

# Management Plan for the Medicine Beach Nature Sanctuary North Pender Island (2006)



***prepared for***

*Islands Trust Fund Board  
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***by***

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## **MAPS AND APPENDICES**

Aerial Photographs of Medicine Beach Nature Sanctuary

Photographs of signage

Zoning Map of Medicine Beach Nature Sanctuary

CDC Site Basic Record for Medicine Beach Marsh

Community Types of Medicine Beach Marsh, CDC

### **In Files:**

Medicine Beach Watershed Study, 1995

Medicine Beach Development Options, 1995

Constitution and By-Laws, PICA

Zoning Map of North Pender Island

Measuring Ecosystem Health at the Medicine Beach Nature Sanctuary: The State of the Sanctuary in 2005, Linneus

2005 Monitoring Report for the Medicine Beach Nature Sanctuary, North Pender Island, Ian Giesbrecht, Nature Conservancy of Canada, July 2005

## A. INTRODUCTION

### A.1 ISLANDS TRUST FUND VISION

#### The object of the Islands Trust is

“...to preserve and protect the trust area and its unique amenities and environment for the benefit of the residents of the Trust Area and of British Columbia generally, in cooperation with municipalities, regional districts, improvement districts, other persons and organizations and the government of British Columbia.”

The *Islands Trust Act* (the *Act*) establishes the Islands Trust Fund (ITF), “for the purposes of carrying out the object of the Trust.” The *Act* also establishes the Trust Fund Board “to administer the trust fund and to manage the real and personal property assets of the Trust Fund.” The Board is authorized to acquire and hold money, land, and interests in land within the Trust Area for purposes of carrying out the object of the Islands Trust. The Trust Fund Plan (TFP), prepared by the Trust Fund Board in accordance with the requirements of Section 44 of the *Act*, outlines the vision, priorities, goals, and policies of the Board and actions which will be taken to support the object of the Islands Trust.

The **vision** of the Trust Fund Board is to create a legacy of special places, protecting both natural and cultural features in perpetuity, in order to help sustain the unique character and environment of the Islands Trust Area.

The **mission** of the Islands Trust Fund, as an active regional land trust, is to protect special places by encouraging, undertaking, and assisting in voluntary conservation initiatives within the Islands Trust Area.

These voluntary conservation initiatives include:

- conservation education,
- land donations and acquisitions to create protected areas, and
- private land stewardship through conservation covenants and similar tools.

It is the policy of the Trust Fund Board that management plans should be prepared for properties owned by the Trust Fund Board. These plans will vary according to the specific characteristics, needs, and proposed use(s) of the property. Generally, management plans will address the following matters:

- purpose and objectives for the site,
- background information including the site history and local and regional context,

- environmental inventory,
- management issues such as the extent and nature of protection required, appropriate uses and level of use, research guidelines, risk management, special needs at the site, and
- strategies and actions to achieve the purpose and objectives for the site and to address management issues and needs.

Local community groups may be requested to enter into management agreements with the Trust Fund Board regarding management operations and responsibilities on Board properties.

## **A.2 BACKGROUND SUMMARY**

The Management Plan for the Medicine Beach Nature Sanctuary was first developed in 1997 with information and input from:

- 1) Medicine Beach Marsh Watershed Study (Reimer and Grange, 1995);
- 2) Medicine Beach Development Options (Ostrinsky et al., 1995);
- 3) Conservation Data Centre site assessment (MOELP June 1992);
- 4) Tracking Lists for Vertebrate Animals, Vascular Plants and Plant Communities (BC Conservation Data Centre 1995);
- 5) consultations with Island Trust Staff; and
- 6) local residents.

The Plan was revised in 2005 in consultation with the Pender Islands Conservancy Association.

### ***Project History***

**1995** – The land for the Medicine Beach Nature Sanctuary was donated to the Trust Fund Board by the Pender Islands Conservancy Association (PICA) in 1995. PICA raised a total of \$533,997 for this acquisition. Of this amount:

- the Pender Island community contributed \$267,000;
- the Atkins family (former owners of the property) donated \$127,000;
- the Habitat Conservation Fund of the BC Ministry of the Environment contributed \$70,000;
- Wildlife Habitat Canada contributed \$50,000;
- Nature Conservancy of Canada contributed \$10,000; and
- the Capital Regional District contributed \$10,000.

The total purchase cost was \$477,000. The remaining funds held by PICA were put into a management account for the property.

- 1997** – The Board approved the Management Plan for the Medicine Beach Nature Sanctuary.
- 1998** – PICA entered into a management agreement with the ITF. The starting date of the agreement is January 1, 1998 and the termination date is October 1, 2023
- 2000** – A conservation covenant on the land was given to the Nature Conservancy of Canada and Habitat Acquisition Trust in 2000.
- 2002** – A public meeting was held on North Pender Island to assess residents' interest in transferring the Medicine Beach Nature Sanctuary to the new Gulf Islands National Park. A split vote by the public resulted in the following resolution by the Board:
- Resolution #TFB 02/373**
- It was MOVED and SECONDED that the Board will not transfer the Medicine Beach Nature Sanctuary on Pender Island to Parks Canada. If, once the management plan for the Gulf Islands National Park Sanctuary is completed, Parks Canada submits a new conservation proposal then the Board is willing to reassess this position
- 2002** – The Board approved the installation of a gate and a sign attached to the gate to prevent four-wheel driving on the Nature Sanctuary.
- 2004** – The Board asked the North Pender Local Trust Committee (LTC) to rezone the area outside the foreshore in front of the Nature Sanctuary to "Water Conservation". This undertaking is on the work program for consideration by the LTC in 2006.
- 2004** – A fence barrier was erected to protect the provincially rare plant called Henderson's checker-mallow (*Sidalcea hendersonii*) from the deer population.
- 2004** – PICA installed stairs, a bench and fencing on the bluff area of the Nature Sanctuary.

- 2005** – The ITF hired a contractor to evaluate the health of the Nature Sanctuary. The resulting report is entitled *Measuring Ecosystem Health at the Medicine Beach Nature Sanctuary: The State of the Sanctuary in 2005*.
- 2005** – NCC performed an extensive evaluation of the Nature Sanctuary. The final report on this work is entitled *2005 Monitoring Report for Medicine Beach Nature Sanctuary*.
- 2006** – The Trust Fund Board, PICA and the covenant holders approved this updated management plan.

### ***General Description***

The Medicine Beach Nature Sanctuary is 8.44 ha (20.12 acres) in size and includes a 2 ha (5 acre) marsh, with the remainder in coastal bluff and forested uplands. The marsh is a good example of a brackish marsh, which is rare in the Gulf Islands. Located at the head of Bedwell Harbour, the property includes 660 feet of beach front with spectacular views. The property is bisected by a public access road on the north side of the marsh. The upland area is north of this road and comprises Douglas-fir, western red cedar, and grand fir forest. Ocean frontage in this area is a bluff 23 m (75 ft) high and 76 m (250 ft) long. The boundary only extends down to the high-tide line.

### ***Value to the Community***

The Medicine Beach Nature Sanctuary is ideally located in relation to the areas of high population density on North and South Pender islands. It offers magnificent views to and beyond the mouth of Bedwell Harbour. The marsh may be easily observed from the beach or from Wallace Road, which runs behind it. The beach area offers varied recreational opportunities for all ages, including limited trail access through the forested area. In addition, its value as an outdoor classroom is exceptional. The ecological relationship between upland forest, marsh, and tidal flow and the importance of these relationships to wildlife habitat are well illustrated at this site. The property has many characteristics of interest to the Trust Fund Board and representative of the island's natural history.

### ***Value to Province***

Relatively undisturbed marshes of the type located at the Medicine Beach Nature Sanctuary are uncommon in the Coastal Douglas-fir Zone. Protection of this marsh is a valuable contribution to protected areas in the British Columbia.

Medicine Beach Nature Sanctuary contains several species and plant communities that are designated as rare or endangered on provincial lists.



## **B. SANCTUARY DESCRIPTION**

### **B.1 PURPOSE**

The purpose of this conservation initiative is to protect, in perpetuity, the brackish marsh, upland forest, coastal bluffs and beach for the benefit of the residents of the island and the province generally. The property will be protected as a nature sanctuary.

### **B.2 GOALS**

The management goals for the Medicine Beach Nature Sanctuary are:

1. preservation of the Medicine Beach marsh as an undisturbed natural area and wildlife sanctuary;
2. maintenance of the forested areas as natural habitat;
3. provision of low impact public access in areas where such uses are compatible with protection of other values;
4. ensuring that recreational uses of the property are consistent with protection of ecological and archeological values; and
5. allowing natural ecological processes to continue.

### **B.3 SANCTUARY MANAGEMENT**

A formal management agreement has been signed between the Trust Fund Board and the Pender Islands Conservancy Association to ensure long term management of the Nature Sanctuary in accordance with this management plan.

## **C. PHYSICAL AND NATURAL FEATURES DESCRIPTION**

### **C.1 LOCATION**

Medicine Beach Nature Sanctuary is located at the head of Bedwell Harbour on the southeastern side of North Pender Island.

### **Legal Description**

The Medicine Beach Nature Sanctuary is 8.44 hectares (20.12 acres) in size and is described in the land registry as:

Lot 1, Section 7, North Pender Island, Cowichan District, Plan 16534

### **Map Location**

Map sheets: 92-B/14      Air Photo: BC85013-178  
10U 4803 54006

## **Directions to Site**

From the Otter Bay Ferry Terminal take Otter Bay Road. Turn right on Bedwell Harbour Road which will become Canal Road and later Aldridge Road (approx. 8 km). Before the road curves sharply to the right to become Schooner Way, turn left, and bear left to the parking area at the beach.

## **C.2 SITE DESCRIPTION**

### **Climate**

The climate of the Gulf Islands has been described by Chiltern (1975), and reviewed by Els and Craigdallie (1980). Ussery (1994) summarizes their work as follows:

While there is some minor local variation, climatic averages are relatively consistent throughout the area. Since Gulf Island weather stations record only temperature and precipitation, the similar but more comprehensive records from Victoria International Airport are used to describe the climate of the region.

Climate in the southern portion of the Strait of Georgia exhibits a characteristic pattern of warm, dry summers and mild, wet winters. The maritime influence tends to moderate the effects of elevation, latitude, and aspect on local temperature and precipitation.

Temperature can range from 35 C to -15 C but is generally much more moderate. The mean temperature of the warmest month is about 16 C and in the coldest month is about 3 C. The frost free period is just over 200 days.

Annual precipitation is approximately 870 mm. Precipitation generally increases from sea level to hilltops, and about 80 percent falls between October and March. Less than six percent of winter precipitation falls as snow, which rarely lasts more than a few days on the ground. July is the driest month.

Warm temperatures and low precipitation in the summer months lead to a pronounced drought or moisture deficit. Moisture deficits are influenced by aspect, slope, vegetation cover, and the ability of the soil to retain moisture. The moisture deficit usually begins in May and ends with the autumn rains in early October.

## **Physiography**

The Medicine Beach property is roughly triangular in shape with the base along the shoreline. Elevation increases rapidly from sea-level to 100 meters in the upland forest area, which is located in the northern portion of the property. The marsh lies in the southwest corner. A bluff rises steeply along the northern edge of the beach front.

## **Geology and Soils**

The bedrock geology in the vicinity of Medicine Beach is described by Ostrinsky et al (1995) as represented by three formations of the Cretaceous age Nanaimo Group. These formations include in ascending order: Protection (mid Campanian; 80 million years), Cedar District, and De Courcy (late Campanian stage; 75 Ma). The Protection Formation comprises thin to thick bedded, medium to coarse grained sandstone with subordinate amounts of siltstone, shale, and coal. It outcrops along the ridge to the south of Medicine Beach. The Cedar District Formation, which underlies the Medicine Beach area, includes thin bedded silty shale and siltstone with minor amounts of fine grained sandstone. These sediments were deposited in a relatively deep marine setting, the bottom of which has been estimated at 200–600 meters water depth. The De Courcy Formation is composed of mostly thick bedded, medium to very coarse grained sandstone and occasional conglomerate, consisting of chunky rocks within a finer matrix, and outcrops on the ridge to the north of Medicine Beach.

Topography and thus drainage are largely controlled by the bedrock geology. No major faults occur in the vicinity of the study area (although there are two elsewhere in the island.) The very fine grain material (clastics) of the Cedar District Formation eroded more easily leaving the valley occupied by Bedwell Harbour and the Medicine Beach area. This fine siliclastic also restricts groundwater flow and may have had an effect on the location and maintenance of the marshy area adjacent to Medicine Beach. The coarse grained Protection and De Courcy formations represent the major aquifers in the area. Contacts between these formations and the Cedar District Formation may represent particularly good conduits for water flow. The steep generally easterly dip of the beds directs flow. The steep dip affects the marshy area and makes it susceptible to drying if discharge into the marsh is significantly reduced.

Reimer and Grange (1995) have classified soils within the Nature Sanctuary and described soils of the adjacent drainage areas as follows:

- 1) The soil in the main body of the marsh is Metchosin, similar to that of other marshes on the Gulf Islands. These areas usually have water present year round, at or near the surface. The marsh has some standing water most of the year. The water is brown stained.
- 2) The soils associated with the stream are Qualicum (QU), which is identified as a gravelly, sandy loam soil type. The stream has little pools

and pockets of gravel typical of small fish-bearing creeks on the Gulf Islands. The gravel is of various sizes, predominantly 1–3 cm.

- 3) The soils associated with the upland forest are Parksville-Tolmie. Again, this indicates suitable locations for year round water.

## **Hydrology**

Medicine Beach Marsh is fed by three main watercourses with associated watershed areas. These are described by Reimer and Grange (1995). The total watershed area was estimated from cadastral scale plans as 120 ha.

The first watershed has an estimated area of 31 ha. It includes the area between Schooner Way and Magic Lake to the west and extends to the south approximately 1/3 of the length of Wallace Road. The watershed is well treed generally and shows a low level of disturbance. The stream is in a very natural state, with spring-fed flows persisting through the summer months.

The second watershed lies to the north of the first, extending as far as Lively Peak in Magic Lake subdivision. It has an estimated area of 42 ha and includes a small part of Prior Park. The area contains a number of developed lands, and land clearing and construction is ongoing.

The third watershed has an estimated area of 47 ha and includes the majority of Prior Provincial Park. A wetland near Canal Road and up-stream of the elementary school is also noted.

Three distinct water courses feeding into the marsh are associated with these watersheds. Two of these are ephemeral and the third is spring fed and running at +/- 3000 litres/day.

The first water course rises from springs near the south west boundary of Lot 7, Section 7, and flows into a large wetland above Wallace Road. The wetland is estimated to be 1 ha in extent. After leaving the wetland, the stream enters the marsh through a culvert. This first water course is one of only two year-round creeks identified on North Pender Island.

The second water course rises south of Schooner Way near Fire Hall No. 2 and flows toward the east. This water course passes under Schooner Way and parallels the road all the way to the marsh, where it crosses Wallace Road via culvert to enter the marsh.

The third water course rises within Prior Provincial Park and, after passing through a culvert under Canal Road, enters a flat wetland area. This area is

estimated as 2 ha in extent and had standing water at the time of the study. This water course passes through a culvert under the school grounds and under Canal Road before passing through the upland forested area of the Nature Sanctuary and entering the marsh through a culvert under the public access road.

### **C.3 BIOTA**

#### **Vegetation and Landscape Classification**

Medicine Beach Nature Sanctuary lies within the Coastal Douglas-fir moist maritime (CDFmm) biogeoclimatic zone.

The following site series and plant associations are represented in the Nature Sanctuary. Their rarity on the Conservation Data Centre (CDC) tracking lists is noted, red-listed being rare or endangered and blue-listed being threatened.

*Site Series:*

- 01 Douglas-fir/Salal (red)
- 02 Douglas-fir/Arbutus/Garry Oak (red)
- 04 Douglas-fir/Grand Fir/Oregon Grape (red)
- 11 Red Alder/Skunk Cabbage (blue)

Vegetation communities are most strongly differentiated by available soil moisture, depth, and nutrient status. The marsh can be described as a pulse stabilized ecosystem, which means it is adapted to changes in tidal and freshwater flows.

There are seven distinct zones within the Medicine Beach Property, based upon vegetation characteristics:

- 1) Marsh
- 2) Beach
- 3) Bluff: Arbutus/Garry Oak/Twinflower
- 4) Douglas-fir/Grand Fir forest
- 5) Douglas-fir/Salal forest
- 6) Disturbed Road Zone: Big Leaf Maple/Blackberry
- 7) Red Alder/Skunk Cabbage community

#### **Flora**

The marsh area can be further subdivided into nine different plant communities.

Non-marsh dominant and subdominant trees and major understory species were inventoried in September 1995 (based on one site visit) by Ostrinsky et al (1995) and include: Douglas-fir, western redcedar, grand fir, arbutus, red alder, bigleaf maple, Garry oak, skunk cabbage, blackberry, Nootka Rose, twinflower, swordfern, bracken fern, Saskatoon, salal, strawberry, Oregon grape, horsetail, wild lettuce, and rattlesnake plantain.

A comprehensive inventory of the marsh community was conducted in June 1992 by the Conservation Data Centre which listed nine plant communities found:

- Community 1 gravel beach: unvegetated beach line of sand and cobbles;
- Community 2 dunegrass (*Elymus mollis*) - beach pea (*Lathyrus japonicus*) - silver burweed (*Ambrosia chamissonis*) on sands;
- Community 3 Nootka Rose (*Rosa nutkana*) shrub community on gravel. Although influenced by human activity, this community is a natural successional component of the marsh ecosystem;
- Community 4 seacoast bulrush (*Scirpus maritimus*) community occurring in shallow open water;
- Community 5 seashore saltgrass (*Distichlis spicata*) community occurring on salt flats;
- Community 6 slough sedge (*Carex obnupta*) - small flowered bulrush (*Scirpus microcarpus*) community on a seepage site at edge of the marsh;
- Community 7 silverweed (*Potentilla anserina ssp.pacifica*) - creeping spike-rush (*Eleocharis palustris*) - marsh peavine (*Lathyrus palustris*) on organic soil, with some standing water (marsh peavine, a rare plant rated S3S4, is a co-dominant species of this community type. Henderson's checkermallow (*Sidalcea hendersonii*) is rated S3 and occurs adjacent to this community type, bordering Community 9;
- Community 8 cattail (*Typha latifolia*) - soft stemmed bulrush (*Scirpus validus*) in shallow open water; and
- Community 9 red alder (*Alnus rubra*) - Nootka rose (*Rosa nutkana*) - black hawthorn (*Crataegus douglasii*) on gravels. This area also is disturbed and modified by construction of the berm and building. The edge of this community shows the highest degree of disturbance in terms of introduced and weedy plants.

The site is considered significant due to the presence of multiple marsh communities ranked S1. The shrub-dominated types found directly behind the beach berm are becoming less common in the Gulf Islands and southeastern Vancouver Island as development continues in these coastal areas and are therefore "rare or uncommon". These communities may be susceptible to large-

scale disturbances or have lost extensive peripheral populations. Of the vascular plants which occur at the site, Henderson's checkermallow (*Sidalcea hendersonii*) is rated S3, and marsh peavine (*Lathyrus palustris*) is on the "watch" list, indicating a concern for its future.

Due to changes in plant community classification, some of the plant communities originally described at Medicine Beach have changed. In addition, the BC Conservation Data Centre (CDC) now tracks ecological communities instead of plant communities.

### Wetland Plant Communities

The wetland plant communities at Medicine Beach referenced in the management plan were described by the BC Conservation Data Centre based on a site visit in 1993. Several of the wetland plant communities were described as being ranked S1 (red-listed), although they were not at that time on the CDC tracking list. In 2004, provincial wetland classification was completed by the Ministry of Forests (MacKenzie and Moran 2004), and the CDC now follows that wetland classification in its definition of ecological communities of wetlands, using the MOF wetland site associations.

As with all classification systems, it is sometimes the case that a particular site does not match described units. Site identification for wetlands can be difficult because wetlands are particularly dynamic ecosystems, and are often in transition from one wetland type to another or a hybrid between two or more wetland types.

The diverse complex of wetland plant community types at Medicine Beach makes it difficult to neatly fit the site into one existing wetland site association. Medicine Beach seems to be a hybrid of wetland site associations, with the predominant wetland site association present in the estuarine wetland class being Em03 Seashore saltgrass (*Distichlis spicata* var. *spicata*). This site association is tracked by the CDC as *Distichlis spicata* var. *spicata* Herbaceous Vegetation, and is ranked S1S2 (red-listed).

The other wetland plant community types mentioned by the CDC in the original management plan are still found at the marsh, but most are not tracked as such by the CDC. The exceptions are the common cattail marsh (*Typha latifolia*) Marsh community, ranked S3 (blue-listed), Wm05 in the provincial wetland classification, and the red alder/skunk cabbage (*Alnus rubra/Lysichiton americanus*) swamp community, ranked S2S3 (blue-listed).

Upland Plant Communities

In upland ecosystems, three of the forested plant communities mentioned on page 9 and 11 of the original management plan have changed, and two others are present at the site. The Garry oak-arbutus plant community is still present, and is still ranked S1 (red-listed). The red alder/skunk cabbage community is also still present, mentioned above in the wetland section.

Previous Plant Community	Current Ecological Community	Conservation Status
Douglas-fir/salal	none	
Douglas-fir-arbutus-Garry oak	Douglas-fir-arbutus	S2 (red-listed)
Douglas-fir-grand fir/Oregon grape	Douglas-fir/Oregon grape	S2 (red-listed)

Two additional ecological communities tracked by the CDC are present at the site but were not mentioned in original management plan. They are:

- Douglas-fir/Alaska oniongrass, S1 (red-listed)
- Western red cedar-Douglas-fir/Oregon beaked-moss, S1 (red-listed)

Plants of the Marsh, Bluff, and Upland Forest

The following is a partial list of plant species found at the marsh and in the upland forest and bluff at Medicine Beach in 2005. Uncommon plants are noted with (U), introduced species with \*, provincially blue-listed (vulnerable) species with (B).

Alaska oniongrass	fairyslipper	salal
American glasswort	falsebox	salmonberry
American searocket	field chickweed	Saskatoon
arbutus	Garry oak	Scotch broom*
Awnead haircap moss	grand fir	sea blush
Badge moss	hairy cat's ear*	seacoast bulrush
baldhip rose	hairy honeysuckle	seashore saltgrass
Barren brome	hard-stemmed bulrush	seaside plantain
Beach pea	hedge mustard*	shepherd's purse*
bigleaf maple	hedgehog dogtail*	Siberian miner's lettuce
big-leaved sandwort	Henderson's checker-mallow (B)	silver burweed
black hawthorn	herb-robert*	silver hairgrass*
black raspberry	hoary rock moss	skunk cabbage
blue wildrye	Hooker's onion (U)	slender beaked moss
blue-eyed grass (U)	horsetail	slough sedge
blue-eyed Mary	juniper haircap moss	small hop-clover*
bracken fern	lady's mantle	small-flowered alumroot
Broad-leaved starflower	lanky moss	small-flowered bulrush
Broad-leaved stonecrop	large leafy moss	small-flowered fringe cup
Broom moss	large-leaved sandwort	snowberry



California oatgrass	licorice fern	sow-thistle*
Canada thistle*	long-stoloned sedge (U)	spike bentgrass
Cattail	marsh peavine (U)	spurge-laurel
chickweed monkeyflower (U)	miner's lettuce	step moss
cleavers*	nodding onion	stinging nettle*
coastal strawberry	Nootka rose	Suksdorf's mugwort
Columbia brome	northern starflower	sweet vernalgrass*
common draba*	oceanspray	sword fern
common forget-me-not	orache*	tall Oregon grape
common groundsel*	orchard grass*	tansy ragwort*
common rush	Oregon beaked moss	thimbleberry
common salsify*	Oregon grape	trailing blackberry
common silverweed	Pacific crab apple	twinflower
common spike-rush	Pacific hemlock-parsley	vanilla leaf
common stork's-bill*	Pacific sanicle	wall lettuce*
creeping bentgrass*	Pacific water-parsley	Wallace's selaginella
Curled dock	Pacific willow	western buttercup
death camas	pathfinder	western coralroot
Douglas-fir	Puget Sound gumweed	western fescue
dovefoot geranium*	rattlesnake plantain	western red cedar
dull Oregon-grape	red alder	western yew
dunegrass	red elderberry	white-flowered hawkweed
dwarf owl-clover	red goosefoot	wild carrot*
early blue violet	red huckleberry	woodland tarweed
early hairgrass*	ribwort plantain*	yarrow
electrified cat's tail moss	roadside rock moss	yerba buena
enchanter's nightshade	Rocky Mountain juniper (U)	
European bittersweet*	rose campion*	

### Changes Over Time in the Conservation Status of Plant Species

***Sidalcea hendersonii*, (Henderson's checker-mallow)** was listed as S2 (red-listed) in the original (1996) version of this management plan. The 2005 status of *Sidalcea hendersonii* is **S3 (blue-listed)**.

***Lathyrus palustris* (marsh peavine)** was listed as ranked S2 (red-listed) in the original (1996) version of this management plan. *Lathyrus palustris* is currently (2005) ranked S3S4 and, although uncommon, is considered **secure and not at risk of extinction**.

## Fauna

### **Original (1996) Management Plan**

The original plan noted that the marsh housed ground-nesting birds such as the Virginia Rail, Mallard, and Canada Goose, and that Ospreys nested nearby. Other fauna recorded on this site were as follows:

Birds

American Robin	Anna's Hummingbird	Bald Eagle
Barrow's Goldeneye	Belted Kingfisher	Bewick's Wren
Black-throated Gray Warbler	Brownheaded Cowbird	Bufflehead
Common Goldeneye	Common Loon	Common Nighthawk
Common Raven	Common Snipe	Common Yellowthroat
Glaucous-winged Gull	Golden Eagle	Great Blue Heron (blue)
Horned Grebe	MacGillivray's Warbler	Northern Flicker
Northern Harrier	Northern Rough-winged Swallow	Northwestern Crow
Olive-sided Flycatcher	Orange-crowned Warbler	Pileated Woodpecker
Red-breasted Merganser	Red-necked Grebe	Red-tailed Hawk
Red-winged Blackbird	Rufous Hummingbird	Rufous-sided Towhee
Song Sparrow	Surf Scoter	Swainson's Thrush
Thayer's Gull	Townsend's Warbler	Turkey Vulture (blue)
Violet-green Swallow	Virginia Rail	Western Grebe (red)
Winter Wren		

Animals

	Mink	River Otter
Black-tailed Deer	Northwestern Garter Snake	Rough-skinned Newt
Common Garter Snake	Pacific Tree Frog	Wandering Shrew
Deer Mouse	Red-legged Frog	

**Revised Management Plan (2005)**

Studies conducted shortly before this plan was revised resulted in the following lists:

Birds of the Marsh, Beach, Bluff, and Upland Forest (2005)

Provincially red-listed and blue-listed birds denoted by 'R' or 'B'

American Robin	Anna's Hummingbird	Arctic Loon
Bald Eagle	Band-tailed Pigeon	Barn Swallow
Barred Owl	Barrow's Goldeneye	Belted Kingfisher
Bewick's Wren	Black Oystercatcher	Black-throated Gray Warbler
Brown-headed Cowbird	Brandt's Cormorant (R-breeding population)	Bufflehead
Bushtit	California Quail	Canada Goose
Chestnut-backed Chickadee	Common Goldeneye	Common Grebe (R-breeding population)
Common Nighthawk	Common Raven	Common Loon
Common Yellowthroat	Common Snipe	Double-crested Cormorant (R—breeding population)
Glaucous-winged Gull	Golden-crowned Kinglet	Eurasian Widgeon
Great Blue Heron	Herring Gull	European Starling
<b>B-breeding population)</b>	House Finch	Golden Eagle
House Wren	MacGillivray's Warbler	Horned Grebe
Killdeer	Northern Flicker	Hutton's Vireo
Marsh Wren	Northern Rough-winged	
Northern Harrier		

*Medicine Beach Nature Sanctuary Management Plan (2005)*

Northwestern Crow	Swallow	Mallard
Osprey	Olive-sided Flycatcher	Orange-crowned warbler Northern
Red-breasted Merganser	Pileated Woodpecker	Goshawk
Red-tailed Hawk	Red-breasted Nuthatch	Northern Saw-whet Owl
Rufous Hummingbird	Red-winged Blackbird	Orange-crowned Warbler
Spotted Towhee	Solitary Vireo	Pine Siskin
Thayer's Gull	Surf Scoter	Red-necked Grebe
Turkey Vulture	Townsend's Warbler	Ring-necked Pheasant
Virginia Rail	Varied Thrush	Song Sparrow
Violet-green Swallow	Western Grebe	Swainson's Thrush
White-crowned Sparrow	Western Gull	Tree Swallow
Yellow Warbler	Wilson's Warbler	Western Screech Owl
Winter Wren		

*Wildlife observed at Medicine Beach Nature Sanctuary( 2005)*

(From NCC Monitoring Report)

<b>Common Name</b>	<b>Scientific Name</b>
Black-tailed deer	<i>Odocoileus hemionus</i>
Osprey	<i>Pandion haliaetus</i>
Hummingbird species	<i>Trochilidae sp.</i>
Gull species	<i>Larus sp.</i>
European starling	<i>Sturnus vulgaris</i>
American goldfinch	<i>Carduelis tristis</i>
Northwestern crow	<i>Corvus caurinus</i>
Mallard	<i>Anas platyrhynchos</i>
Red-winged blackbird	<i>Agelaius phoeniceus</i>
Hooded merganser	<i>Laphodytes cucullatus</i>
Turkey vulture	<i>Cathartes aura</i>
Great-blue heron	<i>Ardea herodias</i>
Bald eagle	<i>Haliaeetus leucocephalus</i>
Pileated woodpecker	<i>Dryocopus pileatus</i>
Canada goose	<i>Branta Canadensis</i>
Garter snake	<i>Thamnophis sp.</i>
Wandering garter snake, light morph	<i>Thamnophis elegans ssp.</i>
Western tent caterpillar	<i>Malacosoma californicum pluviale</i>

### **Studies/Inventories of Natural Features**

The following studies and inventories contain information relating to the Medicine Beach Nature Sanctuary:

- Trust Fund Inventory of Special Areas and Features. (Booth J. and Associates, 1995);
- Tracking Lists of Vertebrate Animals, Vascular Plants and Plant Communities (Conservation Data Centre, 1995);
- Pender Island Ground Water Pilot Project: Final Report (Pilot Project Committee, 1994);

- Medicine Beach Marsh: Watershed Study (Reimer and Grange, 1995);
- Medicine Beach Development Options (Ostrinsky et al., 1995);
- Sensitive Ecosystems Inventory (Conservation Data Centre, 1993);
- Islands Trust Ecosystem Mapping (ITEM) 2003;
- Measuring Ecosystem Health at the Medicine Beach Nature Sanctuary: The State of the Sanctuary in 2005; and
- Nature Conservancy of Canada's Monitoring Report for 2005.

These studies can be used in association with this management plan to provide additional information.

#### **C.4 THE STATE OF THE SANCTUARY IN 2005.**

The following is an excerpt from the report entitled *Measuring Ecosystem Health at the Medicine Beach Nature Sanctuary: The State of the Sanctuary in 2005*

##### **Vegetation**

The marsh ecosystem is generally of good quality and condition, and continues to show a remarkable diversity of ecological communities for its small size. The zonation of wetland plant communities at Medicine Beach Marsh has not changed significantly since the original inventory in 1993; the small changes in zonation and species composition are a function of natural successional processes. The wetland plant communities identified by the BC Conservation Data Centre (CDC) are still present, although would be mapped today somewhat differently than in the original diagram done by CDC staff in 1993 (diagram appears in the current version of the management plan). There has been an increase in creeping bentgrass (*Agrostis stolonifera*), an introduced European grass fairly common in brackish marshes. The cover of creeping spike-rush (*Eleocharis palustris*) has also increased, as has slough sedge (*Carex obnupta*).

The population of the provincially blue-listed Henderson's checker-mallow is stable despite deer predation. The recent fencing of the majority of the population will ensure the survival of this plant at the marsh.

##### **Eutrophication**

The interior open water areas of the marsh have become eutrophic in the past few years, producing algal blooms, stagnation, and odors associated with anaerobic activity. This could be due to increased nutrient flow into the marsh from above, and/or due to the blockage of the inflow/outflow stream, resulting in reduced flow of water

through the marsh. However, it is not possible to determine the cause of eutrophication without baseline data. The effects of lower oxygen levels on fish and invertebrates (due to high organic production rates) can be significant; therefore, efforts should be made to establish baseline data and determine the cause of the nutrient inputs to the marsh ecosystem.

## **Current State (2005) of Upland Forest and Bluff**

### Vegetation

The maturing second growth forest and bluff in the upland portion of the Sanctuary are in good condition. The forested area is beginning to show older forest characteristics, with a well-developed moss layer, coarse woody debris, multi-aged stand, and many veteran trees.

### Invasive Plant Species

Spurge-laurel was observed in several places in the Sanctuary, primarily in forested areas. It is an invasive plant species, and can spread through forest ecosystems, crowding out native species and thus reducing biodiversity. Scotch broom was also observed in several areas.

In addition to this list, the 2005 monitoring survey by NCC observed that orchard grass (*Dactylis glomerata*), an invasive species, is also common along the berm. Also, , European starlings were observed nesting in the large Douglas-fir tree located above the stone sign adjacent to the parking lot . Two adults were seen flying to and from the cavity on repeated occasions, suggesting the presence of a brood in the nest. European starling are an introduced species thought to displace native cavity nesting species and are considered a threat to the Red listed Purple Martin, among other birds.

## **D. CULTURAL FEATURES DESCRIPTION AND BACKGROUND**

### **D.1 ARCHAEOLOGICAL**

Archaeological evidence indicates that human occupation of the Pacific Northwest began as much as 10,000 years ago. First Nations peoples developed their various cultural identities over this great span of time.

A full excavation of the site along the Canal between North and South Pender Islands dates First Nations occupation as far into the past as 5170 years before present (B.P.) (Carlson & Hobler, 1993). Various archaeological cultural phases were identified on these sites including the Mayne Phase (5500 to 3100 B.P.), Locarno Phase (3100 to 2100 B.P.), San Juan Phase (2100-1500 B.P.), and Marpole Phase (1500-European Contact) (Carlson, 1976). With the advent of Europeans in the 16<sup>th</sup> century a period of cultural change began. Post-contact cultural groups noted to have used Pender Islands as seasonal resource bases were the Coast Salish, Saanich and Cowichan. European occupation on Pender Islands is believed to have started with sheep farmers as early as 1877. The cultural and heritage resources of the Pender Islands play a part in recording the numerous First Nations' occupation sites and the history of European settlers.

A shell midden which stretches across the top of the beach on the Medicine Beach property has archaeological significance. A survey of the site in 1974 designated the property as a protected site (Site no. DERT 15) under the *Heritage Conservation Act*. At the time of the survey, the shell midden spit measured 190 x 10 m. Depth of the deposit is at least 1 meter with the midden 5 to 6 meters wide. The 1974 survey did not include test pits or excavation. The formation of the shell midden is of interest because studies of shell middens in the Gulf Islands suggest that some middens were formed in order to create a lagoon such that fish could be trapped and netted as a food resource. Some lagoons may have developed into spawning grounds for salmon. It is likely that Coastal Salish (Saanich and Cowichan) used the area as a seasonal resource base.

## **D.2 HISTORICAL**

The area was pre-empted from the Crown in 1898. Logging took place in the area until 1910. Two early families, the Adams and the Mumfords, may have used the area for grazing sheep and cattle. The Medicine Beach property was owned by the Atkins family from 1970–1995 and was used as a seasonal retreat. The road from Medicine Beach to Hope Bay is the oldest road on Pender Island and is known as “Old Bedwell Harbour Road”.

The property was purchased from the Atkins family by the Pender Islands Conservancy Association in May 1995 and was transferred later that year to the Islands Trust Fund.

The beach has been used for many years by residents and visitors for recreational purposes. It has also been a valuable source of driftwood for Pender residents.

### **D.3 CULTURAL, AESTHETIC & RECREATIONAL**

Medicine Beach was traditionally used by First Nations peoples. The name Medicine Beach is thought to denote the area as a medicinal herb gathering site. It may, however, refer to Medicine Beach as a place of spiritual healing.

The Medicine Beach Nature Sanctuary offers spectacular views to the southeast out of the mouth of Bedwell Harbour. The beach front is one of the largest undeveloped beaches remaining on North Pender Island.

The Pender community and visitors to the island have long enjoyed Medicine Beach for its beauty and recreational value and as a place of inspiration and healing.

### **D.4 STUDIES/INVENTORIES OF CULTURAL FEATURES**

An Archaeological Report of Medicine Beach was prepared by Archaeological Branch in 1974.

## **E. COMMUNITY PLANNING**

### **E.1 OFFICIAL COMMUNITY PLAN**

Several sections of the North Pender Island Official Community Plan (OCP) (Bylaw No. 83, Consolidated Sept. 5, 2003 ) are relevant to the Sanctuary. The following objectives and policies of the Official Community Plan are met or have management implications in and around the Medicine Beach Nature Sanctuary.

#### **Forestry Land Use Objectives**

- to preserve and protect the forest ecosystems;
- to sustain wildlife, natural vegetation and groundwater resources; and
- to preserve and protect the island's forested areas.

#### **Open Space, Public Recreation and Future Park Objectives**

- to retain a rural appearance through the preservation of agricultural lands, ecological sanctuaries, parks and natural areas; and
- to identify and protect ecological sanctuaries and environmentally sensitive areas and promote ecological values.

#### **Environmental Resources Objectives**

- to protect, and encourage awareness of, the environmental resources of the trust area; and
- to protect groundwater resources.

### **Heritage Resource Objectives**

- to encourage identification, protection and conservation of archaeological sites, early settlement and natural heritage features on North Pender Island; and
- to increase public awareness of heritage resources.

### **Coastal Areas Policies**

- 4.1.7 Ocean vistas may be protected by regulation;
- 4.1.10 All tidal and coastal fresh water marshland shall be retained in its natural state;
- 4.1.11 Marshes, bluffs and other natural features along the coast shall be protected from erosion, pollution and impacts of development ...; and
- 4.1.12 Maintenance of public access and the right to recreational use of the foreshore shall be protected.

### **Environmentally Sensitive Areas Policies**

- 4.1.16 Areas identified as environmentally sensitive to development because of habitat values, unique vegetation, surface and groundwater characteristics, scenic values or capability for agricultural production may be protected by regulation.

## **E.2 ZONING**

The Medicine Beach Nature Sanctuary is currently zoned ECO – Ecological. It is the policy of the Trust Fund Board that the Board will place a conservation covenant on the title of all properties held by it and the Board will request the properties be assigned zoning that reflects the nature of the conservation covenant and the management objectives for the site.

## **E.3 SURROUNDING LAND USES**

The lands adjoining the Medicine Beach Nature Sanctuary are used for a mixture of residential, commercial, and public services. References here are taken from the Zoning Bylaw Map 1978 (Gilbert & Hawksworth, Revision June 1987) and updated in 2004 with information from the Islands Trust planner for North Pender Island.

To the south of the marsh is a RR2 subdivision; Lot A, Section 7(Plan 46157) borders the marsh. One principal dwelling is allowed, plus accessory buildings totaling no more than 700 square feet in lot coverage. Each lot must provide its own water and sewage disposal.



PICA has received general designation to hold conservation covenants on private land. PICA has successfully negotiated a conservation covenant on a portion of Lot A, Section 7, Plan 46157 to protect in perpetuity the most important inflow channel and the only outflow channel for the marsh. PICA is the covenant holder and monitors the covenant annually.

In a clockwise direction, the next parcel on the west (Lot 40, Section 7) is a 60-acre parcel which extends to the south end of Magic Lake with frontage on Pirates Road as well as Wallace Road. It is zoned Rural and may be subdivided into six 10-acre lots. Each lot would be allowed one principal dwelling, accessory buildings totaling no more than 700 square feet in lot coverage and a cottage of no more than 500 square feet.

At the corner of Schooner Way and Aldridge Road (Lot 6 Section 7 Plan 1695 ) is a property zoned Commercial 1, which is currently home to three businesses.

The lands surrounding the water courses which support the marsh also have a variety of zonings. Two water courses which drain into the marsh run parallel to Schooner Way and originate in the Magic Lake subdivision.

To the northeast of the forested upland is another water course. This water course originates in Prior Centennial Park and its neighboring properties, which include the Inn on Pender and St. Peter's Anglican Church. The water course from this source runs under Canal Road, down into a wetland swamp area largely on Lots 6 and 7 (Plan 12667) and then across Lot 1 (Plan 29572). From Lot 1, the water course crosses Canal Road again in the corner of Lot 2 (Plan 40871).

North Pender Island land use regulations require setbacks of 7.6 meters from streams and wetlands. These setbacks are intended to protect streams and wetlands from damage associated with development and restrict activities within the setback area.

## **F. MANAGEMENT ISSUES**

A number of management issues have been identified for the property. They relate to natural and archaeological resource protection and public use of the area. Some issues may be associated with activities on nearby private lands and marine areas. It is recognized that these issues may be beyond the capacity of either the Islands Trust Fund or PICA to address.

In 2004 a trail improvement plan was developed and implemented by the Pender Island Conservancy Association.

Improvements such as steps, railings, and benches are completed on the existing trail which runs along the high bank foreshore to the north of the marsh. This trail is being used regularly and these trail improvements are intended to make access to the area safer, easier, and more contained, and to reduce the impacts undirected use is having on the site.

The following management issues were identified in 1996 and updated in 2005:

**Natural Resource Protection**

Identified Issue (1996 and 2004)	Status in 2005
interference with wildlife	Signage has helped to alleviate the problem—no recent reports of dogs in the marsh
watershed integrity/recharge	Larger watershed still unprotected, integrity of marsh threatened; no monitoring of water quality in watershed; possibility of diversion of water flow towards Browning Harbour
watershed pollution	Increased storm water runoff in marsh, increased nutrient inflow probable cause of eutrophication; no monitoring of activities in or near inflow streams—drum of chemicals (lid off) observed ~3 feet from stream off Wallace Rd.; pig farm, motorcycle repair, gravel pit activity in watershed; garbage left within few feet of streams
vegetation protection	The larger population of Henderson’s checkermallow has been fenced; a small population remains unfenced

**Cultural Resource Protection**

Identified Issue (1996 and 2004)	Status in 2005
midden/berm destruction	The berm continues natural gradual erosion; large logs in front of the berm offer some protection from winter storms

**Public Use**

Identified Issue (1996 and 2004)	Status in 2005
animal control	Signage has been helpful—many residents still run their dogs off-leash, but stay in beach area
beach access use for commercial hauling	No legislation exists to prevent the use of the beach area for hauling, but the easier-access Browning Harbour beach is generally preferred for hauling
camping	There is still no formal monitoring program for the Sanctuary, and campers in the forested area above the marsh can easily escape detection. There is no number to call if someone did observe campers; Sanctuary warden needed.
excessive noise	No increase in noise –not a concern at this time
falling trees	One incident in 2003 of a resident taking fallen trees from the marsh border—none since then
fire risk	No change—still high risk from campfires in bluff area
garbage	Beach clean-up days sponsored by PICA help to control garbage at the site
ocean-borne pollutants	5 mooring buoys just offshore invite boaters; toxic and disintegrating creosote-treated pilings were lashed together and anchored to one of the buoys over the winter (now removed); boating traffic and anchoring close to beach increasing with popularity of and space limitations at Poet's Cove marina; inability to protect offshore waters should be considered
steep slopes	Steps up to bluff, fencing, and a seating area have greatly reduced risk to hikers
tourism	Increase due to establishment of GINPR not yet noticed, but expected

*Medicine Beach Nature Sanctuary Management Plan (2005)*

Identified Issue (1996 and 2004)	Status in 2005
traffic	Still manageable; increased commercial activity (island tours) a concern
trespassing on adjacent lands	Signage on the south side of the marsh near boathouse has significantly reduced trespassers and there is a sign at the end of the rail on the top of the bluff which has also helped to reduce trespass however, no signage exists on the upland portion and is needed—there is no indication of Sanctuary boundaries.
vandalism	No recent reports of vandalism
trails	Although construction of steps to the bluff disturbed the sensitive habitat in the vicinity of the original trail, overall net gain in protection of coastal bluff ecosystem because the steps and trail keep hikers on the trail. Several older residents have commented that the new steps allow them access to the bluff portion of the Sanctuary for the first time.
trail maintenance	Ongoing—no pressing issues

## **G. MANAGEMENT OBJECTIVES AND STRATEGIES**

### **G.1 MANAGEMENT OBJECTIVES**

The management objectives of the Medicine Beach Nature Sanctuary are to preserve the Medicine Beach marsh as a natural area and wildlife sanctuary, to maintain the upland forest habitat, and to provide for public use in appropriate areas.

These objectives will be achieved by:

- allowing natural biological and hydrological processes to continue;
- preserving and protecting existing plant life (except non-native species);
- preserving and protecting existing wildlife habitat;
- providing public information regarding the special nature of the Sanctuary;
- ensuring recreational use is consistent with protection of ecological values; and
- providing the public with information regarding restrictions on uses of the site, such as no camping or fires allowed.

### **G.2 MANAGEMENT STRATEGIES**

To achieve the management objectives, the following strategies may be undertaken. These strategies will be reviewed and updated every 5 years.

#### **Short-term Management Strategies**

Short-term management strategies should be implemented during the first two years of this management plan.

#### ***Controlling Unacceptable Use***

The management group should organize volunteers to report occurrences of unacceptable use. One or more contact phone numbers will be publicized for this purpose. Criteria will be established for appropriate actions to be taken in response including, in the extreme, calling on the RCMP.

#### ***Removal of Invasive***

The management group shouldl organize volunteers to remove the remaining Scotch broom, Spurge-laurel, thistle and orchard grass from the Sanctuary. A plan should be developed to discourage European starling from nesting in the area.

### ***Walking Trail***

The management group should maintain the newly developed trail and advise the ITF of any future need for its maintenance.

### ***Fire Management***

The management group should prepare a fire management plan in consultation with the Pender Island Volunteer Fire Department.

### ***Signage***

The management group should establish signage on the upland portion of the property to indicate the Sanctuary's boundary.

### ***Conservation of the Foreshore***

The management group should follow up with the North Pender Local Trust Committee as to the status of the rezoning of the foreshore.

### ***Mitigating Use of the Sanctuary for Commercial Hauling***

The ITF, in cooperation with the management group and the covenant holder, should send out a letter to those companies that use Bedwell Harbour Road and the foreshore of the Sanctuary to transport houses. A copy of all correspondence should also be sent to the Ministry of Highways.

### ***Mid- to Long-term Management Strategies***

Mid- to long-term management strategies include both continuing operations and initiatives that should be implemented within two to ten years.

### ***Boundary Protection***

In partnership with the management group, TFB should contact the owners of adjacent land to seek their assistance in maintaining conservation values in the Nature Sanctuary. Covenants should be sought to create a buffer zone on neighboring properties to protect the quality and quantity of water flowing to the Nature Sanctuary.

### ***Tourism***

The management group should continue to monitor the number of tourists that use the Nature Sanctuary and report back to the Board on significant increases. Consideration may need to be given in the future to adding the Nature Sanctuary to the Gulf Islands National Park, if the public, the management group, the

Board, and the covenant holders feel that this step may be necessary due to increased use.

***Public Relations***

The general public should be made aware of the natural values of the site and the permitted and prohibited uses through information placed in local publications from time to time by the management group. Advertising of the site will not be undertaken. It should not be promoted as an attraction. No major sign will identify the Nature Sanctuary to motorists passing through the area on Schooner Way or Aldridge Road.

***Protection of the Sanctuary's Fauna***

An inventory of small mammals, amphibians, reptiles, and invertebrates should be undertaken for the Nature Sanctuary.

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## BIBLIOGRAPHY

- Archaeological Branch, 1974. Archaeological Report: Medicine Beach, Pender Island, BC. Archaeology Branch, Ministry of Small Business, Tourism and Culture. Province of British Columbia, Victoria, BC
- Booth, J. and Associates, 1995. Trust Fund Inventory of Special Areas and Features. Islands Trust Fund, Salt Spring Island, BC
- British Columbia Conservation Data Centre. 1995. Tracking Lists for Vertebrate Animals, Vascular Plants and Plant Communities. Ministry of Environment, Lands and Parks, Victoria, BC
- Capital Regional District Planning, 1995. Population Statistics: Population Growth in the Capital Region. Capital Regional District, Victoria, BC
- Carlson, R. & P. M. Hobler. 1993. "The Pender Canal Excavations and the Development of Coast Salish Culture." British Columbia Studies. No 99, (August).
- Chiltern, R. 1975. "Climatology of the Gulf Islands Trust Area." In D. R. Benn, Natural Areas Inventory: Islands of the Strait of Georgia, Howe Sound, and Haro Strait. Nature Conservancy of Canada. Appendix D.
- Conservation Data Centre, 1996. Conservation Evaluation of Goal 2 Protected Areas Candidates. SEI Islands Trust Area, Ministry of Environment, Lands, and Parks, Victoria, BC
- Els, S. and D. Craigdallie, 1980. Gulf Islands of British Columbia: A Landscape Analysis. Pacific Forest Research Centre, Canadian Forestry Service. Environment Canada, Report BC-X-216.
- Henderson, J. (in progress). Master's Degree Project. Faculty of Environmental Design, University of Calgary, Calgary, Alberta.
- Islands Trust. 1992. The Islands Trust Fund Plan. Islands Trust Fund Board, Victoria, BC
- Kenney, E.A., L.J.P. van Vliet, and A.J. Green, 1988. Soils of the Gulf Islands of British Columbia. Vol. 2, No. 43. British Columbia Soil Survey Research Branch, Agriculture Canada.
- Meidinger, D. and J. Pojar, 1991. Ecosystems of British Columbia. Special Report Series 6, Research Branch, BC Ministry of Forests, Victoria, BC
- North Pender Island Trust Committee, 1995. Zoning Bylaw No. 5. Islands Trust, Victoria, BC
- North Pender Island Trust Committee, 1994. Official Community Plan (Bylaw No. 83). Islands Trust, Victoria, BC
- Ostrinsky, Lloyd et al, 1995. Medicine Beach Development Options. EVDS 701 Project. Faculty of Environmental Design, University of Calgary, Calgary, Alberta



Pender Island Conservancy Association. Statement of Management Objectives and Strategies for the Medicine Beach Marsh and Uplands. Pender Island, BC

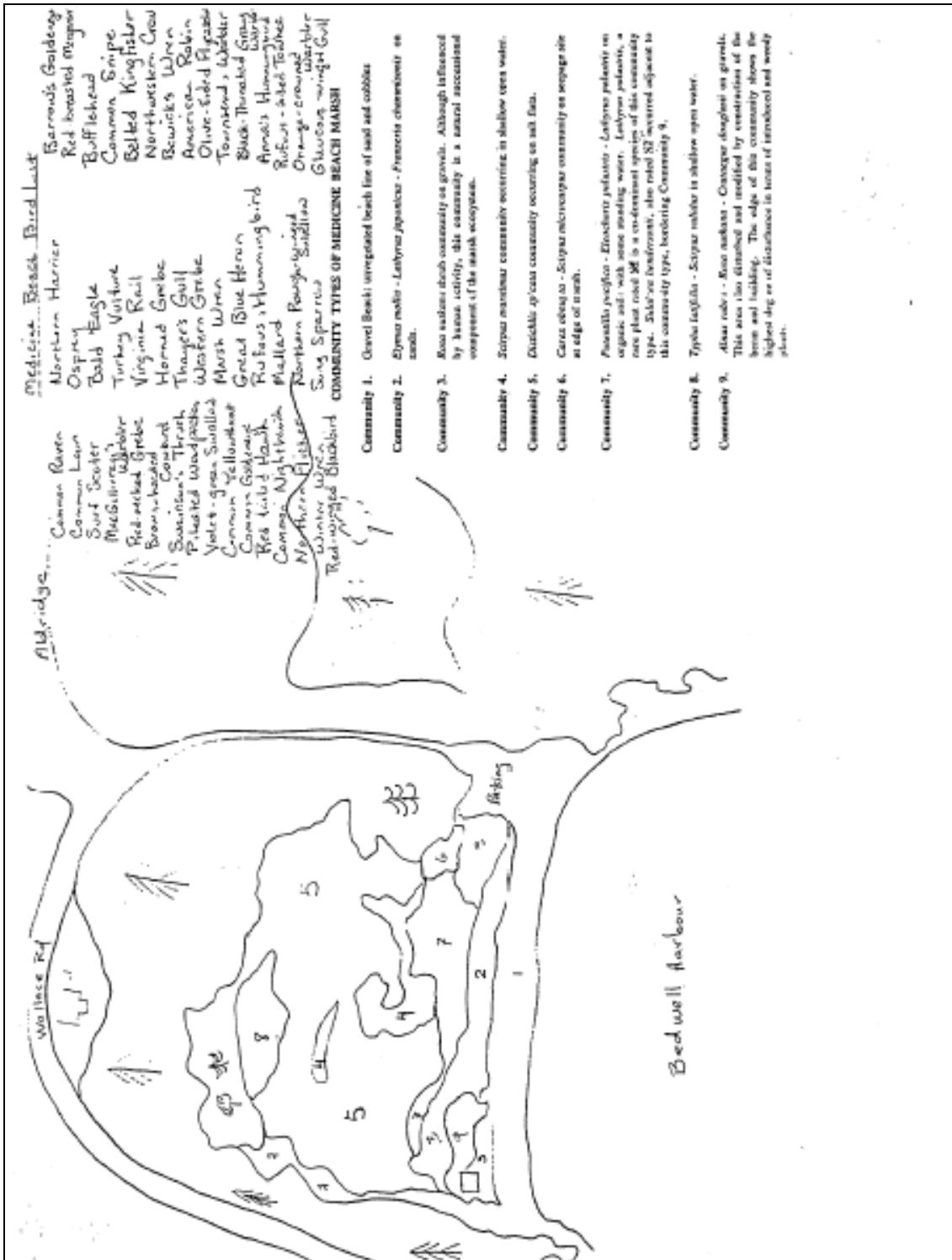
Pilot Project Committee, 1994. The Pender Islands Ground Water Pilot Project: Final Report. Ministry of Environment, Lands and Parks, Victoria, BC

Pitt, L. The Medicine Beach Project: Background Information. Pender Island Conservancy Association, Pender Island, BC

Reimer, K. and P. Grange, 1995. Medicine Beach Marsh: Watershed Study. Islands Trust, Victoria, BC

Ussery, J, 1994. Management Plan for the Deep Ridge Sanctuary: Salt Spring Island. Islands Trust Fund Board, Victoria, BC

APPENDIX 1: MAPS



Map 1: Community Types (1997)



Map 2: Medicine Beach Nature Sanctuary and Surround Lands (2005)

## **PHOTOS (2005)**



**Photo 1: View of marsh from berm (note channel from berm)**



**Photo 2: Marsh from berm (note location of house—osprey nest directly above house)**



**Photo 3: Osprey nest above house**



**Photo 4: Mooring buoys just off beach**



**Photo 5 View of marsh from bluff**



**Photo 6: Seating platform on bluff**



**Photo 7: Steps to bluff**



**Photo 8: View of marsh from parking area—note Scotch broom**



**Photo 9: Spurge-laurel**



**Photo 10: Henderson's checker-mallow near berm**



**Photo 11: Gate into upper forest**





**Photo 12: Entrance sign to the Sanctuary**