

# LAUGHLIN LAKE

## Baseline Report

**1** Attached to and forming part of the Covenant Agreement between the GALIANO CONSERVANCY ASSOCIATION, Owner, and the ISLANDS TRUST FUND, Covenant Holder, and the HABITAT ACQUISITION TRUST, Covenant Holder, dated the XX day of XXXXXX, 200X.

## **2 Acknowledgment**

2.1 The Owner hereby acknowledges and agrees that the following is an accurate description of the Property, as of the reference date of this Agreement.

## **3 Property Location and description**

3.1 The property is located on Galiano Island, one of the southern Gulf Islands in the Strait of Georgia, British Columbia.

3.2 This 27 acre parcel of land falls within the Capital Regional District. The property is legally described as Remnant Parcel 'D' of District Lot 66, Galiano Island, Cowichan District, Parcel Identifier 003-573-583.

3.3 The property is situated near the top of Vinyard Way approximately 16 km (as the crow flies) from the Sturdies Bay Ferry Terminal.

3.4 The parcel has a current Land Use Designation in the Galiano Island Official Community Plan of Rural 2 Zone. The principal land use in this zone is residential.

3.5 Under Land Use Bylaw 127, 1999, the following uses are permitted on Rural 2 zoned land:

- 1) dwellings
- 2) cottages
- 3) home occupations
- 4) farm use

3.6 Land Use Bylaw 127, 1999, permits one dwelling on each Rural 2 zoned lot, and one additional dwelling in respect of each 4 hectares of lot area over 4 hectares. Remnant Parcel 'D' of District Lot 66 is limited to only one dwelling according to average lot size restrictions described in subdivision plan VIP62118.

## **4 Significance of the Land and Amenities**

4.1 The Parcel is characterized by several significant natural amenities including the largest shallow water lake on Galiano Island, mature Western Red Cedar and Douglas-fir forest

including several small patches of the provincially red listed plant communities; Western Red Cedar / Vanilla Leaf, and; Western Red Cedar, Douglas-fir / Oregon Beaked Moss. The parcel is a significant component of the Mid-Island Protected Areas Network, which spans the entire width of Galiano Island, the Trincomali Channel and Wallace Island. The lake comprises the headwaters of Greig Creek, which are currently the focus of a coho salmon re-introduction program and a variety of stream restoration activities.

## **5 The Management Vision**

The management vision for this parcel is to protect, preserve, conserve, maintain, enhance or restore the Land and the Amenities in a Natural State; and to prevent any occupation or use of the Land that will impair or interfere with the Natural State.

## **6 Site History**

**\*Please refer to the “Laughlin Lake Management Plan” (May 2003) ‘Section 3’ for information regarding the history of the Laughlin Lake site.**

## **7 List of buildings, structures and other improvements**

7.1 Presently there are no structures located on this property.

## **8 Biological and Geographical Inventory**

**Please refer to Section ‘4’ of the “Laughlin Lake Management Plan” (May 2003) for information regarding Geology, Soils, Climate, Limnology, Hydrology and Fauna.**

8.1 Ecosystem Types: The property is located within the Coastal Douglas-fir Biogeoclimatic zone. Within British Columbia, the Coastal Douglas-fir zone is considered an “Ecosystem at Risk”. Due to its diverse topography, extensive beaver activity and history of human disturbance, Remnant Parcel D of District Lot 66 encompasses a variety of ecosystem types including wetland areas, forests of varying successional status, ridges and heavily impacted clearings. Of significant interest to this covenant are any locally, regionally or provincially rare or endangered species and ecosystems. On the Laughlin Lake property these include: shallow water wetland; transitional open water, emergent deep and shallow water marshes (particularly where Bolander’s rush (*Juncus bolanderi*) is present), and; Western redcedar (*Thuja plicata*) / Vanilla leaf (*Achyls triphylla*) plant communities on northeast facing slopes near the lakeshore. Patches of mature forest exhibiting characteristics of Douglas-fir / Grand fir / Oregon grape (04) and Douglas-fir / Salal (01) site series are also present on the property. A total of sixty-six ecosystem types were identified on Remnant Parcel D. These ecosystems are spatially represented on Map 1, included with this report. Photographs of most of these ecosystems can be found in Appendix 1 of this report.

The format for the description of ecosystem types has been adapted from two primary sources:

1. The Field Manual for Describing Terrestrial Ecosystems - Site and Vegetation forms (Land Management Handbook #25, BC Ministry of Environment, Lands, and Parks / BC Ministry of Forests, 1998).
2. The Canadian Wetland Classification System, Second Edition. 1997. National Wetlands Working Group. Wetlands Research Centre, University of Waterloo.

Wetland ecosystems are described using the Canadian Wetland Classification System, followed by a list of dominant species and their associated percent covers.

‘Riparian’, ‘Forest’, ‘Heavily Impacted’ and ‘Road / Trail’ ecosystems are classified according to their structural stage, site series wherever possible, aspect, slope, and any other significant defining attributes. These ecosystems were also characterized with a plant list and associated percent covers (organized by vegetation layer where possible) and field notes.

### 8.1.1 Wetland Ecosystems

#### 8.1.1.1 Linked Basin Shallow Water

Grass-leaved pondweed <i>Potamogeton gramineus</i>	n/a%
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#### 8.1.1.2 Transitional Open Water Marsh

Grass-leaved pondweed <i>Potamogeton gramineus</i>	n/a% > 8.1.1.1
Unknown 1	n/a
Unknown 2	n/a
Unknown 3	n/a

#### 8.1.1.3 Emergent Deep Marsh

Grass-Leaved Pondweed	50%
Common duckweed <i>Lemna minor</i>	7%
Narrow-leaved bur-reed <i>Sparganium angustifolium</i>	5%
Common rush	2%

#### 8.1.1.4 Emergent Deep Marsh

Common duckweed	30%
Grass-Leaved Pondweed	20%
Narrow-leaved bur-reed	10%
Water smartweed	P <sup>1</sup>
Sitka sedge <i>Carex sitchensis</i>	P

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<sup>1</sup> Species is present but abundance is estimated to be less than 1%.

8.1.1.5 Shallow Marsh	
Cattail <i>Typha latifolia</i>	60%
Common rush <i>Juncus effusus</i>	10%
Reed canary grass <i>Phalaris arundinacea</i>	20%
8.1.1.6 Shallow Marsh	
Narrow-leaved bur-reed	35%
Tall mannagrass <i>Glyceria elata</i>	25%
Reed canary grass	18%
8.1.1.7 Shallow Marsh	
Canada Thistle <i>Cirsium arvense</i>	35%
Reed canary grass	20%
Narrow-leaved bur-reed	10%
8.1.1.8 Shallow Marsh	
Creeping spike-rush <i>Eleocharis palustris</i>	35%
Narrow-leaved bur-reed	25%
Cattail	10%
Tall mannagrass	6%
Slough sedge	P
8.1.1.9 Shallow Marsh	
Narrow-leaved bur-reed	30%
Common rush	20%
Douglas' water-hemlock <i>Cicuta douglasii</i>	7%
Western dock <i>Rumex occidentalis</i>	3%
Field mint	2%
Small-flowered forget-me-not <i>Myosotis laxa</i>	1%
Spreading rush <i>Juncus supiniformis</i>	1%
8.1.1.10 Shallow Marsh	
Narrow-leaved bur-reed	30%
Water smartweed <i>Polygonum amphibium</i>	10%
Common duckweed	5%
8.1.1.11 Shallow Marsh	
Common rush	30%
Reed canary grass	30%
Field mint <i>Mentha arvensis</i>	2%
Slough sedge	P
Kentucky bluegrass	P
Fireweed <i>Epilobium angustifolium</i>	P
Western dock	P
Scotch broom <i>Cytisus scoparius</i>	P
Small-flowered bulrush	P

8.1.1.12 Shallow Marsh	
Kentucky bluegrass <i>Poa pratensis</i>	15%
Reed canary grass	20%
Common rush	5%
Small-flowered bulrush	P
Quackgrass <i>Agropyron repens</i>	P
Common velvet grass	P
American brooklime	P
Field mint	P
Narrow-leaved bur-reed	P
Slough sedge	P
Common horsetail	P
8.1.1.13 Shallow Marsh	
Small-flowered bulrush <i>Scirpus microcarpus</i>	60%
Common rush	15%
Slough sedge <i>Carex obnupta</i>	10%
Western trumpet honeysuckle <i>Lonicera ciliosa</i>	P
8.1.1.14 Shallow Marsh	
Reed canary grass	80%
Small-flowered bulrush	10%
Slough sedge	5%
8.1.1.15 Shallow Marsh	
Narrow-leaved bur-reed	20%
Creeping spike-rush	7%
Reed canary grass	3%
Floating-leaved pondweed	10%
Small-flowered bulrush	3%
Tall mannagrass	3%
8.1.1.16 Shallow Marsh	
American brooklime <i>Veronica beccabunga ssp. Americana</i>	30%
Reed canary grass	15%
Bolander's rush <i>Juncus bolanderi</i>	10%
Creeping spike-rush <i>Eleocharis palustris</i>	P
8.1.1.17 Shallow Marsh	
Small-flowered bulrush	60%
Reed canary grass	12%
Skunk cabbage <i>Lysichiton americanum</i>	4%
Field mint	P
Kentucky bluegrass	P

8.1.1.18 Shallow Marsh	
Slough sedge <i>Carex obnupta</i>	85%
Skunk cabbage	10%
Reed canary grass	10%
Hardhack <i>Spirea douglasii</i> spp. <i>Douglasii</i>	1%
Beaked sedge <i>Carex rostrata</i>	P
Small bedstraw <i>Galium trifidum</i>	P
Pointed rush <i>Juncus oxymeris</i>	P
Tall mannagrass	P
Western dock	P
Bolander's rush	P
Small-flowered forget-me-not	P
8.1.1.19 Shallow Marsh	
Narrow-leaved bur-reed	25%
Common duckweed	13%
Water smartweed	1%
Unknown horetail-like aquatic	n/a
Unknown leafy aquatic	n/a
8.1.1.20 Shallow Marsh	
Common rush	30%
Common velvet grass <i>Holcus lanatus</i>	20%
Field mint	10%
Reed canary grass	8%
Marsh cinquefoil <i>Potentilla palustris</i>	3%
Musk-flower <i>Mimulus moschatus</i>	2%
Salal	P
Fireweed <i>Epilobium angustifolium</i>	P
Slough sedge	P
8.1.1.21 Shallow Marsh	
Creeping spike-rush	75%
8.1.1.22 Shallow Marsh	
Reed canary grass	35%
Small-flowered bulrush	12%
Field mint	8%
Slough sedge	P
8.1.1.23 Shallow Marsh	
Reed canary grass	35%
Field mint	8%

	Small-flowered forget-me-not <i>Myosotis laxa</i>	6%
	Narrow-leaved bur-reed	3%
	American brooklime	1%
	Tall mannagrass	P
	Water smartweed	P
	Marsh willow-herb <i>Epilobium watsonii</i>	P
8.1.1.24	Shallow Marsh	
	Small-flowered bulrush	20%
	Pacific sanicle <i>Sanicula graveolens</i>	7%
	Salmonberry <i>Rubus spectabilis</i>	6%
	Lady fern <i>Athyrium filix-femina</i>	5%
	Bracken fern <i>Pteridium aquilinum</i>	3%
	Common horsetail <i>Equisetum arvense</i>	3%
8.1.1.25	Shallow Marsh	
	Small-flowered bulrush	45%
	Kentucky bluegrass	25%
	Salmonberry	10%
	Orchard grass <i>Dactylis glomerta</i>	10%
	Common horsetail	P
8.1.1.26	Shallow Marsh	
	Small-flowered forget-me-not	35%
	Narrow-leaved bur-reed	17%
	Common rush	12%
8.1.1.27	Shallow Marsh	
	Small-flowered bulrush	80%
	Common horsetail <i>Equisetum arvense</i>	15%
	Kentucky bluegrass	5%
8.1.1.28	Shallow Marsh	
	Reed Canary Grass	40%
	Common rush	12%
	Canada thistle <i>Cirsium arvense</i>	7%
	Small flowered bullrush	7%
8.1.1.29	Shallow Marsh	
	Douglas-fir <i>Pseudotsuga menziesii</i> (branch cover only)	50%
	Slough sedge	25%
	Reed canary grass	20%
	Common horsetail	12%
8.1.1.30	Shallow Marsh	

Western redcedar <i>Thuja plicata</i> (branch cover only)	40%
Field mint	10%
Reed canary grass	5%
Narrow-leaved bur-reed	2%
<b>8.1.2 Riparian Ecosystems:</b>	
8.1.2.1 Herb Dominated, Recent heavy disturbance, fluctuating water table, seasonal floodplain	
Stinging nettle <i>Urtica dioica</i>	55%
Common horsetail	38%
Kentucky bluegrass	8%
8.1.2.2 Shrub / Herb Dominated, Recent Heavy Disturbance	
Common horsetail	80%
Western redcedar	60%
Kentucky bluegrass	12%
8.1.2.3 Shrub / Herb Dominated, Recent Heavy Disturbance, fluctuating water table	
Red alder <i>Alnus rubra</i>	32%
Common rush	28%
Kentucky bluegrass	12%
Small-flowered wood-rush <i>Luzula parviflora</i>	6%
8.1.2.4 Shrub / Herb Dominated	
Kentucky bluegrass	35%
Salmonberry	15%
Salal <i>Gaultheria shallon</i>	7%
Orchard grass <i>Dactylis glomerta</i>	7%
Sword fern <i>Polystichum munitum</i>	P
Bracken fern	P
8.1.2.5 Shrub / Herb, Western redcedar / Skunk Cabbage (11) Site Series, flat (also shows characteristics of Western redcedar / Slough sedge (14) Site Series due to fluctuating water table)	
Slough sedge	30%
Red alder	25%
Sword fern <i>Polystichum munitum</i>	17%
Western redcedar	15%
Salal	5%
Skunk cabbage <i>Lysichiton americanum</i>	5%
Lady fern <i>Athyrium filix-femina</i>	3%
8.1.2.6 Shrub / Herb Dominated	
Kentucky bluegrass	65%
Sierra sanicle <i>Sanicula graveolens</i>	30%
Salmonberry	17%



## 8.1.2.7 Shrub / Herb Dominated

Salal	60%
Common rush	12%
Kentucky bluegrass	12%

## 8.1.3 Forest Ecosystems

## 8.1.3.1 Mature Forest, Douglas-fir / Salal (01) Site Series, southwest facing, medium slope

Douglas-fir	65%
Salal	35%
<i>Arbutus Arbutus menziesii</i>	5%
Big leaf maple	3%
Bracken fern <i>Pteridium aquilinum</i>	P

## 8.1.3.2 Young Forest, High Bench Western redcedar / Snowberry floodplain (07) Site Series, flat

Red Alder	55%
Western redcedar	30%
Sword fern	30%
Salmonberry	10%
Red Elderberry <i>Sambucus racemosa</i>	10%
Big leaf maple <i>Acer macrophyllum</i>	3%

## 8.1.3.3 Mature Forest, Western redcedar / Vanilla leaf (12) Site Series, northeast facing, medium to shallow slope

Western redcedar	40%
Vanilla leaf <i>Achlys triphylla</i>	30%
Salal	17%

Comments: This ecosystem appears sporadically, in thin strips along the southwestern shoreline of the lake. Its occurrence is due to the fluctuating water table of the lake.

## 8.1.3.4 Mature Forest, Douglas-fir / Grand fir / Oregon grape (04), to Western redcedar / Grand fir / Foamflower (06) Site Series, northeast facing, 40 to 45% slope

Dominant Canopy: Douglas-fir	7%
Main Canopy: Western redcedar	30 – 50%
Douglas-fir	15%
Subcanopy: Red alder	10%
Western redcedar	10%
Western Hemlock	P
Tall Shrub: Red elderberry	3%
Oceanspray <i>Holodiscus discolor</i>	2%
Salal	1%
Salmonberry	P
Red alder	P
Western redcedar	P

Low Shrub: Salal	12%
Red Huckleberry <i>Vaccinium parviflorum</i>	P
Dull Oregon grape <i>Mahonia nervosa</i>	P
Hardhack <i>Spiraea douglasii</i>	P
Herb: Sword fern	20%
Trailing blackberry <i>Rubus ursinus</i>	P
Bracken fern	P
Fireweed <i>Epilobium angustifolium</i>	P
Vanilla leaf	P
Moss: Oregon beaked moss <i>Kindbergia oregana</i>	5%
Slender beaked moss <i>Kinbergia praelonga</i>	P
Electified cattail moss <i>Rhytidiadelphus triquetrus</i>	P
Coastal leafy moss <i>Plagiomnium insigne</i>	P
Step moss <i>Hylocomnium splendens</i>	P

Comments: Forest is a long thin complex of Western redcedar dominated patches mixed with open canopy Red alder / swordfern / salal gaps. Patches tend to span from the road to the lake. The soil is generally rich to very rich with moisture regime varying between mesic and subhygric depending on micro-site. In the northwestern section of this ecosystem type, the alder gaps are not as pronounced. Stumps indicate that past logging targeted Douglas-fir. The stand age is approximately 80 to 90 years old.

#### 8.1.3.5 Young Forest, Douglas-fir / Grand fir / Oregon grape (04) Site Series, northeast facing, 20-25% slope, disturbed

Main Canopy: Western redcedar	25%
Douglas-fir	20%
Red alder	2%
Grand fir <i>Abies grandis</i>	P
Subcanopy: Douglas-fir	10%
Western redcedar	10%
Red alder	5%
Tall Shrub: Red alder	6%
Douglas-fir	P
Oceanspray	P
Salal	P
Trumpet honeysuckle	P
Western redcedar	P
Coastal Western Hemlock <i>Tsuga heterophylla</i>	P
Low Shrub: Salal	12%
Red huckleberry	P
Oceanspray	P
Douglas-fir	P
Blackcap <i>Rubus leucodermis</i>	P
Arbutus <i>Arbutus menziesii</i>	P
Dull oregon grape	P
Herb: Sword fern	4%

Bracken fern	P
Trailing blackberry <i>Rubus ursinus</i>	P
Moss: Oregon beaked moss	P
Slender beaked moss	P

Comments: Variable canopy cover due to extensive fragmentation from parallel roads on either side of the ecosystem. The area could be characterized as a highly disturbed, thin strip of forest. Patches of alder are interspersed with cedar and Douglas-fir. A couple of older remnant trees are scattered throughout the area. The stand age is approximately 45 years old.

#### 8.1.3.6 Mature, Douglas-fir / Grand fir / Oregon grape (04) Site Series, northeast facing, medium slope

Dominant Canopy: Douglas-fir	10%
Main Canopy: Western redcedar	60%
Douglas-fir	15%
Subcanopy: Douglas-fir	2%
Western redcedar	3%
Bitter Cherry <i>Prunus Emarginata</i>	P
Red Alder	P
Tall Shrub: Western redcedar	5%
Oceanspray	P
Salal	P
Douglas-fir	P
Red huckleberry	P
Low Shrub: Salal	15%
Douglas-fir	P
Herb: Sword fern	4%
Moss: Oregon beaked moss	4%
Slender beaked moss	P
Lanky moss <i>Rhytidiadelphus loreus</i>	P
Step moss	P
Flat moss <i>Plagiothecium undulatum</i>	P

Comments: 2 large (1 to 1.5 meter diameter) old-growth Douglas-fir trees found within center polygon, fire scars are evident on bark. No fire scars are evident on trees aged 115 years and younger. Increment core of cedar (main canopy) revealed a growth spurt at 55 years, indicating a release after a selective logging event. This dates the logging sometime in the early 1940's. Stumps are almost all Douglas-fir. Soil is rich and has a submesic moisture regime.

#### 8.1.3.7 Young Forest, Douglas-fir / Grand fir / Oregon grape (04) Site Series, northeast facing, medium slope

Dominant Canopy: Douglas-fir	3%
Main Canopy: Western redcedar	20%
Douglas-fir	30%
Subcanopy: Douglas-fir	15%
Western redcedar	10%
Tall Shrub: Douglas-fir	5%

Oceanspray	P
Salal	P
Red huckleberry	P
Western redcedar	2%
Coastal Western Hemlock <i>Tsuga heterophylla</i>	2%
Low Shrub: Salal	35%
Western redcedar	P
Herb: Sword fern	P
Moss: Oregon beaked moss	10%
Slender beaked moss	3%
Electified cattail moss	P
Step moss	P
<i>Dicranum spp.</i>	P

Comments: Area consists of a small wedge between two old roads ending at a cutback. A large portion of the area (edges) is influenced by the light penetration and disturbance from the roads. A few remnant older cedars are scattered throughout the polygon, though not enough to characterize the area as mature forest. The stand age is approximately 110 to 120 years old.

#### 8.1.3.8 Shrub/Herb Regenerating Forest, Douglas-fir / Grand fir / Oregon grape (04) Site Series, northeast facing, 20 to 25% slope, recently logged

Dominant Canopy: Douglas-fir	10%
Grand fir	P
Western redcedar	P
Tall Shrub: Oceanspray	7%
Red alder	10%
Willow Salix	3%
Salal	1%
Douglas-fir	2%
Scotch broom	1%
Red huckleberry	1%
Himalayan blackberry <i>Rubus discolor</i>	P
Western redcedar	3%
Low Shrub: Salal	75%
Western redcedar	P
Baldhip rose	2%
Oceanspray	P
Salmonberry	P
Douglas-fir	P
Himalayan blackberry	P
Evergreen huckleberry <i>Vaccinium ovatum</i>	P
Trumpet honeysuckle	P
Scotch broom	P
Herb: Sword fern	5%
Bracken fern	5%
Trailing blackberry	2%

Cleavers Galium aparine	P
Fireweed	P
Pearly everlasting <i>Anaphalis margaritacea</i>	P
Moss: Oregon beaked moss	P
Slender beaked moss	1%
Electified cattail moss	P

Comments: Recently logged area with small, gnarly Douglas-fir and cedar scattered throughout. Lots of alder regeneration within salal dominated area. There is evidence of an old skid road climbing almost perpendicular to the slope in the middle of the polygon. The remnant Douglas-fir trees were approximately 80 to 90 years old.

8.1.3.9 Young Forest, Douglas-fir / Grand fir / Oregon grape (04) Site Series, northeast facing, 25 to 30% slope

Main Canopy: Douglas-fir	65%
Subcanopy: Red alder	10%
Big-leaf maple	3%
Tall Shrub: Western redcedar	3%
Salal	P
Douglas-fir	2%
Big-leaf maple	3%
Red huckleberry	P
Salmonberry	P
Low Shrub: Salal	25%
Western redcedar	P
Baldhip rose	P
Salmonberry	2%
Herb: Sword fern	45%
Trailing blackberry	P
Moss: Oregon beaked moss	10%
Slender beaked moss	P
Douglas-fir (seedlings)	P

Comments: Small patch of Douglas-fir dominated forest surrounded by Western redcedar dominated areas on the southeast boundary, road on the north boundary and single tree retention logging along the southwest boundary. There is abundant light infiltration from surrounding disturbance. This ecosystem includes a Douglas-fir / salal dominated area and a large gap dominated by sword fern, Red alder and Big-leaf maple. The stand age is approximately 50 years old.

8.1.3.10 Mature Forest, Douglas-fir / Grand fir / Oregon grape (04) Site Series, ridge, shallow to medium slope

Dominant Canopy: Douglas-fir	10%
Main Canopy: Douglas-fir	50%
Western redcedar	5%
Subcanopy: Douglas-fir	8%
Red Alder	3%

Tall Shrub: Oceanspray	2%
Douglas-fir	5%
Scotch Broom <i>Cytisus scoparius</i>	3%
Low Shrub: Salal	40%
Dull oregon grape	6%
Hairy honeysuckle <i>Lonicera hispidula</i>	2%
Baldhip rose	P
Western redcedar	P
Oceanspray	P
Herb: Sword fern	8%
Trailing blackberry	P
Bracken fern	P
Moss: Oregon beaked moss	4%
Slender beaked moss	P
Electrified Cattail moss	P
Step moss	P

Comments: Ridge top and upper slope ecosystem on the dryer side (xeric to subxeric) of the 04 site series. Although soil is fairly shallow it remains rich in nutrient regime. Scotch broom is invading from nearby residential area and is able to survive due to horizontal light penetration from both sides of the ridge. Ecosystem continues from ridge down the southwest facing slope. The stand is approximately 90 years old.

#### 8.1.3.11 Mature Forest, Douglas-fir / Grand fir / Oregon grape (04), to Western redcedar / Grand fir / Foamflower (06) Site Series, northwest facing, flat

Main Canopy: Western redcedar	70%
Douglas-fir	5%
Subcanopy: Douglas-fir	P
Tall Shrub: Western redcedar	P
Salal	8%
Douglas-fir	P
Red huckleberry	P
Low Shrub: Salal	15%
Douglas-fir	P
Herb: Sword fern	P
Bracken Fern <i>Pteridium aquilinum</i>	2%
Vanilla leaf	P
Moss: Oregon beaked moss	2%
Slender beaked moss	1%

Comments: Thick cedar overstory with sparse understory. Although this ecosystem is located along the ridgeline or local height of land, it is situated in a small depression where soil moisture is greater than surrounding areas. Conditions are similar to 8.1.3.4. The stand is over 100 years old.

#### 8.1.3.12 Shrub/Herb Forest, Douglas-fir / Grand fir / Oregon grape (04) Site Series, south to southwest facing, 20 to 40% slope

Main Canopy: Douglas-fir	12%
Tall Shrub: Red alder	18%
Salal	5%
Douglas-fir	1%
Trumpet honeysuckle	4%
Oceanspray	10%
Douglas-fir	5%
Baldhip rose	P
Western redcedar	P
Evergreen blackberry <i>Rubus laciniatus</i>	P
Scotch Broom	P
Low Shrub: Salal	45%
Hairy honeysuckle	2%
Baldhip rose	P
Scotch broom	P
Herb: Sword fern	1%
Trailing blackberry	2%
Bracken fern	2%
Stinging nettle <i>Urtica dioica</i>	P
Moss: Oregon beaked moss	2%
Slender beaked moss	P

Comments: This ecosystem was recently logged, with only a few smaller gnarly Douglas-firs left on the site. There is abundant coarse woody debris on the ground and several large snags. This polygon encompasses some variation in stand character. From east to west, the polygon begins as a shallower south facing slope with a high concentration of regenerating alder, moving towards a steeper southwest facing slope dominated by salal (70% cover), with only trace amounts of alder. At this polygon's southwestern most corner stands a giant old-growth Douglas-fir tree (approx. 2m diameter) with a broken top.

#### 8.1.4 Heavily Impacted Ecosystems

##### 8.1.4.1 Shrub / Herb: Vineyard Way Sidecast – Exposed rock and mineral soil

Kentucky bluegrass	40%
Red alder	15%
Orchard grass	12%

Comments: This site is part of an active restoration program that was initiated in 2000 with the removal of invasive exotic species. The site has also been re-vegetated with native plants and has incorporated additions of coarse woody debris. Refer to the Galiano Conservancy for detailed photo documentation and data corresponding to this site.

##### 8.1.4.2 Herb: Severely compacted soil

Colonial bentgrass <i>Agrostis capillaris</i>	45%
Kentucky bluegrass	35%
Common horsetail	10%

Comments: A small foot trail runs through this polygon and is subject to occasional use.

8.1.4.3 Shrub / Herb: Compacted soil, Douglas-fir overstory

Common horsetail	50%
Douglas-fir	30%
Bracken fern	10%

Comments: This area is not as disturbed as 8.1.4.1 or 8.1.4.2. Douglas-fir snags were left standing and a few smaller alder, fir and cedar remain living. However, horsetail, thistles, broom, stinging nettle, common rush and exotic grasses indicate heavy disturbance.

8.1.4.4 Shrub / Herb: Compacted soil, no overstory

Red alder	20%
Orchard grass	20%
Alaskan brome <i>Bromus sitchensis</i>	15%

Comments: While similar to 8.1.4.3, this area has developed differently due to a lack of Douglas-fir canopy cover.

8.1.4.5 Shrub / Herb: Scotch broom, heavily disturbed from road building and land clearing,

Tall shrub: Arbutus	P
Western redcedar	P
Red alder	30%
Salmonberry	2%
Oceanspray	1%
Scotch broom	30%
Big-leaf Maple	P
Red elderberry	P
Black cap	1%
Himalayan blackberry	
Low Shrub: Western redcedar	6%
Scotch broom	5%
Blackcap	P
Douglas-fir	P
Salal	P
Herb: Trailing blackberry	35%
Unidentified grass spp.	18%
Pearly everlasting	6%
Canada thistle	3%
Sword fern	P
Fireweed	P
Common rush	P
Bracken fern	P
Horsetail	P
Western dock	P
Curled dock	P
Bull thistle <i>Cirsium vulgare</i>	P



Common vetch <i>Vicia sativa</i>	P
Moss: Oregon beaked moss	8%
Slender beaked moss	4%
Palm tree moss <i>Leucolepis menziesii</i>	P

Comments: Heavily disturbed sites covered with side cast from roadbuilding and land clearing. Site on the western most side of the property includes the remnants of an old road, it's sidecast material and the transition area up to the forest edge. The western most site has a lower concentration of alder (13%) and scotch broom (2%), and a higher concentration of Big-leaf maple (8%) and sword fern (15%).

#### 8.1.4.6 Shrub / Herb: House clearing site, very heavily impacted, broom dominated

Tall shrub: Scotch broom	70%
Hairy honeysuckle	P
Red alder	P
Salal	P
Douglas-fir	P
Low shrub: Scotch broom	5%
Douglas-fir	4%
Salal	2%
Western redcedar	1%
Oceanspray	P
Blackcap	P
Herb: Bull thistle	P
Sword fern	1%
Trailing blackberry	3%
Dandelion <i>Taraxacum officinale</i>	3%
Common vetch	P
Cleavers	P
Pearly everlasting	P
Moss: Oregon beaked moss	6%
Dicranum spp.	P

Comments: Flat cleared area dominated by broom. A fair number of seedlings growing up in the understory. Limited broom removal has taken place.

#### 8.1.4.7 Shrub / Herb: Intensive Restoration site, soil decompaction, re-vegetation

Tall Shrub: Red alder
Red elderberry
Low Shrub: Red alder
Douglas-fir
Salmonberry
Oceanspray
Black cap
Western redcedar
Herb: Trailing blackberry
Grass?

Common rush

Moss:

Comments: This site has recently undergone intensive restoration treatments including soil decompaction using an excavator. Large quantities of woody debris have been imported and native vegetation has been planted. The site was originally extremely compacted with little or no vegetation present, it was essentially a parking lot. Refer to the Galiano Conservancy Association for detailed photo documentation and data for this site.

## 8.1.5 Road / Trail

### 8.1.5.1 Vinyard Way to Peninsula Point Trail

Comments: This trail runs through the intensive restoration area and features a small foot bridge crossing Greig Creek. The trail “foot print” is small having minimal impact on surrounding ecosystems.

### 8.1.5.2 Old Road 1 / Informal Trail from Vinyard Way along the south side of the lake

Red alder	4%
Grass spp.	65%
Oregon beaked moss	3%
Scotch broom	P

Comments: This old road doubles as a well used foot trail. Evidence of vehicle use has been noted in the past two years. The road surface is dominated by herbs (mainly grass) and moss. A shrub layer has not had a chance to develop along the center of the road due to recent disturbance.

### 8.1.5.3 Old Road 2

Red alder	50%
Oregon beaked moss	6%
Slender beaked moss	15%
Western red cedar	7%
Scotch broom	5%
Grass spp.	60%
Douglas-fir	2%

Comments: This abandoned road is characterized by compacted soils that are slowly breaking up due to the thick regeneration of alder and cedar. The road surface is largely covered with grasses and moss. Hardy native forest species such as salal, salmonberry, oceanspray, baldhip rose and trailing blackberry are creeping into the road area from adjacent, less disturbed ecosystems.

### 8.1.5.4 Old Road 3

Red alder	45%
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Scotch broom	25%
Western red cedar	8%
Oregon beaked moss	60%

Comments: This abandoned road is a continuation of “Old Road 3” except has a much higher percent cover of broom and moss, and very little grass cover.

#### 8.1.5.5 Old Road 4

Scotch broom	30%
Salal	15%
Red alder	8%
Oceanspray	5%
Douglas-fir	5%
Oregon beaked moss	2%

Comments: This road is very overgrown, soils may not have undergone such severe compaction as on other road sites. It is currently difficult to determine the road’s boundaries.

## 9 Maps

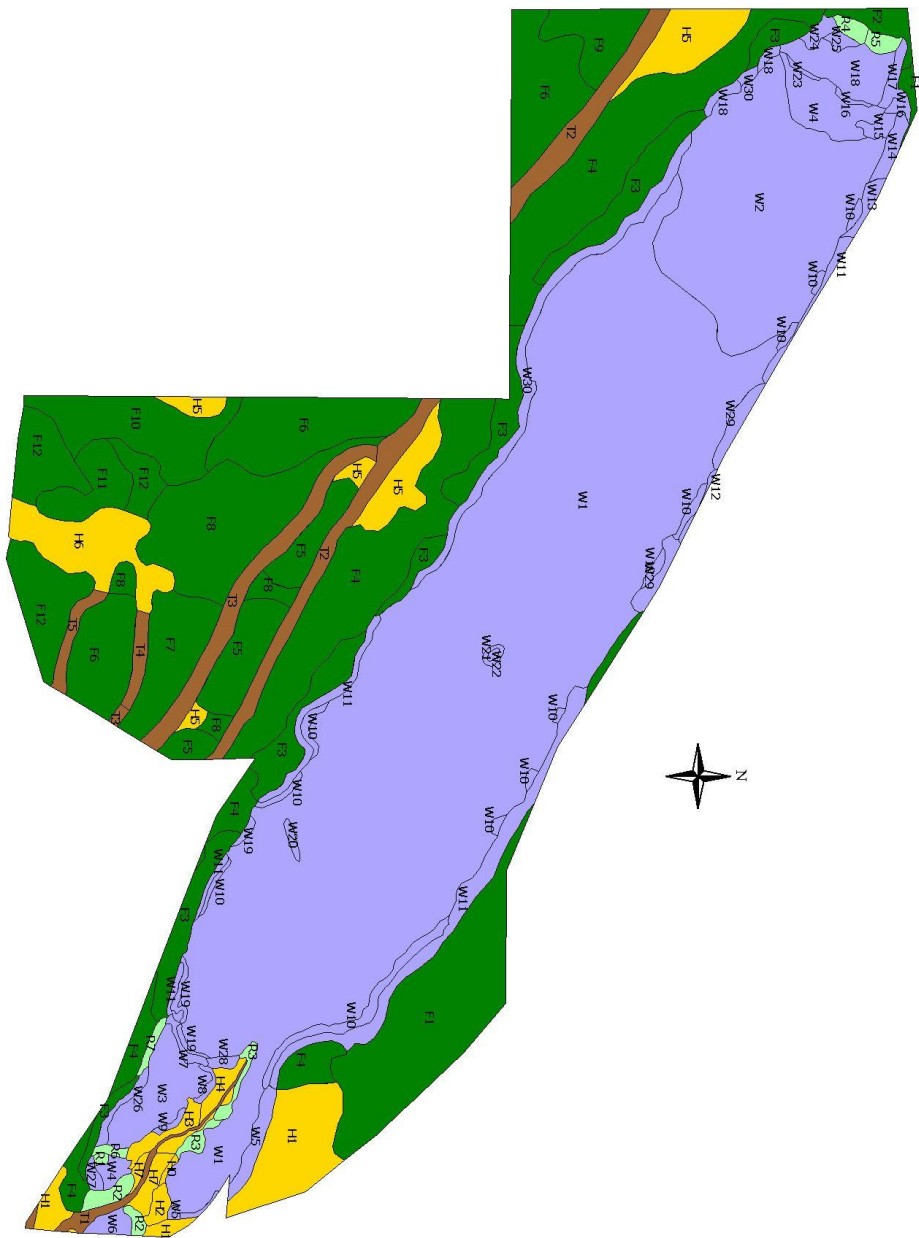
### 9.1 Map 1: Ecosystem Types

# MAP 1: Laughlin Lake Baseline Report

- Ecosystem Types**
- Forest (F) - 8.1.3
  - Heavily Impacted (H) - 8.1.4
  - Riparian (R) - 8.1.2
  - Road/Trail (T) - 8.1.5
  - Wetland (W) - 8.1.1

Labels: Please refer to the baseline report for data and photos associated with each polygon. For example, W1 refers to baseline data under section 8.1.1.1 of the report, or; F2 refers to baseline data under section 8.1.3.2 of the report.

Produced by: Galliano Conservancy Association  
Map Date: January 20, 2004  
Scale: 1 : 2,000  
Projection: UTM Zone 10 NAD83



## APPENDIX 1 - Laughlin Lake Baseline Report

### 8.1.1 Wetland / Lake Ecosystems

#### 8.1.1.1 Linked Basin Shallow Water



8.1.1.2 Transitional Open Water Marsh



8.1.1.3 Emergent Deep Marsh



### 8.1.1.5 Shallow Marsh



8.1.1.6 Shallow Marsh



8.1.1.7 Shallow Marsh





8.1.1.10 Shallow Marsh



8.1.1.18 Shallow Marsh



8.1.1.26 Shallow Marsh



8.1.1.27 Shallow Marsh



8.1.2 Riparian Ecosystems:

8.1.2.1 Herb Dominated, heavy disturbance, fluctuating water table, seasonal floodplain



8.1.2.2 Shrub / Herb Dominated, Recent Heavy Disturbance



8.1.2.6 Shrub / Herb Dominated



8.1.2.7 Shrub / Herb Dominated



### 8.1.3 Forest Ecosystems

8.1.3.4 Mature Forest, Douglas-fir / Grand fir / Oregon grape (04), to Western redcedar / Grand fir / Foamflower (06) Site Series, northeast facing, 40 to 45% slope



8.1.3.5 Young Forest, Douglas-fir / Grand fir / Oregon  
slope, highly disturbed

grape (04) Site Series, northeast facing, 20-25%



8.1.3.6 Mature, (04) Site Series, northeast facing, medium slope



8.1.3.7 Young Forest, (04) Site Series, northeast facing, medium slope





8.1.3.8 Shrub/Herb Regenerating Forest, (04) Site

Series, northeast, 20-25% slope



8.1.3.9 Young Forest, (04) Site Series, northeast facing, 25 to 30% slope



8.1.3.10 Mature Forest, (04) Site Series, ridge, shallow to medium slope



8.1.3.11 Mature Forest, (04), to (06) Site Series, northwest facing, flat



8.1.3.12 Shrub/Herb Forest, (04) Site Series, south to southwest, 20-40% slope



Heavily Impacted Ecosystems

8.1.4.1 Shrub / Herb: Vineyard Way Sidecast – Exposed rock and mineral soil



8.1.4.2 Herb: Severely compacted soil



8.1.4.5 Shrub / Herb: Scotch broom, heavily disturbed from road and land clearing,



8.1.4.6 Shrub / Herb: House clearing site, very heavily impacted, broom dominated



8.1.4.7 Shrub / Herb: Intensive Restoration site, soil decompaction, re-vegetation



8.1.5 Road / Trail

8.1.5.2 Old Road / Informal Trail from Vinyard Way along the south side of the lake



### 8.1.5.3 Old Road 2



#### 8.1.5.4 Old Road 3





#### 8.1.5.5 Old Road 4

