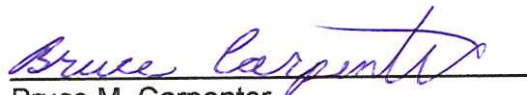


**WOODLOT LICENCE W0097  
MANAGEMENT PLAN NO. 2  
2009-2019**

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## INTRODUCTION

This Management Plan describes the forest values and associated resource management objectives for Woodlot Licence W0097. This Management Plan is consistent with the *Forest Act* and the associated regulations in addition to requirements of the *Forest and Range Practices Act (FRPA)* and associated regulations. Other relevant legislation is also referenced in this plan.

The Vancouver Island Land Use Plan (VILUP), which came into effect December 1, 2000, is the only Higher Level Plan covering the woodlot licence area. The Vancouver Island Land Use Plan (VILUP) E&N South General Management Zone covers the area within the Woodlot Licence.

The intent of the General Management Zone is to manage a wide range of resource values in accordance with the principles of integrated resource management, based on an ecosystem approach. The area within the E&N South General Management Zone has significant timber values which are particularly suitable for enhanced silviculture; offers significant recreation/scenic and tourism opportunities associated with intensively managed, roaded resource lands; has significant wildlife and fish values; and because the area was intensively harvested and subjected to extensive fires in the past, has the potential for active biodiversity conservation/restoration.

This Management Plan replaces Management Plan #1 (March 1999).

## 1.0 AREA DESCRIPTION

The original licence included six separate parcels spread over approximately 14 kms in the vicinity of Coombs on the east coast of Vancouver Island. Five of the original parcels are Crown Land (Schedule A) and the remaining parcel is private land (Schedule B). In 2007, W0097 was expanded to include three additional parcels of Crown Land near Coombs. All parcels lie within the South Island Forest District and the Arrowsmith Timber Supply Area.

The entire woodlot licence area is identified on the maps in Appendix 1.

### 1.1 Private Land

The private portion is located 3 km southwest of Parksville, with access via Allsbrook Road, off the Alberni Highway. The legal description of this portion is "District Lot 153, Nanoose Land District". Only 31.5 ha of DL 153 is included in the woodlot. The remainder is hydro and gas right-of-ways and farmland. The majority of the property is in the Agricultural Land Reserve.

The private lands are dominated (75%) by second growth conifers, ranging 50 to 90 years of age. The remaining 25% consists of young plantations, 10 to 20 years of age. This portion of the woodlot lies within the Maritime Coastal Douglas Fir biogeoclimatic subzone (CDFmm).

## **1.2 Crown Land**

Three of the original Crown portions of the Woodlot Licence (Blocks C, D and E) are also in the Agriculture Land Reserve. Of these, Blocks C and D are in the Moist Maritime Coastal Douglas Fir (CDFmm) biogeoclimatic subzone and Block E is in the Very Dry Maritime Coastal Western Hemlock (CWHxm1) biogeoclimatic subzone. These three parcels are also in the French Creek Community Watershed. The remaining two original parcels (Blocks A and B) as well as the expansion parcels (Blocks G, H and I) are located in the CWHXm1 biogeoclimatic subzone. These parcels lie within the Little Qualicum River Community Watershed.

The Crown lands support 40-120 year old second growth. While conifers dominate the greatest portions of these blocks, there are significant areas of mixed species stands and a few areas dominated by deciduous stands. The expansion portions also contain young plantations 18 years of age.

The Crown land now totals 338.5 hectares.

## **2.0 LICENSEE GOALS**

A number of management objectives and goals have been taken into account in the preparation of this plan. They include:

- Practicing integrated resource management on the licence area , recognizing the many forest values for inclusion in forest management objectives;
- Managing selected areas on an extended rotation to recreate old-growth characteristics;
- Operating W0097 in a profitable way by marketing logs and other forest products in such a manner as to realize the highest possible utilization of the timber resource;
- Optimizing the value of products generated and supporting local industry;
- Enhancing the recreational and educational opportunities available on the Crown land portion of the woodlot;
- Maintaining or enhancing existing biodiversity;
- Increasing my personal knowledge about and understanding of forestry and ecological systems.

### 3.0 FOREST RESOURCES

#### 3.1 Wildlife

A comprehensive wildlife inventory was completed for the original portions of W0097 by Triton Environmental Consultants Ltd in 1997. The consultants and the Ministry of Environment (MoE) indicate that the Pacific Water Shrew, a red listed (threatened) species, may exist in streams and riparian areas within the woodlot. Because this shrew is protected by the federal *Species at Risk Act (SARA)*, residences of these animals are protected from destruction under Section 33 of the Act. MoE also suggests Red-legged Frogs, a blue listed species (species of special concern), is likely present in wetlands within the woodlot.

The *Identified Wildlife Management Strategy (FPC)* lists the following species as being within the Nanaimo Area Lowlands Ecosection that could potentially occur in W0097:

- Northern Goshawk
- Marbled Murrelet
- Keen's Long-eared Myotis

Although records indicate that the Keen's Long-eared Myotis range may overlap with the woodlot area, the environmental consultants do not think that critical habitats occur within the original part of the woodlot. The expansion area has not been assessed, so may contain critical habitat.

There are also a number of blue-listed species whose ranges overlap the woodlot. They were not actually observed during the assessment in 1997 but they may exist on the woodlot or visit it. These include: turkey vultures, peregrine falcons, western screech-owls, Vancouver Island pygmy owls, Hutton's vireos; Islands pine grosbeak, Townsend's big eared bat, and Vancouver Island ermine. A number of these species require large trees or old-growth trees for some aspects of their life-cycle, so maintenance or recreation of old-growth characteristics will be a priority in some areas of the woodlot.

To date, no Wildlife Habitat Areas have been designated by MoE within the woodlot licence or recent expansion areas. However, suitable habitat for these and other wildlife species will continue to be provided within protected areas (wildlife tree retention areas (WTRAs) and Riparian Reserve Zones (RRZs)) and by the harvest rates and patterns within both the existing woodlot and expansion areas. Furthermore, RRZs will protect potential Pacific Water Shrew and Red-legged Frog habitat. Road maintenance activities and harvesting will be conducted so as to minimize the introduction of sediment into any wetlands and ponds within the woodlot area.

Large mammals present in this woodlot include Roosevelt Elk, black-tailed deer, black bear and cougar. Small mammals present would include the raccoon, Douglas squirrel and a variety of rodents. Sufficient browsing from deer and elk has occurred to require some type of browse protection on the plantations. Any bear den trees found in the woodlot will be protected from harvesting wherever possible. The licensee has attempted to create potential bear dens during stumping operations, one in each of cutblocks B3 and B4, but to date their use has not been confirmed.

If any of the red or blue listed or Identified Wildlife species are found, the licensee will inform the MoE. The MoE will also be informed if any nests of Great Blue Herons, Eagles or Ospreys are found within the woodlot licence area and if nests are found, they will be protected in individual wildlife trees or wildlife tree retention areas.

### 3.2 Biodiversity and Old Growth

Biodiversity is the diversity of plants, animals and other living organisms in all their forms and levels of organization. In order to maintain biodiversity, the licensee will endeavour to manage the ecosystems within the woodlot to provide suitable habitat conditions for all native species. Specifically the licensee will maintain the overall diversity of the woodlot area by:

- using a variety of opening sizes and silviculture systems to create a greater diversity of age classes;
- retaining some deciduous forest types;
- retaining veteran trees and some large diameter second growth, where possible, for their wildlife values and contribution to the structure of openings;
- retaining wildlife tree retention areas (WTRAs) throughout the woodlot licence area.

The licensee will endeavor to locate specific areas of the expansion portion of the woodlot with high biodiversity values within the next five years.

Within the CDF mm and CWHxm biogeoclimatic subzones, a number of natural plant communities are considered part of the Conservation Data Centre's (CDC) red and blue (rare) lists (see Appendix 2). The conservation status ranking of these natural plant communities reflects the rarity of a plant community occurrence at the national and provincial level. The CDC considers all successional stages of plant communities on these lists valuable for conservation, especially when some of the forested plant communities have little or no representation remaining in a natural or "climax" state. Although the woodlot licence area has been disturbed by humans and is not currently in a "climax" state, there may be some rare plant communities that are ecologically valuable, especially if there are few or no natural, undisturbed occurrences left in the Province. If any rare plant communities are identified during the inventory or during block and road layout, every effort will be made to protect these within WTRAs or other reserves. Alternatively, stands may be managed for extended rotations to enhance older forest attributes in these plant communities.

Current legislation under the *Forest and Range Practices Act* requires 8% wildlife tree retention, and Woodlot Licence Plans will be consistent with that requirement. However, unharvested areas outside the cutblocks will continue to provide additional biological diversity.

Wildlife tree retention areas will be located around wetlands, sensitive ecosystems, and some older forest types to protect non-timber resources as well as habitat diversity. These WTRAs will also protect potential red and blue listed plant and animal communities. Once an inventory of the expansion area (Blocks G, H and I) is completed and better information is collected on the suitability of the current WTRAs, and all streams within the expansion area are classified, additional or replacement WTRAs will be designated.

There are no designated Old Growth Management Areas within the woodlot licence area. However, some mature and older stands will be protected within WTRAs, and will eventually become old growth. During the re-inventory of the expansion portion of the woodlot, any old growth and ecologically unique areas will be identified for potential protection. The licensee will place the highest conservation emphasis on the oldest, most intact stands which most represent original old-growth conditions. In addition, scattered veterans will be protected within WTRAs and within cutblocks where safety permits. Wherever possible, wildlife danger trees (trees with cavities and insipient decay) will be retained in "No Work Zones" within WTRAs.

Old growth attributes may also be maintained or created within younger stands that already exhibit characteristics of older stands. This may not exclude harvesting within these stands, but may require longer rotations and/or individual tree selection systems to create uneven aged stands. Any suitable stands for old growth creation and maintenance will be identified during the re-inventory of the woodlot.

### 3.3 Sensitive Ecosystems

In the 2004 Sensitive Ecosystem Inventory (SEI), the MoE identified a large older second growth conifer polygon in Block A, B and I. Two wetland polygons were also identified in Block B, and one wetland polygon was identified in Blocks C and D. These have been protected within wildlife tree patches. In Block E, the MoE identified a large older mixed forest/older riparian forest. These SEI polygons are identified on orthophotos in Appendix II. No other sensitive ecosystems have been identified within the woodlot licence boundary.

These ecologically unique areas will be identified for potential protection during the inventory of the woodlot. Efforts will be made to confirm SEI locations and wherever possible, protect them from harvest or incorporate them within the wildlife tree retention strategy included in the Woodlot Licence Plan.

### 3.4 Water

There are a number of creeks and wetlands in the woodlot with the most substantial being located in Block E. All of these will be mapped and classified on an ongoing basis as roads and cutblocks are developed. Blocks A, B, G, H and I are located in the little Qualicum Community Watershed while Blocks C, D and E are situated in the French Creek Community Watershed. French Creek and two of its tributaries flow through Block E. Block B contains a pond with an existing water licence, and there are several other licenses on Whiskey Creek downstream from the woodlot. Block F, the private land portion of the woodlot, lies within the Englishman River Community Watershed. Consequently, stringent planning and monitoring will be required.

Water resources are administered by the Ministry of Environment and the Integrated Land Management Bureau. A Water Licence, issued under the authority of the *Water Act* is required for the use of surface water in British Columbia. Currently there is no legislation regulating groundwater use or groundwater well development. The *Drinking Water Protection Act* protects all sources of drinking water.

### 3.5 Fisheries

The private portion of the woodlot has two seasonal creeks flowing through it. Because water from the woodlot drains into a pond containing fish that was created on the licensee's private land outside the woodlot licence, there may be potential seasonal fish habitat within the private portion of the woodlot.

Block A contains a substantial boggy area with a creek flowing out of it. While no fish have been found within the woodlot, both resident trout and salmon are known to live downstream and fish have been observed in the ditch on Carson Road. Block B contains two wetlands (one W4 and one non-classified) but no fish have been observed in these wetlands. Wetlands are also evident in Blocks C and D, although no fish have been observed in either of these wetlands.

French Creek and its tributaries flow through Block E and have the most significant fisheries values, containing both resident trout and salmon rearing areas. Since no substantial barriers other than a beaver dam are currently present, the northwestern tributary has also been classified as S4 until a fisheries biologist assesses the streams.

Streams within Blocks G, H and I have not been formally classified, but are at least S4 because they lie within the Little Qualicum Community Watershed. All creeks and wetlands within the woodlot licence area will be accurately mapped and classified, and suitable riparian reserves and management zones will be established during the operational planning process to protect them.

### 3.6 Mineral and Petroleum

There are no active mineral or petroleum resources within W0097.

### 3.7 Heritage Resources and Traditional Use

The entire woodlot licence area lies within the overlapping traditional territories of the Nanoose, Qualicum and Comox First Nations. Aboriginal rights are recognized and affirmed in the *Constitution Act* and the licensee recognizes that the Qualicum and Comox aboriginal rights can not be unjustifiably infringed upon. The Nanoose First Nation is a Douglas Treaty First Nation and therefore has treaty rights. The licensee will share information with First Nations in the preparation of this Management Plan and through the operational planning process.

All heritage resources will be protected as per the *Heritage Conservation Act* and *Forest and Range Practices Act*. No Archaeological Impact Assessment has been completed for the woodlot to date. To ensure that other features of heritage value are identified within this portion of the woodlot prior to road construction and harvesting, Culturally Modified Tree (CMT) surveys will be completed for all blocks and road sections that contain an old growth Cw component. Should there be any previously unrecorded sites identified during forest management activities, the licensee will cease any operations that may impact the site immediately.

### 3.8 Botanical Forest Products

The collection of botanical forest products from the licence area is fairly limited at present, with the exception of salal harvesting in Blocks A, B, C and D. Mushroom harvesting has increased since the roads were constructed in Blocks A, B and E. Other plants or plant components are harvested sporadically or in limited volume. The public may also utilize the remaining Crown portions of the woodlot area to collect botanical forest products such as salal, ferns, and mushrooms.

As local populations continue to grow, access to various portions of the woodlot improves, and other plants or markets are identified, it is probable that the harvesting of botanicals will continue to expand. Because there are no regulations in place that deal with the collection of these products, the Ministry of Forests and Range will be notified should it appear that the environment is being damaged as a result of harvesting activities.

### 3.9 Recreation

Much of the woodlot has few features which constitute a destination for recreationalists and due to other recreational sites nearby there is little recreational use of the Crown or Private parcels. Hiking is the main recreational activity within the entire woodlot licence area. Roads and trails throughout the Palmer Road area are well used by local recreationists. Mountain biking and horseback riding are the prevalent recreation activities. Block A contains some hiking trails, but these are generally short and used mainly by the immediate neighbours. ATV use is evident in Block B.

A recreation inventory has been completed for the licence area and identifies the key activities to be gathering and collecting, wildlife viewing, horseback riding and hunting. Blocks C and D have moderate recreation resource value and features that are sensitive, mainly trails used by hikers and horseback riders.

Block A lies adjacent to and east of a 40 acre parcel that the Regional District of Nanaimo (RDN) leases from the Crown for community park purposes.

None of the conceptual Regional Trail Corridors proposed in the RDN Regional Parks & Trails System Plan – 2005 - 2015 lie within Woodlot Licence 0097. Chattsworth Road, which lies adjacent to Block B and terminates near Block G is incorporated into one of the conceptual trail corridors. Depending on its finalized location, this trail corridor may extend through portions of Blocks G and H. The licensee is also aware of the RDN's interest in possibly developing a trail that would connect Palmer Road to Matterson Road through Blocks C and D of the woodlot as part of the Electoral Area F community trail network.

Improvements to the existing road network, through proposed harvesting activities will increase recreational use of the areas. The licensee will continue to actively participate in discussions with the RDN about future plans for both the Electoral Area F community trail network and the Regional Trail system, as well as user groups to discuss means to maintain and enhance the recreational resources of the Crown land in the woodlot licence area.

The licensee will not restrict non-motorized public access to the Crown portions of the licence. An exception to this may occur when management operations may endanger public safety or

during periods of extreme fire hazard. Motorized use of portions of the Crown land is currently restricted to prevent vandalism and garbage dumping.

### 3.10 Landscape

None of the parcels of the woodlot licence lie within the Scenic Area defined by the visual landscape associated with views following the travel corridor along Highway 4.

Presently the main visual concerns are with adjacent private land owners. The licensee recognizes that aesthetics must be given adequate consideration, and during harvest planning every effort will be made to minimize the visual impact on these neighbours.

## 4.0 FOREST INVENTORY

The current woodlot inventory is based on the 1989-1992 reinventory of the South Island Forest District and projected to 2007 and the 1:5000 scale maps of all Blocks based on 1994 air photo interpretation, and projected to 2007. Forest cover information was updated to reflect recent harvesting and silvicultural activities.

A Vegetation Resource Inventory could be used to collect both timber and ecological information for the Crown land portions of the woodlot and funding opportunities may exist through the Forest Investment Account. If no funding opportunities are available, the licensee will complete a re-inventory of the woodlot within the next 10 years. The licensee will ensure the forest inventory is maintained in a current state.

The MoFR inventory information is summarized in Appendix 4. This data was utilized in the calculation of the long term sustainable harvest rate for the licence area, providing an Annual Allowable Cut (AAC) of the Woodlot Licence (Section 5.2).

This woodlot licence has been divided into four management units:

#### ***MUI - Overmature and Mature Leading Coniferous Stands***

These stands make up approximately 165 hectares of the licence area and are composed of age classes 5, 6 and 7. Site indices on these stands range from 19 to 35. Once harvested, fully stocked stand of ecologically acceptable species will be planted. Natural restocking will be acceptable to supplement planted stock. While harvesting activities will focus on these stands, it is expected that a portion of these stands, particularly those over 100 years of age will be incorporated into the licensee's Wildlife Tree Retention strategy.

#### ***MUII - Immature Coniferous Stands***

These stands make up approximately 87 hectares of the licence area; most stands are age class 4 (61-80 years). Harvesting of these stands will not take place in the immediate future however these stands do provide excellent opportunities for commercial thinning should economic opportunities arise and based upon individual stand descriptions. Stands would be harvested if timber is in imminent danger of being lost or destroyed due to insect infestations, disease, fire or windthrow. The stands will be monitored to ensure they remain in a healthy state and contribute

to the Mean Annual Increment (MAI) of the woodlot licence. Where opportunity exists, consideration will be given to enhance the productivity on these stands through silviculture treatments. A portion of these stands are on the private lands and have lower stocking levels due to past thinning operations

#### ***MUIII - Regenerating Stands***

These stands make up approximately 79 hectares and include areas that have been recently harvested and planted, plantations that are not yet free growing, and plantations that are free growing. Stands will be monitored regularly and basic silviculture will be undertaken as required. These areas may provide opportunities for stand improvement activities over the course of this management plan. Two plantations on the private land continue to be NSR due to elk damage, drought and severe brush. The licensee continues to meet these challenges in his efforts to fully stock these stands.

#### ***MUIV – Deciduous Stands***

Approximately 34 hectares (9%) of the woodlot licence area is comprised of deciduous stands. The deciduous component of the licence area is important from a biodiversity stand-point and includes red alder in moister and riparian areas as well as some arbutus, singly, and in small groups, scattered over the woodlot on dry sites.

Within the operable area of the forest, off-site alder types will be prescribed for treatment, usually at the time of harvesting. This will result in a stand conversion to coniferous species. Any loss of biodiversity due to such prescriptions will be off set by the planting and managing red alder in appropriate sites for a variety of purposes. The licensee expects that up to 4.9 ha of the woodlot will be actively managed for deciduous species.

## **5.0 TIMBER MANAGEMENT**

### **5.1 Forest Products**

In order to maximize the financial success of this woodlot, the return on forest products should be maximized. High value sawlogs, house logs, poles and lower value pulp logs will be the major forest products from this licence. The licensees will also endeavor to find a market for the deciduous species, which exist in the licence area. Minor volumes of fence posts, firewood and other special forest products may also be produced. Botanical forest products may be collected by the licensees and general public.

### **5.2 Annual Allowable Cut**

Various methods can be used to help estimate a suitable Annual Allowable Cut (AAC) for the woodlot. The Variable Density Yield Program (VDYP) and Table Interpolation Program for Stand Yield (TIPSY) can be used to generate mean annual increments (MAI) and standing volumes of specific stands based upon the species, ages and heights.

The model used to propose a sustainable timber harvesting volume for W0024 was WOODLOT 3.2, developed by the Ministry of Forests and Range specifically for the Woodlot Licence program. The model uses VDYP and TIPSY and Area Volume Allotment Check methodology. An initial harvest rate is chosen and the model proceeds to project this harvest rate over time;

harvesting and growing polygons that have been selected and in the order selected over time. This series of iterations continues until the harvest rate reaches a non declining even flow.

TIPSY is used to estimate volumes in managed stands (second and subsequent rotations) and VDYP is used to project existing unmanaged stand volumes. VDYP incorporates losses due to decay, waste and breakage. In TIPSY, Operational Adjustment Factors (OAF) are applied to account for losses in timber volume due to unproductive areas (OAF1) and age dependent factors such as disease, decay, waste and breakage (OAF2). Although a higher standard of inventory has been completed for a portion of the woodlot, a large portion of the woodlot has not been inventoried so OAF1 was set at the standard 15% and OAF2 was set at the standard 5%.

The minimum harvesting standards in WOODLOT were set to a stand having a minimum diameter of 25 centimeters and a minimum volume of 300 m<sup>3</sup> per hectare. This is consistent with the factors used in the Arrowsmith Timber Supply Review. Those stands with a greater than 50 percent deciduous component have not been excluded from AAC calculation because they represent a small proportion of the woodlot inventory and most will be converted to coniferous stands. The WOODLOT model calculates a long-term sustainable harvest rate of 2200 m<sup>3</sup>/year over a 250 year planning horizon (see Appendix 5 for details).

### 5.3 Silvicultural Systems and Biodiversity

Eastern Vancouver Island has experienced major forest fires every few centuries, resulting in a variety of age classes and stands. Left to natural processes, the landscape would consist of even-aged stands with a complex stand structure of snags and veteran trees that had survived previous fires and small areas that escaped from the burn. To a lesser extent small openings were created by disease and wind events. This area is classified as an ecosystem with infrequent ecosystem maintaining fires, Natural Disturbance Type II (NDT2).

In order to recreate these historic landscape patterns there should be a range of small to medium sized, similar aged forest patches on the landscape. A combination of small dispersed clearcuts and some dispersed partial cuts, and a few aggregate harvest units along with a connected network of mature and old forests should be maintained. The silvicultural system selected for each site will be the one that best suits the condition and ecology of the stand.

Alternative even-aged systems (seed tree & shelterwood), small clearcuts with reserves, retention systems and patch cuts can be used to simulate the small scale disturbances of the past. In addition, there is the opportunity for intermediate harvests through commercial thinning, with small patchcuts in root disease centers as younger immature stands develop.

Additionally, large veteran trees will be retained wherever possible due to their relative scarcity on the east coast of Vancouver Island and their potential to provide coarse woody debris (CWD). CWD will be retained through harvesting operations as allowed by the utilization standards and FRPA regulations. Snags, which are required by some wildlife, will be periodically created by ringing trees not considered commercially valuable. This snag creation to date has been limited to the private land portion of the woodlot licence.

Where suitable, portions of the woodlot will be managed on extended rotations. Extended rotation areas will likely be adjacent to Wildlife Retention areas or riparian areas. They may also be designated in areas that currently have few vets or large snags in order to develop more suitable habitat for old growth dependent species such as cavity nesters or bats.

Commercial thinning or low intensity shelterwoods may be employed in some extended rotation stands to create a multi-layered canopy while recovering some harvestable volume. It is hoped that these initiatives, as well as deciduous stand conversions and other volume enhancing treatments, will maintain the AAC in the face of extending some planned rotations.

Deciduous stands, primarily of alder and maple, and mixed deciduous stands may be left intact or even encouraged where they are deemed appropriate. For example, wildlife tree retention areas and riparian areas can benefit from the biodiversity conferred by a deciduous component and they can play an important role in soil or bank stabilization. Additionally, deciduous species may be used to rehabilitated root disease areas, especially those with sensitive soils that preclude stumping.

The licensees will maintain the overall diversity of the area by:

- the use of alternative silviculture systems to create greater structure and a diversity of age classes within stands
- retaining some deciduous forest types
- retaining veteran trees for their biodiversity values, where safe to do so
- retaining some component of coarse woody debris
- retaining some uncommon (cottonwood, aspen or maple) wherever possible

#### **5.4 Access and Engineering Development**

The licensee recognizes that location of a good network of roads is a key factor in woodlot management. All roads will be developed to minimize environmental impact and maximize efficiency.

The Crown parcels are accessible via a number of roads or gazetted roads. Access to Block B is achieved through an extension of Marples Road. Block A is accessed through Tralee Road or off Carson Road. Carson Road may also provide future access to Block I. The eastern portion of Block I (gravel pit) is currently accessed off Clark Road. Block G is accessed via existing old logging roads extending off the end of Chattsworth Road. Access to Block H is currently through TimberWest private land and the hydro right-of-way adjacent to TimberWest property. However, there is a gazetted right-of-way through Block G and through the hydro right-of-way to the northeast corner of Block H. This gazetted access may or may not be suitable for road construction. Currently Blocks C and D have both Palmer and Matterson Roads gazetted along their boundaries but the only actual road access is off Palmer Road. Palmer Road may be extended to provide access in the future. A recently constructed extension to Pratt road now provides access to Block E.

The private parcel is accessible via Allsbrook Road, off the Alberni Highway, and a small network of private roads.

#### **5.5 Harvesting Methods**

Falling on the woodlot licence area will be carried out by chainsaw or mechanical felling systems.

In harvesting the AAC the system utilized will best suit the condition of the site. Hoe-forwarding is a viable alternative to ground-based skidders on many sites and ground skidding will only be

used where ground and site conditions permit. Seasonal constraints will be implemented in situations where site conditions dictate or if ground skidding is utilized. In areas inappropriate for ground based systems, small machine cable systems may be employed. Cable systems may be required on the steeper terrain within Block H.

Secondary transportation will be highway sized trucks which may be self loading or loaded by an independent loader.

### **5.8 Harvest Priorities and Salvage Operations**

Except for commercial thinning, harvesting healthy timber will generally be restricted to mature stands. Diseased or damaged stands with merchantable timber will be given priority for early harvest depending on the degree of damage or deterioration, their accessibility, and market conditions. Developing a core road system within each parcel to enable salvage operations throughout the woodlot is a priority.

In the short term, activities on the Private portion will predominantly consist of silvicultural treatments. To date, these lands have been the focus of intensive silvicultural activities including; brushing and backlog reforestation. The private land now makes up 8.4 % of the harvestable area of the woodlot. One cutblock was harvested in 2002-04. The licensee expects that harvesting activities on the private land portion will be limited to salvage operations during the term of this Management Plan.

While most harvesting will be administered through standard operational planning procedures, provision exists for minor harvesting operations of 500 m<sup>3</sup> or less throughout the licence area.

## **6.0 SILVICULTURE**

### **6.1 Basic Silviculture**

The licensee shall carry out basic silviculture activities consistent with the *Forest Act*; the *FPC* and the *Woodlot Licence Forest Management Regulation* for areas covered under a Forest Development Plan; and *FRPA* and the *Woodlot Licence Planning and Practices Regulation* for areas covered under a Woodlot Licence Plan.

#### **Seed Collection & Tree Seedlings**

No seed collections are anticipated, however, the licensee will cooperate with the MoFR if requested. The licensee will purchase seedlings to meet reforestation needs. All stock will originate from registered seedlots and will conform to the Chief Foresters's Standards for Seed Use.

#### **Site Preparation**

The purpose of site preparation is to reduce the fire hazard, reduce or delay brush problems and to ensure achievement of target stocking standards.

In most areas of the licence, there should be no need for site preparation. The exception to this would be in small, brushy areas and root disease areas that require destumping treatment. Destumping as a site preparation treatment may also be used as an alternative to future brushing of competing deciduous trees that have a high coppicing ability, such as maple. In most situations lopping and scattering the slash should be adequate in lieu of site preparation. However, in situations where excessive slash is a problem, consideration will be given to bunching and piling the slash throughout the setting. Burning the piles would be considered an option, or as an alternative, slash could be chipped.

## **Reforestation**

### *Conifers*

The most appropriate reforestation method will be determined through an ecological evaluation of the site and consideration of the requirements of the species to be established. Species selection will be guided by the stocking standards for the woodlot set in the WLP.

Planting will be the most common reforestation method. It is anticipated that Douglas-fir, and western redcedar will be the most commonly planted species, with minor amounts of grand fir and western white pine being planted. Other species may be planted on a trial basis.

Some small trials of non-native conifers will be established from time to time where they are deemed to be ecologically suitable and have economic potential, or have some other objective in being established.

In an effort to minimize the regeneration delay, the licensee will plan to carry out planting within one year of harvest. In some cases, based upon the silvicultural system prescribed, natural regeneration may be an option.

### *Hardwoods*

These will have a small but important position in the licensee's reforestation program. The total area reforested to hardwoods will not exceed five percent of the woodlot. The objectives of planting deciduous species in appropriate microsites include:

- maintaining the natural biodiversity of hardwood/conifer mixtures in appropriate areas
- using alternate species in the management of root disease infected sites
- producing some short rotation (35-40 year) saw log volume to offset some longer rotation conifer volumes
- encouraging the small but growing hardwood manufacturing companies on the east coast of Vancouver Island

Operable sites that are nutrient rich, fresh to moist and well drained (CDFmm site series 06/07, CWHxm1 site series 05/07) are prime candidates for red alder management. Where such sites are currently occupied by coniferous stands infected with root disease and stumping treatments would cause an unacceptable level of site degradation, the establishment of an alder rotation will be the licensee's first choice.

Where such sites are currently carrying commercial quality alder, it's replacement by a second deciduous crop will occur only on a trial basis: the licensee will monitor diameter and height growth and compare the results with data published in the FRDA Report 240 (Red Alder Management for BC).

Stocking standards for hardwood management will be set in the WLP.

### **Surveys**

In order to ensure a plantation becomes free growing within an optimum time frame, it is important that the licensee be aware of seedling survival and performance. Under normal conditions, a walk through survey will be carried out one season after planting and a formal survey completed after the second growing season. If the plantation is not satisfactorily restocked (NSR) it will be fill-planted immediately and another survey will be conducted the following season.

Free growing surveys will be conducted according to MoFR standards and results will be submitted as a component of the annual report.

### **Brushing and Weeding**

Free Growing (FG) standards are achieved when a minimum number of well-spaced, preferred and acceptable trees meet a minimum height requirement and are 150 percent of the height of the competing vegetation. The licensee will perform treatments, as necessary, to ensure plantations become FG within timelines specified in legislation. Any brushing treatments that are required will be done manually and the use of herbicides will be avoided.

## **6.2 Incremental Silviculture**

The goals of incremental silviculture activities will be to improve forest health and to increase the overall productivity and value of the forest. Any stand improvement activities are expected to be carried out by contractors as funding becomes available.

Because of the age class structure of the woodlot licence, no opportunities for stand improvement activities (spacing, pruning and fertilization) have existed to date. However, with the inclusion of the expansion area and as plantations become free growing over time, more opportunities for stand improvement will become available. The licensees will endeavor to find ways to fund incremental silviculture projects.

### **Backlog Reforestation**

If the licensee identifies any of these areas within the expansion portion of the woodlot, every effort will be made to obtain funding in order to bring these sites into production as soon as possible.

Two polygons within the private land portion of the woodlot remain NSR after repeated attempts at restocking these areas. One previously NSR polygon is now satisfactorily restocked (SR). Regeneration difficulties are mainly a result of deer, elk and bear damage to tree protectors,

heavy brush and extended summer droughts. The licensee will continue to brush, fill plant and monitor these polygons to ensure they become restocked. These polygons do not currently contribute to the AAC calculation.

### **Site Rehabilitation**

Site rehabilitation involves the removal of existing non-commercial stands and subsequent regeneration of the site to commercial coniferous species. The inventory information shows there are some leading deciduous stands within W0097 which may provide some opportunities for this type of enhancement in the expansion portions of the woodlot..

### **Fertilization**

Increased yields and a reduction in rotation length are possible with fertilization and may be especially beneficial to sites of low productivity. Fertilization can accelerate the development of stands by increasing piece size which could fill gaps in the age class profile. Fertilization at the time of planting may help to ensure seedling performance and allow them to outcompete surrounding vegetation. No broad-cast fertilization treatments will be carried out within the Community Watersheds.

### **Spacing**

While the primary objective of spacing is to concentrate growth on fewer stems, resulting in a lower technical rotation age of crop trees, other goals are also important. These include:

- improving the species composition to control diseases such as mistletoe or root disease;
- increasing the percentage of higher value species;
- improving the stand structure, which increases its ability to withstand snow damage and windthrow;
- enhancing biodiversity;
- aesthetics

Currently there may be some opportunities for spacing stands in the Block G and the private land portion of the woodlot. Spacing will be undertaken on stands that will benefit from such a treatment as funding opportunities allow.

### **Pruning**

Pruning will improve forest values by increasing the amount of clear mature wood and reducing the size of the knotty core, reducing stem taper - resulting in an increased final product value.

Some pruning has been carried out on the private land portion of the woodlot. Currently there may be some pruning opportunities in the Block G and private portions of the woodlot. Pruning will be undertaken where appropriate opportunities exist and if funding becomes available.

## **6.3 Commercial Thinning**

Harvesting by means of commercial thinning can be prescribed in stands where a merchantable volume can be extracted and adequate crop trees can remain until rotation age. Under certain

stand conditions and harvesting constraints commercial thinning can increase: merchantable timber volume production, the financial value of timber, and recover potential mortality. Other non-timber objectives may also be achieved by commercial thinning such as improved wildlife habitat, biodiversity and aesthetics. Volumes obtained from commercial thinning can be used to mitigate any age-class imbalance that may exist in the timber supply profile.

Portions of the private land have been commercially thinned. There may be future opportunities for commercial thinning within the younger immature conifer stands in the Crown portions of the woodlot.

## **7.0 FOREST PROTECTION**

### **7.1 Fire Prevention**

The licensee will comply with the *Wildfire Act and Regulation* regarding fire suppression equipment required, work hours and prevention measures. When operating on the licence area during fire season the licensee will contact the South Island Forest District Office or Coastal Fire Base to determine the current Fire Danger Class for the area.

To minimize the buildup of fuels from timber harvesting and silvicultural activities, the licensees must assess areas to determine if a fire hazard is present once harvesting is complete. The licensee will abate any hazards that are created by dispersing slash accumulations or by spot burning where suitable, particularly for roadside or landing debris.

### **7.2 Forest Pests and Disease**

The licensee will monitor the woodlot for insects and disease and notify the MoFR if any new outbreaks or infections are found.

#### **Root Disease**

Root disease of various types can be a common occurrence in most second growth Douglas-fir stands on Vancouver Island, and there are a few extensive areas of root disease evident in W0097. To date, the majority of the cutblocks (B1-4, A1) have been harvested and site prepared to treat root disease. Salvage operations have also focused mainly on recovering timber that has been infected with root disease. Root disease infected areas will be treated by stump pulling or planting with resistant species. The appropriate method will be determined based on a site assessment.

#### **White Pine Blister Rust**

Western White Pine is a suitable minor species for some sites in the CWHxm1 biogeoclimatic zone and is particularly suitable as a silvicultural control for root disease areas. In situations where Western White Pine is an acceptable species, blister rust resistant stock will be planted. To further reduce the risk of infection, trees may be pruned. Healthy White Pine will be retained in any spacing operations, for biodiversity reasons and the possibility of finding blister rust resistant

trees. If mature, uninfected Western White Pine are found in stands that are to be harvested, the licensee will endeavor to reserve the trees for the reasons outlined above.

### **Hemlock Dwarf Mistletoe and Lodgepole Pine Dwarf Mistletoe**

Stands with components of Western Hemlock in Block A have been found to be infected with this parasitic seed plant. Given that one of the management strategies is to prioritize harvest of these generally undesirable stands, all infected and non-infected hemlock trees in the stand will be removed. Because western hemlock is generally not a preferred species, hemlock dwarf mistletoe is not expected to perpetuate in this area.

Some lodgepole pine in Errington and Coombs are infected with lodgepole pine dwarf mistletoe, and some has been found in the woodlot, particularly in Blocks C and D, near Palmer Road.

### **Balsam Woolly Adelgid**

The Balsam Woolly Adelgid is a sucking insect that most often attacks large true firs. Attack can occur on the stem or the crown and while trees can survive most attacks, growth can be impacted. Recognizing that this pest occurs on southern Vancouver Island, the planting of any Grand Fir will be limited to a minor stand component.

### **Ungulates and other Wildlife**

Local deer and elk populations have browsed plantations in the licence area and are especially fond of western red cedar. The licensee will continue to protect seedlings by using browse protection methods.

Young plantations can also be severely damaged by mice or voles girdling the lower stems of trees less than six years old. Most of the damage appears to occur during population peaks, years with heavy prolonged snow cover, or simply from particular animals which have acquired a taste for conifers. Brushing to reduce ground cover and encouraging birds of prey may help reduce damage.

## **7.3 Damage Due to Blowdown**

There are a number of areas of blowdown in the woodlot. These are mainly due to root disease centres, wet areas, or exposed timber faces such as the south edge of Block B. Because of the rapid deterioration of timber quality after blowdown occurs, these areas will be harvested as quickly as possible wherever feasible.

Periodic removal of windthrown trees, mainly along roadsides and hydro right-of-ways, has been carried out over the life of the previous Management Plan, especially after significant storm events.

Windthrow strategies, especially important along fish streams, will be identified in harvesting plans. Although some cutblock boundaries can be designed to follow more open stands that are less susceptible to windthrow, in some windthrow prone areas alternative treatments such as feathering edges or pruning may be prescribed.

## 8.0 INFORMATION GATHERING AND REVIEW

### 8.1 Public Review

This Management Plan, covering the entire woodlot licence area, was advertised in the PQ News on Friday, December 19<sup>th</sup>, 2008 for public review. The public, resource agencies and interest groups had the opportunity to submit comments regarding this Management Plan until January 30<sup>th</sup>, 2009 and the First Nations had the opportunity to submit comments until March 15<sup>th</sup>, 2009. All written comments are included in Appendix 7.

### 8.2 Resource Agencies and Interest Groups

In addition to the Ministry of Forests and Range, the resource agencies and interest groups that will be contacted during the preparation of this Management Plan and will be consulted during the subsequent Woodlot Licence Plan process are:

- Nanaimo Regional District
- Ministry of Environment
- Department of Fisheries and Oceans
- Qualicum First Nation
- Nanoose First Nation
- Comox First Nation
- Silver Spurs Riding Club

Comments were received from the Ministry of Environment and the Ministry of Forests and Range and are included in Appendix 7.

## 9.0 REVISION

A few revisions were made to the draft Management Plan to reflect comments submitted by resource agencies. These revisions are summarized below.

All species listed in the e-mail received from Kevin Telfer, Ecosystems Biologist, Ministry of Environment were confirmed to already be identified in the text. The last paragraph in Section 3.1 was reworded to include the licensee's commitment to protect any Bald Eagle, osprey, Great Blue heron nests in individual wildlife trees or wildlife tree retention areas. All references to wildlife tree patches (WTPs) was changed to wildlife tree retention areas (WTRAs) for consistency with the Woodlot Licence Plan and current legislation.

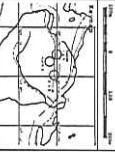
Based on comments received from Emma Neill, Tenures Forester, MFR, Section 3.7 was reworded to recognize that the Nanoose First Nation are a Douglas Treaty First Nation and therefore have no aboriginal interests.

Section 5.4 was reworded to include the gazetted right-of-way into Block H, which may or may not be appropriate for road construction, as another possible access.

## **10.0 ANNUAL REPORT**

By April 30 of each year, all activities carried out on the Woodlot Licence will be reported electronically (RESULTS) for the previous calendar year. The data will include information for each completed project, as well as maps for harvesting activities, free growing, and incremental silviculture projects, where forest cover changes have occurred.

**APPENDIX 1**  
**Management Plan Map**



**LEGEND**  
Shaded areas indicate areas with a high density of trees. The density of trees is indicated by the number of trees per hectare (tp/h) in the legend.

**WOODLOT 97**  
Woodlot 97 is a large area of land, divided into four blocks (A, B, C, and D). The woodlot is located in the northern part of the map, near the town of L. 9.

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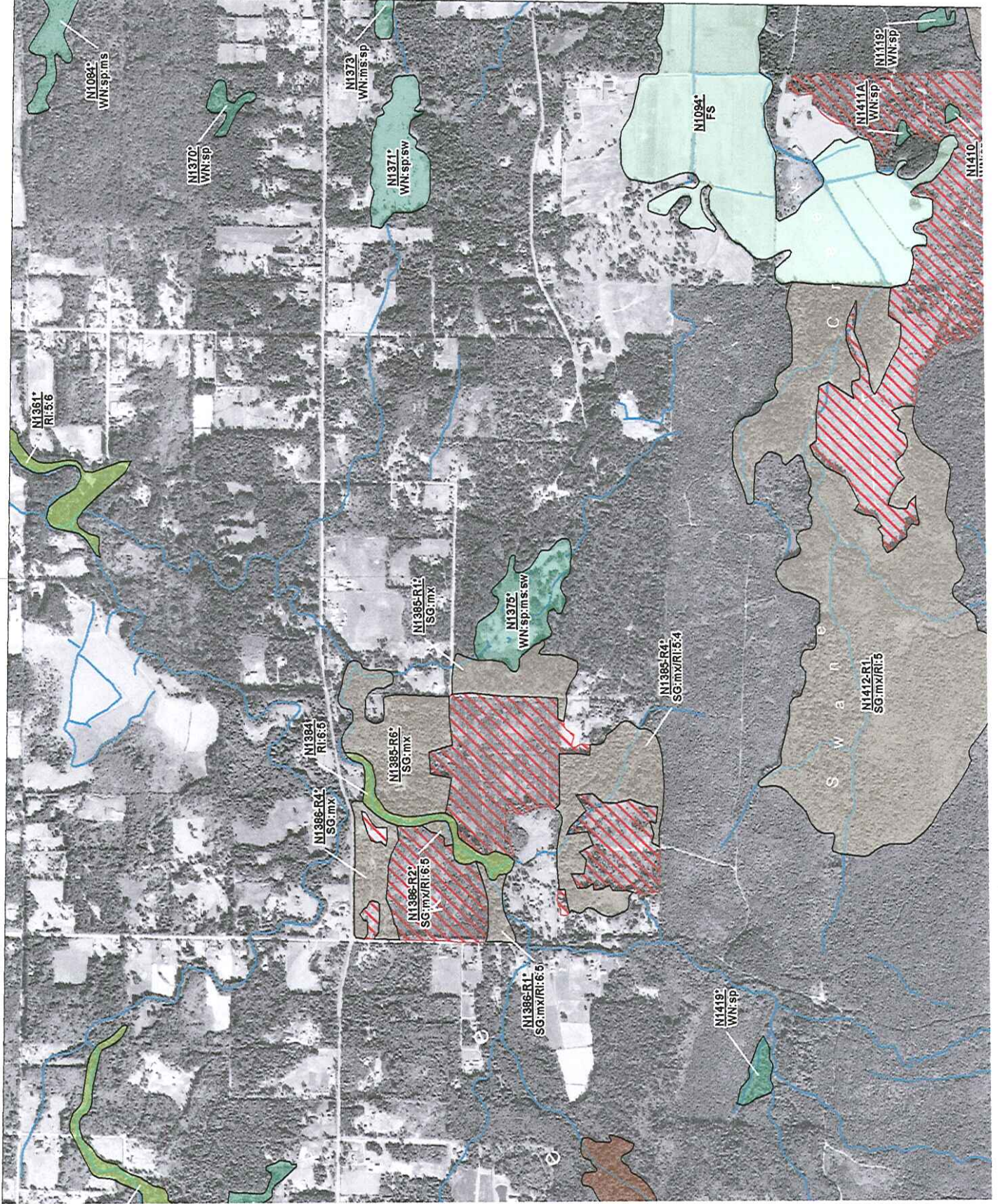
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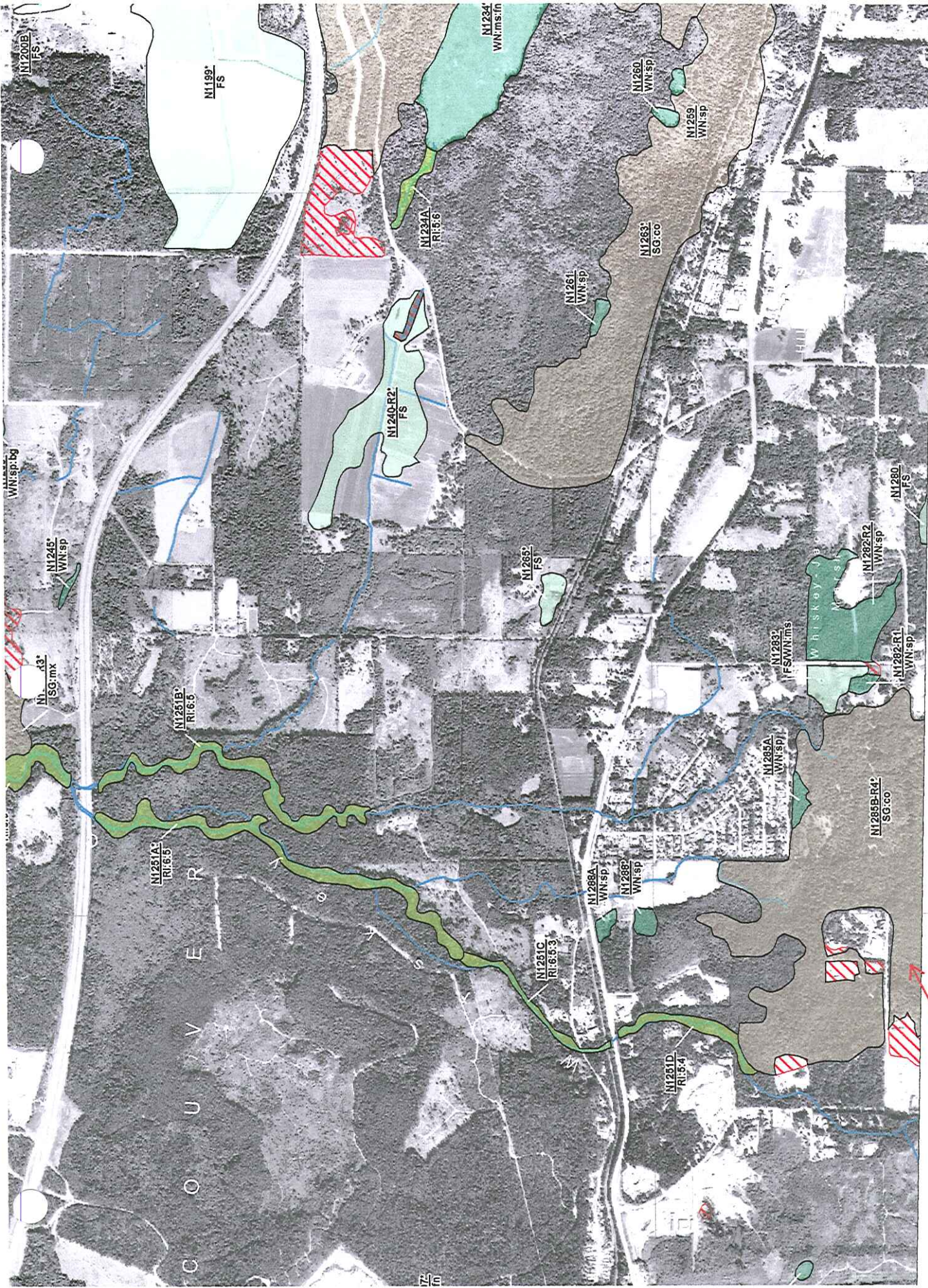
**APPENDIX 2**  
**Sensitive Ecosystem Inventory**

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92F028  
West side Blocks  
C and D

5460000



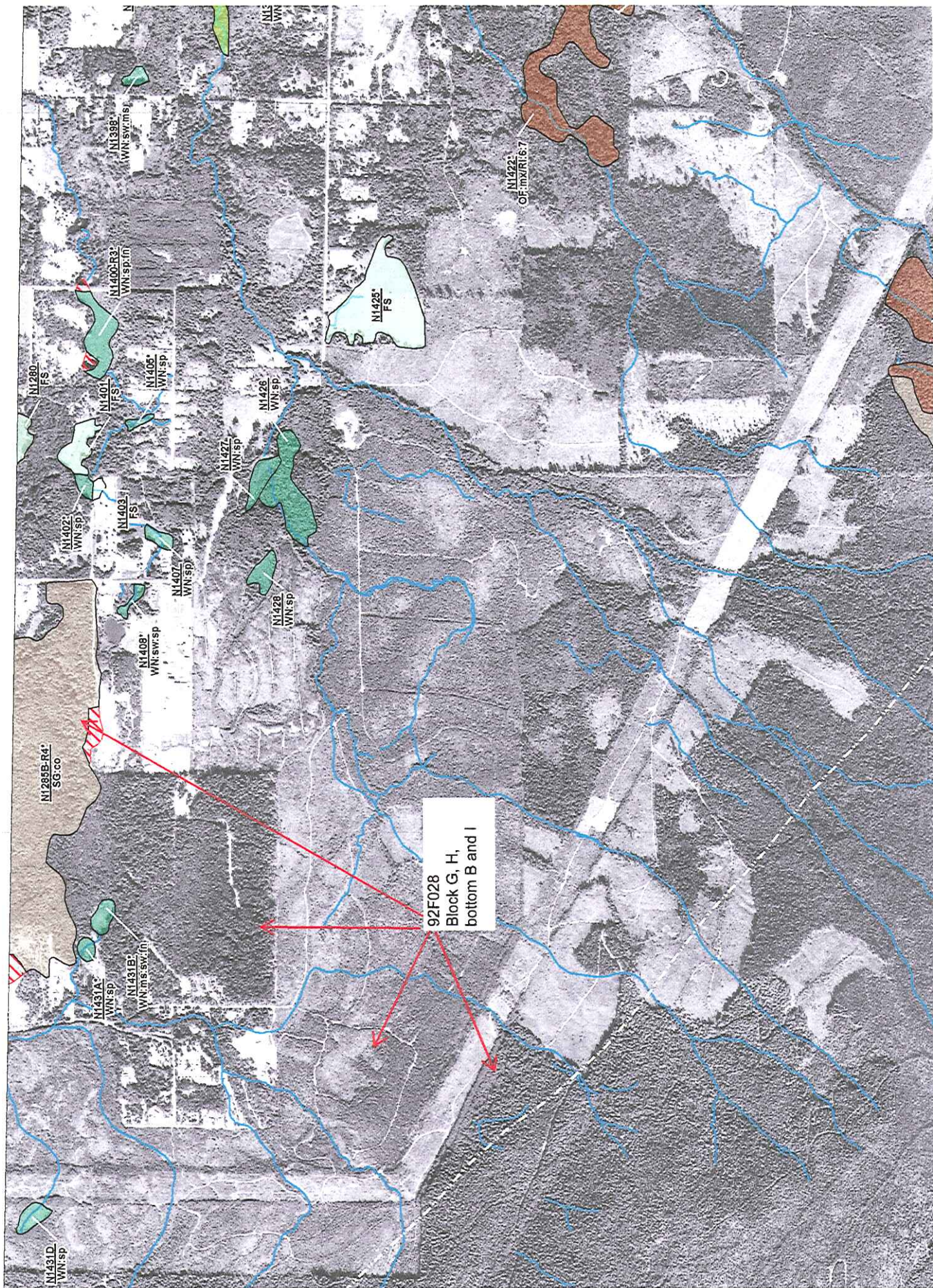
92F038  
Block A, B, H, top I

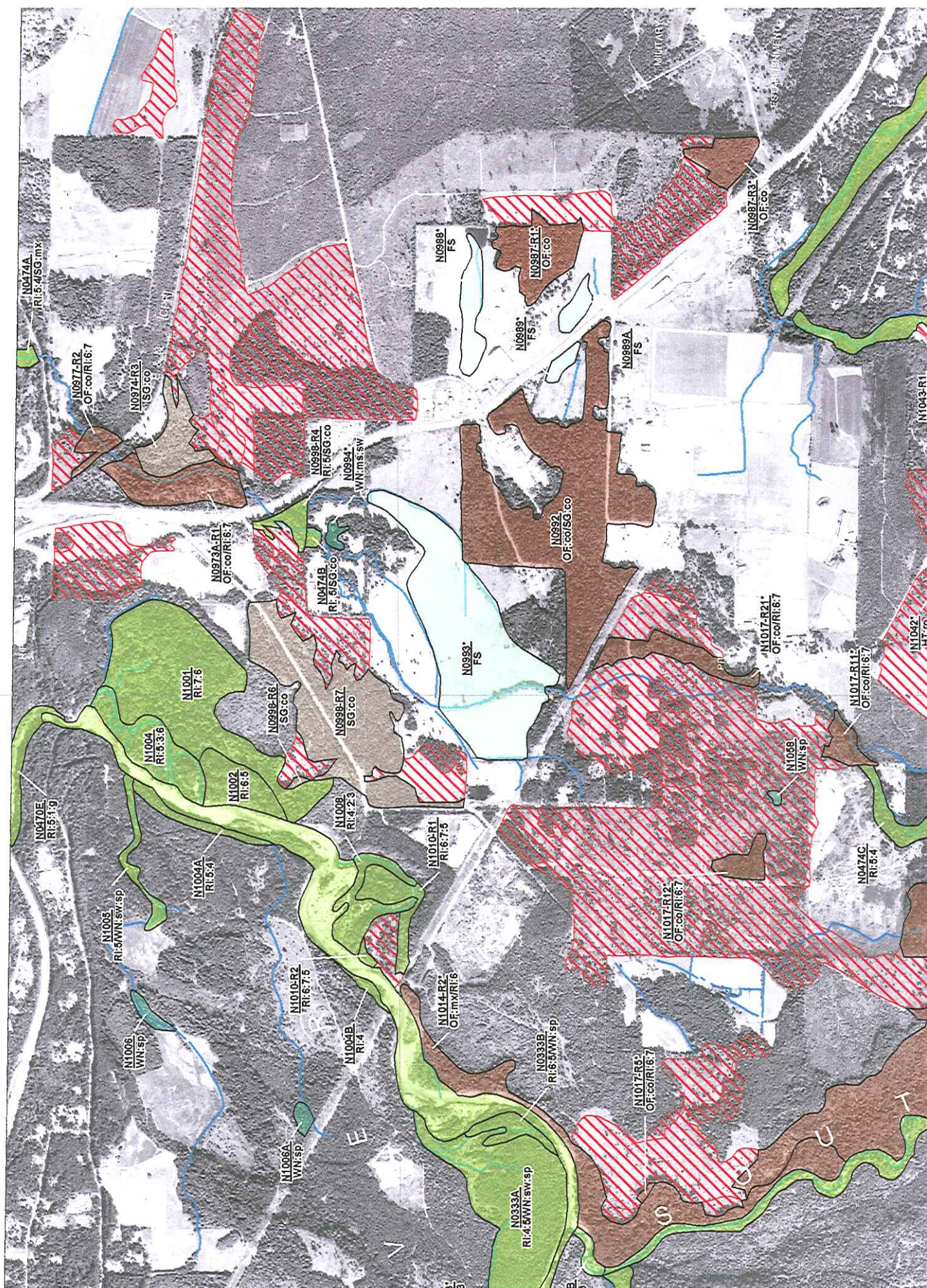
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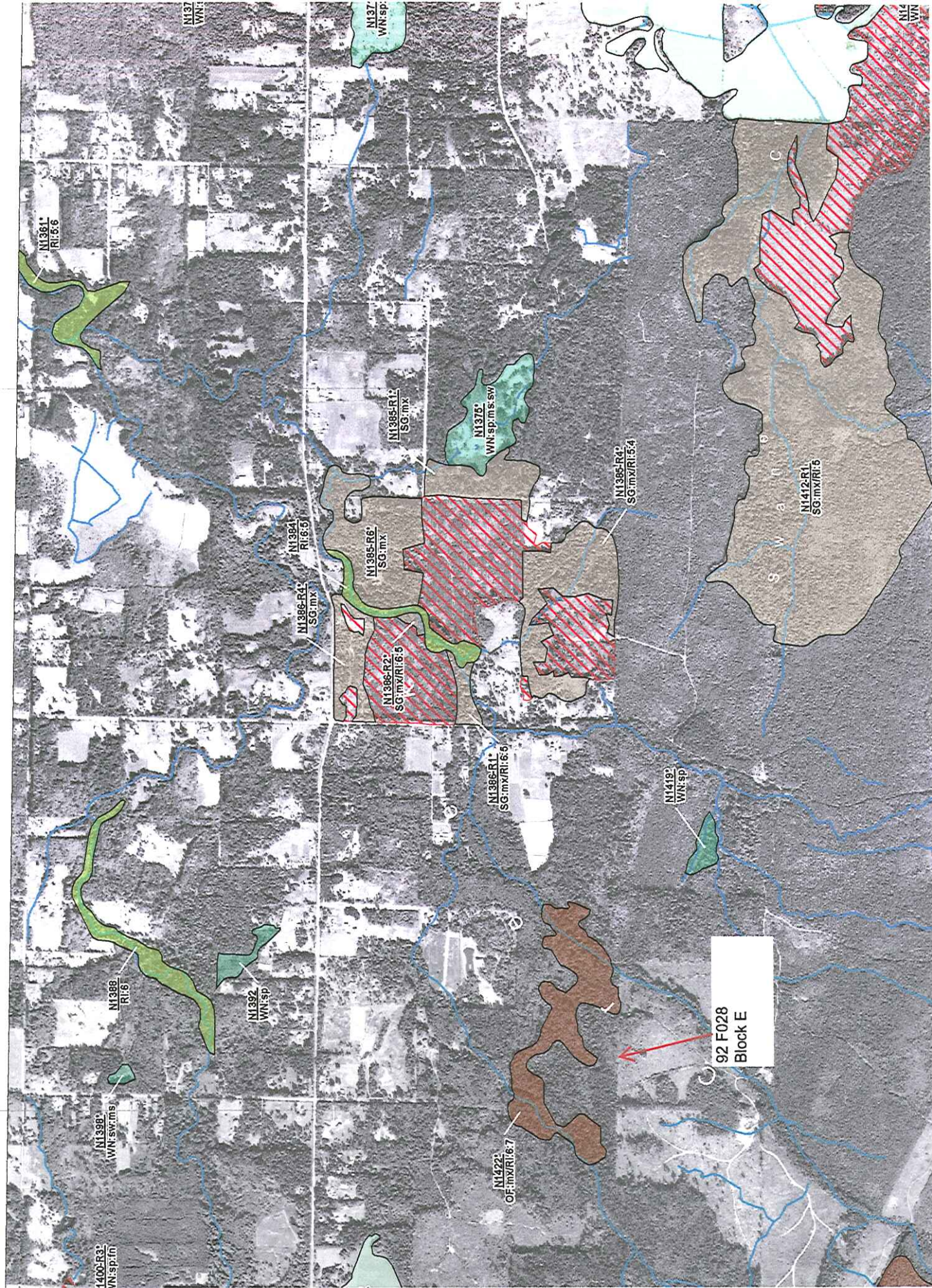
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**APPENDIX 3**  
**Red and Blue Listed Plant Communities**

| Scientific Name                                                                   | English Name                                    | BC Status | BGC                                                   | Ecosystem Group                |
|-----------------------------------------------------------------------------------|-------------------------------------------------|-----------|-------------------------------------------------------|--------------------------------|
| <i>Abies grandis</i> / <i>Mahonia nervosa</i>                                     | grand fir / dull Oregon-grape                   | Red       | CDFmm/04                                              | Forest                         |
| <i>Abies grandis</i> / <i>Tiarella trifoliata</i>                                 | grand fir / three-leaved foamflower             | Red       | CDFmm/06                                              | Forest                         |
| <i>Alnus rubra</i> / <i>Carex obnupta</i> [                                       | red alder / slough sedge [                      | Red       | CDFmm/14                                              | Wetland, Forest                |
| <i>Populus balsamifera</i> ssp.                                                   | black cottonwood ]                              |           |                                                       |                                |
| <i>Alnus rubra</i> / <i>Lysichiton americanus</i>                                 | red alder / skunk cabbage                       | Blue      | CDFmm/11                                              | Forest, Wetland                |
| <i>Arbutus menziesii</i> /                                                        |                                                 |           |                                                       |                                |
| <i>Arctostaphylos columbiana</i>                                                  | arbutus / hairy manzanita                       | Red       | CDFmm/00;CWHxm1/00                                    | Woodland, Forest               |
| <i>Artemisia campestris</i> - <i>Festuca rubra</i> / <i>Racomitrium canescens</i> | northern wormwood - red fescue / grey rock-moss | Red       | CDFmm/n/a                                             | Sparsely Vegetated, Herbaceous |
| <i>Carex lasiocarpa</i> - <i>Rhynchospora alba</i>                                | slender sedge - white beak-rush                 | Red       | CDFmm/Wf53;CWHmm1/Wf53;CWHxm2/Wf53                    | Wetland, Herbaceous            |
| <i>Carex lyngbyei</i> Herbaceous Vegetation                                       | Lyngbye's sedge herbaceous vegetation           | Blue      | CDFmm/Em05                                            | Estuarine, Herbaceous, Wetland |
| <i>Carex macrocephala</i> Herbaceous Vegetation                                   | large-headed sedge Herbaceous Vegetation        | Red       | CDFmm/00;CWHvh1/00;CWHwh1                             | Sparsely Vegetated, Herbaceous |
| <i>Carex sitchensis</i> - <i>Oenanthe sarmentosa</i>                              | Sitka sedge - Pacific water-parsley             | Blue      | CWHvh2/Wm50;CWHwm/Wm50;CWHxm1/Wm50                    | Wetland, Herbaceous            |
| <i>Deschampsia cespitosa</i> - <i>Sidalcea hendersonii</i>                        | tufted hairgrass - Henderson's checker-mallow   | Red       | CWHxm1/00                                             | Estuarine, Herbaceous, Wetland |
| <i>Deschampsia cespitosa</i> ssp. <i>beringensis</i> - <i>Aster subspicatus</i>   | tufted hairgrass - Douglas' aster               | Blue      | CDFmm/Ed02;CWH/Ed02                                   | Estuarine, Herbaceous, Wetland |
| <i>Deschampsia cespitosa</i> ssp. <i>beringensis</i> - <i>Hordeum</i>             | tufted hairgrass - meadow barley                | Blue      | CDFmm/Ed01                                            | Estuarine, Herbaceous, Wetland |
| <i>Distichlis spicata</i> var. <i>spicata</i> Herbaceous Vegetation               | seashore saltgrass Herbaceous Vegetation        | Red       | CDFmm/Em03                                            | Estuarine, Herbaceous, Wetland |
| <i>Dulichium arundinaceum</i> Herbaceous Vegetation                               | three-way sedge                                 | Red       | CDFmm/Wm51;CWHmm1/Wm51;CWHxm2/Wm51;ICHwk1/Wm51        | Wetland, Herbaceous            |
| <i>Eleocharis palustris</i> Herbaceous Vegetation                                 |                                                 |           | BGxw2/Wm04;CDFmm/Wm04;ESSFdv                          |                                |
| <i>Festuca idahoensis</i> ssp. <i>roemerii</i> - <i>Koeleria macrantha</i>        | common spike-rush                               | Blue      | d/Wm04;ESSFdv/Wm04;IDFxm/Wm04;SB Sdk/Wm04;SBSmk2/Wm04 | Wetland, Herbaceous            |
|                                                                                   | Roemer's fescue - junegrass                     | Red       | CDFmm/00;CWHxm1/00                                    | Grassland, Herbaceous          |

| Scientific Name                                                                                    | English Name                                        | BC Status | BGC                                                                                                                   | Ecosystem Group                |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------|-----------|-----------------------------------------------------------------------------------------------------------------------|--------------------------------|
| <i>Juncus arcticus</i> - <i>Plantago macrocarpa</i>                                                | arctic rush - Alaska plantain                       | Red       | CDFmm/Ed03;CWH/Ed03                                                                                                   | Estuarine, Herbaceous, Wetland |
| <i>Ledum groenlandicum</i> / <i>Kalmia microphylla</i> / <i>Sphagnum</i> spp.                      | Labrador tea / western bog-laurel / peat-mosses     | Blue      | CWHvm1/Wb50;CWHxm1/Wb50;CWHxm2/Wb50                                                                                   | Wetland, Shrub                 |
| <i>Menyanthes trifoliata</i> - <i>Carex lasiocarpa</i>                                             | buckbean - slender sedge                            | Blue      | CDFmm/Wf06;CWHws1/Wf06;ICHwk1/Wf06;IDFdk2/Wf06;SBSdk/Wf06                                                             | Wetland, Herbaceous            |
| <i>Myosurus minimus</i> - <i>Montia</i> spp. - <i>Limnanthes macounii</i>                          | tiny mousetail - montias - Macoun's meadow-foam     | Red       | CDFmm/00                                                                                                              | Wetland, Herbaceous            |
| <i>Myrica gale</i> / <i>Carex sitchensis</i>                                                       | sweet gale / Sitka sedge                            | Red       | CDFmm/Wf52;CWHmm1/Wf52;CWHmm2/Wf52;CWHvh2/Wf52;CWHwm/Wf52;CWHxm1/Wf52;CWHxm2/Wf52                                     | Wetland, Shrub, Herbaceous     |
| <i>Picea sitchensis</i> / <i>Rubus spectabilis</i> Very Dry Maritime                               | Sitka spruce / salmonberry Very Dry Maritime        | Red       |                                                                                                                       |                                |
| <i>Pinus contorta</i> / <i>Sphagnum</i> spp. CDFmm                                                 | lodgepole pine / peat-mosses CDFmm                  | Red       | CWHxm1/08;CWHxm2/08                                                                                                   | Riparian, Forest               |
| <i>Pinus contorta</i> / <i>Sphagnum</i> spp. Very Dry Maritime                                     | lodgepole pine / peat-mosses Very Dry Maritime      | Red       | CDFmm/10                                                                                                              | Forest, Wetland                |
| <i>Populus balsamifera</i> ssp. <i>trichocarpa</i> - <i>Alnus rubra</i> / <i>Rubus spectabilis</i> | black cottonwood - red alder / salmonberry          | Blue      | CWHxm1/11;CWHxm2/11                                                                                                   | Forest, Wetland                |
| <i>Populus balsamifera</i> ssp. <i>trichocarpa</i> / <i>Salix sitchensis</i>                       | black cottonwood / Sitka willow                     | Blue      | CWHdm/09;CWHds1/09;CWHds2/09;CWHmm1/09;CWHms1/08;CWHms2/08;CWHvm1/10;CWHwm/06;CWHws1/08;CWHws2/08;CWHxm1/09;CWHxm2/09 | Riparian, Forest               |
| <i>Populus tremuloides</i> / <i>Malus fusca</i> / <i>Carex obnupta</i>                             | trembling aspen / Pacific crab apple / slough sedge | Red       | CWHdm/10;CWHxm1/10;CWHxm2/10                                                                                          | Riparian, Forest               |
| <i>Pseudotsuga menziesii</i> - <i>Arbutus menziesii</i>                                            | Douglas-fir - arbutus                               | Red       | CDFmm/00                                                                                                              | Wetland, Shrub                 |
| <i>Pseudotsuga menziesii</i> - <i>Pinus contorta</i> / <i>Racomitrium</i>                          | Douglas-fir - lodgepole pine / grey rock-moss       | Red       | CDFmm/02                                                                                                              | Woodland, Forest               |
|                                                                                                    |                                                     | Red       | CWHxm1/02                                                                                                             | Woodland, Forest               |

| Scientific Name                                                                                      | English Name                                        | BC Status | BGC                                                                                                                                        | Ecosystem Group                |
|------------------------------------------------------------------------------------------------------|-----------------------------------------------------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| <i>Pseudotsuga menziesii</i> - <i>Tsuga heterophylla</i> / <i>Gaultheria shallon</i><br>Dry Maritime | Douglas-fir - western hemlock / salal Dry Maritime  | Blue      | CWHdm/03;CWHxm1/03;CWHxm2/03                                                                                                               | Forest                         |
| <i>Pseudotsuga menziesii</i> / <i>Mahonia nervosa</i>                                                | Douglas-fir / dull Oregon-grape                     | Red       | CDFmm/01                                                                                                                                   | Forest                         |
| <i>Pseudotsuga menziesii</i> / <i>Melica subulata</i>                                                | Douglas-fir / Alaska oniongrass                     | Red       | CDFmm/03                                                                                                                                   | Woodland, Forest               |
| <i>Pseudotsuga menziesii</i> / <i>Polystichum munitum</i>                                            | Douglas-fir / sword fern                            | Red       | CWHdm/04;CWHxm1/04;CWHxm2/04                                                                                                               | Forest                         |
| <i>Quercus garryana</i> - <i>Arbutus</i>                                                             | Garry oak - arbutus                                 | Red       | CDFmm/00                                                                                                                                   | Woodland, Forest               |
| <i>Quercus garryana</i> / <i>Bromus carinatus</i>                                                    | Garry oak / California brome                        | Red       | CDFmm/00                                                                                                                                   | Woodland, Forest               |
| <i>Quercus garryana</i> / <i>Holodiscus</i>                                                          | Garry oak / oceanspray                              | Red       | CDFmm/00                                                                                                                                   | Woodland, Forest               |
| <i>Ruppia maritima</i> Herbaceous Vegetation                                                         | beaked ditch-grass<br>Herbaceous Vegetation         | Red       | CDFmm/Em01;CWH/Em01                                                                                                                        | Estuarine, Herbaceous, Wetland |
| <i>Salicornia virginiana</i> - <i>Glaux maritima</i>                                                 | American glasswort - sea-milkwort                   | Red       | CDFmm/Em02;CWH/Em02                                                                                                                        | Estuarine, Herbaceous, Wetland |
| <i>Salix sitchensis</i> - <i>Salix lucida</i> ssp. <i>lasianдра</i> / <i>Lysichiton americanus</i>   | Sitka willow - Pacific willow / skunk cabbage       | Red       | CDFmm/Ws51;CWH/Ws51;ICH/Ws51                                                                                                               | Wetland, Shrub, Riparian       |
| <i>Sidalcea hendersonii</i> Tidal Marsh                                                              | Henderson's checker-mallow Tidal Marsh              | Red       | CWHxm1/00                                                                                                                                  | Wetland, Estuarine, Herbaceous |
| <i>Thuja plicata</i> - <i>Picea sitchensis</i> / <i>Lysichiton americanus</i>                        | western redcedar - Sitka spruce / skunk cabbage     | Blue      | CWHdm/12;CWHds1/12;CWHds2/12;CWHmm1/12;CWHms1/11;CWHms2/11;CWHvh1/13;CWHvh2/13;CWHvm1/14;CWHwh1/12;CWHwh2/06;CWHws1/11;CWHxm1/12;CWHxm2/12 | Wetland, Forest                |
| <i>Thuja plicata</i> - <i>Pseudotsuga menziesii</i> / <i>Eurhynchium oreganum</i>                    | western redcedar - Douglas-fir / Oregon beaked-moss | Red       | CDFmm/05                                                                                                                                   | Forest                         |
| <i>Thuja plicata</i> / <i>Achlys triphylla</i>                                                       | western redcedar / vanilla leaf                     | Red       | CDFmm/12                                                                                                                                   | Forest                         |
| <i>Thuja plicata</i> / <i>Carex obovata</i>                                                          | western redcedar / slough sedge                     | Blue      | CWHdm/15;CWHxm1/15;CWHxm2/15                                                                                                               | Wetland, Forest                |
| <i>Thuja plicata</i> / <i>Lonicera involucrata</i>                                                   | western redcedar / black twinberry                  | Red       | CWHdm/14;CWHxm1/14;CWHxm2/14                                                                                                               | Forest                         |

| Scientific Name                                                                        | English Name                                                 | BC Status | BGC                                                                                                   | Ecosystem Group     |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------|-----------|-------------------------------------------------------------------------------------------------------|---------------------|
| <i>Thuja plicata</i> / <i>Oemleria cerasiformis</i>                                    | western redcedar / Indian-plum                               | Red       | CDFmm/13                                                                                              | Forest              |
| <i>Thuja plicata</i> / <i>Polystichum munitum</i> Very Dry Maritime                    | western redcedar / sword fern Very Dry Maritime              | Blue      | CWHxm1/05;CWHxm2/05                                                                                   | Forest              |
| <i>Thuja plicata</i> / <i>Rubus spectabilis</i>                                        | western redcedar / salmonberry                               | Red       | CWHdm/13;CWHxm1/13;CWHxm2/13                                                                          | Forest, Riparian    |
| <i>Thuja plicata</i> / <i>Symphoricarpos albus</i>                                     | western redcedar / common snowberry                          | Red       | CDFmm/07                                                                                              | Riparian, Forest    |
| <i>Thuja plicata</i> / <i>Tiarella trifoliata</i> Very Dry Maritime                    | western redcedar / three-leaved foamflower Very Dry Maritime | Red       | CWHxm1/07;CWHxm2/07                                                                                   | Forest              |
| <i>Trichophorum alpinum</i> / <i>Scorpidium revolvens</i>                              | Hudson Bay clubrush / rusty hook-moss                        | Red       | CWHxm1/Wf10;SBSmc2/Wf10;SBSmk2/Wf10                                                                   | Wetland, Herbaceous |
| <i>Tsuga heterophylla</i> - <i>Pseudotsuga menziesii</i> / <i>Eurhynchium oreganum</i> | western hemlock - Douglas-fir / Oregon beaked-moss           | Red       | CWHxm1/01;CWHxm2/01                                                                                   | Forest              |
| <i>Tsuga heterophylla</i> - <i>Thuja plicata</i> / <i>Blechnum spicant</i>             | western hemlock - western redcedar / deer fern               | Red       | CWHdm/06;CWHxm1/06;CWHxm2/06                                                                          | Forest              |
| <i>Typha latifolia</i> Marsh                                                           | common cattail Marsh                                         | Blue      | BGxh1/Wm05;BGxh2/Wm05;BGxw1/Wm05;CDFmm/Wm05;CWHdm/Wm05;CWHxm1/Wm05;CWHxm2/Wm05;IDFdm2/Wm05;PPxh1/Wm05 | Wetland, Herbaceous |

**APPENDIX 4**  
**Forest Inventory Information**

| Polygon      | AREA | SP 1 | %   | SP 2 | %  | SP 3 | %  | SP 4 | %  | AGE | HEIGHT | SI | CC |
|--------------|------|------|-----|------|----|------|----|------|----|-----|--------|----|----|
| 92F028 A1    | 5.2  | FD   | 75  | CW   | 25 |      | 0  |      | 0  | 1   | 0      | 28 | 1  |
| 92F028 E1    | 5.3  | FD   | 75  | CW   | 25 |      | 0  |      | 0  | 1   | 0      | 32 | 1  |
| 92F029 16    | 0.4  | FD   | 80  | CW   | 20 |      | 0  |      | 0  | 3   | 0      | 26 | 1  |
| 92F029 17    | 0.9  | FD   | 80  | CW   | 20 |      | 0  |      | 0  | 3   | 0      | 26 | 1  |
| 92F029 18    | 1.4  | FD   | 80  | CW   | 20 |      | 0  |      | 0  | 3   | 0      | 26 | 1  |
| 92F028 B3    | 1.1  | FD   | 75  | CW   | 25 |      | 0  |      | 0  | 4   | 0      | 24 | 1  |
| 92F028 B4    | 9.9  | FD   | 88  | CW   | 12 |      | 0  |      | 0  | 4   | 0      | 32 | 1  |
| 92F028 B1    | 3.4  | FD   | 80  | CW   | 16 | PW   | 4  |      | 0  | 5   | 0      | 24 | 1  |
| 92F028 B2    | 2.7  | FD   | 86  | CW   | 14 |      | 0  |      | 0  | 5   | 0      | 24 | 1  |
| 92F029 20    | 1.1  | FD   | 55  | CW   | 26 | PW   | 10 | BG   | 9  | 5   | 0      | 24 | 1  |
| 92F029 7     | 1    | CW   | 80  | FD   | 20 |      | 0  |      | 0  | 11  | 0      | 24 | 5  |
| 92F029 2     | 2    | NSR  |     |      |    |      |    |      |    |     |        |    |    |
| 92F029 5     | 0.5  | NSR  |     |      |    |      |    |      |    |     |        |    |    |
| 92F029 8     | 0.7  | CW   | 100 |      | 0  |      | 0  |      | 0  | 12  | 0      | 27 | 5  |
| 92F029 13    | 0.2  | CW   | 50  | PW   | 50 |      | 0  |      | 0  | 13  | 0      | 20 | 5  |
| 92F028 47    | 5.5  | FD   | 60  | DR   | 20 | CW   | 10 | BA   | 10 | 13  | 4      | 28 | 28 |
| 92F029 6     | 2.3  | FD   | 80  | PW   | 20 |      | 0  |      | 0  | 17  | 1      | 27 | 5  |
| 92F029 9     | 0.8  | FD   | 70  | CW   | 15 | PW   | 15 |      | 0  | 17  | 1      | 27 | 5  |
| 92F028 20    | 8.2  | CW   | 50  | DR   | 40 | FD   | 10 |      | 0  | 18  | 6      | 23 | 10 |
| 92F028 10    | 3.5  | FD   | 60  | DR   | 30 | CW   | 10 |      | 0  | 18  | 9      | 32 | 10 |
| 92F028 49    | 19.8 | FD   | 60  | DR   | 30 | CW   | 10 |      | 0  | 18  | 9      | 32 | 10 |
| 92F028 19    | 3.1  | PW   | 90  | DR   | 10 |      | 0  |      | 0  | 18  | 2      | 12 | 10 |
| Regeneration | 79.0 |      |     |      |    |      |    |      |    |     |        |    |    |

| Polygon    | AREA | SP 1 | %   | SP 2 | %  | SP 3 | %  | SP 4 | %  | AGE | HEIGHT | SI   | CC |
|------------|------|------|-----|------|----|------|----|------|----|-----|--------|------|----|
| 92F029 11  | 1.6  | HW   | 70  | FD   | 30 |      | 0  |      | 0  | 54  | 0      | 26.3 | 70 |
| 92F029 14  | 0.1  | HW   | 70  | FD   | 30 |      | 0  |      | 0  | 54  | 0      | 24   | 70 |
| 92F038 436 | 1.1  | HW   | 70  | FD   | 30 |      | 0  |      | 0  | 59  | 20     | 19   | 60 |
| 92F038 468 | 2.7  | HW   | 70  | FD   | 30 |      | 0  |      | 0  | 59  | 21     | 21   | 70 |
| 92F029 12  | 0.3  | FD   | 100 |      | 0  |      | 0  |      | 0  | 60  | 0      | 20   | 50 |
| 92F028 113 | 1.7  | FD   | 50  | DR   | 30 | CW   | 20 |      | 0  | 64  | 39     | 36   | 70 |
| 92F028 119 | 1.7  | FD   | 40  | HW   | 30 | DR   | 30 |      | 0  | 64  | 34     | 32   | 70 |
| 92F028 30  | 2.8  | FD   | 70  | PL   | 30 |      | 0  |      | 0  | 64  | 21     | 20   | 60 |
| 92F028 32  | 1    | FD   | 50  | PL   | 50 |      | 0  |      | 0  | 64  | 21     | 20   | 60 |
| 92F028 34  | 1.2  | FD   | 80  | CW   | 10 | PL   | 10 |      | 0  | 64  | 24     | 22   | 50 |
| 92F038 460 | 1.7  | FD   | 80  | PL   | 20 |      | 0  |      | 0  | 64  | 21     | 20   | 60 |
| 92F028 102 | 4.6  | FD   | 50  | CW   | 30 | DR   | 20 |      | 0  | 69  | 46     | 40   | 70 |
| 92F028 103 | 1.4  | FD   | 50  | DR   | 30 | HW   | 20 |      | 0  | 69  | 35     | 31   | 70 |
| 92F028 104 | 2.3  | FD   | 50  | DR   | 30 | HW   | 20 |      | 0  | 69  | 35     | 31   | 70 |
| 92F028 107 | 9.9  | FD   | 50  | DR   | 30 | HW   | 20 |      | 0  | 69  | 35     | 31   | 70 |
| 92F028 108 | 1.9  | FD   | 60  | CW   | 20 | HW   | 20 |      | 0  | 69  | 38     | 33   | 60 |
| 92F028 112 | 3.3  | FD   | 30  | CW   | 30 | DR   | 20 | HW   | 20 | 69  | 40     | 35   | 70 |
| 92F028 118 | 8.2  | FD   | 50  | DR   | 20 | HW   | 20 | CW   | 10 | 69  | 40     | 35   | 80 |
| 92F029 4   | 9.8  | FD   | 100 |      | 0  |      | 0  |      | 0  | 76  | 0      | 27   | 50 |
| 92F028 164 | 1.2  | PL   | 70  | FD   | 30 |      | 0  |      | 0  | 78  | 29     | 25   | 60 |
| 92F028 163 | 25.3 | FD   | 100 |      | 0  |      | 0  |      | 0  | 79  | 33     | 27   | 70 |
| 92F028 166 | 0.7  | FD   | 100 |      | 0  |      | 0  |      | 0  | 79  | 33     | 27   | 70 |
| 92F029 10  | 1.4  | FD   | 80  | PL   | 10 | DR   | 10 |      | 0  | 79  | 0      | 26   | 50 |
| 92F029 15  | 0.9  | FD   | 90  | HW   | 10 |      | 0  |      | 0  | 80  | 0      | 27   | 50 |
| Immature   | 86.8 |      |     |      |    |      |    |      |    |     |        |      |    |

| Polygon               | AREA  | SP 1 | %   | SP 2 | %  | SP 3 | %  | SP 4 | %  | AGE | HEIGHT | SI | CC |
|-----------------------|-------|------|-----|------|----|------|----|------|----|-----|--------|----|----|
| 92F028 173            | 17    | FD   | 90  | PL   | 10 |      | 0  |      | 0  | 81  | 34     | 28 | 50 |
| 92F028 3              | 1     | CW   | 70  | HW   | 30 |      | 0  |      | 0  | 84  | 0      | 19 | 50 |
| 92F028 35             | 7     | PL   | 90  | FD   | 10 |      | 0  |      | 0  | 84  | 23     | 19 | 60 |
| 92F028 38             | 8.2   | PL   | 70  | FD   | 30 |      | 0  |      | 0  | 84  | 25     | 21 | 60 |
| 92F028 26             | 1.4   | FD   | 70  | CW   | 10 | HW   | 10 | PL   | 10 | 89  | 21     | 16 | 60 |
| 92F028 29             | 2.5   | FD   | 70  | PL   | 30 |      | 0  |      | 0  | 89  | 25     | 20 | 70 |
| 92F028 41             | 4.1   | FD   | 70  | PL   | 30 |      | 0  |      | 0  | 89  | 27     | 22 | 70 |
| 92F028 42W            | 0.1   | FD   | 70  | PL   | 20 | CW   | 10 |      | 0  | 89  | 27     | 22 | 60 |
| 92F028 165            | 3.3   | PL   | 90  | FD   | 10 |      | 0  |      | 0  | 98  | 28     | 22 | 60 |
| 92F028 170            | 0.2   | PL   | 80  | FD   | 20 |      | 0  |      | 0  | 98  | 30     | 24 | 70 |
| 92F029 1              | 5.1   | FD   | 100 |      | 0  |      | 0  |      | 0  | 99  | 0      | 24 | 50 |
| 92F028 17             | 1.9   | FD   | 90  | HW   | 10 |      | 0  |      | 0  | 105 | 27     | 20 | 70 |
| 92F028 48             | 1     | FD   | 90  | HW   | 10 |      | 0  |      | 0  | 105 | 30     | 22 | 80 |
| 92F028 122            | 1.9   | CW   | 40  | FD   | 30 | DR   | 20 | HW   | 10 | 109 | 37     | 25 | 60 |
| 92F038 454            | 2.4   | CW   | 40  | HW   | 30 | FD   | 30 |      | 0  | 109 | 16     | 11 | 40 |
| 92F028 120            | 0.5   | FD   | 50  | CW   | 30 | DR   | 20 |      | 0  | 109 | 42     | 29 | 60 |
| 92F028 27             | 8.4   | FD   | 90  | CW   | 10 |      | 0  |      | 0  | 109 | 39     | 28 | 60 |
| 92F028 28             | 2.2   | FD   | 60  | CW   | 20 | PL   | 20 |      | 0  | 109 | 22     | 16 | 40 |
| 92F028 3009           | 1.9   | FD   | 80  | CW   | 20 |      | 0  |      | 0  | 109 | 30     | 21 | 60 |
| 92F028 31             | 0.5   | FD   | 80  | CW   | 20 |      | 0  |      | 0  | 109 | 30     | 21 | 60 |
| 92F038 450            | 5.9   | FD   | 60  | CW   | 30 | HW   | 10 |      | 0  | 109 | 33     | 24 | 70 |
| 92F038 456            | 1.6   | FD   | 90  | CW   | 10 |      | 0  |      | 0  | 109 | 39     | 28 | 60 |
| 92F038 457            | 0.3   | FD   | 90  | CW   | 10 |      | 0  |      | 0  | 109 | 39     | 28 | 60 |
| 92F038 459            | 2.1   | FD   | 80  | CW   | 20 |      | 0  |      | 0  | 109 | 30     | 21 | 60 |
| 92F038 461            | 0.6   | FD   | 80  | CW   | 20 |      | 0  |      | 0  | 109 | 30     | 21 | 60 |
| 92F028 25             | 4.4   | PL   | 70  | FD   | 30 |      | 0  |      | 0  | 109 | 30     | 23 | 70 |
| 92F028 3005           | 0.1   | FD   | 82  | CW   | 10 | HW   | 8  |      | 0  | 113 | 50     | 35 | 70 |
| 92F028 3006           | 9.3   | FD   | 82  | CW   | 10 | HW   | 8  |      | 0  | 113 | 50     | 35 | 70 |
| 92F028 3007           | 8.6   | FD   | 82  | CW   | 10 | HW   | 8  |      | 0  | 113 | 50     | 35 | 70 |
| 92F028 39             | 7.2   | FD   | 82  | CW   | 10 | HW   | 8  |      | 0  | 113 | 50     | 35 | 70 |
| 92F028 3004           | 2.1   | FD   | 80  | CW   | 20 |      | 0  |      | 0  | 114 | 37     | 26 | 60 |
| 92F028 40             | 2.5   | FD   | 80  | CW   | 20 |      | 0  |      | 0  | 114 | 37     | 26 | 60 |
| 92F028 43             | 1.7   | FD   | 80  | CW   | 20 |      | 0  |      | 0  | 114 | 37     | 26 | 60 |
| 92F028 24             | 19.7  | FD   | 80  | HW   | 10 | CW   | 10 |      | 0  | 129 | 47     | 31 | 60 |
| 92F028 37W            | 0.4   | FD   | 90  | CW   | 10 |      | 0  |      | 0  | 129 | 36     | 24 | 60 |
| 92F028 44             | 0.3   | FD   | 90  | CW   | 10 |      | 0  |      | 0  | 129 | 36     | 24 | 60 |
| 92F038 455            | 4     | FD   | 60  | CW   | 30 | HW   | 10 |      | 0  | 129 | 45     | 30 | 60 |
| 92F028 22             | 6.9   | FD   | 90  | CW   | 10 |      | 0  |      | 0  | 130 | 50     | 33 | 70 |
| 92F028 106            | 5     | FD   | 80  | HW   | 20 |      | 0  |      | 0  | 133 | 51     | 33 | 70 |
| 92F028 110            | 11.4  | FD   | 70  | DR   | 20 | HW   | 10 |      | 0  | 133 | 51     | 33 | 70 |
| Mature/<br>Overmature | 164.7 |      |     |      |    |      |    |      |    |     |        |    |    |

| Polygon             | AREA        | SP 1      | %   | SP 2 | %  | SP 3 | %  | SP 4 | %  | AGE | HEIGHT | SI | CC |
|---------------------|-------------|-----------|-----|------|----|------|----|------|----|-----|--------|----|----|
| 92F028 21           | 1.5         | DR        | 70  | CW   | 15 | FD   | 12 | HW   | 3  | 16  | 12     | 23 | 20 |
| 92F028 167          | 1.4         | DR        | 80  | FD   | 20 |      | 0  |      | 0  | 58  | 24     | 23 | 80 |
| 92F028 121          | 2.9         | DR        | 60  | FD   | 20 | HW   | 20 |      | 0  | 60  | 34     | 33 | 80 |
| 92F028 126          | 3.7         | DR        | 90  | FD   | 10 |      | 0  |      | 0  | 60  | 34     | 33 | 90 |
| 92F028 105          | 1.3         | DR        | 100 |      | 0  |      | 0  |      | 0  | 64  | 30     | 29 | 80 |
| 92F028 109          | 1.9         | DR        | 80  | FD   | 20 |      | 0  |      | 0  | 64  | 29     | 27 | 80 |
| 92F028 111          | 5           | DR        | 80  | CW   | 10 | FD   | 10 |      | 0  | 64  | 30     | 29 | 80 |
| 92F028 114          | 1.3         | DR        | 100 |      | 0  |      | 0  |      | 0  | 64  | 30     | 29 | 80 |
| 92F028 115          | 1.3         | DR        | 60  | CW   | 20 | MB   | 10 | FD   | 10 | 64  | 30     | 29 | 60 |
| 92F028 116          | 1.1         | DR        | 80  | MB   | 10 | FD   | 10 |      | 0  | 64  | 30     | 29 | 80 |
| 92F028 123          | 1.9         | DR        | 50  | FD   | 20 | CW   | 20 | HW   | 10 | 64  | 32     | 31 | 80 |
| 92F028 124          | 2.3         | DR        | 80  | CW   | 10 | HW   | 10 |      | 0  | 64  | 30     | 28 | 80 |
| 92F028 172          | 2.1         | DR        | 80  | FD   | 20 |      | 0  |      | 0  | 68  | 30     | 28 | 70 |
| 92F028 175          | 3.4         | DR        | 70  | FD   | 20 | PL   | 10 |      | 0  | 68  | 28     | 26 | 80 |
| 92F028 50           | 3           | DR        | 100 |      | 0  |      | 0  |      | 0  | 70  | 29     | 27 | 80 |
| <b>Deciduous</b>    | <b>34.1</b> |           |     |      |    |      |    |      |    |     |        |    |    |
| 92F028 18           | 2.5         | Hydro RoW |     |      |    |      |    |      |    |     |        |    |    |
| 92F028 23           | 5.1         | Pit       |     |      |    |      |    |      |    |     |        |    |    |
| 92F028 161          | 0.7         | swamp     |     |      |    |      |    |      |    |     |        |    |    |
| 92F028 169          | 5.3         | swamp     |     |      |    |      |    |      |    |     |        |    |    |
| 92F038 305          | 0.3         | swamp     |     |      |    |      |    |      |    |     |        |    |    |
| 92F029 19           | 1           | Hydro RoW |     |      |    |      |    |      |    |     |        |    |    |
| 92F028 301          | 0.4         | swamp     |     |      |    |      |    |      |    |     |        |    |    |
| 92F028 302          | 0.8         | swamp     |     |      |    |      |    |      |    |     |        |    |    |
| 92F028 303          | 0.1         | swamp     |     |      |    |      |    |      |    |     |        |    |    |
| 92F028 304          | 0.1         | swamp     |     |      |    |      |    |      |    |     |        |    |    |
| <b>Non Forested</b> | <b>16.3</b> |           |     |      |    |      |    |      |    |     |        |    |    |

**APPENDIX 5**  
**AAC Rationale**

## **Proposed Allowable Annual Cut for Woodlot Licence W0097**

December 2008

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### **Model Information**

The program used for timber supply simulations of woodlot licences is WOODLOT 3.2 (March 29, 2007), developed by Enfor Consultants Ltd. in consultation with the Ministry of Forests, Resource Tenures and Engineering Branch. A timber supply model such as WOODLOT assists licensees in determining how a forest provides a harvest flow or supply of timber over time given the inventory data (polygons) and a specific set of forest management objectives.

The model uses mathematical techniques to simulate the growth of a woodlot forest, and harvest the woodlot over a 250 year planning horizon. Timber volumes are derived from natural and managed stand yield tables, and accounted for over time. The harvest calculation uses a series of iterations of growth and cut at an optimal harvest rate for the polygons.

Natural and unmanaged stand volumes are projected using Variable Density Yield Prediction (VDYP) tables. VDYP incorporates losses due to decay, waste and breakage. The volume adjustment factor (VAF) can be altered to more accurately reflect the inventory or cruise data for these unmanaged polygons. However, because no inventory or cruise data is available at this time, the VAF was not adjusted for any of the polygons.

Managed stand volumes, including the second and subsequent rotations, are estimated using Table Interpolation Program for Stand Yield (TIPSY). In TIPSY, Operational Adjustment Factors (OAFs) are applied to account for losses in timber volume due to unproductive areas (OAF 1) and age dependent factors such as disease, decay, waste and breakage (OAF 2). OAF 1 is set at the standard 15% and OAF 2 is set at the standard 5%.

WOODLOT creates a non-declining even flow harvest rate, calculated to be sustainable over a 250 year planning horizon. The minimum harvesting standards for each polygon were set at a minimum harvest volume of 300 m<sup>3</sup>/ha, a minimum diameter at breast height of 25 cm and a minimum rotation age of 70 years. Regeneration delay is 1 year. Oldest stands are harvested first.

### **Roads**

No roads have been excluded from the gross area of the polygons. Palmer Road, Carson Road, the majority of Tralee Road and a small portion of Marples Road lie outside the woodlot. An estimated 3.4 ha (0.9%) of the woodlot is currently identified as permanent access (gravel and dirt roads). Blocks F (private land) and G (predominantly older plantations) contain the most permanent access at 2.1% and 2.7% respectively. There is currently no permanent access in Blocks C and D. It is anticipated that existing roads will provide some of the access to future

cutblocks in all Blocks. A netdown of 7% for existing and future permanent access is incorporated into the AAC calculation, making the AAC a conservative estimate.

### **Biodiversity**

Current legislation requires 8% of the Woodlot Licence area to be protected as Wildlife Tree Patches (WTPs) to maintain biodiversity. Wildlife tree patches will be designated around wetlands, adjacent fish stream channels, in sensitive areas, and in older forest types to protect these non-timber resources as well as habitat diversity. These wildlife tree patches may also protect potential red and blue listed plant and animal communities.

Once the inventory of the woodlot is completed and better information is collected on the suitability of the current WTPs, and all streams within the expansion area are classified, additional or replacement WTPs will be designated. A Wildlife Tree strategy will be prepared during operational planning and incorporated into the Woodlot License Plan.

A netdown of 8% has been incorporated into the AAC calculation to account for biodiversity and the Wildlife Tree Retention strategy.

### **Deciduous Stands**

The previous Management Plan and AAC calculation did not exclude deciduous from the productive land base because there was little deciduous inventory in the original woodlot licence area and private land.

Approximately 3.5 ha of deciduous leading stands have been added to the woodlot licence area with the inclusion of the expansion area. During the inventory of the expansion area the merchantability of the additional deciduous stands will be assessed.

Because the individual polygons are generally small in size and it is expected that these will be harvested when the adjacent coniferous stands are harvested, the deciduous stands have been included in the AAC.

### **Proposed AAC**

An allowable annual cut of 2200 m<sup>3</sup>/year is proposed. Rotation age, minimum diameter and volume limits reflect those used in the Arrowsmith TSA. Deciduous stands have been included in the productive land base and planting of a maximum of 4.9 ha of deciduous stands is included in the AAC calculation.

Net downs for roads are conservative and are expected to be reduced within the next ten years as access to the majority of the woodlot is established. WTPs reflect current legislation. The regeneration delay reflects the licensee's current practices. Growth of new plantations reflects

W0097 proposed AAC

current legislation requiring the use of Class A seedlings with a 5% genetic worth (GW) be planted on the majority of harvested openings in the future. A 5% GW was not included in current plantations. Two NSR polygons are excluded from the AAC calculation.

A number of runs of the model were prepared, providing a range in harvest rates of 2221 m<sup>3</sup>/year for harvesting the oldest stands first, to a high of 2321 m<sup>3</sup>/year for harvesting stands closest to harvest age while still meeting the harvest parameters. Runs of the model also included excluding 5% GW in future plantations which resulted in harvest rates ranging from 2181 m<sup>3</sup>/year to 2327 m<sup>3</sup>/year..

The proposed AAC of 2200 m<sup>3</sup>/year is slightly less than that generated by the WOODLOT model because the licensee believes that some of the polygons are less than fully stocked and until a reinventory is completed for the top-up areas, an accurate VAF can not be determine for the unmanaged immature and mature stands.

**APPENDIX 6**  
**Advertisement of Management Plan**  
**for Public Review**



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### LEGAL NOTICES

### Woodlot Licence W0097

### Draft Management Plan #2 Draft Woodlot Licence Plan

039-102

Bruce M. Carpenter, hereby gives notice that the draft Management Plan #2  
(2009-2019) and draft Woodlot Licence Plan (WLP) for Woodlot Licence  
W0097 located in the Parksville, Errington and Coombs areas is available for  
public review.

The purpose of the draft Management Plan is to describe the known timber  
and non-timber resources of the area, outline the forest management objec-  
tives, and state the forest management guidelines that are to be followed.

The purpose of the draft WLP is to describe where harvesting will occur, iden-  
tifies the forest management strategies to meet government objectives, and the  
performance requirements that are to be met.

If approved by the Ministry of Forests and Range District Manager, South  
Island Forest District, both plans may apply for a term of 10 years from the  
date of approval.

Both plans are available for public comment and review through the South  
Island Forest District's website at [www.for.gov.bc.ca/dsi](http://www.for.gov.bc.ca/dsi) under "Woodlot Pro-  
gram." Alternative arrangements for viewing the plan can be made by contact-  
ing Bruce Carpenter, licensee, at (250) 248-9764. Written comments on the  
draft plans should be mailed to Nancy Pezel, Islands West Forestry Ltd., 173  
W. Hoylake Road, Qualicum Beach, BC, V9K 1K3, by January 30th, 2009.

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The News

**APPENDIX 7**  
**Review and Comment**

**islandswest**

---

**From:** "Neill, Emma FOR:EX" <Emma.Neill@gov.bc.ca>  
**To:** "Islands West" <islandswest@shaw.ca>  
**Sent:** Friday, March 27, 2009 2:05 PM  
**Subject:** RE: W0097 MP

Hi Nancy.

I have no significant issues with the Management Plan:

May want to recognise that Nanoose First Nation has represented themselves to government as a Douglas Treaty First Nation and therefore they have treaty rights, not aboriginal interests.

In the portion that talks to access - I believe there is a gazetted access trail into Block H, so technically there is Crown access - whether it is suitable or whether it is economical to construct is another issue.

I have just sent out reminder letters to First Nations and will see if anything comes of that, I have asked them to contact me directly if they have issues - the letter says I am expecting the final plan shortly and that it will be considered by the District Manager at the end of April.

Have a good weekend.

Emma Neill  
Tenures Forester  
South Island Forest District

Phone: (250) 731-3022  
Fax: (250) 731-3010

**islandswest**

---

**From:** "Telfer, Kevin ENV:EX" <Kevin.Telfer@gov.bc.ca>  
**To:** "Islands West" <islandswest@shaw.ca>  
**Sent:** Wednesday, March 11, 2009 4:24 PM  
**Attach:** ATT00011.htm  
**Subject:** RE: W0097 MP Map #2

Nancy, once again, thanks for sending me the map files.

I'm still playing catch-up after my father passed away a month ago so will not be able to give you comprehensive comments on W0097. However, as this was one of the most comprehensive woodlot management plan submissions I've seen to date, I'd have to say that the majority of points I would have raised regarding wildlife and biodiversity were already mentioned in sections 3.1 "Wildlife" and 3.2 "Biodiversity and Old Growth" in the report.

These issues are:

Wildlife

Pacific Water Shrew

Northern Goshawk

Marbled Murrelet

Keens' Long-eared Myotis,

Townsend's Big-eared bat

Peregrine falcon

Western Screech owl

Vancouver Island Ermine

Great Blue Heron & Bald Eagle (appropriate nesting tree supply)

Bear den retention

Biodiversity and Old Growth

Several plant communities in the CDF mm and CWHxm are red listed.

Conservation strategies should be developed, which retain old forest, and conserve/enhance these attributes in second growth stands.

Once again, I'd like to thank you for a comprehensive submission, which will be retained by MOE for information purposes.

Kevin L. Telfer C.D., R.P.F.

Ecosystem Biologist

BC Ministry of Environment

2080A-Labieux Road, Nanaimo, B.C. V9T 6J9

tel. (250) 751-3222 fax (250) 751-3208

mailto:Kevin.Telfer@gov.bc.ca

http://MOE.gov.bc.ca <http://moe.gov.bc.ca/>

From: Islands West [mailto:islandswest@shaw.ca]  
Sent: Wednesday, February 11, 2009 8:54 AM  
To: Telfer, Kevin ENV:EX  
Subject: W0097 MP Map #2

Map #2 attached

----- Original Message -----

From: Telfer, Kevin ENV:EX  
<mailto:Kevin.Telfer@gov.bc.ca>  
To: Islands West <mailto:islandswest@shaw.ca>  
Cc: Neill, Emma FOR:EX <mailto:Emma.Neill@gov.bc.ca>  
Sent: Wednesday, February 11, 2009 8:25 AM  
Subject: RE: W0097 Management Plan review reminder

Thanks Nancy

There has been a problem with the MOFR woodlot website, and I've been unable to get a copy from them before the deadline. Thanks for the extension. Would you happen to have a paper copy?

Thanks

Kevin L. Telfer C.D., R.P.F.  
Ecosystem Biologist  
BC Ministry of Environment  
2080A-Labieux Road, Nanaimo, B.C. V9T 6J9  
tel. (250) 751-3222 fax (250) 751-3208  
mailto:Kevin.Telfer@gov.bc.ca  
<http://MOE.gov.bc.ca>

---

From: Islands West [mailto:islandswest@shaw.ca]  
Sent: Wednesday, February 11, 2009 7:41 AM  
To: Telfer, Kevin ENV:EX  
Subject: W0097 Management Plan review reminder

Hi Kevin,

Just a friendly reminder that the review period for the Management Plan for W0097 officially ended January 30th. However, because of holidays etc. the plan didn't get onto the South Island website until mid January. So if you could send any comments you have by the end of February, that would be fine. Thanks.

Regards,  
Nancy Pezel

\*\*\*\*\*  
\*\*\*\*\*

Islands West Forestry  
173 West Hoylake Road, Qualicum Beach, B.C.  
V9K 1K3  
tel: (250) 752-8896 fax: (250) 752-8372