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BIOLOGICAL EVALUATION

SPADA LAND EXCHANGE

Mt.Baker-Snoqualmie National Forest
Skykomish Ranger District

I. INTRODUCTION

The need for careful planning of management activities in habitat for threatened, endangered, and sensitive (TE&S) species should be based not only by policy, but also on the spirit of responsible resource stewardship. The biological evaluation is a means of conducting the review and documenting for profound effects, or no effects, to those species and their habitats.

It is Forest Service policy to protect the habitat of federally listed and proposed species, and Forest Service sensitive species. The objectives are to prevent adverse modification or destruction, as well as to protect individual organisms from harm or harassment as appropriate (FSM 2670.3). A general overview of resource values in and around the proposed Spada Land Exchange addresses wildlife concerns to insure compliance with the law and implement sound management decisions. The findings are documented in the decision notice (FSM 2672.4).

II. BIOLOGICAL EVALUATION PROCESS

The Biological Evaluation includes a pre-field review, field reconnaissance, risk assessment, and a cursory explanation of a biological or botanical investigation. The process of these four steps (FSM 2672.43 and R6 Supp 47) is described below.

Step One: Pre-field Review

The initial step of the process includes a generated list of recorded or suspected species known to occur on the Skykomish Ranger District. Habitat requirements of each species were compared to habitat types found on the district. The results of the preliminary analysis was then used to identify species likely to be present and identifying the minimum area that project activities could influence. Evaluation methods can include aerial photo interpretation, querying District and State databases, a literature review, and informal consultation with District personnel and other professional biologists.

Step Two: Field Reconnaissance

For any individual TE&S species that is identified in the pre-field review or determined likely to occur in or near the project site will require a field reconnaissance. But for many species survey methodology and timely field work are usually not available or practical. Instead, habitat surveys are performed to evaluate potential impacts from project activities. The results are summarized in Table IV-2.

Step Three: Risk Assessment

Conflict determinations, i.e. a species is located or suspected to occur based on the results of the field-reconnaissance, an index is developed to evaluate the effects of the activities. The index serves as a guide to further action regarding project modification or implementation (FSM 2672.43--2).

Step Four: Biological or Botanical Investigation

Additional field investigations provide a regimented and systematic analysis to determine cumulative effects of current and planned activities on the species as a whole (FSM 2673.32--1). The analysis is research oriented and usually beyond the capabilities of the District.

These steps provided the evaluation to determine potential impacts for each TE&S species suspected or known to occur. Section III provides a description of the project area and habitat attributes. The stepped process is described in **Table IV (wildlife)** and **Table V (plants)** which also include habitat requirements for each species. Discussions in table IV and V are limited to species suspected to be affected by the project.

III. PROJECT LOCATION AND DESCRIPTION

The Spada Land Exchange is located within all or parts of Section, 3, T.28N., R.9E.; Section, 32, T.29N., R.8E.; Sections, 12, 20-29, 33, 34, T.29N., R.9E., in Snohomish County, Washington. The land exchange would include the transfer of 4,181 acres of federal land on the Mt. Baker-Snoqualmie National Forest to the Snohomish County P.U.D. (Public Utility District). The Land exchange consists of old-growth and second growth coniferous forest, mixed deciduous/coniferous forest, riparian forest and wetlands. The elevations varies from 1,450 feet around Spada Lake to approximately 2,500 feet on the upper slopes.

IV. THREATENED, ENDANGERED, AND SENSITIVE ANIMAL SPECIES

TABLE IV-1. Regional TE&S List and Status

There are 11 animal species (1 fish, 5 bird and 5 mammal species) that are either Forest Service "sensitive", "candidates" for Federal listing, or listed as "threatened" or "endangered" under the Endangered Species Act. The following threatened, endangered or sensitive fish and wildlife species are either known or expected to be on the District, and those that are suspected or recorded to be in the project area or that the project potentially affects. This list was derived from the list of sensitive species designated by the Regional Forester (revised March, 1989).

	SCIENTIFIC NAME	COMMON NAME	CLASSIFICATION
*	*Salvelinus confluentus*	bull trout	Candidate (C2)
*	*Haliaetus leucocephalus*	bald eagle	Threatened
*	*Strix occidentalis caurina*	northern spotted owl	Proposed
*	*Plecotus townsendii townsendii*	Townsend's big-eared bat	Candidate (C2)
*	*Canis lupus*	gray wolf	Endangered
*	*Gulo gulo*	wolverine	Candidate (C2)
*	*Felis lynx canadensis*	North American lynx	Candidate (C2)
*	*Gavia immer*	common loon	Sensitive
*	*Falco peregrinus anatum*	American peregrine falcon	Endangered
*	*Brachyramphus marmoratus*	marbled murrelet	Candidate (C2)
*	*Ursus arctos*	grizzly bear	Threatened

* recorded or suspected on or near the proposed land exchange.

TABLE IV-2. Biological Evaluation Process

The 4-step Biological evaluation process for each species considered is summarized. Step #4, BIOLOGICAL OR BOTANICAL INVESTIGATION, was not necessary and is not displayed. Blanks marked with an "X" indicate steps that were not necessary to complete the analysis.

SPECIES	Step #1 PREFIELD REVIEW	Step #2 FIELD RECONNAISSANCE	Step #3 RISK ASSESSMENT
Bull trout	habitat not known	not recommended	X
Bald eagle	habitat optimal	not recommended	X
North American lynx	habitat present	not recommended	X
Townsend's big-eared bat	habitat not optimal	not recommended	X
Gray wolf	habitat present	not recommended	X
Wolverine	habitat present	not recommended	X
Northern spotted owl	habitat optimal	not recommended	
Common loon	habitat optimal	not recommended	X
Grizzly bear	habitat present	not recommended	X
Marbled murrelet	habitat optimal	not recommended	X
American peregrine falcon	habitat not optimal	not recommended	X

TABLE IV-3. HABITAT REQUIREMENTS & ANALYSIS

Bull Trout: The fish are adapted to cold, relatively unproductive waters. Their adaptations to these types of streams lend themselves to be the dominant, or the only fish species to occur on a tributary. According to the Washington Department of Wildlife (Kramer and Johnston pers. comm.), this species is expected to occur in many of the rivers and streams on the District. Due to their similarity to Dolly Varden (Salvelinus malma), this species can be difficult to identify.

Bull trout have been identified on the District within the North Fork Skykomish River drainage. To our knowledge, there has been no documented occurrences of bull trout in the Spada Lake area. A bull trout inventory is being proposed on our district to help in our knowledge of its distribution.

Risk assessment - no adverse effect.

Bald Eagle: The Forest is host to several hundred eagles during the winter months (Wash. Dept. of Wildlife 1989). Fall and winter runs of anadramous fish (primarily salmon and steelhead) determine timing and abundance of eagles (Stalmaster et al. 1985). Roost sites are typified by mature and old-growth stands of relatively open and strong-limbed trees. These sites provide critical habitat to help meet bald eagle's biological needs such as thermal cover, communal staging areas, and as foraging platforms. Large trees also provide nest platforms although nesting pairs are uncommon on the Forest.

Bald eagles are known to winter along the lower reaches of the Sultan River and have been observed sporadically during the summer months in the Spada Lake area. The area surrounding Spada Lake contains large trees suitable for nesting eagles.

Risk assessment - There will be no adverse effects on bald eagles from this land exchange.

Gray Wolf: The gray wolf does not have specific habitat requirements (L. David Mech 1979). Their presence is primarily determined by prey availability and social structure. In December of 1989 a wolf sighting was reported along the Beckler River drainage approximately nine mile Northwest of the project area. Two followup visits failed to verify this sighting.

Risk assessment - no adverse effect.

Townsend's big-eared bat: These bats characteristically utilize caves or cave-like structures as hibernacula during the winter. They are highly susceptible to human disturbance during those months. During non-winter months, roosts may include buildings, under bridges, or cavities in large snags. As with many bats, they utilize open areas of standing water along streams for feeding on insects.

Risk assessment - no adverse effects on Townsend's big-eared bats from this land exchange.

Common Loon: Common loons have been observed on the Forest during non-winter months. They typically winter along the coast and in coastal estuaries. Nesting habitat consists of bodies of water large enough for take-offs, deep enough for escape-diving, and relatively free of human disturbances. They prefer to nest on islands. There have been no known reports of common loons on the Skykomish Ranger District.

Grizzly Bear: The grizzly's habitat is largely dictated by its omnivorous dietary needs. This includes various vegetation and carrion at lower elevations in the spring, often in south facing avalanche chutes and brushy areas. Elevational variation fluctuates widely during summer months while higher elevation areas are utilized in the fall. Denning sites are usually selected above 5,000 foot elevations where heavy snowpack conceal den entrances.

The status of the grizzly bear's ecosystem is undergoing a project evaluation under the auspices of the Interagency Grizzly Bear Guidelines. A recovery plan, if established for the North Cascades Area (range north of Interstate 90), will determine what goals will be listed to recover grizzly populations. There are no known grizzly bear occurrences within the project area. Jon Almack (per. comm.) is presently compiling historical records for the Forest.
Risk assessment - Low, based on information currently available, this project would not adversely affect the grizzly bear, grizzly bear habitat, or the Agency's ability to implement a recovery plan.

Wolverine: Hornocker and Hash (1981) found that wolverines prefer large areas of scattered mature timber, primarily in subalpine stands. They also use edge areas, but avoid wet or burned over-sites. Food availability consisting of carrion and small animals is a factor in wolverine distribution and population (Hornocker and Hash 1981). Preliminary results from Oregon (Utzinger unpublished data) indicate that wolverines would most commonly be found above approximately 3500 feet elevation in northern Washington. They may utilize lower elevations during winter months to feed on ungulate carrion. Little is known about the habitat requirements of this secretive animal; but wet areas, freedom from regular human disturbance, and areas that normally have winter snow appear to be important elements (Wilson 1982).

Wolverine presence is not known within the land exchange area.

Risk assessment - no adverse effect.

North American Lynx: Lynxes are typically associated with extensive tracts of dense boreal forest interspersed with rocky outcrops, bogs, and thickets. They are also dependent on the availability of suitable prey. Their primary prey species is snowshoe hare but they also consume small rodents and ground-dwelling birds. There are no records of lynx sightings on the District.

Risk assessment - no adverse effect.

Marbled murrelet: Marbled murrelets have been observed 45 miles (75 km) inland. Little is known of their habitat requirements but marbled murrelets are reported to use large trees with moss or lichen covered branches for nesting. From Northern British Columbia south, the primaty evidence of Marbled Murrelet nesting is in mature/old growth forests. There have been sightings of marbled murrelets on the Darrington Ranger District (WDW and USFS '88-'89). The remains of a marbled murrelet chick found near Darrington suggest that nesting activity may take place on other areas within the Mt. Baker-Snoqualmie National Forest.

The Spada Land Exchange is located 40 km inland from Puget Sound and contains suitable habitat for marbled murrelet. In July of 1954 or 1955 a downy chick was found by loggers on a ridge southwest of Spada Lake (F. Hosea pres. conn. to L. Leschner). The area was forested with old growth Douglas fir before being clear cut in the 1950's. The chick was found alive when found but died later.

Risk assessment - no adverse effect.

Peregrine falcon: Nesting habitat consists of cliffs and bluffs typically aling river courses and other large water bodies (Call 1979). Their primary food is smaller birds and they prefer to nest where the concentration of prey is high and where habitat "structural characteristics...may increase prey vulnerability" (Skaggs et al. 1986). Feeding habitats of various qualities occur in virtually all areas of the District. There have been few reported sightings of peregrine falcons on the Skykomish Ranger District.

Rock cliffs of Bald Mountain (higher elevation and north of the land exchange) were identified through aerial photo interpretation. Potential nest sites are found in cliffs with extensive vertical faces of solid-looking substrate containing abundant ledges or holes. Ground reconnaissance has not revealed suitable nesting habitat for peregrine falcons in or near the Spada Land Exchange area. Peregrine falcon could potentially hunt in this area.

Risk assessment - no adverse effect.

Northern Spotted Owl: Contiguous tracts of mature and old-growth forests that are dense, structurally diverse with a high incidence of dead and damaged trees typify habitat for spotted owls on the Forest. Associated with these stands are large snags, and decayed or dying trees with large cavities, natural platforms, or broken tops that are typically selected by owls for nest sites (Forsman, Paz, etc). Spotted owls may also occur in younger, seral stands that were created by historical fires, where a small or scattered component of live or dead large diameter trees provide suitable habitat. Nesting habitat is usually restricted below 4,200 foot elevation although owls will forage, or show site tenacity at higher elevations on the Forest. Recent studies by Hamer (1987) and Egtvedt (1988), on the Mt. Baker-Snoqualmie National Forest, indicate that some spotted owls will expand or use separate home ranges during winter months.

The following definition applies to old growth habitat within the MBS, N.F.:

PHYSICAL ATTRIBUTES	
Elevation	<4,200 ft.
Patch (or block) size	>21 acres
Acreage	>300 acres within 1.5 mile radius of nesting site.

VEGETATION ATTRIBUTES	
Overstory Characteristics	
Dominant tree species	Douglas-fir, Western Hemlock, Western Red Cedar
Age and Condition	Old growth/mature, >230 yrs
Understory Characteristics	Multi-layered, uneven aged
Dominant tree species	--
Age and condition	--
Ground cover	--

STRUCTURAL ATTRIBUTES	
Live Trees	
Tree size >21" dbh	
Tree density	>15 trees per acre
Canopy closure	>70 %
Dead and Down	
Snag size	>21" dbh
Snag density	>3 per acre
Down logs	high down log density

-- Information not specified.
dbh - Diameter at breast height (4'6" from ground)

An analyisis of the viability of the northern spotted owl is documented in the "Final Supplement to the Environmental Impact Statement for an Amendment to the Pacific Northwest Regional Guide" (Spotted Owl Guidelines) dated 7/88. The Record of Decision, signed by the Chief, USDA Forest Service, 12/8/88, for the supplement, establishes direction for meeting viability of the spotted owl. The Forest has established a network of spotted owl habitat areas to meet the Chief's direction. This will include expanded SOHA provisions of section 318, and that decisions will be supplemented as necessary to meet future requirements for spotted owl habitat. The alternatives in the environmental assessment are in compliance with the direction.

The land exchange will not remove suitable spotted owl habitat.

Spotted owl inventories were done by the Washington Department of Wildlife in 1988-89, within the Williamson Creek area. Spotted owl responses were obtained on three night visits in 1989. Two follow-up visits were waived due to the difficulty in accessing the response area. The one follow-up visit did not elicit an owl response. Therefore, reproduction remained unknown for this site.

Risk assessment - no adverse effect.

V. THREATENED, ENDANGERED, AND SENSITIVE SPECIES PLANT SPECIES

Table V-1. Regional TE&S List and Status

The Regional Forester's Sensitive Plant list, revised March 1989, lists 40 plants for the Mt.Baker Snoqualmie National Forest. These are shown on the following list. Twenty-seven of these forty plants are known to occur on the Forest and their locations have been documented through the Washington Natural Heritage Program. The remaining 13 species are suspected to occur on the Forest but none have been found and documented. Of the 27 known occurrences on the Forest, only 4 are found on the Skykomish Ranger District.

A "S" or "D" preceding the scientific name represents "suspected" or one or more "documented" occurrences on the Forest. There are no plant species on the Forest which are classified by the U.S. as "Threatened or Endangered". All Washington State classifications are the same as U.S. except for the species shown as "T" (for threatened) under State classification.

	SCIENTIFIC NAME	COMMON NAME	CLASSIFICATION
S	Agoseris elata	tall agoseris	Sensitive
D	Aster sibiricus meritus	arctic aster	Sensitive
* D	Botrychium lanceolatum	lance-leaved grape-fern	Sensitive
D	Botrychium lunaria	moonwort	Sensitive
D	Botrychium minganense	Victorin's grape-fern	Sensitive
D	Botrychium montanum	mountain moonwort	Sensitive
* D	Botrychium pinnatum	St. John's moonwort	Sensitive
S	Calamagrostis crassiglumis	thickglume reedgrass	Sensitive(T)
* D	Campanula lasiocarpa	Alaska harebell	Sensitive
D	Carex buxbaumii	Buxbaum's sedge	Sensitive
S	Carex comosa	bristly sedge	Sensitive
S	Carex macrochaeta	large-awn sedge	Sensitive
D	Carex pauciflora	few-flowered sedge	Sensitive
S	Carex saxatilis major	russet sedge	Sensitive
D	Carex scirpoidea scirpoidea	Canadian single-spike sedge	Sensitive
D	Carex stylosa	long-styled sedge	Sensitive
S	Cassiope lycopodioides	(unknown) heather	Sensitive
S	Castilleja cryptantha	obscure Indian-paintbrush	Sensitive(T)
D	Chaenactis thompsonii	Thompson's chaenactis	Sensitive
S	Cimicifuga elata	tall bugbane	Sensitive
D	Coptis asplenifolia	spleenwort-leaved goldthread	Sensitive
D	Dodecatheon pulchellum watsonii	few-flowered shooting star	Sensitive
S	Draba aurea	golden draba	Sensitive
D	Dryas drummondi	yellow mountain-avens	Sensitive
D	Fritillaria camschatcensis	black lily	Sensitive
D	Gentiana douglasiana	swamp gentain	Sensitive
D	Gentiana glauca	glaucous gentain	Sensitive
S	Lobelia dortmanna	water lobelia	Sensitive
D	Loiseleuria procumbens	alpine azalea	Sensitive
S	Luzula arcuata	curved woodrush	Sensitive
D	Lycopodium dendroideum	treelike clubmoss	Sensitive
S	Microseris borealis	northern borealis	Sensitive
D	Pedicularis rainierensis	Mt. Rainier lousewort	Sensitive
* D	Platanthera chorisiana	Choriso bog-orchid	Sensitive(T)
D	Platanthera obtusata	small northern bog-orchid	Sensitive
D	Pleuricospora fimbriolata	fringed pinesap	Sensitive
* D	Ranunculus cooleyae	Cooley's buttercup	Sensitive

Table V-1. Regional TE&S List and Status (continued)

	SCIENTIFIC NAME	COMMON NAME	CLASSIFICATION Federal (WA)
S	Saxifrage cernua	nodding saxifrage	Sensitive
D	Saxifraga debilis	pygmy saxifrage	Sensitive
D	Saxifraga integrifolia apetala	swamp saxifrage	Sensitive

* = Occurrence on the Skykomish R.D. (Snohomish County) reported by the Wa.Natural Heritage Program.

Table V-2. Plant Species

Prefield review indicates whether favorable habitat is present and occurrence is potentially possible for the Spada Land Exchange area.

SPECIES	PREFIELD REVIEW	HABITAT
Campanula lasiocarpa	little potential	Found in Sno. Co. habitat: Rock crevices in the alpine zone, generally in unglaciated areas.
Platanthera chorisiana	moderate potential	Found in Sno. Co. habitat: Moist areas, especially at the edges of streams or bogs.
Ranunculus cooleyae	moderate potential	Found in Sno. Co. Habitat: Damp, north-facing slopes in soil-pockets and rock crevices; with sedges.

SUMMARY: A field survey for threatened, endangered, and sensitive plant species (TES) was done within the Spada Lake Land Exchange area in 1989. The survey was done under contract with the USDA Forest Service, Mt. Baker-Snoqualmie National Forest (Purchase Order # 43-05M6-0328). No sensitive plant species were located in the Spada Lake Exchange area.

The Spada Land Exchange will not have an effect on sensitive plants.

VI. LITERATURE CITED

Almack, J. Washington Dept. of Wildlife. Grizzly bear biologist

Call, M.W. 1978. Nesting habitats and surveying techniques for common western raptors. USDI-BLM Technical Note TN-316.

Gamon, J. Washington Natural Heritage Program. Botanist.

Hamer, T. U.S. Forest Service. Spotted owl biologist.

Hitchoock, C.L., A. Cronquist, M. Ownbey and J.W. Thompson. 1969. Vascular plants of the Pacific Northwest. 5 vols. Univ. Wash. Press, Seattle.

Hornocker, M.G. and H.S. Hash. 1981. Ecology of the wolverine in northwestern Montana. Can. J. Zool. 59: 1286-1301.

Johnston, J. Washington Dept. of Wildlife. Fisheries biologist.

Marshall, D.B. 1988. Status of the marbled murrelet in North America: with special emphasis on populations in California, Oregon, and Washington. U.S Fish Wildl. Serv., Biol. Rep. 88(30). 19 pp.

McCord, C.M. and J.E. Cardoza. 1982. Bobcat and lynx. Pages 728-766 in J.A. Chapman and G.A. Feldhamer, ed. Wild Mammals of North America. Johns Hopkins Univ. Press.

McIntyre, J.M.W. 1975. Biology and behavior of the common loon (Gava immer) with reference to its adaptability in a man-altered environment. PhD thesis, Univ. of Minnesota, St. Paul. 230 pp.

Mundy-Busby, P. U.S. Forest Service. Fisheries biologist.

National Wildlife Federation. 1987. Grizzly bear compendium. Sponsored by Interagency Grizzly Bear committee. C. Servheen project supervisor.

Paradiso, J.L. and R.M. Nowak. 1982. Wolves. Pages 460-474 in J.A. Chapman and G.A. Feldhamer, ed. Wild Mammals of North America. Johns Hopkins. Univ. Press.

Perkins, J.M. 1988. Three year bat survey for Washington National Forests: Results of year two - Olympic and Mt. Baker-Snoqualmie National Forests. Progress report for USFS contract # 53-04H1-7-4240. 65 pp.

Robertson, F.D. 1988. Record of Decision for Final Supplement to the Environmental Impact Statement for an Amendment to the Pacific Northwest Regional Guide (Spotted Owl Guidelines). U.S. Forest Service.

Salstrom, D. 1989. Threatened, Endangered and Sensitive Plant Survey. Skykomish River and Spada Land Exchange: Mt. Baker-Snoqualmie National Forest. Survey for USFS contract # 43-05M6-0328. 29 pp.

Skaggs, R.W., D.H. Ellis, W.G. Hunt and T.H. Johnson. 1986. Peregrin falcon. Pages 127-136 in R.L. Glinski, B.G. Pendleton, M.B. Moss, M.N. LeFranc Jr., B.A. Millsap and S.W. Hoffman ed. Proceedings of the Southwest Raptor Management Symposium and Workshop. National Wildlife Federation.

Stalmaster, M.V., R.L. Knight, B.L. Holder and R.J. Anderson. 1985. Bald eagles. Pages 269-290 in Brown, E.R, ed. Management of wildlife and fish habitats in forests of western Oregon and Washington. USDA Forest Service, PNW Region. Publ. No.: R6-F&WL-192-1985.

Terres, J.K. 1980. The Audubon Society Encyclopedia of North American Birds. Afred A. Knopf Inc. 1109 pp.

Utzinger, D.R. U.S. Forest Service. Wildlife biologist.

Washington Natural Heritage Program. 1981. An illustrated guide to the endangered, threatened and sensitive vascular plants of Washington. 328 pp.

Feldhamer, ed. Wild Mammals of North America. Johns Hopkins Univ. Press.

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