

ESTABLISHMENT REPORT

for

SALMO RESEARCH NATURAL AREA

Within the

COLVILLE NATIONAL FOREST
PEND OREILLE COUNTY
STATE OF WASHINGTON

Prepared by	<u><i>Ronald J. Gering</i></u>	Date	<u><i>9/21/72</i></u>
Reviewed by	<u><i>J. C. [unclear]</i></u> District Ranger	Date	<u><i>9-26-72</i></u>
Recommended by	<u><i>Robert O. [unclear]</i></u> Forest Supervisor	Date	<u><i>10/3/72</i></u>
Recommended by	<u><i>W. Lawrence [unclear] Whitfield</i></u> Regional Forester	Date	<u><i>10/26/72</i></u>
Recommended by	<u><i>1st Robert W. Harris</i></u> Station Director	Date	<u><i>11/6/72</i></u>
Approved by	<u><i>E. F. Leroy Bond</i></u> Director, Division of Recreation, W.O.	Date	<u><i>11/3/72</i></u>
Approved by	<u><i>H. R. L. Young</i></u> Deputy Chief, Research, W.O.	Date	<u><i>11/5/72</i></u>
Approved by	<u><i>1st John R. McGinnis</i></u> Chief	Date	<u><i>11/8/72</i></u>

DESIGNATION ORDER

By virtue of the authority vested in me by the Secretary of Agriculture under regulation 36 CFR 251.21, I hereby designate as the Salmo Research Natural Area the lands described in the preceding report by Ronald J. Young, dated September 14, 1972; said lands shall hereafter be administered as a research natural area subject to the said regulations and instruction thereunder.

1/8/73

Date

151 John R. McGuire

Chief

I. THE AREA

A. Principle Distinguishing Features

The area contains 1390 acres of timber, primarily old growth Western red cedar, western hemlock, Douglas fir and Englemann spruce with lesser areas of second growth and reproduction resulting from fires, the most recent being in 1926.

The area is accessible via road and trail and is definable. It offers study opportunities in climax vegetative types, as well as seral types resulting from fire.

B. Location

Included in the proposed area are portions of Sections 9, 10, 11, 14, 15, 16, 22, T40N, R45E, W.M., in the South Fork of the Salmo River drainage, Sullivan Lake Ranger District, Colville National Forest, Region One, Pend Oreille County, State of Washington.

The proposed natural area lies within the proposed Salmo-Upper Priest Wilderness Candidate study area.

C. Area by Cover Types

	<u>SAP</u>	
	<u>Forest Cover Types</u>	
Subalpine fir (sawtimber)	(206)	380 acres
Subalpine fir (poles, seedling & sapling)	(206)	190 acres
Western red cedar - western hemlock (sawtimber)	(227)	330 acres
Western larch (seedling & sapling)	(212)	100 acres
Western white pine (sawtimber)	(215)	31 acres
Englemann spruce (sawtimber)	(206)	318 acres
Non-commercial forest		<u>41</u> acres
		1390

D. Physical Conditions

The area lies on a moist north slope at elevations ranging from 4000 ft. MSL at the Salmo River to 6823 ft. MSL at Salmo Mtn. at the south boundary. Slopes range from 20% to 80% and average 40%.

E. Climate

Precipitation ranges from 45" to 60" annually, and occurs primarily in the form of snow which reaches depths of over 100" and persists into July. Temperature extremes range from minus 40-45°F to +90°. Temperature averages are not known.

II. DESCRIPTION OF VALUES

A. Flora

The high precipitation and cool subalpine characteristics of the area lead to a diverse flora.

The predominant habitat type is Abies lasiocarpa/Menziesia which is characterized by very dense shrub cover composed of Rhododendron albiflorum, Menziesia ferruginea, Vaccinium membranaceum and Sorbus spp.

The second largest habitat type in terms of area is the Tsuga heterophylla/Fachistima type which is most notable for the abundance and size of the Taxus bravifolia (western yew). Uncommon herbs such as Streptopus streptopoides are found here. Ferns are abundant in this type, including species which are less common for the region such as Dryopteris austriaca, D. filix-mas, and Polystichum munitum. Mosses are abundant here, particularly Rhytidiadelphus triquetrus which forms extensive carpets on the forest floor.

A third type, the Thuja/oplopanax (and Athyrium) association is found along streams and seep areas. In this type is an abundance of Saxifragas, particularly such plants as Leptarrhena pyrolifolia, Tellima grandiflora, Parnassia fimbriata, and Saxifraga odontoloma.

The moist climate here also provides for a great abundance and diversity of mushrooms as well as arboreal lichens.

Tree diseases and insects are common in the area, particularly in the old growth timber. Western white pine is subject to attack by Cronartium ribicola, Fomes pini, and Dendroctonus monticolae. Western hemlock is attacked primarily by Echinodontium tinctorium and western red cedar by Poris asiatica.

All of the above insects and diseases listed as well as others present are considered to be endemic, although the Mountain pine beetle has caused local damage in the Salmo drainage.

B. Geology

The drainage was extensively glaciated, both by continental glaciers and later by alpine glaciers. Evidence of this exists up to 6000 ft. elevation and is confirmed by the thick valley fill deposits and steep truncated slopes facing the Salmo River. The side drainages into the river were plugged with glacial till which led to the deeply (30-40 ft.) entrenched streams which are now present.

After glaciation, the entire area was covered with layers of loess and volcanic ash which varies in depth from 2" to 30" depending on slope position.

Indurated till is also present in portions of the area at varying depths. These compacted layers interfere with subsurface water drainage and generate lateral subsurface flow.

Most of the proposed natural area lies within a belt of Cambrian age material known as the Monk formation, consisting primarily of phyllite with some quartzitic limestone included. This formation occurs only in a very limited area of the Sullivan Lake District in the State of Washington.

On the west boundary of the area, a contact line between the Monk formation and Gypsy quartzite formation is found. The influence of the two different bedrock types causes a notable contrast in soils and vegetative types.

C. Fauna

The fauna of the area are difficult to discuss in terms of the proposed natural area but can be discussed in terms of the Salmo drainage and the adjacent Sullivan Creek drainage.

There are several species of both animals and birds which are apparently unique to the State of Washington due to the southward extension of the Canadian Boreal or northern influence. Among these are: Mountain caribou, gray wolf, grizzly bear, wolverine, marten, and Canadian lynx. Birds which fall in this category and are known to occur here are boreal chickadee, pine grosbeak, red crossbill and white-winged crossbill.

The area also contains most of the species of birds and animals considered common to Northeast Washington. A preliminary checklist of both Avian fauna and Mammalia found in the area is found in Appendix III of this report.

D. Minerals

The proposed area has not been examined specifically for minerals and there are no known mining claims within the area.

The country surrounding the proposed natural area is known to be mineralized, with low-grade lead zinc deposits predominant, however, silver, gold, copper, cobalt and possibly marble are present in various quantities and at varying distances. The two closest known mining claims are two (2) miles southeast and four (4) miles south of the area.

The Regional mining engineer has stated "The opinion of geologists familiar with the mineral possibilities is that ... the stratigraphy is favorable for mineral deposition and there is a possible source for mineralization from underlying and intruding igneous rocks. Current lack of necessary geological information indicates that it would be premature to evaluate the mineral potential of the area at this time."

In a report dated April 25, 1972, the Washington Department of Natural Resources, Division of Mines and Geology, stated that the Salmo area does not appear to contain a concentration of mineral occurrences; it considers the general Salmo area non-mineral in character. Very little on-the-ground study has been made of the area, however. The State feels a field study should be made before the area is withdrawn from mineral study.

E. Recreation

Because of the steep terrain and generally dense vegetation, recreation use within the boundaries of the proposed natural area is generally light and is limited to hunting, berry-picking and hiking. The area is traversed by a trail leading from the ridgetop road on the south end of the area to the Salmo River on the north which does get a significant amount of use (estimated at 400 persons in 1971).

We anticipate that this traffic will increase in the future, but feel that this use will not have any detrimental effect on the basic function of the research natural area.

F. Water Use

The unnamed stream which traverses the area is a tributary of the South Fork of the Salmo River which flows into Canada three (3) miles northwest of the proposed natural area and thence into the Pend Oreille River. The only known downstream uses are power generation and irrigation on the Columbia River system.

The Salmo basin produces high quality water, well within the Washington State water quality standards for Class AA streams.

We do not anticipate any demand for consumptive water use within or adjacent to the proposed natural area.

G. Other Uses

As long as the Salmo basin is in a study status, any prediction of future conflicting uses is premature. Even if the Salmo basin were developed for timber management or other uses, this development could take place without adverse effect on the proposed natural area.

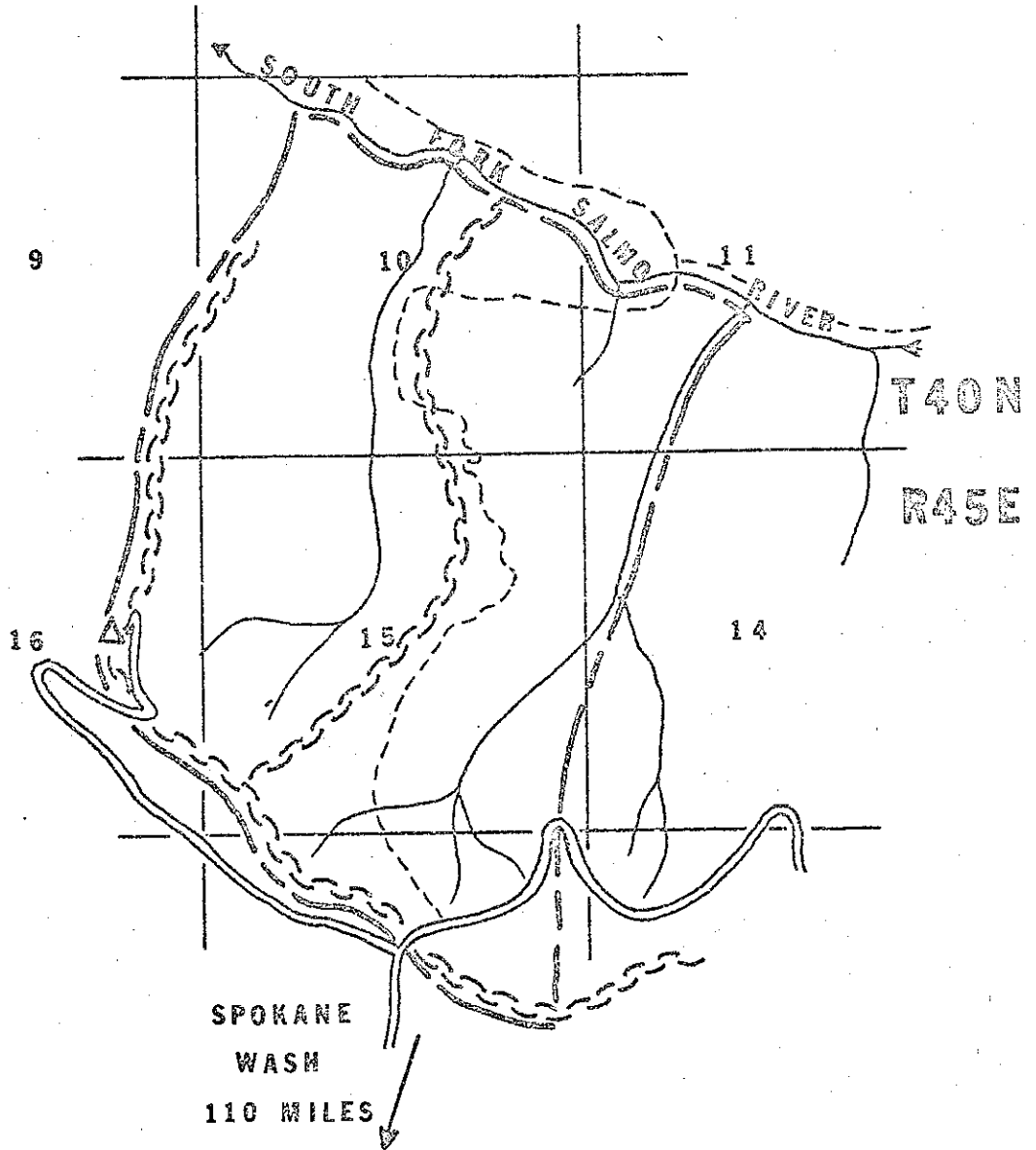
The existing road and trail do not detract from the value of the area in the opinion of the Northern Region Research Natural Area Committee.

APPENDIX

The following in-service reports provided information for this report. Copies of this material are on file at the Sullivan Lake Ranger Station.

1. Memo to Neal M. Rahm from Charles A. Wallner, Chairman, Northern Region Research Natural Area Committee. Dated 6/12/70, designated 4060 Research Facilities.
2. Memo to Robert A. Smart from E.F. Layser regarding soils, geology and habitat types in the Salmo Basin. Dated 8/15/70, designated 2100 Multiple Use.
3. Memo to Forest Supervisor, Colville National Forest from E.M. Richlen, Acting Chief of Soils and Watershed Management Branch, R-1 regarding Soil Stability Investigation. Dated 4/3/69 designated 2550 Soil Surveys.
4. Report: "Preliminary Evaluation of the Mineral Potential of the Slate Creek - South Fork of Salmo River - Priest River Wild Area (Proposed)" Written by John Stentz, Region I Mining Engineer, 3/26/70.
5. Report: Sullivan Creek Planning Area, Basic Ecological Survey, by E. Javorka and E.F. Layser, Colville National Forest, 1970.
6. Personal correspondence with Earle Layser, Biotic Planning Specialist, Colville National Forest, May, 1972.
7. Report dated 4/25/72 to Robert Smart, Forest Supervisor, from Vaughn E. Livingston, Jr. State Geologist, Division of Mines and Geology, Washington State Department of Public Lands.

PROPOSED SALMO BASIN RESEARCH NATURAL AREA



AREA BOUNDARY

RIDGE

STREAM

TRAIL 506

SALMO MTN L.O.

Scale 2" = 1 Mile

CAP 9/72

Checklist of the Mammalia
Sullivan Lake Ranger District
Colville National Forest
Pend Oreille County

Washington

by

Earle F. Layser

Insectivora

Soricidae

Masked Shrew, Sorex cinereus
Not found in Pseudotsuga or Pinus ht's.

Dusky Shrew, Sorex obacurus
Vagrant Shrew, Sorex vagrans
May be absent from Abies/Xerophyllum ht. and higher elevations.

Northern Water Shrew, Sorex palustris
Occurs along small, cold mountain streams with cover.
Removal of vegetation along streambanks may destroy
habitat.

Pygmy Shrew, Microsorex hovi
Likely uncommon in this locale, but may occur(?)
in the extreme northern part of the District.

Chiroptera

Vespertilionidae

Little Brown Myotis, Myotis lucifugus
Long-Eared Myotis, Myotis evotis
Yuma myotis, Myotis yumanensis
Silver-Haired Bat, Lasionycteris noctivagans
Widespread. Habitat is forest; feeds among the trees.

Big Brown Bat, Eptesicus fuscus
Red Bat, Lasiurus borealis
Might be found in the northern extreme of the District(?).
Roosting generally confined to trees.

Hoary Bat, Lasiurus cinereus
Widespread, roost in trees.

Western Big-Eared Bat, Placotus rafinesquii

Carnivora

Ursidae

Black Bear (Cinnamon Bear), Ursus americanus

Grizzly Bear, Ursus horribilis**

Grizzly bear were not uncommon in the northern part of the District in the 1940's. A grizzly was shot on Salmo Mtn. in 1956. The most recent, reliable, sighting was in the Gypsy Ridge country in 1959, and near the Customs Station in 1961.¹ Considerable sightings in the past have centered around the Salmo - Snowy Top area.

Procyonidae

Raccoon, Procyon lotor

Mustelidae

Marten, Martes americana

Fisher, Martes pennanti*

Very rare or extinct from this area.

Shorttail Weasel (Ermine) Mustela erminea

Longtail Weasel, Mustela eronata

Mink, Mustela vison

River Otter, Lutra canadensis

Wolverine, Gulo luscus*

Previously occurred in this area. Most recent sighting Round Top Mtn., 1948.⁶

Badger, Taxidea taxus

* Considered rare for State of Washington

** Rare or endangered species

Striped Skunk, Mephitis mephitis

Canidae

Coyote, Canis latrans

Gray wolf, Canis lupus*

There have been several reliable gray wolf sightings on the District in this decade. Sightings were made in Slate Creek (3 wolves) and Sullivan Creek (2 wolves) in 1964,⁴ and near the Customs Station (1 wolf) in 1966 and 1967.¹ Last official report for the State was supposed to have been in Ferry County in 1950.⁴ The gray wolf is officially documented as extinct⁴ for the State.

Red fox, Vulpes fulva

Felidae

Mountain lion (cougar), Felis concolor

Reported from Sullivan Creek (Cascade Ck.) and Sullivan Mtn.⁷, etal.

Bobcat, Lynx rufus

Lynx, Lynx canadensis*

Reported from N. Fork Sullivan Ck., Prouty Peak, Mankato Cr., Copper Ck., etal.⁶

Rodentia

Scurridae

Hoary marmot, Marmota caligata

Rumored to occur in this area, but the author is aware of no reliable sightings. To be looked for at higher elevations.

Yellowbelly marmot (rockchuck) Marmota flaviventris
Found at lower elevations.

Columbian ground squirrel, Citellus columbianus

* Considered rare for State of Washington

Golden-Mantled Squirrel, Citellus lateralis

Yellow Pine Chipmunk, Eutamias amoenus

Redtail Chipmunk, Eutamias ruficaudus

Generally at higher altitude than yellow pine chipmunk.

Red Squirrel, Tamiasciurus hudsonicus

Northern Flying Squirrel, Glaucomys sabrinus

Habits of this animal are not well known.

Geomysidae

Northern Pocket Gopher, Thomomys talpoides

Casteridae

Beaver, Caster canadensis

Cricetidae

Deer Mouse, Peromyscus maniculatus

The relationship of population buildup of this species to habitat created by clear-cut logging practices needs study.

Bushytail woodrat (packrat), Neotoma cinerea

Northern Bog Lemming, Synantomys borealis

It is possible this species might occur in wet subalpine meadows such as Bunchgrass Meadows. This locale is the vicinity of the southern limit of the species range.

Mountain Phenacomys, Phenacomys intermedius

Found in habitat types where Pachistima is the codominant, to open grassy areas (parke) near mountain tops.

Boreal redback vole, Clethrionomys gapperi

Meadow vole, Microtus pennsylvanicus

May be confined to the Pseudo-otuzga habitat types in this locale, or where Symphoricarpos is abundant.

Muskrat, Ondatra zibethica

Muridae

Norway rat, Rattus norvegicus

House mouse, Mus musculus

Zapodidae

Western jumping mouse, Zapus princeps

Requires lush grass habitat along streams. Heavy grazing conflicts with habitat for this species.

Erethizontidae

Porcupine, Erethizon dorsatum

Ochotonidae

Pika (rock rabbit), Ochotona princeps

Leporidae

Snowshoe Hare (Varying Hare), Lepus americanus

Artiodactyla

Carvidae

Elk (Wapiti), Cervus canadensis

Mule Deer, Odocoileus hemionus

Whitetail Deer, Odocoileus virginianus

Moose, Alces alces*

Sightings not uncommon in 1970.

Mountain caribou, Rangifer tarandus montanus**

Bovidae

Mountain Goat[†], Oreamnos americanus

Natural populations occurred on the Shedroof - Snowy Divide and Watch Ck. areas in the 1940's⁶, and more recent.

* Considered rare for State of Washington

** Rare or endangered species

References

1. Bates, V. L., 1970. Personal communication.
2. Kurt, W.H. & R. P. Grossenheider, 1952. A Field Guide to the Mammals. 2 Ed. Houghton Mifflin Company
3. Daubenmire, R., 1969. "Forest Vegetation of Eastern Washington and Northern Idaho". Wash. Agric. Expt. Stat. Tech. Bull. 60.
4. Ficke, H. O. 1970. Personal communication.
5. Lauckhart, J. B. 1970. "Rare Mammals of Washington". Wash. Chapter, Wildlife Soc. & Game Mgmt Div. Olympia, Wn.
6. Mource, James. 1970. Personal communication.
7. Moon, Bud. 1970. Personal communication.

A Listing of Some of the
Avian Fauna of the
Sullivan Lake Ranger District
Colville National Forest

by

Earle F. Laysor

1971

This represents the beginning of a checklist of the birds of the Sullivan Lake Ranger District. It is not, however, to be taken as a complete list of the Avian fauna for that area. Some of the species included in the list were not actually observed, but rather were listed on the basis of their range and habitat requirements. These need to be confirmed, or eventually deleted. The list should be added to when new records are positively identified.

Loons: Coriidae

Grebes: Podicipedidae

Western Grebe, Aechmochorua occidentalis
Sullivan Lake in October and November,

Herons: Ardeidae

Great Blue Heron, Ardea herodias

Swans, Geese and Ducks: Anatidae

Canada goose, Branta canadensis
In 1970, Canadian geese successfully nested
along the Boundary Reservoir

Mallard, Anas platyrhynchos

Pintail, Anas acuta

Common merganser, Mergus americanus
Nest along Sullivan Lake and the Pond Oreille
River.

American Widgeon, mareca americana

American Vultures: Cathartidae

Turkey Vulture, Cathartes aura
Occasional

Hawks, Eagles: Accipitridae

Accipitrines

Coshoawk, Accipiter gentilis
Observed along Sullivan Creek in 1970.

Sharp-Shinned Hawk, Accipiter striatus

Cooper's Hawk, Accipiter cooperi

Buteoninae

Red-tailed Hawk, Buteo jamaicensis

Schwinn's Hawk, Buteo swainsoni

Golden Eagle, Aquila chrysaetos

May nest along the Abercrombie/H. Baldy Divide.

Bald Eagle, Haliaeetus leucoccephalus

Observed along the Paul Oroille River south of
Box Canyon Dam in 1967.

Falconidae

Osprey, Pandion haliaetus

A population of seven - eight adult ospreys
existed along the Boundary Dam Reservoir in
1970.

Falconidae

Pergrine Falcon, Falco peregrinus

To be looked for. Nests in high cliffs

Pigeon Hawk (Merlin), Falco columbarius

To be looked for, reported to nest in this
area.

Sparrow hawk, Falco sparverius

Grouse, Ptarmigan: Tetraoidea

Blue Grouse, Bonaparteus obscurus

Spruce Grouse (Pool's Hen, Franklin Grouse), Canachites
canadensis

Ruffed Grouse, Bonasa umbellus

White-Tailed Ptarmigan, Lagopus leucurus

Reported from adjacent N. Idaho, to be looked
for in our area on alpine summits.

Coots: Balliidae

American Coot, Fulica americana

Common along the Pond Oreille River in the Fall, also Sullivan Lake.

Plovers: Charadriidae

Killdeer, Charadrius vociferus

Snipe: Scolopacidae

Common Snipe (Wilson Snipe), Canella gallinago
Not seen at Ledbetter Lake

Gulls: Laridae

Herring Gull, Larus argentatus
Boundary Dam Reservoir

Doves: Columbidae

Mourning Dove, Zenaidura macroura

Owls: Tytoidea & Strigidae

Screech owl, Otus asio

Great Horned Owl, Bubo virginianus

Hawk Owl, Surnia ulula

Boreal forest & birch scrub. To be looked for.

Pygmy Owl, Glaucidium gnoma

Observed near Meteline Falls in 1971.

Great Gray Owl, Strix nebulosa

Rare. Boreal forest. To be looked for.

Boreal Owl, Asio funerarius
May winter in this area.

Saw-whet Owl, Asio acadiacus
To be looked for in coniferous forest where
it nests in tree cavities and woodpecker holes.

Goatsuckers: Caprimulgidae

Common nighthawk, Chordeiles minor

Swifts: Apodidae

Hummingbirds: Trochilidae

Rufous Hummingbird, Selasphorus rufus

Kingfishers: Alcedinidae

Belted Kingfisher, Melanerpes alcyon

Woodpeckers: Picidae

Red-shafted Flicker, Colaptes cafer

Pileated woodpecker, Dryocopus pileatus

Yellow-Bellied Sapsucker, Sphyrapicus varius

Williamson's Sapsucker, Sphyrapicus thyroideus

Hairy Woodpecker, Dendrocopos villosus

Black-Backed Three-Toed Woodpecker, Picoides arcticus
To be looked for. Boreal forest.

Northern Three-Toed Woodpecker, Picoides tridactylus
To be looked for. Boreal forest.

Tyrant Flycatchers: Tyrannidae

Olive-sided Flycatcher, Motacillornis borealis
To be looked for.

Larks: Alaudidae

Horned Lark, Emoehia alpestris

Swallows: Hirundinidae

Violet-Green Swallow, Tachycineta thalassina

Bank Swallow, Riparia riparia
Sand banks along Pond Graille River

Jays, Ravens: Corvidae

Gray Jay, Perisoreus canadensis

Steller's Jay, Cyanocitta stelleri

Black-Billed Magpie, Pica pica

Common Raven, Corvus corax

Clark's Nutcracker, Lucifraga columbiana
Common along Crowell Ridge in 1970.

Titmice, Bushtits: Paridae

Black-Capped Chickadee, Parus atricapillus

Mountain Chickadee, Parus gambeli

Chestnut-Backed Chickadee, Parus rufescens

Boreal Chickadee, Parus hudsonicus
Occurs in the northern part of the District.

Nuthatches: Sittidae

Pygmy nuthatch, Sitta pygmaea
To be looked for in Penderosa pine forest.

Red-breasted Nuthatch, Sitta canadensis
Hotalina Falls, 1970 - 71.

Dipper (Water Ouzel), Cinclus mexicanus
S. Fork Salmo River; Sullivan Creek

Wrens: Troglodytidae

Winter wren, Troglodytes troglodytes

Thrushes, Bluebirds: Turdidae

Robin, Turdus migratorius

Varied Thrush, Impress parvius
Nest in mist, deep coniferous forest.

Hermit Thrush, Hylocichla guttata
To be looked for.

Swainson's Thrush, Hylocichla ustulata
To be looked for.

Mountain Bluebird, Cyanocitta cyanocitta

Kinglets: Sylviidae

Golden-Crowned Kinglet, Regulus satrapa

Ruby-Crowned Kinglet, Regulus calendula

Waxwings: Bombycillidae

Bohemian Waxwing, Bombycilla garrulus
Migrated by the Sullivan Lake R. S. in late October
or early November (flocks of 30 or more in 1970).
Nest in coniferous forest.

Cedar Waxwing, Bombycilla cedrorum

Shrikes: Laniidae

Loggerhead Shrike, Lanius ludovicianus

Vireos: Vireonidae

Solitary Vireo, Vireo solitarius

Red-Eyed Vireo, Vireo olivaceus

Wood Warblers: Parulidae

Black-and-White Warbler, Mniotilta varia

Tennessee Warbler, Vermivora pennsylvanica

Orange-Crowned Warbler, Vermivora cincta

Nashville Warbler, Vermivora ruficapilla

Yellow Warbler, Dendroica petechia

Cape May Warbler, Dendroica tigrina
Spruce forest.

Myrtle Warbler, Dendroica coronata

Audubon's Warbler, Dendroica auduboni

Townsend's Warbler, Dendroica townsendi
Mature conifer forest.

Northern Waterthrush, Seiurus nuchtharansensis
Streamside or swamp.

Yellow-Breasted Chat, Icteria virens
Streamside thickets

Wilson's Warbler, Wilsonia pusilla
Streamside thickets

Icteridae

Western Meadowlark, Hirundo anglica

Red-Winged Blackbird, Agelaius phoeniceus