

2015

Galiano Learning Centre: Framework for Ecological Restoration and Integrated Land-use Management



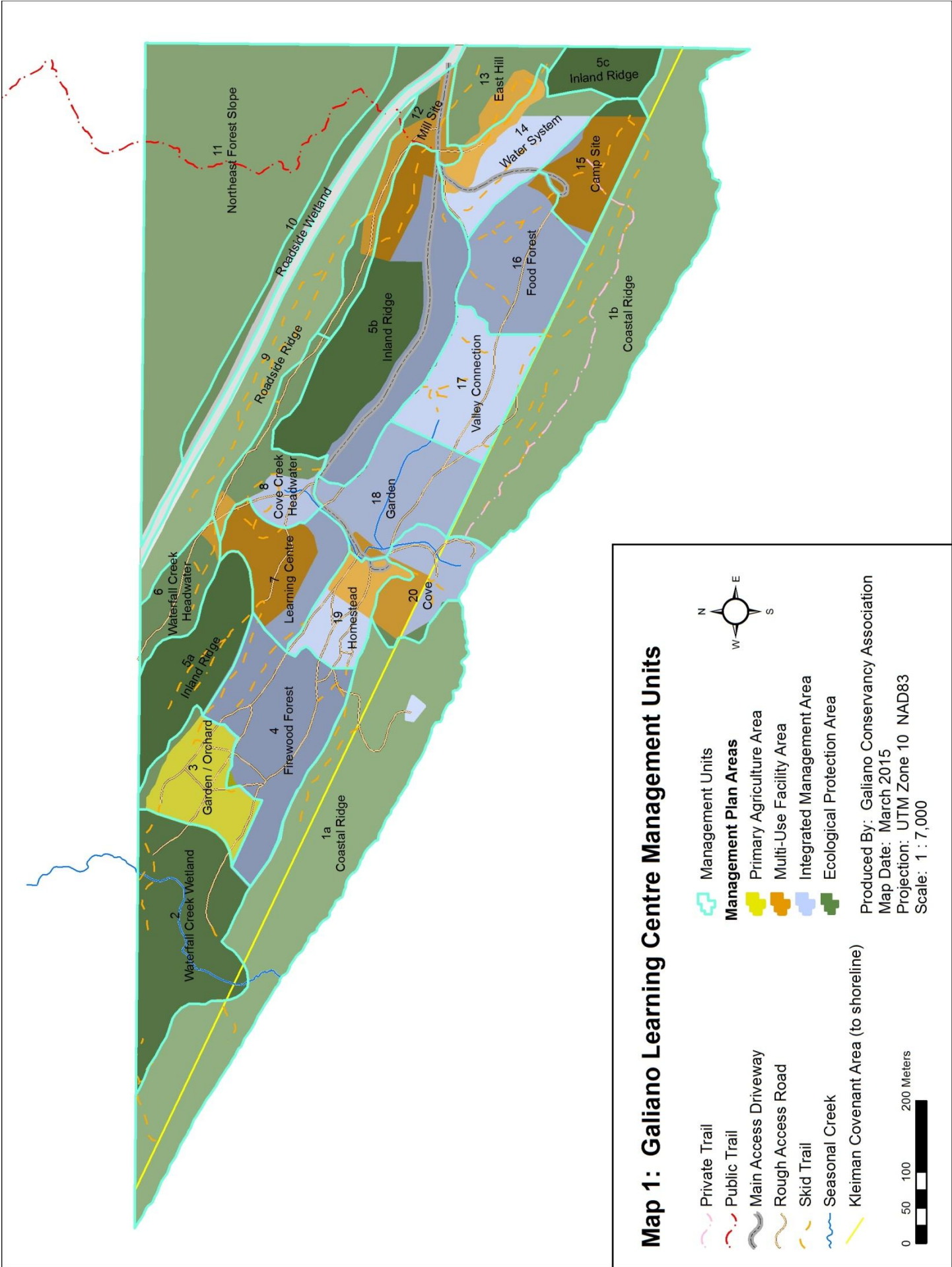
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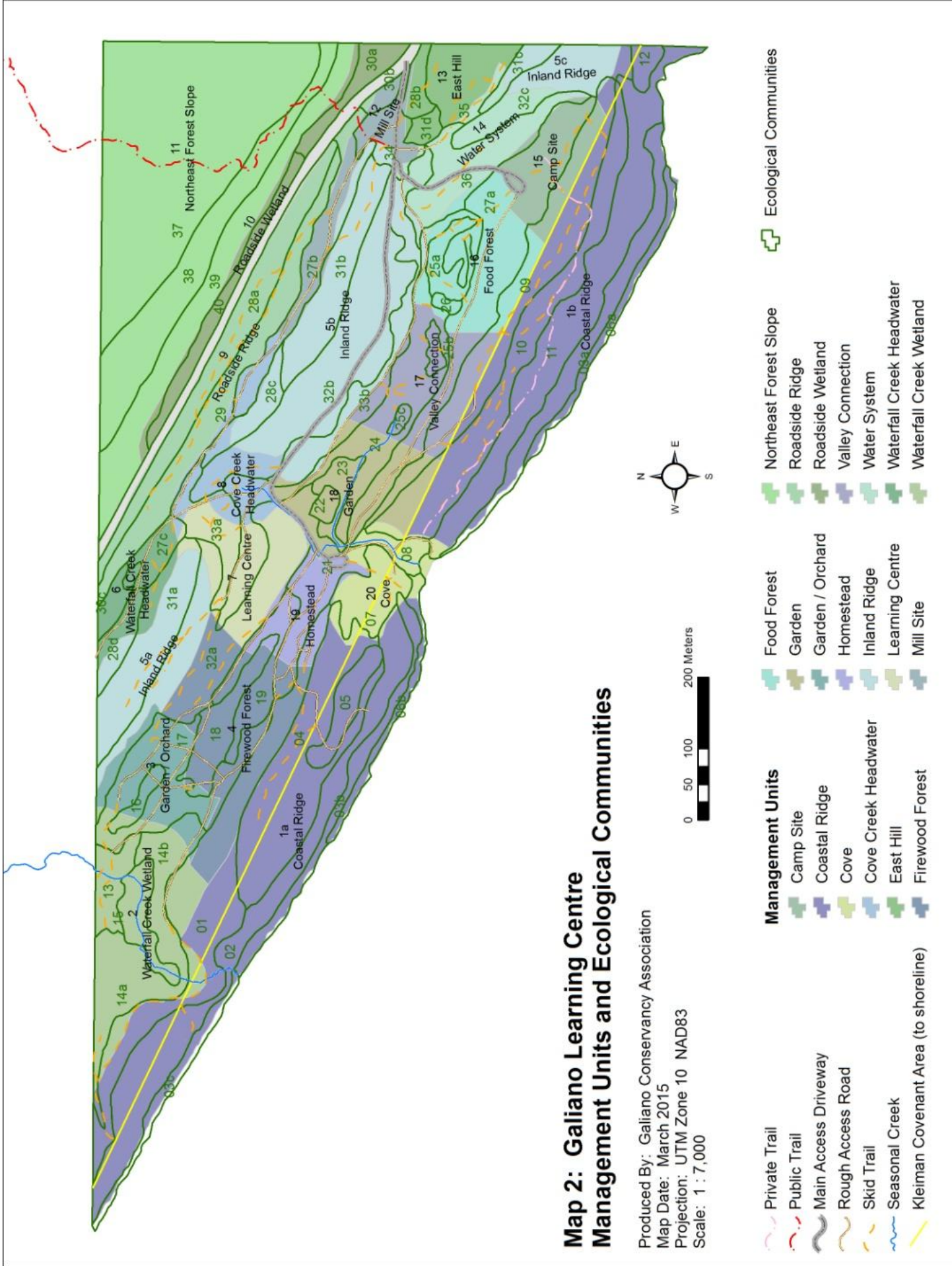
Galiano Conservancy Association

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Map 2: Galiano Learning Centre Management Units and Ecological Communities

Produced By: Galiano Conservancy Association
 Map Date: March 2015
 Projection: UTM Zone 10 NAD83
 Scale: 1 : 7,000

- | | | | | | |
|--|--------------------------------------|--|------------------|--|---------------------------|
| | Private Trail | | Food Forest | | Northeast Forest Slope |
| | Public Trail | | Garden | | Roadside Ridge |
| | Main Access Driveway | | Garden / Orchard | | Roadside Wetland |
| | Rough Access Road | | Homestead | | Valley Connection |
| | Skid Trail | | Inland Ridge | | Water System |
| | Seasonal Creek | | Learning Centre | | Waterfall Creek Headwater |
| | Kleiman Covenant Area (to shoreline) | | Mill Site | | Waterfall Creek Wetland |
| | | | | | Ecological Communities |

Coastal Ridge (1a, 1b)

17.88 ha

Description

Steep coastal bluff and associated ridgeline with southwestern aspect along the Trincomali Channel. Includes a portion of the associated northeast facing moderate slope. Moving from the shoreline in a northeastern direction, the unit generally transitions from a sparsely vegetated cliff to a steep boulder-laden old Douglas-fir/Arbutus forested slope, up to a shallow-soiled forested ridge and over into a maturing, young Douglas-fir zonal forest.

Significant Ecological Features

- Large contiguous tracts of old Douglas-fir / Arbutus (CDFmm02) forest.
- Several moist seepage areas with diverse plant communities.
- Pockets of Garry-oak associated communities mainly on benches nestled in steep slope / cliff areas.

Associated Baseline Report Ecological Communities

01, 02, 03abc, 04, 05, 06ab, 09, 10, 11, 12

Associated Management Plan Designation

Ecological Protection Area

Management Goals

1. Maintain and restore the integrity of ecological communities.
2. Provide opportunities for low impact nature education and interpretive activities.
3. Create interpretive information and educational opportunities.

Management Objectives

1. Control invasive exotic species.
2. Rehabilitate road and other heavily impacted areas.
3. Protect and/or restore hydrology related to moist, seepage sites.
4. Provide trail infrastructure and points of interest along the ridgeline to accommodate educational and interpretive opportunities, including areas open to the public on planned occasions. Ensure that sensitive ecological sites are not negatively impacted from 'access'.
5. Develop 'outdoor classroom' space where the 'adventure cabin' was located.

Ecological Restoration Priorities

1. Control Scotch broom.

Waterfall Creek and Associated Wetland (2)

3.93 ha

Description

Small drainage basin that includes a wetland depression, seasonal creek and associated lower slopes. The unit contains patches of young and maturing forest, but is generally characterized by open invasive alien grass and herb dominated areas with an extensive history of logging and grazing (dating back to the early 1900's). The large sitka sedge dominated marsh wetland is characterized by a relatively healthy assemblage of native species despite past disturbances. The seasonal creek runs through the unit roughly from north to south.

Significant Ecological Features

- Large sitka sedge marsh (Wm50) with healthy and diverse plant community.
- 'Waterfall' creek and associated riparian – part of which is forested with mature trees.

Associated Baseline Report Ecological Communities

01, 13, 14ab, 15, 16, 17

Associated Management Plan Designation

Ecological Protection Area

Management Goals

1. Maintain and restore the integrity of ecological communities.
2. Provide opportunities for low impact nature education and interpretive activities.

Management Objectives

1. Establish native forest composition, structure and function in Ecological Communities 14a and 14b.
2. Protect and/or restore hydrology through rehabilitation of road and other heavily impacted areas.
3. Provide trail infrastructure to access waterfall site and to accommodate educational and interpretive opportunities.

Ecological Restoration Priorities

1. Establish native forest composition, structure and function in Ecological Communities 14a and 14b.

Market Garden - Orchard (3)

1.82 ha

Description

The unit is generally characterized by open invasive alien grass and herb dominated areas with an extensive history of logging and grazing (dating back to the early 1900's). The unit includes an upper, highly disturbed terrace where several derelict chicken coops and structures are located. This upper terrace has been identified as an excellent orchard area. There is a narrow band of young Douglas-fir and western redcedar on a southwest slope dividing the upper terrace from the lower, gently sloped, west facing area that has been identified as having the best soils on the property for agricultural production. The unit also includes a band of maturing, zonal, northeast facing forest along its southwest boundary.

Significant Ecological Features

- Moist lower slope (cleared) riparian area that drains into adjacent Witka sedge marsh (Wm50).

Associated Baseline Report Ecological Communities

14b, 16, 17

Associated Management Plan Designation

Primary Agriculture Area

Management Goals

1. Produce food through small-scale sustainable agriculture.
2. Provide opportunities for agriculture based education and interpretive activities.
3. Create interpretive information and educational opportunities.
4. Maintain and restore the integrity of ecological communities.

Management Objectives

1. Establish market garden and orchard garden.
2. Establish chicken coop and run.
3. Establish water supply for agricultural activities.
4. Maintain light conditions favorable to garden growth.
5. Provide trail infrastructure suitable for vehicles (quads?) and foot/bike to access the garden sites.
6. Create interpretive information and educational opportunities.
7. Protect and/or restore hydrology through rehabilitation of unused roads and other heavily impacted areas.
8. Integrate habitat creation and restoration with agriculture objectives whenever possible.
9. Control invasive alien species.

Ecological Restoration Priorities

1. Control invasive alien species.

Firewood Forest (4)

3.57 ha

Description

This unit is primarily characterized by a stand of young, 60-year-old Douglas-fir growing on a small knoll that is flanked on either side by logged, gramminoid-dominated, moisture-receiving lower slope and depression areas. The unit also includes a portion of the northeast-facing, moderately sloped, maturing (60–100 yr. old) Douglas-fir /western redcedar dominated forest that transitions into the small logged valley from the coastal ridge area.

Significant Ecological Features

- Moist lower slope / depression that includes marsh areas dominated by slough sedge. Although cleared of forest, these areas are sensitive and hydrologically important.
- Large diameter, old-growth western redcedar and Douglas-fir are scattered throughout Ecological Community 01.

Associated Baseline Report Ecological Communities

01, 18, 19, 32a

Associated Management Plan Designation

Integrated Management Area

Management Goals

1. Explore opportunities for development, production and marketing of products derived from small-scale sustainable agroforestry, forest-use and from activities that contribute to ecological restoration.
2. Provide opportunities for experiential learning, research programs and the development of innovative practices for sustainable production of food, timber and non-timber products.
3. Maintain and restore the integrity of ecological communities.

Management Objectives

1. Thinning to promote mature forest composition, structure and function.
2. Establish forest cover in Ecological Community 19.
3. Ongoing sustainable timber harvest to provide wood products for use at the Learning Centre.
4. Maintain light conditions favorable for agricultural activities in the adjacent Market Garden / Orchard management unit.
5. Provide trail infrastructure suitable for vehicles (quads?) and foot/bike to access the garden sites and for removal of timber and non-timber products.
6. Restore hydrology through rehabilitation of unused roads and other heavily impacted areas.
7. Provide ecological connectivity across the valley.
8. Control invasive alien species.

Ecological Restoration Priorities

1. Thinning to promote mature forest structure.
2. Establish forest cover in Ecological Community 19.

Inland Ridge (5a, b, c)

9.10 ha

Description

Steep southwest facing mature forest slope and associated ridgeline. Includes the slightly moister toe slope and the shallow soiled, upper portion of the associated northeast facing slope. The Inland Ridge management unit is broken into three ecologically similar polygons that are divided by breaks in the ridgeline and logged over areas.

Significant Ecological Features

- Tracts of mature Douglas-fir / Arbutus (CDFmm02) forest on the upper slope and ridgeline.
- Individual old-growth Douglas-fir and Western redcedar trees scattered throughout.

Associated Baseline Report Ecological Communities

28cd, 31abc, 32abc, 33b

Associated Management Plan Designation

Primary: Ecological Protection Area

Small Portion: Integrated Management Area, Multi-use Facility Area

Management Goals

1. Maintain and restore the integrity of ecological communities.

Management Objectives

1. Control invasive exotic species.
2. Rehabilitate road and other heavily impacted areas.

Ecological Restoration Priorities

Waterfall Creek Headwater (6)

1.13 ha

Description

Very small drainage area that includes a wetland depression and associated lower and mid slopes. Drainage runs off of the Learning Centre Property to the northwest where it joins with Waterfall Creek and enters the property once again. The unit contains patches of young and maturing forest, as well as open invasive alien grass and herb dominated logged areas. There is a small sedge dominated marsh wetland with its upper portion recently logged and its downstream portion remaining forested.

Significant Ecological Features

- Sedge dominated marsh (Wm50) with healthy plant community in forested portion.
- Rare (on property) patch of maturing Douglas-fir and Western redcedar on fertile valley site.

Associated Baseline Report Ecological Communities

25d, 27c, 28d, 30c, 31a

Associated Management Plan Designation

Ecological Protection Area

Management Goals

1. Maintain and restore the integrity of ecological communities.
2. Provide opportunities for low impact nature education and interpretive activities.

Management Objectives

1. Establish forest cover in Ecological Communities 25d, 27c, 31a.
2. Protect and/or restore hydrology through rehabilitation of unused road and other heavily impacted areas.

Ecological Restoration Priorities

1. Establish forest cover in and around Ecological Community 25d.

Learning Centre (7)

2.04 ha

Description

This unit is primarily characterized by a mosaic of patchy, young Douglas–fir, alder, western redcedar and sword fern in a matrix of recently logged (within the last decade) graminoid–dominated open areas. Moving in a southwest to northeast direction across the unit, it transitions from a steep, southwest facing mature forest slope to a small ridge backed by a recently logged flat to gently sloped bench area with moister soils. The bench then transitions to the moderately sloped, logged mosaic. Several skid roads criss–cross from one side of the unit to the other. The unit has been identified as a potential site for the main Learning Centre Facility.

Significant Ecological Features

- Moist lower slope, flat bench. Although cleared of forest, these areas are sensitive and hydrologically important.
- Mature Douglas-fir forest on the steep southwest facing slope.

Associated Baseline Report Ecological Communities

24, 27c-, 31a-, 32a, 33a

Associated Management Plan Designation

Multi-use Facility Area

Integrated Management Area

Management Goals

1. Develop facilities and infrastructure that support single and multi-day learning opportunities and model sustainable systems or green methods for energy and food production, waste management, water supply and construction.
2. Provide opportunities for experiential learning and research programs.
3. Maintain and restore the integrity of ecological communities.

Management Objectives

1. Create infrastructure associated with energy production, water storage, waste water and group residential accommodations.
2. Maintain ‘glimpse views’ of Trincomali Channel and agricultural valley.
3. Maintain light conditions favorable for passive and active solar collection.
4. Provide road infrastructure suitable for access to the main Learning Centre facility.
5. Provide parking infrastructure suitable for staff associated with the Learning Centre facility.
6. Provide trail infrastructure suitable for foot/bike access to garden and other important sites.
7. Restore hydrology through rehabilitation of unused roads and other heavily impacted areas.
8. Restore tree cover in areas that do not conflict with other objectives.
9. Control invasive alien species.

Ecological Restoration Priorities

1. Restore tree cover in areas that do not conflict with other objectives.

Cove Creek Headwater (8)

1.68 ha

Description

This unit consists of logged, gramminoid dominated areas mixed with young forest patches and edges. It includes the ditched upper reach of Cove Creek as well as associated seepage sites and under-surface flow. Logging roads have compacted soils and altered hydrology throughout. The unit is generally on a southwest facing slope with the upper portion characterized by a narrow, linear, moist valley. It includes the “Cable House” site.

Significant Ecological Features

- Upper reach of Cove Creek and associated riparian area and seepage sites.
- Moist-soiled micro-depression sites in linear valley - though cleared of forest, these areas are sensitive and hydrologically important.

Associated Baseline Report Ecological Communities

24, 27b, 28c, 29, 32ab, 33ab

Associated Management Plan Designation

Ecological Protection Area

Integrated Management Area

Management Goals

1. Maintain and restore the integrity of ecological communities.
2. Provide reliable vehicle, pedestrian (includes wheelchair users) and bicycle access to major facilities and infrastructure.

Management Objectives

1. Restore stream channel and riparian areas of Cove Creek with consideration of other listed management objectives.
2. Establish forest cover in Ecological Community 27b.
3. Maintain ‘glimpse views’ from Learning Centre Facility (Management Unit 7) of Trincomali Channel and agricultural valley.
4. Maintain light conditions favorable for passive and active solar collection in Management Unit 7.
5. Provide road infrastructure suitable for access to the main Learning Centre facility.
6. Provide trail infrastructure suitable for foot/bike access to garden and other important sites.
7. Restore hydrology through rehabilitation of unused roads and other heavily impacted areas.

Ecological Restoration Priorities

1. Restore stream channel and riparian areas of Cove Creek.
2. Establish forest cover in Ecological Community 27b.

Roadside Ridge (9)

3.70 ha

Description

This unit is characterized by a small ridge that parallels Porlier Pass Drive and includes a steep southwest slope and associated cliffs, a flat ridge top and a moderately sloped northeast aspect. The unit features a variety of forest types including patches of young Douglas-fir/Arbutus with scattered veteran trees as well as Western redcedar dominated areas. There are also small patches where recent logging has occurred. The Porlier Pass road corridor contributes a significant, ongoing influence on this management unit.

Significant Ecological Features

- Maturing Douglas-fir / Arbutus (CDFmm02) and Western redcedar dominated zonal forest with scattered veteran trees.

Associated Baseline Report Ecological Communities

27b-, 28a, 29

Associated Management Plan Designation

Ecological Protection Area

Management Goals

1. Maintain and restore the integrity of ecological communities.
2. Explore possibilities for managed public access to the property that is compatible with program participant safety, security and privacy.

Management Objectives

1. Reestablish forest cover in Ecological Community 27b.
2. Rehabilitate unused road and other heavily impacted areas.
3. Remove fencing.
4. Provide trail infrastructure along ridgeline to accommodate public access.
5. Control invasive alien species.

Ecological Restoration Priorities

1. Reestablish forest cover in Ecological Community 27b.
2. Remove fencing.

Roadside Wetland (10)

1.55 ha

Description

The roadside wetland unit includes a narrow, roughly 700m long swamp and marsh depression as well as the associated young Douglas-fir, Western redcedar lower slope to the southwest and the boulder laden mature forested toe of the steep southwest facing slope to the northeast. The wetlands drain off of the Learning Centre Property to the southeast. The unit contains patches of young and maturing forest. The cross-island trail route (mill site to pebble beach) runs through this unit, and bridges the wetland using a split cedar plank boardwalk.

Significant Ecological Features

- Young red alder dominated swamp (Ws53) and small patches of sedge dominated marsh (Wm50).
- Toe of steep southwest slope includes mature and old big-leaf maple, Douglas-fir and Western redcedar.

Associated Baseline Report Ecological Communities

30a, 40

Associated Management Plan Designation

Ecological Protection Area

Management Goals

1. Maintain and restore the integrity of ecological communities.
2. Provide opportunities for low impact nature education and interpretive activities.
3. Provide managed public access to the property that is compatible with program participant safety, security and privacy.

Management Objectives

1. Continue public access via the cross-island trail which connects the Pebble Beach Reserve to the Galiano Learning Centre.
2. Encourage tree cover in sections of wetland (Ecological Community 40) that are exposed to traffic on Porlier Pass Drive.

Ecological Restoration Priorities

1. Encourage tree cover in sections of wetland (Ecological Community 40) that are exposed to traffic on Porlier Pass Drive.

Northeast Corner Forest (11)

11.91 ha

Description

This unit is characterized by a southwest facing slope varying in grade generally characterized by maturing Douglas-fir and Western redcedar forest with a few unlogged, old-growth patches and scattered individual old-growth trees. The unit, moving from southwest to northeast, includes slightly moister toe slope bordering the roadside wetland, a very steep maturing Western red cedar dominated slope with ribbons of rock bluff and cliff throughout that transition to a Douglas-fir dominated ridge line. The ridge is backed by a narrow Douglas-fir dominated bench with the slope then continuing moderately upwards with a mix of Douglas-fir and Western redcedar patches towards the height of land which occurs on adjacent properties to the north east. A large portion of the unit was logged roughly 60 years ago.

Significant Ecological Features

- Patches of mature and old-growth Douglas-fir / Arbutus (CDFmm01x and 02) forest on the upper slope and ridgeline.
- Individual old-growth Douglas-fir and Western redcedar trees scattered throughout.
- Large tract of contiguous forest connecting to neighbouring Vanilla Leaf Land Nature Reserve.

Associated Baseline Report Ecological Communities

37, 38, 39

Associated Management Plan Designation

Ecological Protection Area

Management Goals

1. Maintain and restore the integrity of ecological communities.
2. Provide opportunities for low impact nature education and interpretive activities.
3. Provide managed public access to the property that is compatible with program participant safety, security and privacy.

Management Objectives

1. Continue public access via the cross-island trail which connects the Pebble Beach Reserve to the Galiano Learning Centre.
2. Maintain slope stability and control erosion where public trail cuts across cliff/steep slope in polygon 38.

Ecological Restoration Priorities

1. Maintain slope stability and control erosion where public trail cuts across cliff/steep slope in polygon 38.

Mill Site (12)

1.36 ha

Description

This unit was used for a small-scale portable sawmill operation prior to the acquisition of the land. The area was used for storage of logs, timber and scaps and for milling. The heavily degraded area was transformed through ecological restoration in 2014 where the mill off-cuts and debris were removed, the soils were de-compacted, wood chips, salvaged forest duff and large woody debris were spread over the site, and native vegetation was planted and fenced. An interpretive kiosk was constructed and serves as the trail head for the cross-island public trail. The area also includes the main entrance driveway, parking area, small logged valley to the northwest and small wetland area to the east.

Significant Ecological Features

- Open Sitka sedge/small-flowered bullrush dominated wetland area (Wm50) in Ecological Community 30b.
- Ecological restoration area for interpretive and educational values.

Associated Baseline Report Ecological Communities

27b, 30b, 34

Associated Management Plan Designation

Multi-use Facility Area

Ecological Protection Area

Management Goals

1. Maintain and restore the integrity of ecological communities.
2. Create publicly accessible interpretive information and educational opportunities.
3. Provide managed public access to the property that is compatible with program participant safety, security and privacy.

Management Objectives

1. Provide main public and participant parking area (18 vehicles) for Learning Centre. Use 'green' techniques to encourage rain infiltration and to manage storm water.
2. Provide publically accessible interpretive information and welcome.
3. Provide public access including access to the mill site restoration interpretive kiosk and to the cross-island trail which connects the Galiano Learning Centre to the Pebble Beach Reserve.
4. Monitor and continue (if necessary) ecological restoration treatments in the mill site and wetland areas (Ecological Communities 34 and 30b).
5. Rehabilitate road and encourage tree cover in untreated portion of Ecological Community 27b.
6. Control invasive exotic species.

Ecological Restoration Priorities

1. Monitor and continue (if necessary) ecological restoration treatments in the mill site and wetland areas (Ecological Communities 34 and 30b).
2. Rehabilitate road and encourage tree cover in untreated portion of Ecological Community 27b.

East Hill (13)

1.38 ha

Description

This unit is characterized by a small, young Douglas-fir / Western redcedar dominated outcrop that transitions into a recently logged, invasive grass and thistle dominated north facing slope. Thin soiled portions nearing the crest of the forested outcrop are characteristic of a slightly dry zonal ecosystem (CDFmm/01x) and exhibit healthy moss communities. The north slope areas, both forested and recently logged are representative of a zonal ecosystem (CDFmm/01).

Significant Ecological Features

- Patches of young Douglas-fir / Western redcedar dominated (CDFmm01x and 01) forest with healthy moss communities.

Associated Baseline Report Ecological Communities

28b, 31d, 35

Associated Management Plan Designation

Ecological Protection Area

Multi-use Facility Area

Management Goals

1. Maintain and restore the integrity of ecological communities.

Management Objectives

1. Establish forest cover in Ecological Community 35.
2. Provide specialty timber or other wood products for use at the Learning Centre (in portion of Ecological Community 35 within the Multi-use Facility Area).
3. Restore hydrology through rehabilitation of unused roads and other heavily impacted areas.
4. Provide ecological connectivity with adjacent Trincomali Nature Sanctuary.
5. Control invasive alien species.

Ecological Restoration Priorities

1. Establish forest cover in Ecological Community 35.

Water System (14)

2.12 ha

Description

The unit includes a steep, southwest-facing slope and associated ridge. The eastern portion of the unit is characterized by mature, Douglas-fir dominated forest cover while the rest has been recently high-grade logged and is now dominated by invasive grasses and thistles with scattered young seed trees. Terrain in the polygon is somewhat varied with slightly deeper-soiled, shallow-grade sites towards the bottom of the slope mixed with dry, steep boulder/bedrock outcrops towards the top of the slope. Natural tree regeneration in the recently logged area is sparse. The unit also includes moist seepage areas and a year round spring in the western portion. The spring has been developed (dug well) as a source for the campsite water system and the unit includes associated pipes, solar panels, and storage tanks. The unit is bisected by the primary camp site access road and includes a variety of old skid roads and machine access points.

Significant Ecological Features

- Year round spring / seepage area in western portion of the unit.
- Mature Douglas-fir forest on the steep southwest facing slope.

Associated Baseline Report Ecological Communities

31c, 32c, 33b, 34-, 35-, 36

Associated Management Plan Designation

Multi-use Facility Area

Integrated Management Area

Ecological Protection Area

Management Goals

1. Develop facilities and infrastructure that support single and multi-day learning opportunities and model sustainable systems or green methods for energy and food production, waste management, water supply and construction.
2. Provide opportunities for experiential learning and research programs.
3. Maintain and restore the integrity of ecological communities.

Management Objectives

1. Create infrastructure associated with water system and related energy production.
2. Maintain light conditions favorable for solar panels servicing water pump.
3. Maintain road infrastructure suitable for ongoing regular and emergency access to the campsite.
4. Maintain road infrastructure suitable for occasional vehicle access to the water storage site.
5. Maintain foot access to the dug well and solar panel sites.
6. Restore hydrology around seepage areas and dug well through rehabilitation of unused roads and other heavily impacted areas (including road used to access dug well).
7. Establish forest composition, structure and function in Ecological Communities 36 and 33b (with consideration for other objectives).

Ecological Restoration Priorities

1. Restore hydrology around seepage areas and dug well through rehabilitation of unused roads and other heavily impacted areas (including road used to access dug well).
2. Establish forest composition, structure and function in Ecological Communities 36 and 33b (with consideration for other objectives).

Camp Site (15)

1.56 ha

Description

The unit includes a relatively flat to shallow sloped recently logged area dominated by invasive grasses and thistles with scattered stumps and patches of native shrubs and ferns. There is a fringe of maturing zonal forest along the southern boundary of the unit. There are a number of old roads within the unit as well as the maintained campsite access road and turnaround. Campsite facilities are being developed including a classroom/kitchen building, septic field, a shower building, an outhouse, tent pads and camp fire area. There is also a large maintained “playing field” between the classroom building and fire pit. This unit will remain heavily modified with camping and associated facilities.

Significant Ecological Features

- Maturing zonal forest along southern boundary of unit (Ecological Community 09).
- High forest productivity site with deep, relatively well drained soils.

Associated Baseline Report Ecological Communities

09, 27a

Associated Management Plan Designation

Multi-use Facility Area

Management Goals

1. Develop facilities and infrastructure that support single and multi-day learning opportunities and model sustainable systems or green methods for energy and food production, waste management, water supply and construction.
2. Provide opportunities for experiential learning and research programs.
3. Provide outdoor recreational areas to accommodate group activities and games.
4. Maintain and restore the integrity of ecological communities.

Management Objectives

1. Create and maintain a camping based residence and educational facilities including associated “green” water, waste and energy systems.
2. Maintain light conditions favorable for passive and active solar collection.
3. Maintain light conditions favorable for growth of adjacent food forest.
4. Maintain view from campsite building to adjacent food forest and valley.
5. Maintain road infrastructure suitable for ongoing regular and emergency access to the campsite.
6. Maintain foot access routes to the coastal ridge, cove, food forest, garden and mill site areas.
7. Maintain large open, flat areas suitable for playing games with large groups.
8. Create outdoor gathering spaces (fire pit, amphitheater etc.) suitable for large or small groups.
9. Restore forest cover and provide visual screen between the access road and the classroom.
10. Incorporate native plant communities and habitat into landscaping wherever possible.
11. Discourage uncontrolled access to sensitive ridge top, cliff and seepage areas in Unit 1b.
12. Control invasive exotic species.

Ecological Restoration Priorities

1. Restore forest cover and provide visual screen between access road and classroom building.

Food Forest (16)

2.66 ha

Description

This management unit includes a mosaic of patchy, young Douglas–fir, red alder, western redcedar and sword fern in a matrix of recently logged (within the last decade) graminoid–dominated open areas. The area is generally characterized by mid to lower slopes and depression areas with vegetation communities indicative of a CDFmm/06 site series as well as moister areas where common rush, horsetail and a variety of sedges are prevalent. There is a fringe of maturing zonal forest along the southern boundary of the unit. The unit also includes a dug pond with a built–up clay berm on the west (down–slope) side, transitioning to a cattail, spike rush dominated wetland on the east side. There is a large patch of *Potamogeton* (sp.) floating in the pond. A maturing zonal forest fringes the unit along its southern boundary. Several skid roads criss–cross from one side of the polygon to the other. These areas show signs of soil compaction and are dominated by exotic grasses and common rush.

Significant Ecological Features

- Moist depressions that include marsh (Wm50) areas characterized by sitka sedge, slough sedge, spike rush, and cat tail. Although logged, these areas are sensitive and hydrologically important.
- Dug pond – provides open water year round.

Associated Baseline Report Ecological Communities

09, 24, 25a, 26, 27a

Associated Management Plan Designation

Integrated Management Area

Management Goals

1. Explore opportunities for development, production and marketing of products derived from small-scale sustainable agroforestry, forest-use and activities that contribute to ecological restoration.
2. Provide opportunities for experiential learning, research programs and the development of innovative practices for sustainable production of food, timber and non-timber products.
3. Create interpretive information and educational opportunities.
4. Maintain and restore the integrity of ecological communities.

Management Objectives

1. Create and maintain a permaculture food forest that integrates principles of ecological restoration.
2. If possible, use existing pond and/or other infrastructure for irrigation of food forest.
3. Maintain light conditions favorable for growth of food forest species.
4. Provide trail infrastructure suitable for vehicles (quads?) and foot access to the food forest site.
5. Maintain direct route foot access to cove area.
6. Restore hydrology through rehabilitation of unused roads and other heavily impacted areas.
7. Provide ecological connectivity across the valley.
8. Create publicly accessible interpretive information and educational opportunities in the food forest.
9. Restore native forest composition, structure and function with consideration of above objectives.

Ecological Restoration Priorities

1. Create and maintain a permaculture food forest that integrates principles of ecological restoration.
2. Control invasive exotic species.

Valley Connection (17)

2.30 ha

Description

This management unit includes a mosaic of patchy, young Douglas–fir, red alder, western redcedar and sword fern in a matrix of recently logged (within the last decade) graminoid–dominated open areas. The area includes lower slopes and depression areas with a vegetation communities indicative of a CDFmm/06 site series as well as moister areas where common rush, horsetail and a variety of sedges are prevalent. There is a fringe of maturing zonal forest along the southern boundary of the unit. Several skid roads criss–cross from one side of the polygon to the other and two roads parallel the valley on either side. These areas show signs of soil compaction and are dominated by exotic grasses and common rush.

Significant Ecological Features

- Moist depressions that include marsh (Wm50) areas. Although logged, these areas are sensitive and hydrologically important.

Associated Baseline Report Ecological Communities

09, 24, 25b, 25c, 27a, 33b

Associated Management Plan Designation

Integrated Management Area

Management Goals

1. Maintain and restore the integrity of ecological communities.
2. Explore opportunities for development, production and marketing of products derived from small-scale sustainable agroforestry, forest-use and activities that contribute to ecological restoration.
3. Provide opportunities for experiential learning, research programs and the development of innovative practices for sustainable production of food, timber and non-timber products.

Management Objectives

1. Provide ecological connectivity and continuous native forest composition, structure and function across the valley.
2. Maintain light conditions favorable for growth of food forest and garden units (16, 18).
3. Maintain direct route foot access between cove area camp site.
4. Restore hydrology through rehabilitation of unused roads and other heavily impacted areas.
5. Identify and manage for sustainable timber and non-timber uses including firewood or construction wood and native food or medicinal species.

Ecological Restoration Priorities

1. Establish and maintain ecological connectivity and continuous native forest composition, structure and function across the valley.

Garden (18)

2.48 ha

Description

This management unit includes a variety of heavily modified areas including a fenced garden site, former grazing patches, skid roads, the main driveway to the field house, ditches, an active greenhouse and old derelict structures. The polygon transitions from mature and young zonal forest along its southwestern boundary down a gradual slope to invasive grass dominated, moist soiled, logged and cleared areas in the valley. A couple of patches of young Douglas-fir and western redcedar remain in the valley. A ditched tributary to Cove Creek runs from east to west through the area and the main branch runs along the western boundary, also in a ditch. Soils in the valley have high clay content and are saturated during winter months. The original stream course, prior to ditching, would have run down through the garden site rather than along the road. Prior to ditching, the area would likely have included patchy sedge and rush wetlands similar to those in Ecological Community 25abc.

Significant Ecological Features

- Cove creek and tributary and heavily modified riparian areas remain important ecological features and are priority candidates for ecological restoration treatments.

Associated Baseline Report Ecological Communities

09, 10, 21, 22, 23, 24, 27a, 33b

Associated Management Plan Designation

Integrated Management Area

Multi-use Facility Area

Management Goals

1. Develop facilities and infrastructure that support single and multi-day learning opportunities and model sustainable systems or green methods for energy and food production, waste management, water supply and construction.
2. Explore opportunities for development, production and marketing of products derived from small-scale sustainable agroforestry, forest-use and activities that contribute to ecological restoration.
3. Provide opportunities for experiential learning, research programs and the development of innovative practices for sustainable production of food, timber and non-timber products.
4. Create interpretive information and educational opportunities.
5. Maintain and restore the integrity of ecological communities.

Management Objectives

1. Create and maintain a permaculture kitchen garden and a greenhouse garden that integrate principles of ecological restoration.
2. Maintain existing 'heritage' fruit trees.
3. Use the existing pond located in 'Food Forest Unit 16' as a gravity fed water source for irrigation.
4. Maintain dug well.
5. Maintain light conditions favorable for growth in garden and greenhouse.

6. Provide and maintain trail infrastructure suitable for vehicles (quads?) and foot access to the garden and greenhouse sites.
7. Maintain direct route foot access from the cove area to the camp site.
8. Maintain vehicle driveway and turnaround to a standard appropriate for emergency vehicles.
9. Remove derelict structures.
10. Create publicly accessible interpretive information and educational opportunities at the garden site.
11. Re-establish Cove Creek in its original, natural location and re-vegetate a minimum 15m riparian area either side with native species. Riparian species should be chosen keeping objectives regarding light conditions in mind.
12. Restore hydrology through rehabilitation of unused roads and other heavily impacted areas.
13. Identify and manage for sustainable timber and non-timber uses including firewood or construction wood and native food or medicinal species.
14. Restore native forest composition, structure and function with consideration of above objectives.
15. Provide ecological connectivity across the valley.

Ecological Restoration Priorities

1. Re-establish Cove Creek in its original, natural location and re-vegetate a minimum 15m riparian area either side with native species. Riparian species should be chosen while keeping objectives regarding light conditions in mind.

Homestead (19)

2.48 ha

Description

The Homestead management unit is a highly modified area used as the primary residence on the property and includes a house, a dug well, a number of open and walled-in sheds as well as a garden site formerly used for production of ornamental flowers. The unit also includes a variety of roads including the main access driveway turnaround. Hydrology within this area has been significantly modified through road construction and ditching. A fragmented patch of young Douglas-fir – salal (CDFmm/01) occurs in the western portion of this polygon extending in from the neighbouring Coastal Ridge (1a) unit. There are also a few scattered individual Douglas-fir trees and several cultivated fruit trees (quince, apple) in the unit. The majority of the unit is a graminoid-dominated, moisture-receiving lower slope and depression area. Soils are wet, with some slough sedge dominated areas exhibiting patches of standing water during winter months. The wet depression area drains through a ditch under the driveway and into Cove Creek.

Significant Ecological Features

- Wet depression areas draining into Cove Creek.

Associated Baseline Report Ecological Communities

01, 18, 19, 21

Associated Management Plan Designation

Integrated Management Area

Multi-use Facility Area

Management Goals

1. Develop facilities and infrastructure that support single and multi-day learning opportunities and model sustainable systems or green methods for energy and food production, waste management, water supply and construction.
2. Explore opportunities for development, production and marketing of products derived from small-scale sustainable agroforestry, forest-use and activities that contribute to ecological restoration.
3. Provide opportunities for experiential learning, research programs and the development of innovative practices for sustainable production of food, timber and non-timber products.
4. Maintain and restore the integrity of ecological communities.

Management Objectives

1. Maintain and improve caretaker residence, parking area and storage infrastructure.
2. Remove derelict structures.
3. Maintain small, flat gathering or event area (current stage area).
4. Maintain existing 'heritage' fruit trees.
5. Maintain light conditions favorable for growth of agricultural activities in Garden (18) unit.
6. Provide and maintain trail infrastructure suitable for vehicles (quads?) and foot access to the Market Garden – Orchard (3) and Firewood Forest (4) units.
7. Maintain vehicle driveway and turnaround to a standard appropriate for emergency vehicles.

8. Restore hydrology through rehabilitation of unused roads and other heavily impacted areas.
9. Identify and manage for sustainable timber and non-timber uses including firewood or construction wood and native food or medicinal species.
10. Restore native forest composition, structure and function with consideration of above objectives.
11. Provide ecological connectivity across the valley.

Ecological Restoration Priorities

1. Restore hydrology through rehabilitation of unused roads and other heavily impacted areas.

Cove (20)

1.55 ha

Description

The Cove unit is a small, heavily disturbed, bowl-shaped area that includes the outflow of seasonal Cove Creek and the access road to the cove. The area is variable and includes heavily disturbed road sites dominated by exotic grasses, sparse canopy woodland with a mix of arbutus, regenerating Douglas-fir poles, mature Douglas-fir, Garry oak, as well as the odd red alder and bigleaf maple, and a shrub-dominated steep seepage bank characterized by Pacific ninebark, willow, bigleaf maple and oceanspray. The unit also includes a steep, exposed, south-facing bluff that has recently been selectively logged and characterized by large bedrock and boulder outcrops, mixed with exotic grass-dominated, flatter benches. A significant area within the unit has thick, continuous groundcover of European periwinkle (*Vinca* sp.). Another invasive species of note is evergreen blackberry (*Rubus laciniatus*), with several well-established patches scattered throughout the polygon.

Significant Ecological Features

- Cove Creek and associated riparian. Specifically the area around the waterfall/cascade characterized by shrub-dominated seepage areas with a mix of willow and Pacific ninebark, bigleaf maple and oceanspray (Ecological Community 08).
- Garry oak associated ecosystem adjacent to Cove creek riparian (Ecological Community 08).

Associated Baseline Report Ecological Communities

04, 06b, 07, 08, 10, 11, 21

Associated Management Plan Designation

Integrated Management Area

Multi-use Facility Area

Management Goals

1. Develop facilities and infrastructure that support single and multi-day learning opportunities and model sustainable systems or green methods for energy and food production, waste management, water supply and construction.
2. Provide opportunities for experiential learning and research programs.
3. Create interpretive information and educational opportunities.
4. Provide access to the ocean for non-motorized personal water-craft.
5. Maintain and restore the integrity of ecological communities.

Management Objectives

1. Explore the development of micro-hydro power generation system on Cove Creek.
2. Develop safe, easy access to the intertidal area in the cove.
3. Provide and maintain a safe foot trail route to the cove (avoid sink holes and wet soil areas).
4. Restore Cove Creek to its natural location (or restore natural structure in its existing location) and re-establish riparian vegetation on disturbed areas.
5. Explore development of wind energy infrastructure.

6. Designate area and develop minimal infrastructure required for temporary storage of kayaks/canoes (ensure that intended restrictions of the Kleiman Estate shoreline covenant are honored).
7. Restore hydrology through rehabilitation of unused roads and other heavily impacted areas.
8. Restore native forest composition, structure and function with consideration of above objectives that provides ecological connectivity between adjacent mature Coastal Ridge Units (1a and 1b).
9. Control spread and reduce cover of periwinkle.

Ecological Restoration Priorities

1. Restore Cove Creek to its natural location (or restore natural structure in its existing location) and re-establish riparian vegetation on disturbed areas.
2. Restore native forest composition, structure and function with consideration of above objectives that provides ecological connectivity between adjacent mature Coastal Ridge Units (1a and 1b).
3. Control spread and reduce cover of periwinkle.