Technical Note

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Floristic Survey of Canso Coastal Barrens Wilderness Area

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Introduction:

The Canso Coastal Barrens Wilderness Area was visited on 12 July 2004 by a party composed of faculty and students from the Biology Department at St. Francis Xavier University and Robert Cameron from the Nova Scotia Department of Environment and Labour. The objective of the trip was to examine the intertidal and terrestrial flora and the terrestrial insects. The insects will be identified and reported later by Randy Lauff. This report is divided into two parts: Part A for marine plant and animal communities, and Part B for the terrestrial plant communities.

Part A – Marine Plant and Animal Communities (Garbary and Scrosati)

The intertidal zone was explored on a moderately exposed to extremely exposed headland south of Dover over a single low tide. The low tide was 0.5 m and this precluded collections in the low intertidal zone. The sea was calm and thus wave action did not hamper observation.

Habitats and Substrata:

The headland south of Dover is primarily composed of large boulder fields and extensive flat granite platforms. The latter had shallow pools with seaweeds. This is an extremely high energy shore. Large boulders with the dead crusts of coralline algae (that grows in the low intertidal or shallow subtidal zones) were common in the upper intertidal zone. The intertidal was remarkably bare of seaweeds and this is attributed to a combination of ice scour and wave action. The boulder fields had almost no conspicuous algal cover and many snails (*Littorina littorea*) were present. The most conspicuous intertidal algae were *Chordaria flagelliformis* and *Scytosiphon lomentaria,* and these were the primary species to form continuous areas covering the rock platforms.

A small tidal lagoon occurred near the start of the reserve that was partly surrounded by salt marsh. The marsh and the shallow water were not explored extensively on this collecting trip, although plants of the finely branched form of *Ascophyllum nodosum* were present at the base of the *Spartina alterniflora*.

Species:

No unusual species were present, and the algal flora is depauperate with very low cover. Many of the species were found in the drift and many are included in the list

based on small fragments. A herbarium specimen was prepared only of *Saccorhiza dermatodea*.

Chlorophyta

Acrosiphonia arcta – scattered clumps in pools
Blidingia minima – scattered clumps in the high intertidal on shaded rocks
Bolbocoleon piliferum – common endophyte in *Chordaria*
Cladophora sp. – clumps common in mid shore pools.
Enteromorpha intestinalis – in high shore rock pools
Enteromorpha prolifera – in one high pool
Percursaria percursa – abundant in a high rock pool
Ulothrix flacca – a few epiphytic filaments on *Rhodomela*

Phaeophyceae

Alaria esculenta – a single plant in the drift
Ascophyllum nodosum – few plants and only in protected microhabitats
Chordaria flagellisformis – together with *Scytosiphon* were most abundant algae in the mid intertidal especially on wave swept platforms
Desmarestia aculeata – common in drift
Ectocarpus siliculosus – common in pools (with numerous plurilocular sporangia)
Elachista fucicola – common on *Fucus vesiculosus*
Fucus distichus – found only in a single high intertidal rock pool
Fucus serratus – in mid shore pool
Fucus spiralis – in high shore on vertical rock faces
Fucus vesiculosus – common on mid shore
Hecatonema maculans – common epiphyte on *Acrosiphonia*
Laminaria digitata – a few plants in the drift
Laminaria saccharina – a few plants in the drift
Petalonia fascia – a few individuals in mid shore pools
Ralfsia verrucosa – common crust in shaded pools
Saccorhiza dermatodea – few clumps in mid intertidal zone at most exposed part of shore
Scytosiphon lomentaria – abundant on mid shore in wave swept areas and in pools

Rhodophyta

Ahnfeltia plicata – scattered clumps in mid shore pools
Audouinella humilis – microscopic epiphyte, common on various hosts
Audouinella microscopica – microscopic epiphyte, scattered on various hosts
Bangia atropurpurea – senescing plants on intertidal rock faces
Ceramium rubrum – fragment in drift
Chondrus crispus – common on rocks in low intertidal zone and in pools in mid intertidal zone
Corallina officinalis – abundant in low shore and in shore pools
Devaleraea ramentacea – single branch in drift
Cystoclonium purpureum – single axis on kelp holdfast
Hildenbrandia prototypus – abundant in pools and on shaded rocks
Lithothamnion sp. – abundant on lower and mid shore
Palmaria palmata – a few fragments in the drift
Polysiphonia harveyi – common in pools
Porphyra purpurea – single thallus in drift
Rhodomela confervoides – scattered plants in drift

Comments:

The granite platforms would be of interest to explore at a good low tide (0.2 m or better). The small lagoon with its surrounding salt marsh should provide additional species not included in the above list.

Brief Survey of Invertebrates at Canso Barrens Rocky Intertidal Zone
(Scrosati)

Only sightings are reported; no quantitative surveys were conducted.

- *Littorina littorea* (common periwinkle)- very common throughout the intertidal
- *Littorina* sp. (probably *L. saxatilis*)- very rare; found only in one spot
- *Semibalanus balanoides* (northern acorn barnacle)- very common throughout
- *Mytilus edulis/trossulus* (blue mussel)- mostly absent under low wave exposure, it increases in abundance as one reaches wave-exposed areas, where it occurs mainly in and around rock crevices at the middle and low intertidal zone (not forming the extensive beds characteristic of New England)
- *Nucella lapillus* (whelk)- only in wave-exposed areas, mainly restricted to the low intertidal; not very abundant
- Sea stars (*Asterias* sp.?)- only one specimen was found at the low intertidal zone of an exposed area
- *Idotea baltica* (isopod)- common in moderately-exposed areas, among rockweed fronds
- Crab shells (*Cancer* sp.; rock crab)- found in exposed areas
- *Acmaea testudinalis* (limpet)- common at the mid- and low intertidal zones of exposed areas, both in tide pools and on emergent rock

PART B – Terrestrial Flora (Taylor and Garbary)

The party examining the terrestrial flora followed the coast along the edge of the protected area for a distance of approximately 2 km. Specimens of noteworthy plant species were collected for addition to the Herbarium at St. Francis Xavier University. These species are marked with an asterisk. There are three distinct vegetation types within the area: (1) coastlines; (2) coastal spruce forests; and (3) barrens. Transitions between vegetation types are abrupt.

The coastline consists of a boulder field interrupted at intervals by flat rock platforms often extending into the sea. The boulders are granitic, rounded or square, and vary in size from ca. 30 cm to several metres in diameter. This region has no soil and is virtually devoid of plant life. Few of the rocks support lichens or mosses. Sparse and stunted members of the forest or heathland communities were sometimes found along the upper edge of the shore where soil had slumped onto the beach (Photograph 1).

The shoreline environment ends abruptly at most places at a cliff, from 1-3 m high, which apparently marks the upper limit of storm wave action. The cliffs are composed of rocks and mineral soil and are largely devoid of vegetation, presumably because of their extreme instability. At other places, nearer to Dover, the rocky shoreline made a more gradual transition into coastal spruce forest. The typical beach community was absent, except sometimes for a thin band of beach pea (*Lathyrus maritimus*) along the edge of the forest

The coastal spruce forest is dominated by

Photograph 1. Wind-shaped spruce along edge of rocky shore and forest

usually dense, lichen-covered stands of white or black spruce (*Picea mariana* or *P. abies*) with occasional mountain-ash (*Sorbus americana*). The trees are stunted near the shoreline. The understorey is sparse in dense stands, but may be luxurious in clearings and blow-downs. Species in bloom on the survey date included blunt-leaved rein orchid (*Platanthera obtusata**) one-flowered shinleaf (*Moneses uniflora**), dwarf raspberry (*Rubus pubescens**), Blanchard's dewberry (*Rubus recurvicaulis**) and wood-sorrel (*Oxalis acetosella**). Violets (*Viola* sp.), wild sarsparilla (*Aralia nudicaulis*) and various asters (*Aster* spp.) were also present.

The true barrens habitat was by far the largest in extent. In the absence of disturbance the heath vegetation is very uniform. It consists of an open, extremely dense sward about 1-1.5 m high, interrupted by small islands of spruce trees here and there (Photograph 2). This region lies inland from the coastal forest in some places, while farther along the coast it extends right to the edge of the cliffs overlooking the sea (Photograph 3).

The barrens vegetation was dominated by ericaceous shrubs, especially huckleberries (*Gaylussacia baccata** and *G. dumosa**), velvet-leaf blueberry (*Vaccinium myrtilloides**), Labrador-tea (*Ledum groenlandicum*), sheep laurel (*Kalmia angustifolia*), bog-rosemary (*Andromeda glaucophylla*) and leather-leaf (*Cassandra calyculata*). Cinnamon fern (*Osmunda cinnamonia*), bracken (*Pteridium aquilinum*), alders (*Alnus incana* and *A. viridis*), black crowberry (*Empetrum nigrum*), teaberry (*Gaultheria procumbens*) and mountain-ash were also present. On the coastal headlands the barrens

Photograph 2 Typical dense barrens vegetation

vegetation becomes much lower (Photograph 3), presumably in response to strong winds off the sea. Here we found roses (*Rosa virginiana* or *R. nitida*), small cranberry (*Vaccinium oxycoccus**), three-

toothed cinquefoil (*Potentilla tridentata**), sandwort (*Arenaria lateriflora**), seaside-angelica (*Angelica lucida**), the sedge *Carex trisperma** and common hair grass *(Deschampsia flexuosa**). None of the plant species encountered is rare or threatened within the province. The most interesting plant assemblage was an extensive community on the headland, unexpectedly dominated by cinnamon fern (Photograph 4)

Photograph 3 Headland barrens and rocky shoreline

Photograph 4 Fern-dominated barrens community near the coast