Section 74
Highlands District
Overview Biophysical Assessment

Prepared for:

District of Highlands

1980 Millstream Road

Victoria, B.C. V9E 1C9

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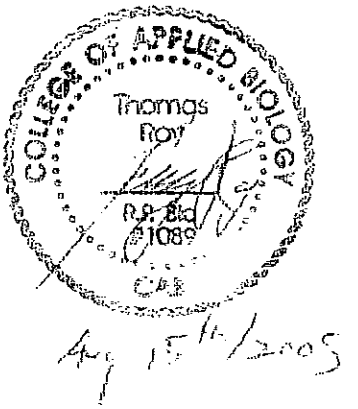

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TABLE OF CONTENTS

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LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

1.0 INTRODUCTION

1.1 BACKGROUND

Specific objectives of this assignment were to:

- describe wildlife habitats on the site;
- discuss their relative ecological sensitivity; and
- summarize wildlife utilization on the site
- produce an environmental constraints map

The findings in this report are based on a review of existing information sources and three person-day of site investigation in the summer of 2003 and in fall 2004.

1.2 GEOGRAPHIC SETTING

The proposed study area, which encompasses all of Section 74 – Highlands, is approximately 34 ha in area. Located on 1:20,000 TRIM Map sheet #092B.053, the subject property is bordered by Rural Residential zoning (RR) to the north and south, Green Belt zoning (GB2) to the east and by Gowland-Todd provincial park to the west. Refer to Site Overview Map below for lot layout.

1.3 PHYSIOGRAPHY, HYDROLOGY AND CLIMATE

Low relief topography and frequent rocky outcrops characterize the District of Highlands, in which Section 74 is located. Glacial till soils, often with a distinct lower layer that is a mixture of sand and crushed rock (from glaciation), are the predominant upland soils. Marine deposits are not present, as the elevation is greater than 100m. The moisture deficit is approximately 330mm, but varies considerably with aspect, exposure, soils and ground cover.

Aquatic resources on the property consist of one second order tributary to Millstream Creek which flows north to south along the western edge of the property. Due to various barriers downstream of the subject property, it is assumed non fish bearing. As well, one

moderately sized wetland along the northwest corner of the property provides valuable habitat for both waterfowl and amphibians.

Climate data for the study area are available from Environment Canada's Atmospheric Environment Service (AES) and Ministry of Water, Land & Air Protection (MWLAP). AES maintains a climate station at the Victoria International airport. The data recorded include temperature and precipitation.

- The mean daily temperatures are above freezing throughout the year.
- Mean daily minimum temperatures below freezing can occur from October through March, although the long-term averages of daily minimum temperatures are at or above freezing.
- The mean daily temperature difference between the coldest winter month and the warmest summer month is approximately 16°C.

Precipitation data show the following patterns:

- Most of the precipitation (86%) falls from October through March.
- Snow can occur any time from October through April.
- The driest months are in the summer (July and August).

Site Overview Map

2.0 METHODOLOGY

2.1 HABITAT DESCRIPTION

The basic approach to habitat description involved interpretation of vegetation mapping and conversion to the Broad Ecosystem Units as described in the *Forest Practices Code Species and Plant Community Accounts for Identified Wildlife* (Ministry of Forests and Ministry of Environment, Lands and Parks 1997). Broad Ecosystem Units are typically used for regional mapping. However, when combined with seral stage information, they become meaningful to analyses of animal use and general biodiversity values. Seral stages were determined in the field following the *Forest Practices Code Biodiversity Guidebook* for Natural Disturbance Type 1 (Ministry of Forests and Ministry of Environment, Lands and Parks 1998).

Habitat description involved one person-day of field investigation on July 16th, 2003. General habitat categories were pre-typed from colour orthophotos provided by ENKON Environmental (1: 5,000 scale). Standardized field description plots were then completed at 9 locations around the site (**Figure 1**), encompassing all general habitat types. Data collected at each 10 m radius plot location included:

- vegetation comprising each of the tree, shrub and herb strata
- relative abundance of coarse woody debris and snags
- estimates of browse, berry, and palatable herbage production
- quality of hiding cover; and
- importance as a wildlife movement corridor

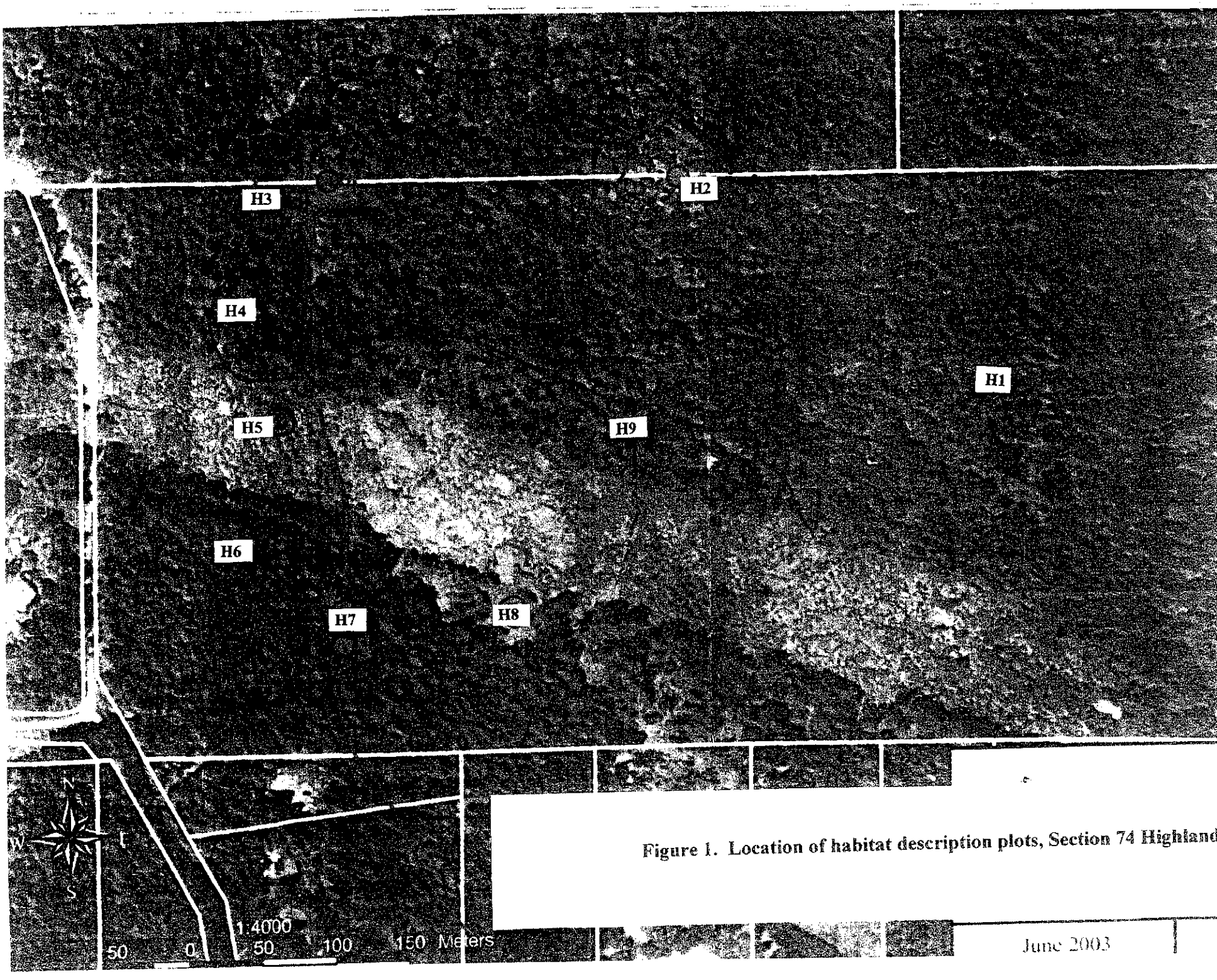


Figure 1. Location of habitat description plots, Section 74 Highland

3.0 WILDLIFE OCCURANCE

Information on potential wildlife occurrence was obtained from various generic government sources, primarily Royal B.C. Museum publications. These are valuable sources of information for both species distribution ranges and region-specific occurrence records (e.g. Campbell *et al.* 1990-2000; Gregory and Campbell 1984). Site-specific information was obtained through a bird stand-watch survey the morning of July 16th and through opportunistic sightings during the habitat description fieldwork. A total of eight stand-watch locations were distributed among representative habitats. At each station, a biologist recorded all birds seen or heard over a 10-minute period. The survey was conducted from 7:45AM to 10:00 AM.

4.0 EXISTING HABITAT CONDITIONS

4.1 REGIONAL CONTEXT

The property is situated within the Moist Maritime Variant of the Coastal Douglas-fir Biogeoclimatic Zone (CDFmm) and the Nanaimo Area Lowlands (NAL) Ecosection. The southeastern part of Vancouver Island region possesses a maritime climate with dry summers and mild, relatively snow-free winters (Meidinger and Pojar 1991). The Highlands region is characterized by undulating topography, with frequent steep rocky bedrock exposures interspersed with coniferous forest and numerous small water-collecting depressions.

The property is located in the west-central part of the District of Highlands. It is roughly 0.5 km east of Gowlland Tod Provincial Park, a large protected area on the west side of the Saanich Peninsula that extends from Finlayson Arm to Todd Inlet. Another protected area, Lone Tree Regional Park, is situated 2 km northeast of the site. Marine waters are approximately 1.5 km from the site and the productive Goldstream River Estuary, the most important wildlife area in the region, is about 2.5 km to the southwest. Permanent freshwater bodies are relatively uncommon in the District of Highlands. The nearest lake, Mitchell Lake, is about 2 km to the northeast. It drains into Mill Stream. Areas to the north and south of the site are comprised mostly of small acreages with residences. An 80 m wide transmission line which bisects the property and runs northwest toward Finlayson Arm probably provides a wildlife movement corridor of regional significance.

4.2 HABITAT DESCRIPTION

Brief descriptions of each habitat category are provided below. Readers are referred to the Vegetation Map prepared by Enkon Environmental for information on habitat distribution. For ease of discussion, habitats have been grouped into upland and wetland/riparian habitat units.

Upland Habitat Units

Coastal Douglas-fir (CD)

Mid-seral stages (i.e. stands 40 to 60 years old) of this habitat type are fairly common across the southwest and northern parts of the property. The Coastal Douglas-fir habitat type is comprised predominantly of even-aged stands with a single-layered canopy. They are dominated by Douglas-fir trees ranging from 10 cm to 40 cm in diameter (DBH). A mature stand in the northwest part of the site features firs up to 110 cm DBH (**Figure 2 & A19**). Understorey composition and cover ranges widely. A dense cover of salal is characteristic of nutrient poor sites, while dull Oregon grape and swordfern occur with the latter on more productive sites. Minor amounts of oceanspray, baldhip rose and bracken fern are common throughout this habitat type. Despite the abundance of berry-producing shrubs, high canopy cover usually results in low fruit production. The abundance of snags appears proportional to stand age, with many snags present in the lone mature forest patch and few observed in mid-seral stands. This habitat type possesses a moderate amounts of large organic debris on the forest floor.

Douglas-fir – Arbutus (DA)

Semi-open mid-seral stands of Douglas-fir and arbutus are prominent along the west-central and east-central parts of the site (**Figure 3 & A21**). Due to the difficult growing conditions within this habitat type, trees on these sites typically have relatively small diameters (15 to 40 cm DBH). Snags and recumbent logs are rare within this habitat type, and cavity-bearing snags are rarer yet. The shrub layer is fairly dense but dominated by two species, salal and dull Oregon-grape. The former is used by wintering deer and produces some berries used by other wildlife, but is very common in the region. The latter is used by few species. Minor understorey plants in the Douglas-fir - Arbutus habitat type include Baldhip rose, oceanspray, rattlesnake plantain and grasses.

Rock Outcrop (RO)

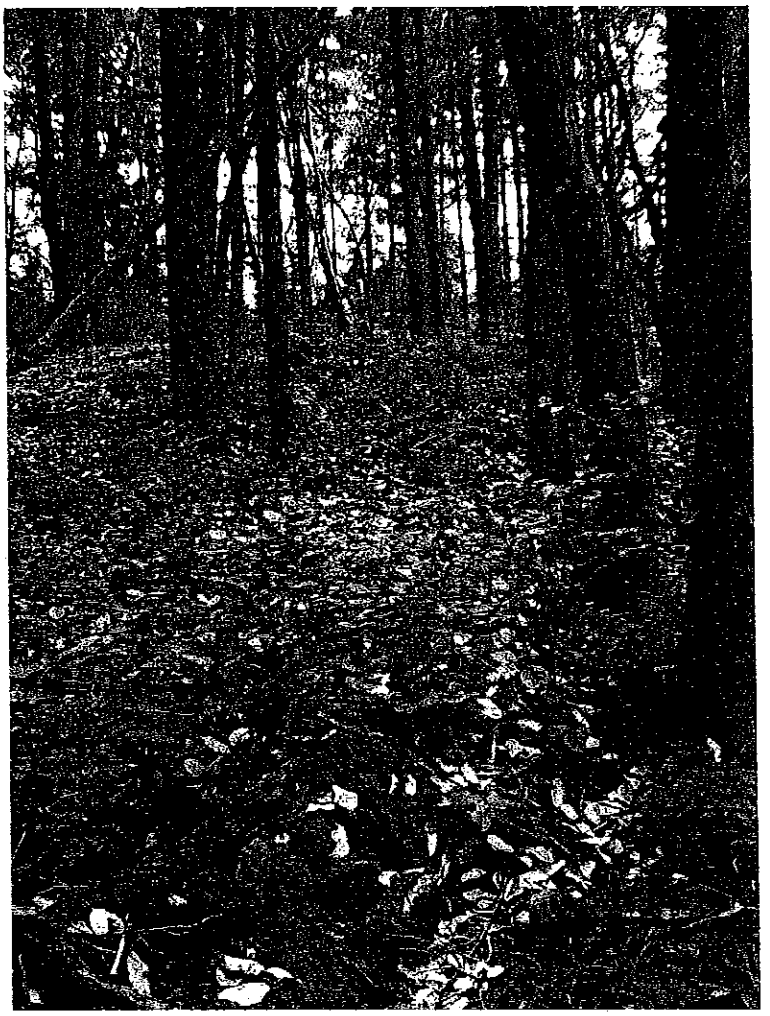
Treeless or lightly treed areas where bedrock is exposed support characteristic plant communities dominated by mosses (commonly broom moss, Oregon beaked-moss, step moss and juniper haircap moss), lichens. Herbaceous cover is dominated by invasive species such as hedgehog dogtail, sweet vernalgrass, and downy brome. Hairy manzanita makes up a large proportion of the shrub layer at some locations, while others are dominated by Scotch broom and oceanspray. Tree cover, if present, typically consists of Douglas-fir and/or arbutus and the occasional scrub Garry oak (**Figure 4 & A23**). Historical logging has eliminated most snags and large recumbent logs within this habitat type. Because of their exposed nature, rock outcrops are often used as wildlife resting/basking spots for ungulates and reptiles. Some species (e.g. deer) seem to prefer them as travel corridors.

Coastal Western Redcedar – Grand Fir (CG)

This habitat type occurs primarily in the north-central and northeastern part of the site. It typically features a large component of cedar growing in association with western hemlock, and/or Douglas-fir (**Figure 5 & A24**). A minor deciduous component of red alder or big leaf maple may occur in young stands. Soil nutrient and moisture levels are higher in this habitat type than in the other forested habitats. Understorey composition varies considerably with salal, swordfern, beaked hazelnut, dull Oregon-grape and juvenile conifers occurring in most areas. Due to the high canopy closure, forage values range from low to moderate in this habitat type. Coarse woody debris is moderately abundant, and at least one area near the centre of the property has a relatively high density of snags.

Figure 2. Select Photograph

Figure 3. Select Photograph



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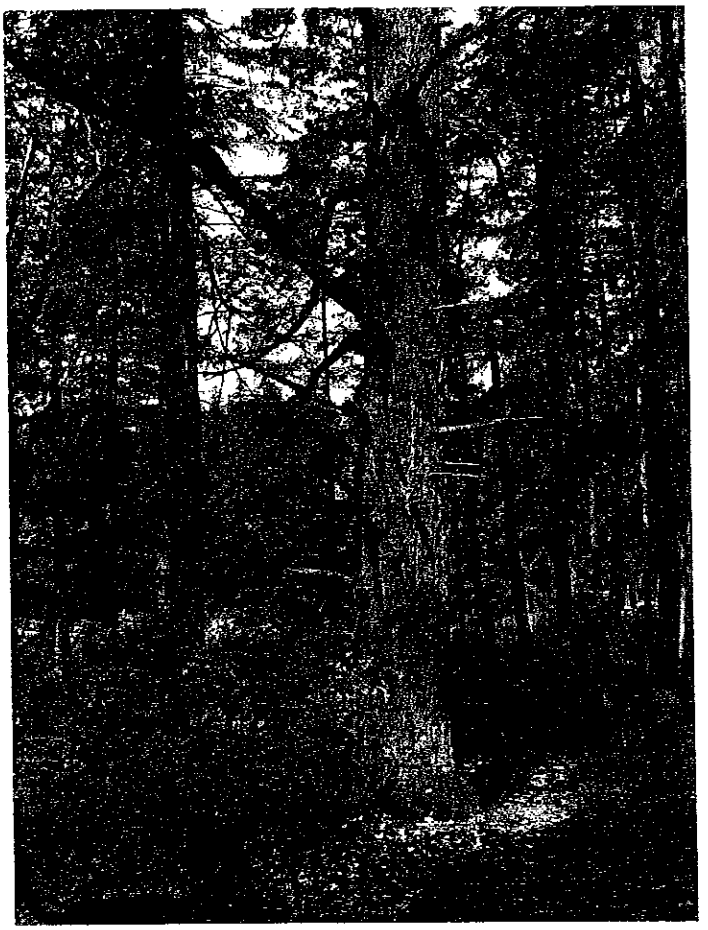
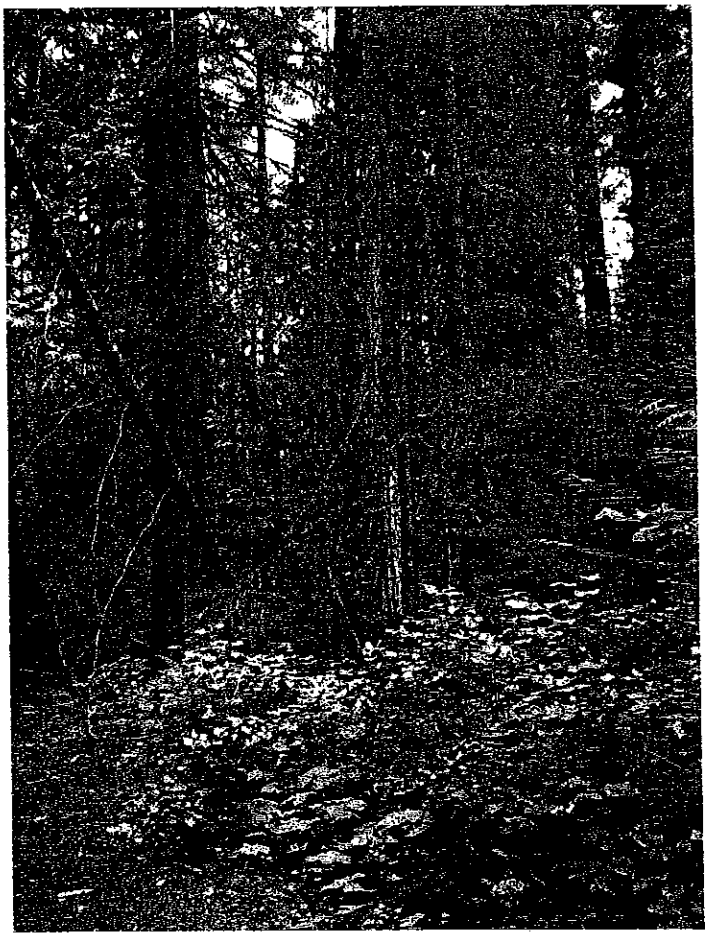


Figure 5. Select Photograph



Developed (Dev)

A transmission line clearing 80 m in width runs from the southeast to the northwest corners of the property. With its connection to Finlayson Arm, it probably serves as a regional wildlife movement corridor for wide-ranging species such as cougars and bears. The transmission line area supports a dense shrub layer dominated by Scotch broom with a minor cover of ocean spray, juvenile fir and arbutus, baldhip rose, non-native grasses, and weedy forbs (**Figure 6 & A20**). Snags and woody debris are virtually absent from this habitat type. The low plant diversity and structural complexity of the clearing makes it a fairly low-value habitat from a conservation perspective. However, the dense shrubbery attracts some use by deer, eastern cottontails, California quail and songbirds and their predators.

Wetland and Riparian Units

Shrub Fen (SH)

Two shrub fens straddle the northern property line along its western and central parts. The fen habitat type occurs in poorly drained sites underlain by peaty soils. Hardhack and a variety of willows are the dominant plants in such habitats. Sedges, rushes and skunk cabbage are often interspersed among the dense shrub cover (**Figure 7 & A18**). Although open water occurs infrequently in shrub fens, limiting their value to waterfowl, they can be important habitats for amphibians, shrews and their predators (e.g. mink, raccoons). They are also used by a variety of songbirds and aerial insectivores. Deer are attracted to shrub fens for their cover and forage values. Both wetlands have an abundance of snags for perching birds and woodpecker foraging. However, few possessed excavations useful for cavity-nesting birds.

Western Redcedar - Black Cottonwood Riparian (RR)

Riparian habitats comprised of mixed deciduous/coniferous tree cover form a band along the ephemeral drainage running south from the northwestern wetland. Cedar, grand fir

and Douglas-fir combine with red alder and big leaf maple to form a semi-open tree canopy (**Figure 8 & A22**). High early-season light penetration and abundant moisture create a diverse understorey comprised of salal, dull Oregon-grape, beaked hazelnut, red huckleberry, swordfern and cedars. Herbage and berry production are moderately high in this habitat type, and browse is abundant. High levels of woody debris were observed in the riparian habitat, along with a high density of snags. Riparian habitats attract considerable wildlife use as foraging areas, nesting areas and movement corridors. They often provide moist refuges for pond-breeding and terrestrial amphibians.

Figure 6. Select Photograph

Figure 7. Select Photograph

Figure 8. Select Photograph