). Other anadromous salmonids occurring in the area are: searun cutthroat, coho, chum, pink, and sockeye (Figure 12).

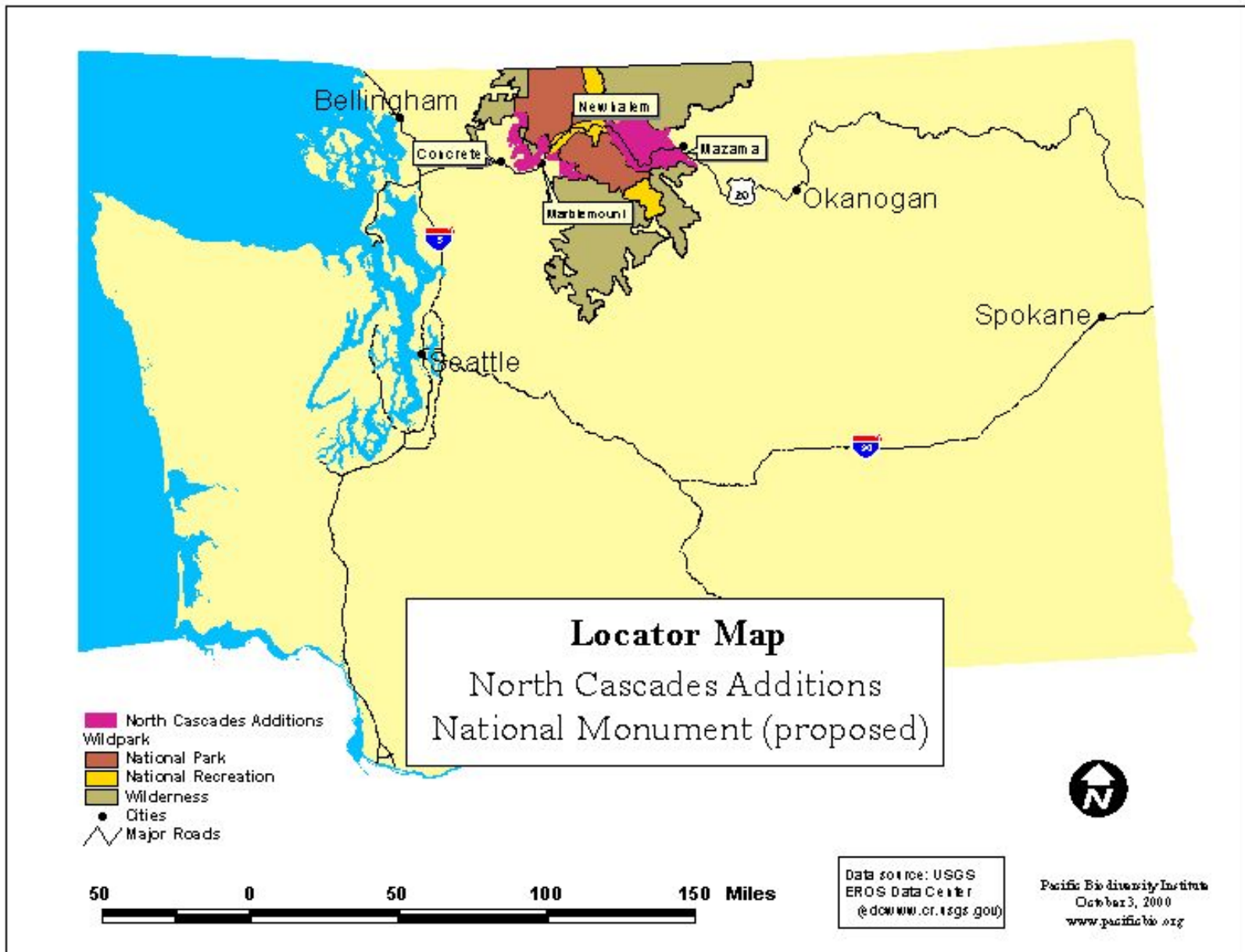


Figure 1. The proposed North Cascades National Monument is northeast of Seattle, Washington and east of Okanogan, Washington.

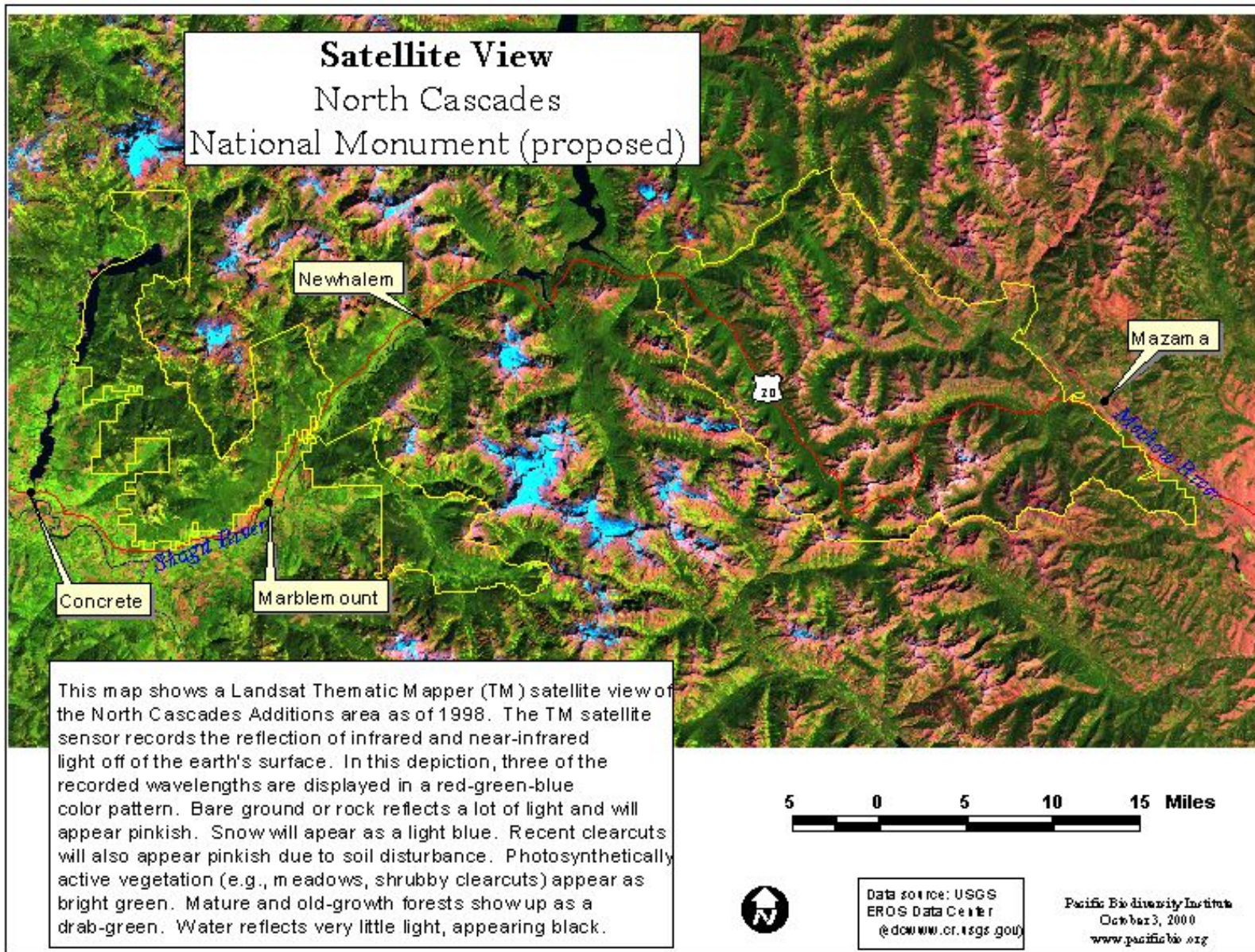


Figure 2. A view of the proposed North Cascades National Monument from the Landsat Thematic Mapper (TM) satellite. This satellite image was taken in 1998.

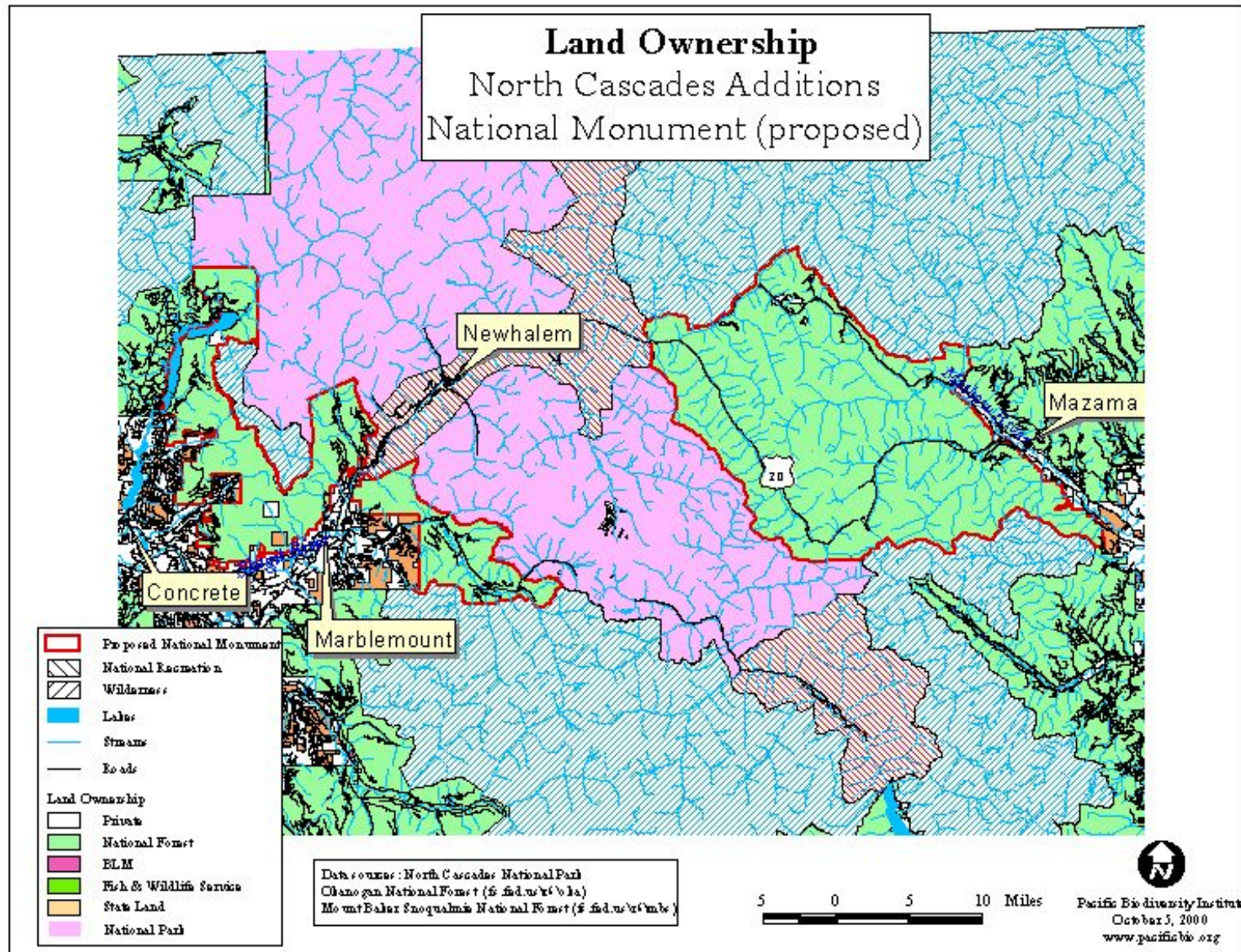


Figure 3. The proposed North Cascades National Monument is entirely within US Forest Service Land. The majority of the area is in the Okanogan National Forest. The western section is in the Mount Baker - Snoqualmie National Forest. The proposed Monument is bordered by Wilderness Areas and the North Cascades National Park.

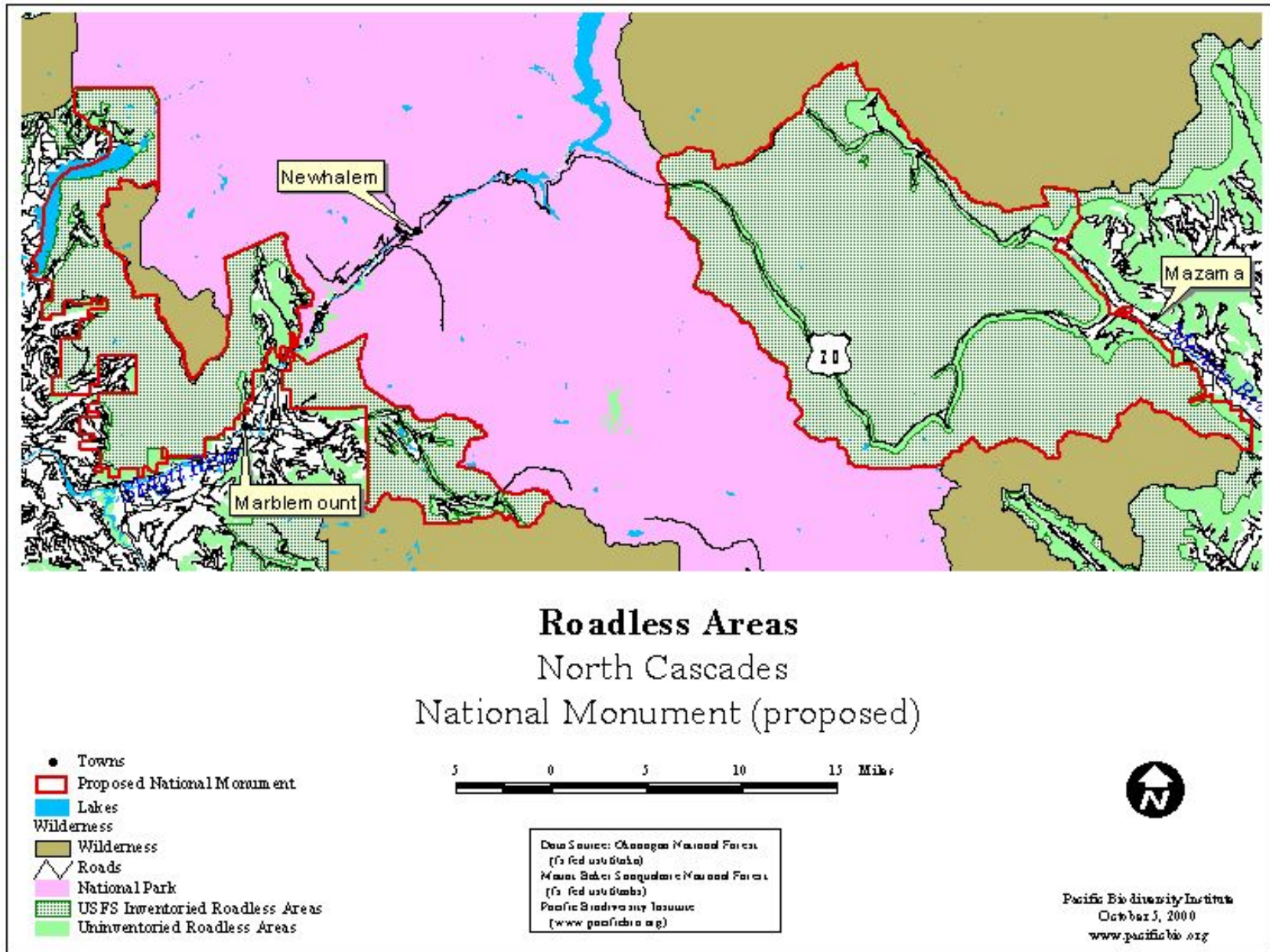


Figure 4. US Forest Service Inventoried Roadless Areas and uninventoried roadless areas in the proposed North Cascades National Monument.

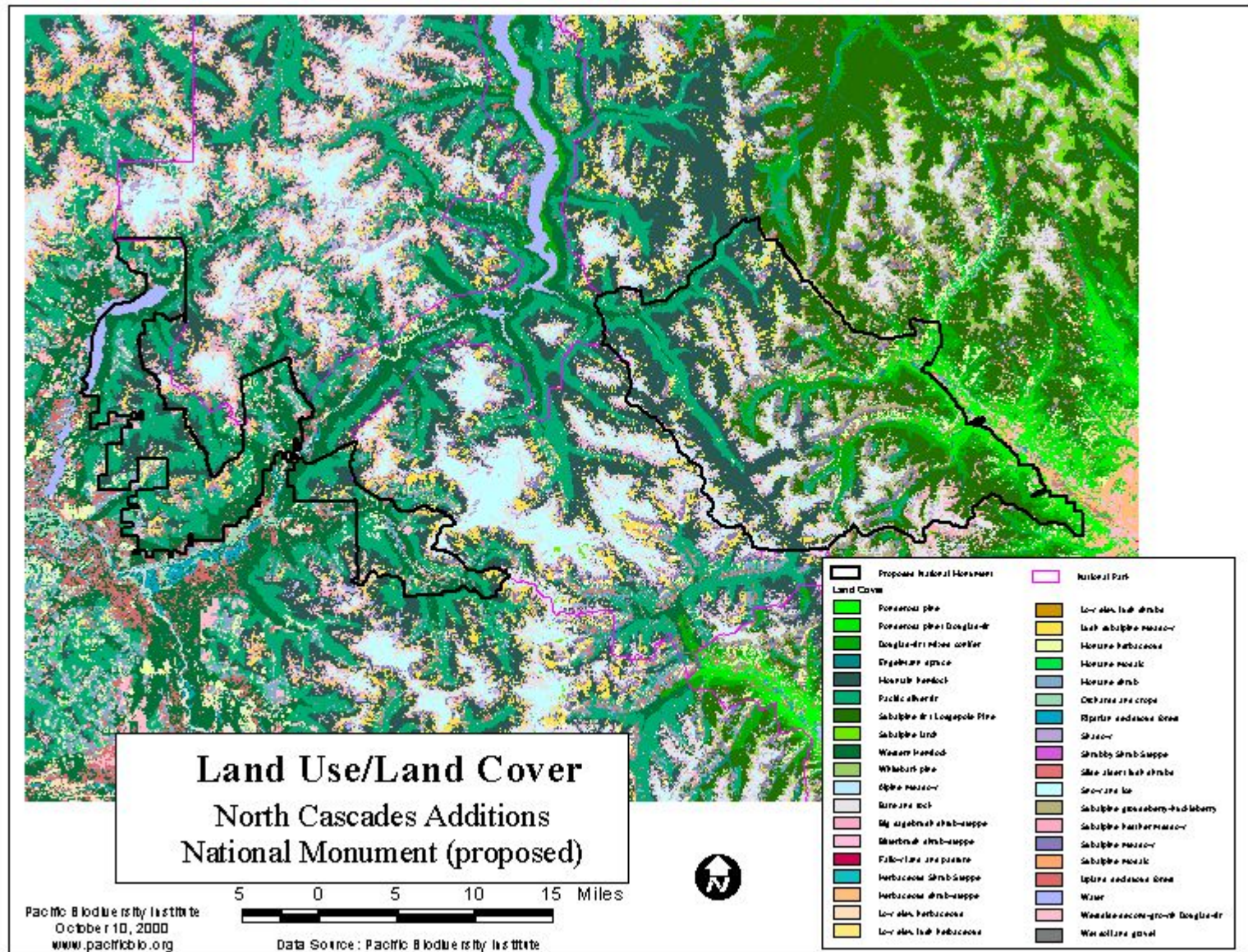


Figure 5: Land cover types for the proposed North Cascades National Monument.

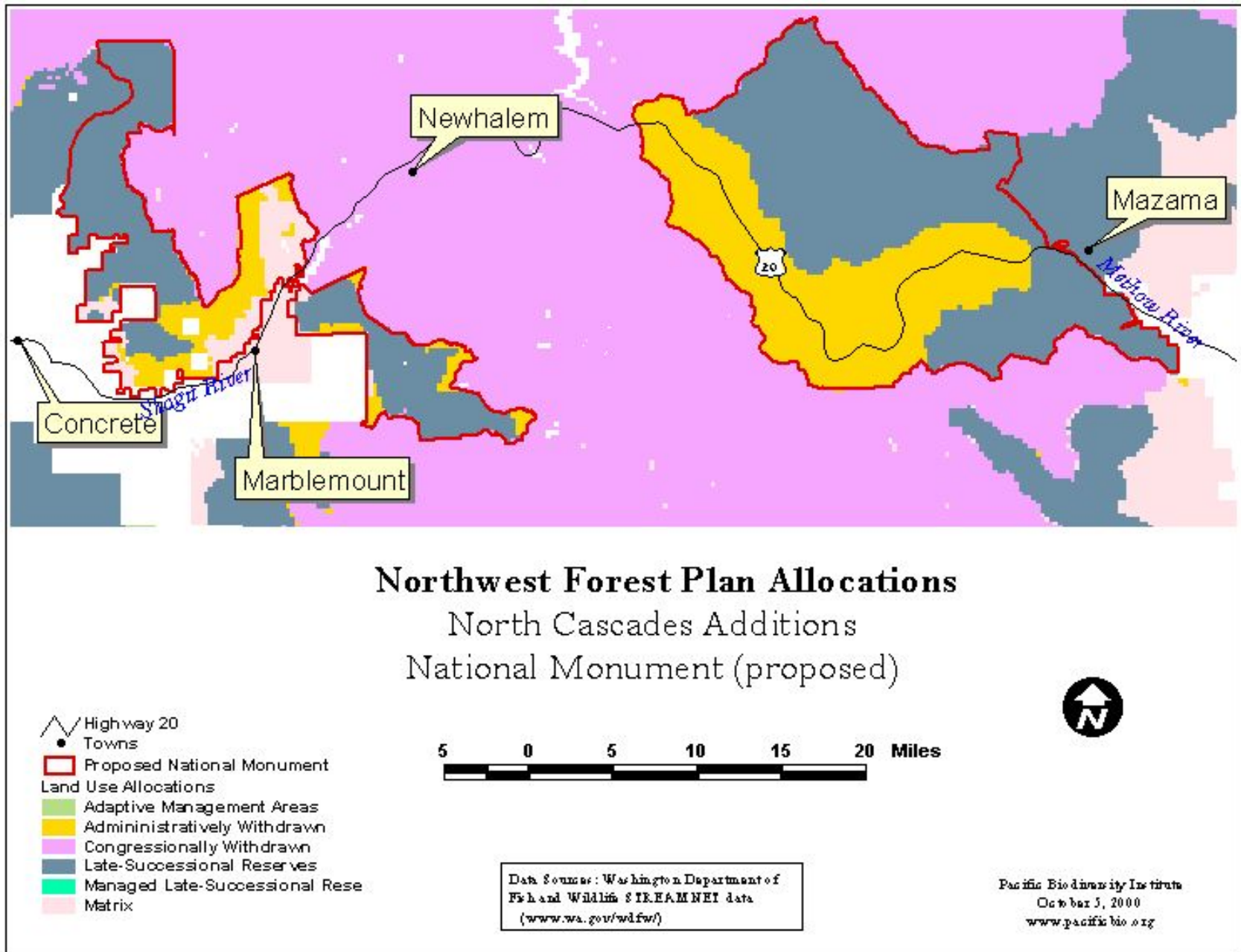


Figure 6: Northwest Forest Plan Allocation for the proposed North Cascades National Monument.

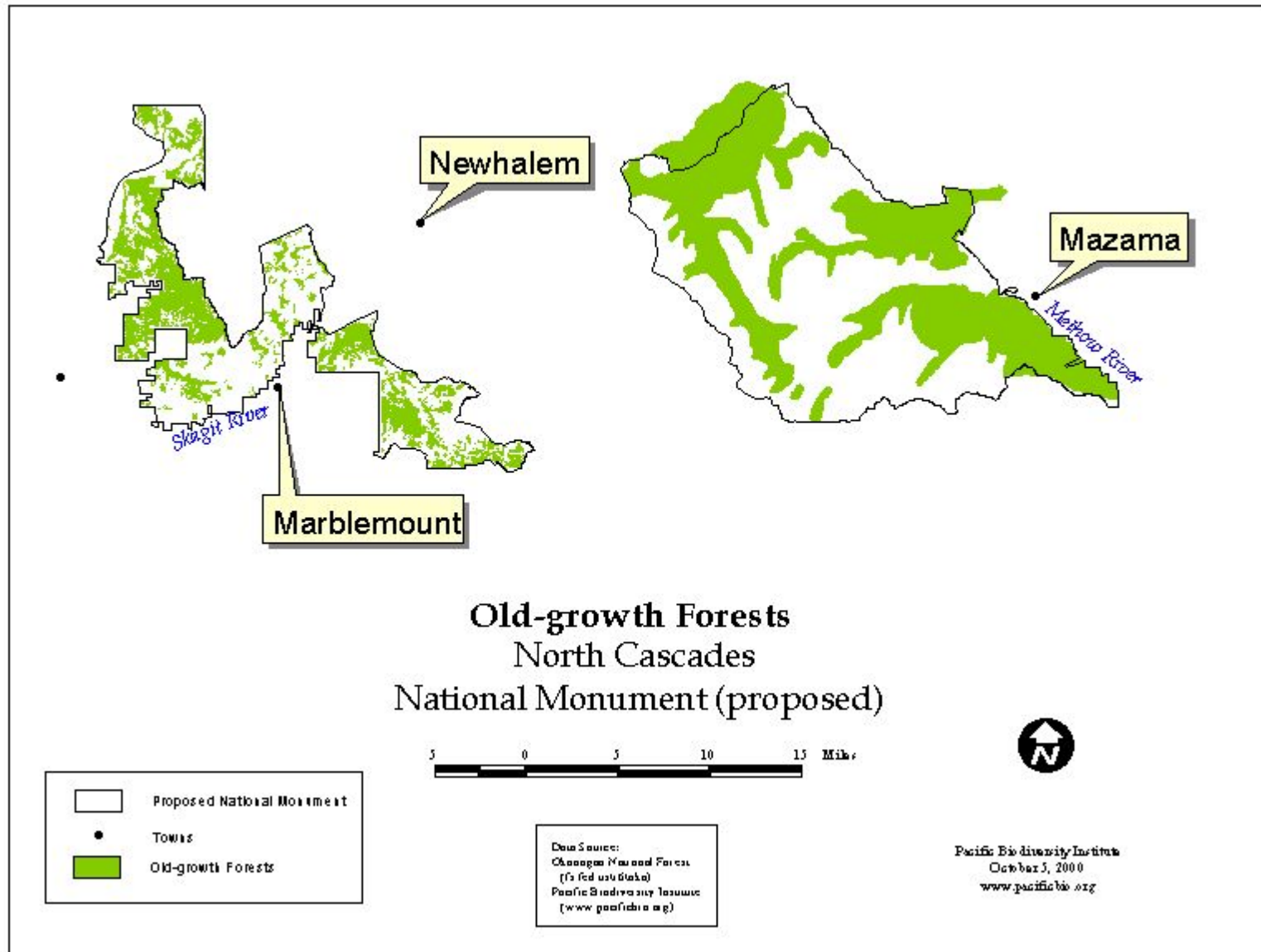


Figure 7: Old-growth forests in the proposed North Cascades National Monument as mapped by Morrison et al. (1991).

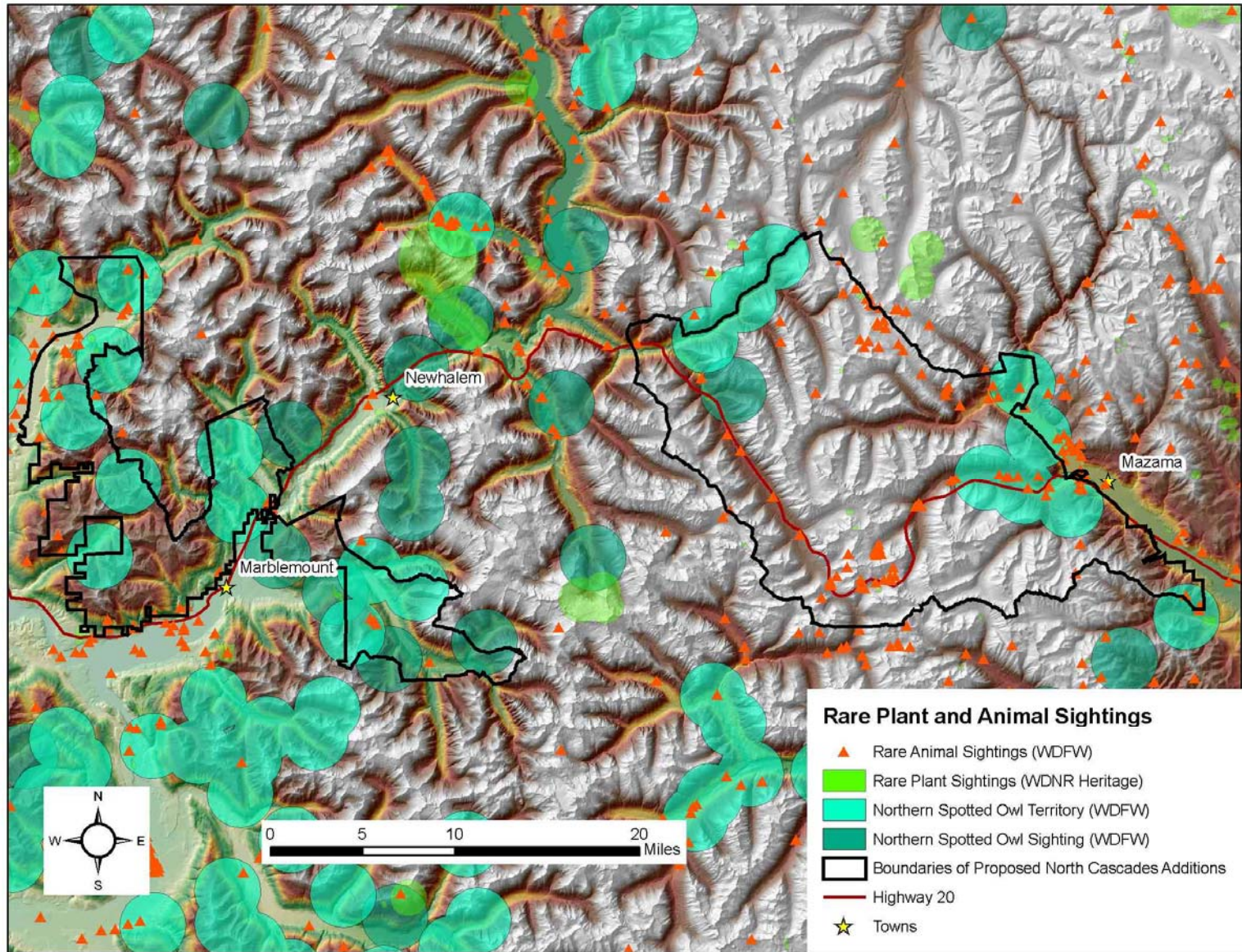


Figure 8: Rare plant and animal sightings in the North Cascade ecosystem. Sighting data from Washington Dept. of Fish and Wildlife and Washington Dept. of Natural Resources Heritage programs.

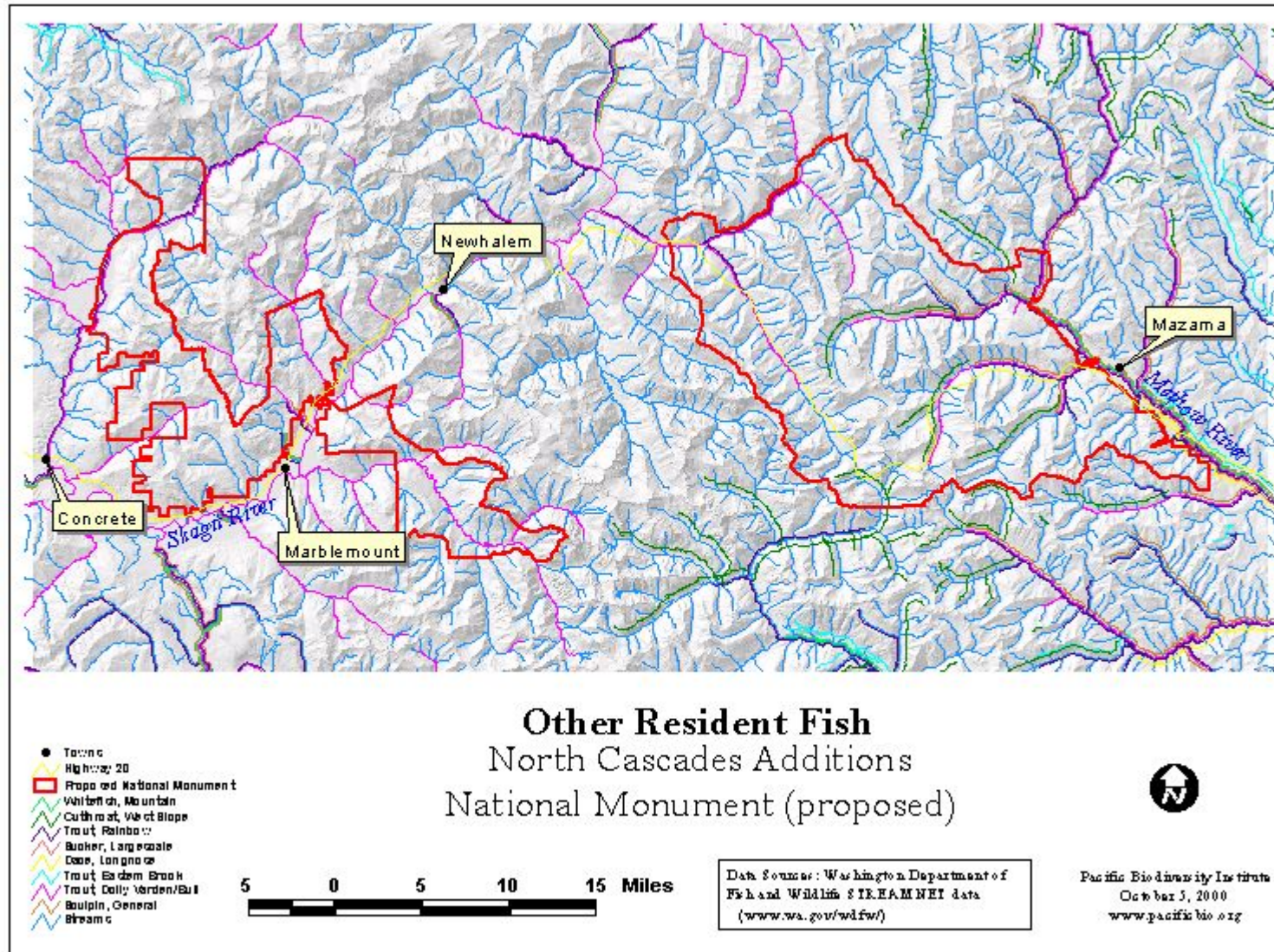


Figure 9: Resident fish species in the proposed North Cascades National Monument.

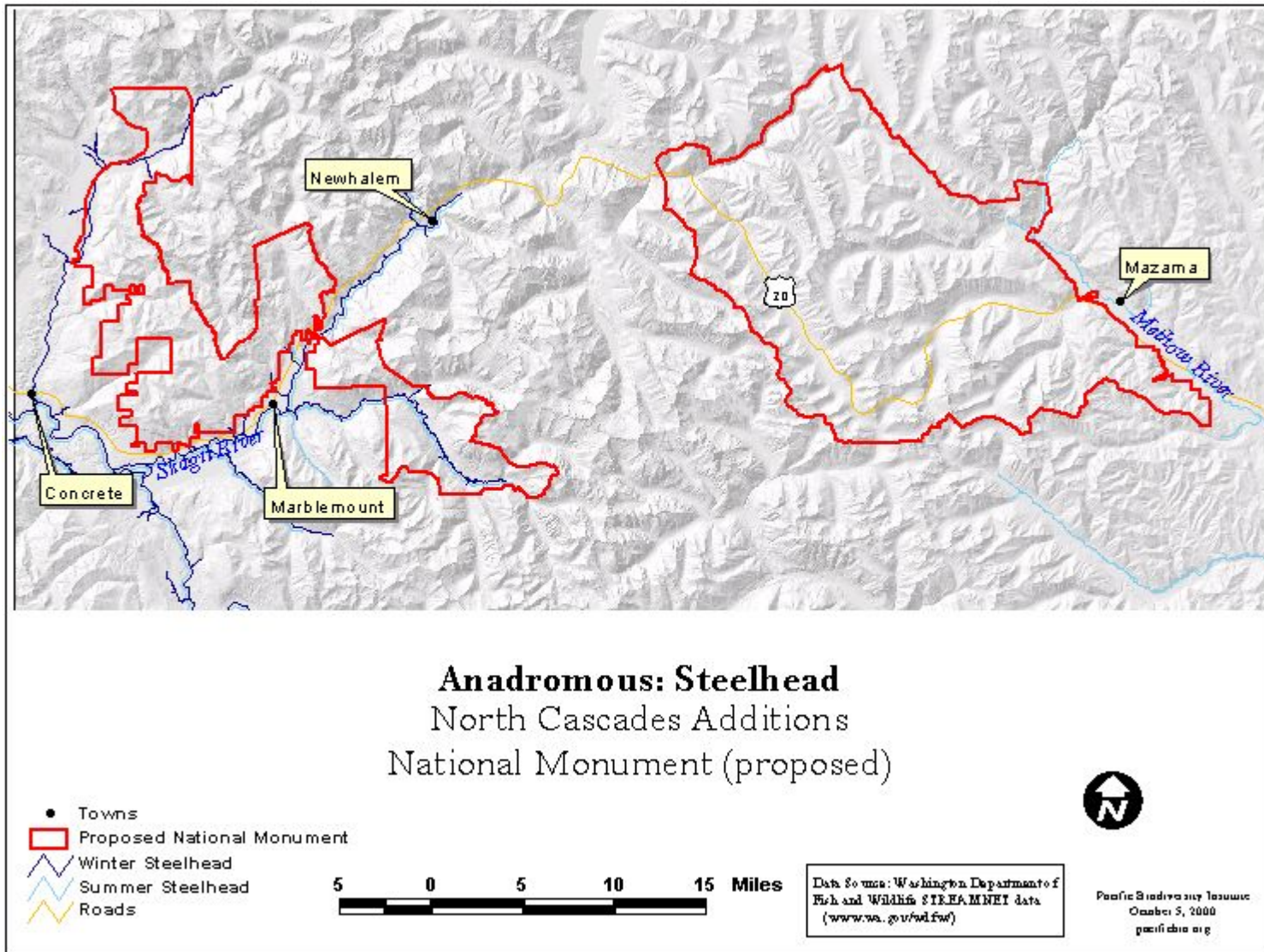


Figure 10: Steelhead presence in the proposed North Cascades National Monument.

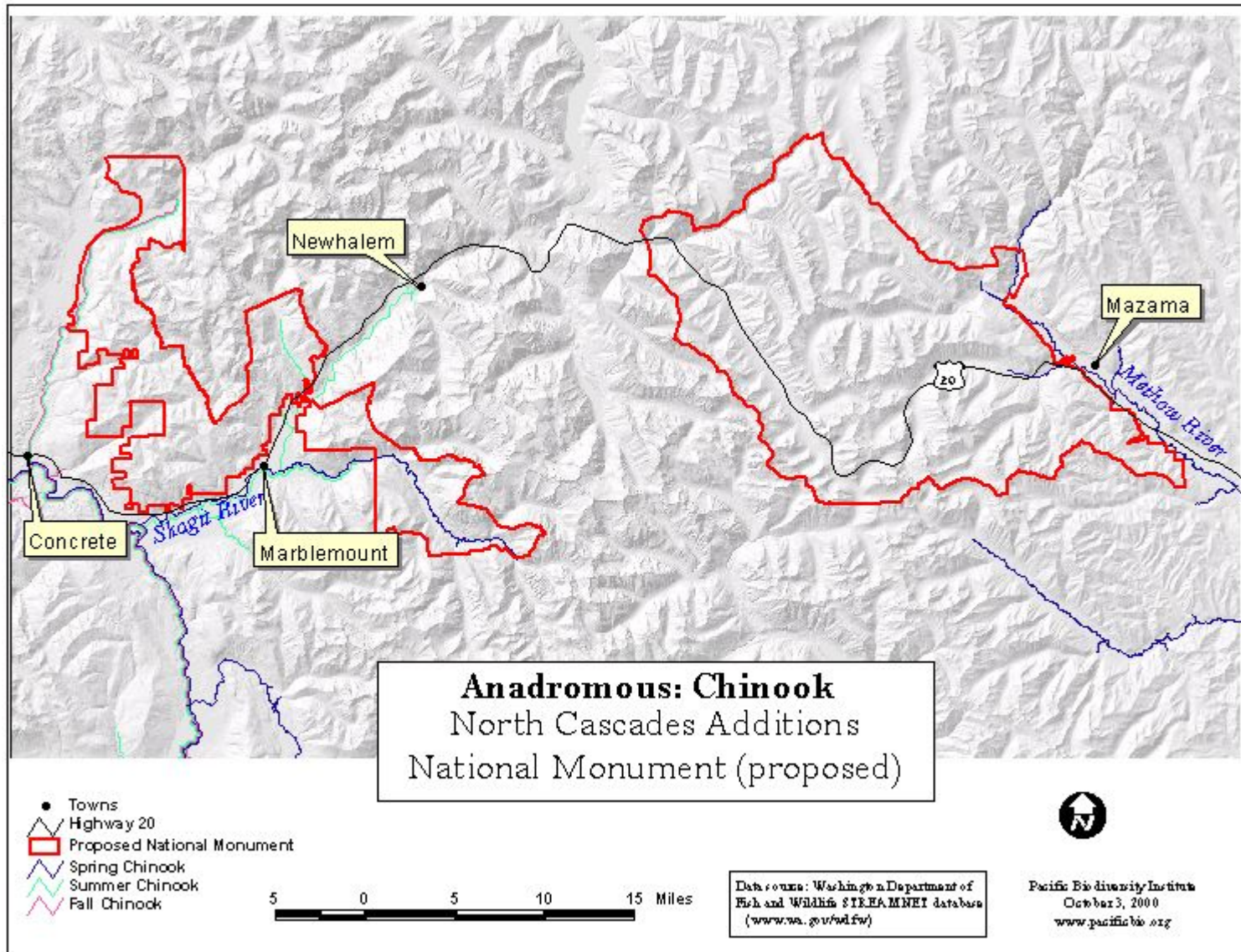


Figure 11: Chinook salmon presence in the proposed North Cascades National Monument.

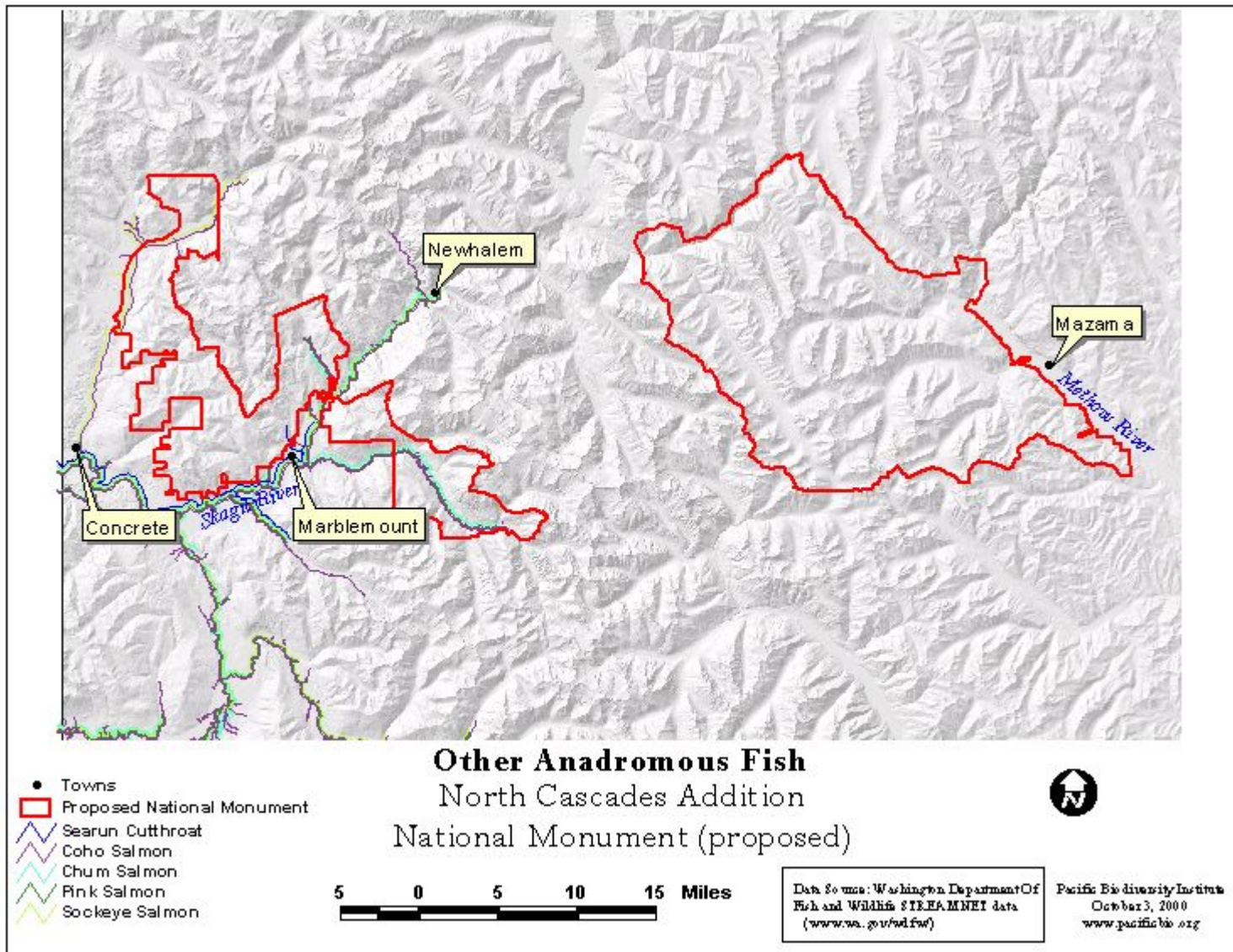


Figure 12: Other anadromous salmonid fish presence in the proposed North Cascades National Monument.