APPENDIX 5.10-A

EXISTING HABITAT AND RARE PLANT SURVEYS – METHODOLOGY, RESULTS, AND PHOTOGRAPHS

For the purpose of field surveys, the study area of the rail corridor extends to 750 m on either side of the median, for a total width of 1.5 km. As the final routing was not established when biological field surveys had to be carried out, the median was formed by the preliminary proposed rail line. Consequently, surveys could not be focused on habitats and surface areas that would actually be used, so a limited number of terrestrial habitat polygons were surveyed as examples to confirm and describe the habitat type and the potential for rare plants.

Surveys were carried out by botanists, Dr. M. Sensen, and Tom Neily, and by Environmental Technologist, D. McGinnis. Pre-selected locations and incidental locations were surveyed. Each location was marked with a handheld GPS (Global Positioning System) (Magellan SporTrack), along with waypoints and field identified stream crossings (i.e. small and potentially seasonal streams not included in the provincial maps that were found to cross the roads traveled within the study area).

Habitats with high potential for rare plants (i.e., wetlands and floodplains of streams and rivers) were surveyed for rare plants with early phenology. Since forest habitats, except forests in flood plains, are estimated to have medium to low potential for rare plants, a limited number of parcels of such habitat, representing different forest types, were surveyed for rare plants. The second survey in late summer was performed in order to survey for rare plants with optimal phenology late in the season (including late flowering plants, aquatic plants, many grasses and sedges).

Habitat Surveys (June 24th - June 30th and late August/early September, 2007)

The following tasks were performed:

Preparation

- Assembly of maps of existing habitat using mapping available from NSDNR, NSDNR Wetlands Data Base (NSDNR, 2000), Forest Inventory Mapping (NSDNR, 1988- 2000), as well as a 1:50,000 topographic map sheet (11F/11) (NRCan 1998).
- Locations of wetlands, stream crossings and a number of forest habitat parcels (forest polygons in the provincial maps) were marked with GPS data on the maps to aid navigation in the field, and to ensure that examples of all habitat types were covered.

Surveys

- Inventory and description of plant species on-site to describe the existing habitat.
- If rare plant species were discovered, the location was marked by GPS, and the number of plants or clumps of plants in the area was determined or estimated, depending on the number of plants and features of the area (due to the EPE (estimate positional error) of the GPS, only plant specimen more than 10 m apart were marked with separate GPS locations.
- Rare plants and habitats were photographed.

Table A1 Vascular Plant Species

Species Name	Common Name	NSDNR Status	ACCDC Status
Abies balsamea	Balsam Fir	Green	S5
Acer pensylvanicum	Moosewood	Green	S5
Acer rubrum	Red Maple	Green	S5
Acer saccharum	Sugar Maple	Green	S5
Acer spicatum	Mountain Maple	Green	S5
Achillea millefolium	Yarrow		
Agrimonia striata	Agrimony	Green	S5
Agrostis hyemalis	Tickle-grass	Green	S5
Ajuga reptans	bugleweed		SE
Alnus incana	Speckled Alder	Green	S5
Angelica atropurpurea	Purple Alexanders	Green	S5
Angelica lucida	Sea coast Angelica		
Aralia hispida	Bristly Sarsaparilla	Green	S5
Aralia nudicaulis	Wild Sarsaparilla	Green	S5
Aronia melanocarpa	Chokeberry	Green	S5
Aster acuminata	Wood Aster	Green	S5
Aster lanceolatus	Aster	Green	S5
Aster nemoralis	Bog-aster	Green	S5
Aster novi-belgii	New York Aster	Green	S5
Aster radula	Rough Aster	Green	S5
Aster umbellatus	Tall White Aster	Green	S5
Athyrium felix-femina	Northern Lady Fern	Green	S5
Atriplex prostrata	Orach	Green	S5
Bartonia paniculata	Screw-stem	Green	S4S5
Berberis vulgaris	Common Barberry	n/a	SE
Betula allegheniensis	Yellow Birch	Green	S5
Betula papyrifera	Paper Birch	Green	S5
Bidens frondosa	Common Beggar's-ticks	Green	S5
Botrychium multifidum	Grape-fern	Green	S4
Botrychium viginiana	Rattlesnake Fern	Green	S5
Brachyeletrum septentrionale	Northern Short-husk	Green	S5
Cakile edentula	Sea-rocket	Green	S5
Calamagrostis canadensis	Blue Joint	Green	S5
Calamagrostis pickeringii	Calamagrostis	Green	S4S5
Calapogon ophioglossoides	Rose Pogonia	Green	S4
Calla palustris	Wild Calla	Green	S5
Calystegia sepium	Hedge-bindweed	Green	S5
Carex aquatilis	Sedge	Green	S5
Carex arctata	Drooping Woodland Sedge	Green	S5
Carex atlantica	Sedge	Green	S4
Carex crinita	Fringed Sedge	Green	S5
Carex echinata	Star Sedge	Green	S5

Species Name	Common Name	NSDNR Status	ACCDC Status
Carex flava	Yellow Sedge	Green	S5
Carex folliculata	Long Sedge	Green	S5
Carex intumescens	Bladder Sedge	Green	S5
Carex lurida	Sedge	Green	S5
Carex magellanica	A Sedge	Green	S5
Carex nigra	Smooth Black Sedge	Green	S5
Carex paleacea	Sedge	Green	S5
Carex pauciflora	Few-Flowered Sedge	Green	S4S5
Carex scabrata	Rough Sedge	Green	S5
Carex stipata	Stalk-grain Sedge	Green	S5
Carex trisperma	Three-seeded Sedge	Green	S5
Chelone glabra	Turtlehead	Green	S5
Chelone glabra	Turtlehead	Green	S5
Chrysoplenium americanum	Northern Saxifrage	Green	S5
Chrysanthemum leucanthemum	Ox-eye Daisy		
Circaea alpina	Small Enchanter's Nightshade	Green	S5
Clintonia borealis	Clintonia Lily	Green	S5
Coptis trifolia	Goldthread	Green	S5
Corallorhiza maculata	Spotted Coral-root	Green	S4
Cornus canadensis	Bunchberry	Green	S5
Corylus cornuta	Beaked Hazelnut	Green	S5
Cypripedium acaule	Pink Lady's Slipper	Green	S5
Cypripedium parviflorum	Yellow Lady's-slipper	Yellow	S2S3
Daucus carota	Queen Anne's Lace		SE
Dennestaedia punctilobula	Hay-scented Fern	Green	S5
Deparia acrostichoides	Silvery Spleenwort	Green	S4
Drosera rotundifolia	Round-leaved Sundew	Green	S5
Dryopteris cristata	Crested Wood Fern	Green	S5
Dryopteris intermedia	Evergreen Wood Fern	Green	S5
Eleocharis tenuis	Beakrush	Green	S5
Elymus mollis (syn. *Leymus mollis*)	American dune grass		
Epifagus viriniana	Beech-drops	Green	S5
Epilobium ciliatum	Glandular Willow-herb	Green	S5
Eriophorum virginicum	Tawny Cotton-grass	Green	S5
Eupatorium maculatum	Joe-pye-weed	Green	S5
Eupatorium perfoliatum	Boneset	Green	S5
Euthamnia graminifolia	Narrowed-leaved Goldenrod	Green	S5
Equisetum arvense			
Fagus grandifolia	American Beech	Green	S5
Fraxinus americana	White Ash	Green	S5
Fraxinus nigra	Black Ash	Yellow	S3
Galium asprellum	Rough Bedstraw	Green	S5
Galium palustris	Marsh Bedstraw	Green	S5

Species Name	Common Name	NSDNR Status	ACCDC Status
Gaultheria hispidula	Snowberry	Green	S5
Gaultheria procumbens	Teaberry	Green	S5
Geum rivale	Purple Avens	Green	S5
Geum macrophyllum			
Glyceria borealis	Northern Manna-grass	Green	S5
Glyceria canadensis	Rattlesnake Grass	Green	S5
Glyceria striata	Fowl Manna-grass	Green	S5
Goodyera tesselata	Rattlesnake-plantain	Yellow	S2S3
Gymnocarpium dryopteris	Oak Fern	Green	S5
Hamamelis virginiana	Witch Hazel	Green	S5
Honckenya peploides	seabeach sandwort		
Hypericum boreale	Northern St. John's-wort	Green	S5
Ilex verticillata	Black Alder	Green	S5
Impatiens capensis	Jewelweed	Green	S5
Iris versicolor	Blue Flag	Green	S5
Isoetes echinospora	Spiny-Spored Quillwort	Green	S5
Schoenoplectus acutus	Hard-Stemmed Bulrush	Green	S4
Juncus articulatus	Rush	Green	S5
Juncus bufonius	Toad Rush	Green	S5
Juncus effusus	Soft Rush	Green	S5
Juncus gerardi	Rush	Green	S5
Juniperus communis	Common Juniper	Green	S5
Kalmia angustifolia	Lambkill	Green	S5
Larix laricina	Larch	Green	S5
Lathyrus maritimus	Beach Pea	Green	S5
Latuca canadensis	Wild Lettuce	Green	S5
Ledum groenlandica	Labrador-tea	Green	S5
Ligusticum scothicum	Lovage	n/a	SE
Linnaea borealis	Twinflower	Green	S5
Liparis loeselii	Loesel's Twayblade	Green	S3S4
Listera convalliarioides	Broad-lipped Twayblade	Green	S3
Lonicera caerulea	Mountain Fly-honeysuckle	Green	S5
Ludwigia palustris	Marsh Seedbox	Green	S5
Lycopodium annotinum	Bristly Club-moss	Green	S5
Lycopus americanus	Water-horehound	Green	S5
Lysimachia terrestris	Loosestrife	Green	S5
Lythrum salicaria	Purple Loosestrife	n/a	SE
Maianthemum canadense	Wild Lily-of-the-valley	Green	S5
Matteuccia struthiopteris	Ostrich Fern	Green	S5
Medeola virginiana	Indian Cucumber-root	Green	S5
Mertensia maritima	Sea Lungwort	Green	S5
Mitchella repens	Partridge-berry	Green	S5
Mitella nuda	Naked Mitrewort	Green	S5

Species Name	Common Name	NSDNR Status	ACCDC Status
Monotropa hypopithys	Pine-sap	Green	S4
Monotropa uniflora	Indian-pipe	Green	S5
Myosotis laxa	Small Forget-Me-Not	Green	S5
Myrica gale	Sweet Gale	Green	S5
Myrica pensylvanica	Bayberry	Green	S5
Nemopanthus mucronata	False Mountain Holly	Green	S5
Nymphaea odorata	Water-lily	Green	S5
Oenothera biennis	Evening Primrose		
Onoclea sensibilis	Sensitive Fern	Green	S5
Osmunda cinnamomea	Cinnamon Fern	Green	S5
Osmunda regalis	Royal Fern	Green	S5
Oxalis montana	Wood-sorrel	Green	S5
Petasites frigidus	Arctic Butter-Bur	Green	S4S5
Phegopteris connectilis	Northern Beech Fern	Green	S5
Phleum arvense	Timothy grass		
Picea glauca	White Spruce	Green	S5
Picea mariana	Black Spruce	Green	S5
Pinus strobus	Eastern White Pine	Green	S5
Plantago maritima	Seashore-plantain	Green	S5
Platanthera aquilonis	Leafy Northern Green Orchis	Green	S4
Plantanthera blephariglottis	White Fringed Orchid	Green	S4
Plantanthera dilatata	Tall White Northern Bog Orchid	Green	S5
Platanthera orbiculata	Large Roundleaf Orchid	Yellow	S3
Polygonum punctatum	Water Smartweed	Green	S5
Polygonum sagittatum	Tear-thumb	Green	S5
Polypodium virginianum	Rock Polypody	Green	S5
Polystichum acrostichoides	Christmas Fern	Green	S5
Pontederia cordata	Pickerel-weed	Green	S5
Populus grandidentata	Large-toothed Aspen	Green	S5
Potamogeton epihydrus	Nuttall Pondweed	Green	S5
Potentilla anserina	Silverweed	Green	S5
Potentilla simplex	Old Field Cinquefoil	Green	S5
Prenanthes altisima	Tall Rattlesnake-root	Green	S4S5
Prenanthes trifoliolata	Lion's Foot	Green	S5
Prunella vulgaris	Heal-all	n/a	SE
Prunus virginiana	Chokecherry	Green	S5
Pteridium aquilinum	Bracken	Green	S5
Ranunculus repens	Creeping Buttercup	Green	S5
Rhododendron canadense	Rhodora	Green	S5
Rhynchospora alba	White Beak-rush	Green	S5
Ribes hirtellum	Gooseberry	Green	S5
Rosa nitida	Bog Rose	Green	S4
Rosa virginiana	Virginia Rose	Green	S5

Species Name	Common Name	NSDNR Status	ACCDC Status
Rubus pubescens	Dwarf Raspberry	Green	S5
Rubus recurvicaulis	a bramble	n/a	S?
Sagina procumbens	Pearlwort	Green	S5
Salix bebbiana	Bebb's Willow	Green	S5
Salix discolor	Pussy Willow	Green	S5
Salix sp	Willow-- not a specis at risk	Green	
Sanicula marilandica	Black Snakeroot	Green	S4
Sarricinea purpurea	Pitcher-plant	Green	S5
Scirpus atrocinctus	Black-Girdle Bulrush	Green	S5
Scirpus cyperinus	Common Wool-grass	Green	S5
Scutellaria lateriflora	Skullcap	Green	S5
Sisyrinchium montanum	Blue-eyed Grass	Green	S5
Sium suave	Water-parsnip	Green	S5
Smilacina trifolia	Three-leaved False Solomon's Seal	Green	S5
Maianthemum stellatum	Starflower Solomon's-Plume	Green	S4
Solidago canadensis	Canada Goldenrod	Green	S5
Solidago flexicaulis	Wood Goldenrod	Green	S5
Solidago rugosa	Rough Goldenrod	Green	S5
Solidago sempervirens	Seaside Goldenrod	Green	S5
Solidago uliginosa	Bog Goldenrod	Green	S5
Sonchus arvensis	Perennial Sow-thistle	n/a	SE
Sorbus americana	Mountain-ash	Green	S5
Sparganium americanum	Bur-reed	Green	S5
Spartina alternifolia	Cord Grass	Green	S5
Spartina patens	Salt Hay	Green	S5
Spartina patens	Salt Hay	Green	S5
Spergularia marina	Sand-spurrey	Green	S5
Spiraea alba	Meadowsweet	Green	S5
Spiranthes cernua	Nodding Ladies'-Tresses	Green	S5
Suaeda maritima	Sea-blight	Green	S5
Thalictrum pubescens	Meadow-rue	Green	S5
Thelypteris noveboracensis	New York Fern	Green	S5
Thelypteris palustris	Marsh Fern	Green	S5
Toxicodendron radicans	Poison Ivy	Green	S5
Triadenum fraseri	Marsh St. John's-wort	Green	S5
Triglochin maritima	Arrow-grass	Green	S5
Tussilago farfara	Coltsfoot		SE
Typha latifolia	Broad-leaved Cat-tail	Green	S5
Utricularia geminiscapa	Hidden Fruited Bladderwort	Green	S4
Utricularia vulgaris	Bladderwort	Green	S5
Vaccinium angustifolium	Lowbush Blueberry	Green	S5
Vaccinium myrtilloides	Velvet-leaf Blueberry	Green	S5
Vaccinium oxycoccus	Small Cranberry	Green	S5

Species Name	Common Name	NSDNR Status	ACCDC Status
Veronica scutella	Marsh Speedwell	Green	S5
Viburnum lantanoides	Hobblebush	Green	S5
Viburnum nudum	Wild Raisin	Green	S5
Viburnum opulus	Highbush-cranberry	Green	S5
Viola nephrophylla	Northern Bog Violet	Yellow	S2
Viola sp	Violet ---not a species at risk	n/a	
Woodwardia viginiana	Chain Fern	Green	S4
Xanthium strumarium	Cocklebur	Green	S4
Zostera marina	Eel-grass	Green	S5

Wetland Surveys

The following tasks were performed:

Preparation

- All wetlands included in the provincial wetlands atlas and located within the preferred corridor and in the alternative corridor were marked with at least one GPS location.
- Larger and irregular wetlands were marked with several GPS locations.
- Due to the size of the project footprint, locations of stream crossings to be investigated were also chosen on or near the proposed rail footprint (i.e. near the median of the proposed corridor) as these sites have the highest likelihood to be in or near the actual rail footprint.

Surveys

- All wetlands near the centre line of corridor study area were investigated.
- Wetlands (freshwater and marine) near the fringes of the study area were investigated if accessible in a reasonable amount of time. However, more of these wetlands were investigated during the late season surveys, as there is a larger number of wetland plant species with late season phenology.
- Floodplains and aquatic flora of streams were investigated at or near pre-selected stream crossing sites.
- At each site, a description of the dominant plant species found in each wetland habitat were recorded.

Note: Urban areas were not surveyed, as these sites have a low potential for rare plants, are located at the fringes of the Study Area, and will be avoided by project infrastructure where possible (except in the Logistics Park footprint).

Freshwater Wetlands

A full description of each freshwater wetland identified during the survey is provided in Table A2.

Table A2 Description of Freshwater Wetlands Identified during Field Surveys

Wetland #	Size (ha)	Location	Classification	Dominant Vegetation	Notes
1	Approx.0.9	Between the highway and one of the private residences	Robust-Emergents Deep Marsh (RDM)	Dominated by cattails (*Typha latifolia*). Other plants include: meadowsweet (*Spiraea alba*), sweet gale (*Myrica gale*), alders (*Alnus incana*), willows, red maple (*Acer rubrum*) seedlings, water horsetail (*Equisetum fluviatile*), blue joint (*Calamagrostis canadense*), cinnamon fern (*Osmunda cinnamomea*).	Not included in the provincial maps. Drains via a small stream into the ocean. Water level may have been higher than usual therefore, this wetland may potentially be a Robust- Emergents Shallow Marsh (RSM)
2	.35	Across the highway from Wetland # 1	RDM with open water	Cattails, leatherleaf (*Chamaedaphne calyculata*), lambkill (*Kalmia angustifolia*), cranberries (*Vaccinium oxycoccus*), yellow pond lily *(Nuphar variegatum*). Margins are occupied by alders, red maple, false holly (*Nemopanthes mucronata*), cinnamon fern, meadowrue (*Thalictrum pubescens*).	Not included in the provincial maps. Consists of 2 ponds and is connected to Wetland #1 by a stream (not actually contained within the footprint)
3	<0.5 Ha.	Eastern boundary of the Logistics Park footprint near the loop road	Tall Shrub Swamp (TSS)	Alders, ferns such as sensitive fern (*Onoclea sensibilis*), grasses, small sedges (*Carex sp.*) and rushes (*Juncus sp.*)	Not included in the provincial maps. Essentially a seepage area and could be considered a wet area. Receives upgradient surface water runoff
4	<0.6	Adjacent to a dirt road that runs parallel to the highway at its south side. On maps it is marked as a “carttrack	RDM or potentially RSM with open water	Dominated by cattails at the far side. Vegetation includes alders, willows and rushes. Along the road vegetation includes red clover, knapweed, hawkweeds, pearly everlasting (*Anaphallis margaritacea*) and goldenrods (*Solidago sp.*)	May be the result of impoundment. Includes open water adjacent to the road Ducks and numerous bullfrogs inhabit this wetland
5	0.1	At the northwestern end of the Logistics Park, several meters below street level at the south side of the highway	RDM in the database but considered Emergents Shallow Marsh (ESM) as a result of the vegetation (water levels may have been high so classification could be Robust-Emergents Shallow Marsh (RSM))	Dominated by cattails. Several scattered trunks of dead trees. Margins characterized by alders, leatherleaf, meadowsweet, false holly, blueflag iris (*Iris versicolor*), jewelweed (*Impatiens sp.*), small forget-me-not (*Myosotis laxa*), Beggar’s Tick *(Bidens sp.*), Marsh St.John’s- wort (*Triadenum fraseri*). Shrubs also grow in the central parts of the wetland scattered among the cattails. Small trees include willows (*Salix sp.*).	Slender woody stems bearing old tooth-marks indicate that this wetland may have been used by beavers in the past.

Wetland #	Size (ha)	Location	Classification	Dominant Vegetation	Notes
6	Not measured	South western section of the Logistics footprint	Shrub bog (SB) in database, confirmed by survey, though part of the bog appears to be on the verge of becoming a treed bog, based on the abundance of small trees.	Rhodora (*Rhododendron canadense*), Labrador tea (*Ledum groenlandicum*), lambkill, alders, witherod or wild raisin (*Viburnum nudum*), False Holly (*Nemopanthes mucronatus*). Trees include small red maple, black spruce (*Picea mariana*). Ground cover consists of peat moss (*Sphagnum sp*.), Canada mayflower (*Maianthemum canadense*), (*Maianthemum trifoliata*), cinnamon fern, bunchberry (*Cornus canadense*), creeping snowberry (*Gaultheria procumbens*), cranberry. A few blueflag iris, and sedges are frequent, which may indicate that this wetland is not purely a bog but possibly fen	Drains downhill towards a stream
7	Not measured	Adjacent to a large stream which drains into the saline pond at the coast	TSS in database, confirmed by survey	Red maple, white birch (*Betula cordifolia*), spruce (*Picea sp.*), alders, meadowsweet, sweet gale (*Myrica gale*), lambskill, false holly, cattails , meadowrue, jewelweed (*Impatiens sp*.), swamp candles (*Lysimachia terrestris*), sedges, rushes, blueberries	Extended areas of open water existed, though this may be due to high amounts of precipitation before and during the field surveys

Marine Wetlands

Table A3 Dominant Vegetative Species Identified in Marine Wetlands within the Marine Terminal and Logistics Park Footprints

Location	Vegetative Species	
	Species Name	**Common Name**
Inter-tidal zone	*Enteromorpha* sp, *Fucus serratus*, *Fucus vesiculosus* and *Ascophyllum nodosum*	Seaweeds
	Angelica lucida	Sea-coast Angelica
	Mertensia maritime	Sea lungwort or Oysterplant
	Lathyrus japonicus	Beach pea
	Cakile edulenta	Sea-rocket
	Honckenya peploides	Seabeach sandwort
Saltmarsh shoreline	*Spartina* sp.	Salt hay
	Juncus sp., likely *Juncus gerardi*	Rush
	Solidago sempervirens	Seaside goldenrod
	Triglochin maritimum	Arrow-grass
	Potentilla anserina	Silverweed
	Ligusticum scothium	Scotch lovage
Near meadow habitat (associated with human residences)	*Thalictrum pubescens*	Meadowrue
	Chrysanthemum leucanthemum	Ox-eye daisy
	Achillea millefolium	Yarrow
	Oenothera biennis	Evening primrose
	Daucus carota	Queen Anne's lace
	Ranunculus repens	Buttercup
	Phleum arvense	Timothy grass
Slopes between the beach and forested/re-grown uplands	*Alnus glutinosa*	Speckled alder
	Salix sp.	Willows
	Picea glauca	White spruce
	Ajuga reptans	Bugle weed
	Equisetum arvense	Field horsetail
	Tussilago farfara	Coltsfoot

Wildlife Sightings

- Deer tracks were seen on the beach in the proposed terminal footprint.
- One female deer near wetland# 3 in the proposed terminal footprint,
- deer bones, coyote scat and a ruby throated humming bird in the proposed footprint of the terminal.
- Wetland # 4 may have been used by beavers in the past, as indicated by the presence of slim woody stems bearing old toothmarks.
- Bull-frogs and ducks in wetland # 5 (not mapped, i.e. new field identified)
- A sparrow defending nest in wetland # 6
- Swallowtail butterflies on/near beach and elsewhere.
- Garter snake at bridge near saline pond nearest but outside of the terminal footprint, as well as a few garter snakes elsewhere.
- Unidentified dragon flies and damselflies at several locations, including 2 hatching dragon flies at one forest stream location.
- Many frogs, representing several species, and several American toads were seen across the Study Area.
- One eastern red-back salamander in WL 55.
- One young rabbit; rabbit droppings at several locations.

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Photographs from Habitat Surveys

Image 1 Double Culvert of stream crossing off Middletown Rd.

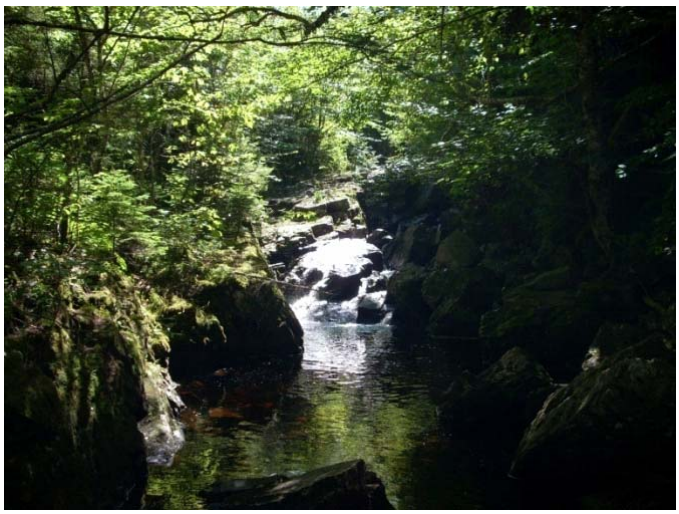


Image 2 Gully stream joining water fall from private hydro plant

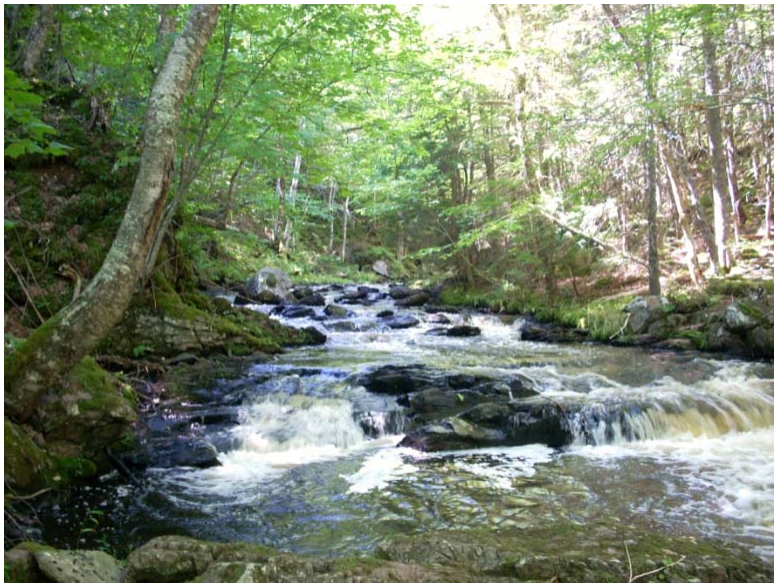


Image 3 Downstream of convergence of gully stream

Image 4 Falls from private power plant off Middletown Rd.

Image 5 Treed bog (Wetland #86/87)

Image 6 Treed Swamp near Wheaton Lake

Image 7 Wheaton Lake

Image 8 Wheaton Lake

Image 9 Treed Bog (Wetland #55)

Image 10 Coast looking Southeast from Melford Point.

Image 11 Coast, looking Northwest from Melford Point.

Image 12 Coast looking Southeast from Melford Point.

Image 13 Stream - East side of Melford Loop.

Image 14 Stream - East side of Melford Loop.

Image 15 Treed Bog (Wetlands #14/15/16)

Image 16 Stream near Wetland #9/10

Image 17 Open Bog (Wetland #41/42)

Image 18 Open Bog (Wetland #41/42)

Image 19 *Sanicula marilandica*

Image 20 *Spiranthes cernua*

Image 21 *Botrychium multifidum*

Image 22 *Panicum sp* on beach

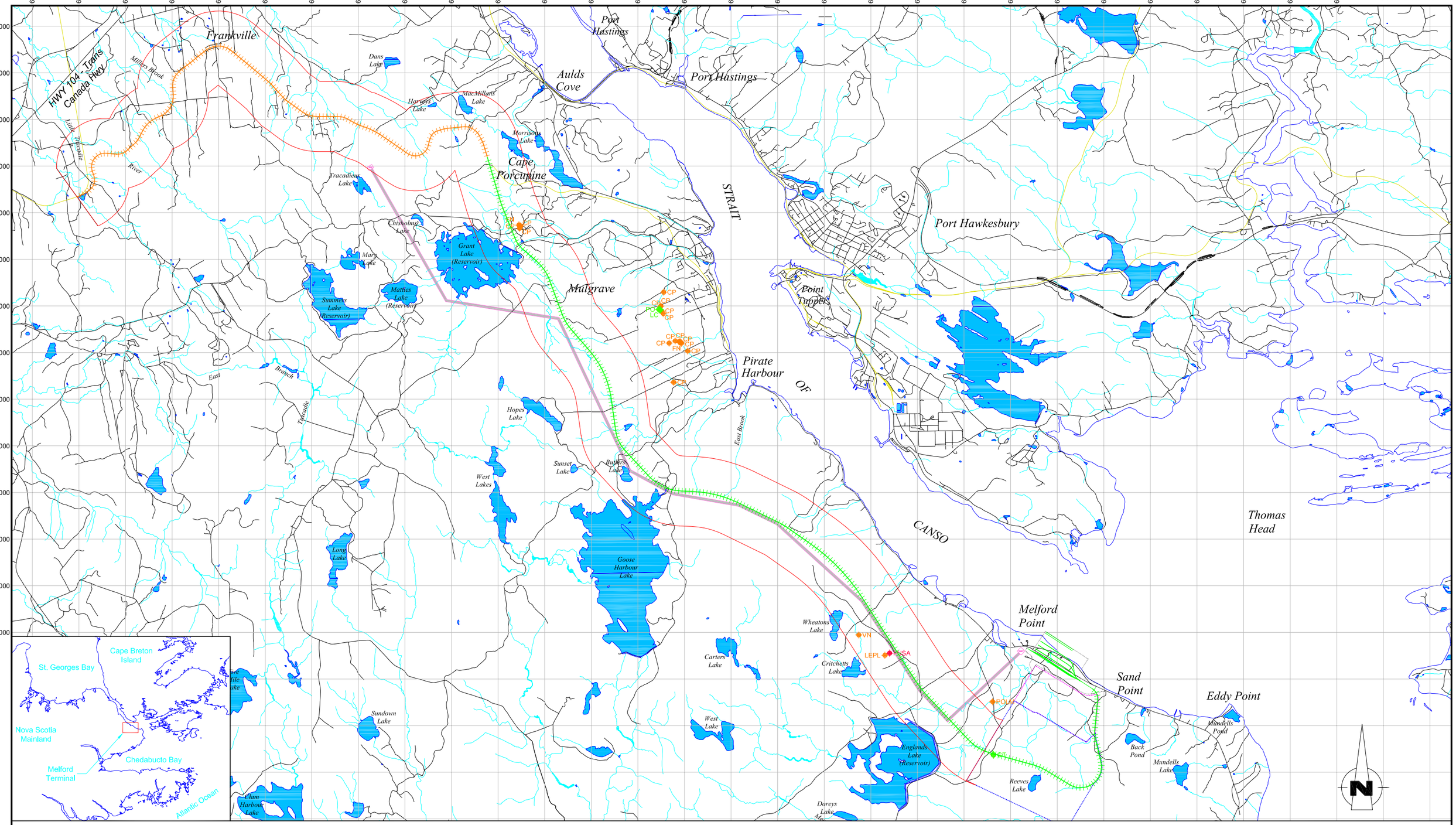


Figure 5.10-A-1
Rare Plant Locations
Melford International Terminal
Environmental Assessment Services
July 2008

APPENDIX 5.10-B

SIGNIFICANT HABITATS – MAINLAND NOVA SCOTIA AND CAPE BRETON

Table B1 Mainland Significant Habitats

WLD#	WC1	Common Name/Activity	Status[1]	Scientific Name
AT10	species at risk	piping plover nesting and feeding	R	*Charadrius melodus*
AT12	migratory bird	waterfowl use various species, tern feeding	G	*Catoptrophorus semipalmatus*
AT125	migratory bird	salt marsh, willets nesting	G	*Catoptrophorus semipalmatus*
AT126	migratory bird	salt marsh, willets nesting	G	*Catoptrophorus semipalmatus*
AT127	migratory bird	salt pond, willets nesting	G	*Catoptrophorus semipalmatus*
AT128	migratory bird	salt marsh, willets nesting	G	*Catoptrophorus semipalmatus*
AT136	migratory bird	salt marsh, willets nesting	G	*Catoptrophorus semipalmatus*
AT14	of concern	tern colony		Species not provided
AT140	other habitat	gull colony species unknown		Species not provided
AT144	other habitat	eagle perch site		Species not provided
AT145	other habitat	double crested cormorant colony	G	*Phalacrocorax auritus*
AT15	other habitat	eagle nesting		Species not provided
AT16	species at risk	piping plover nesting and feeding	R	*Charadrius melodus*
AT17	migratory bird	gulls nesting		Species not provided
AT18	migratory bird	great blue heron colony, double crested cormorant colony	G	*Ardea herodias, Phalacrocorax auritus*
AT19	migratory bird	gulls nesting		Species not provided
AT197	of concern	gull colony		Species not provided
AT213	migratory bird	willets, great blue heron feeding areas	G	*Catoptrophorus semipalmatus, Ardea herodias*
AT214	migratory bird	willets feeding nearby	G	*Catoptrophorus semipalmatus*
AT215	migratory bird	salt marsh, willets nesting	G	*Catoptrophorus semipalmatus*
AT216	migratory bird	salt marsh, willets nesting	G	*Catoptrophorus semipalmatus*
AT217	migratory bird	salt marsh, willets nesting	G	*Catoptrophorus semipalmatus*
AT218	migratory bird	salt marsh, willets nesting	G	*Catoptrophorus semipalmatus*
AT219	migratory bird	salt marsh, willets nesting	G	*Catoptrophorus semipalmatus*
AT220	migratory bird	willets feeding, possibly nesting	G	*Catoptrophorus semipalmatus*
AT221	migratory bird	willets feeding, possibly nesting	G	*Catoptrophorus semipalmatus*

Table B1 Mainland Significant Habitats

WLD#	WC1	Common Name/Activity	Status[1]	Scientific Name
AT222	migratory bird	salt marsh, willets nesting	G	*Catoptrophorus semipalmatus*
AT223	migratory bird	salt marsh, willets nesting	G	*Catoptrophorus semipalmatus*
AT224	migratory bird	salt marsh, willets nesting	G	*Catoptrophorus semipalmatus*
AT225	migratory bird	salt marsh, willets nesting	G	*Catoptrophorus semipalmatus*
AT226	migratory bird	willets feeding, possibly nesting	G	*Catoptrophorus semipalmatus*
AT227	migratory bird	willets feeding, possibly nesting	G	*Catoptrophorus semipalmatus*
AT228	migratory bird	willets feeding, possibly nesting	G	*Catoptrophorus semipalmatus*
AT229	migratory bird	salt marsh, willets nesting	G	*Catoptrophorus semipalmatus*
AT231	migratory bird	salt marsh, willets nesting	G	*Catoptrophorus semipalmatus*
AT232	migratory bird	salt marsh, willets nesting	G	*Catoptrophorus semipalmatus*
AT233	migratory bird	willets feeding, possibly nesting	G	*Catoptrophorus semipalmatus*
AT234	migratory bird	salt marsh, willets nesting	G	*Catoptrophorus semipalmatus*
AT240	other habitat	eagle nesting		Species not provided
AT241	other habitat	eagle nesting		Species not provided
AT242	other habitat	eagle nesting		Species not provided
AT243	other habitat	eagle nesting		Species not provided
AT244	other habitat	eagle nesting		Species not provided
AT245	other habitat	eagle nesting		Species not provided
AT246	other habitat	eagles nesting		Species not provided
AT247	other habitat	eagles nesting		Species not provided
AT248	other habitat	eagles nesting		Species not provided
AT249	other habitat	eagles nesting		Species not provided
AT250	other habitat	eagles nesting		Species not provided
AT27	of concern	osprey nesting, waterfowl brood production	G	*Pandion haliaetus*
AT28	other habitat	eagle nesting		Species not provided
AT29	other habitat	eagle nesting		Species not provided
AT3	other habitat	eagle nesting		Species not provided
AT30	other habitat	eagle nesting		Species not provided
AT32	of concern	common tern colony	Y	Sterna hirundo

Table B1 Mainland Significant Habitats

WLD#	WC1	Common Name/Activity	Status[1]	Scientific Name
AT36	species at risk	gulls loafing	G	Catoptrophorus semipalmatus - Tern species not provided
AT37	of concern	tern colony and willet nesting	G	*Catoptrophorus semipalmatus* - Tern species not provided
AT38	of concern	tern colony and willet nesting	G	*Catoptrophorus semipalmatus* - Tern species not provided
AT436	other habitat	saline pond - general wildlife values, coastal		Species not provided
AT44	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
AT486	other habitat	waterfowl, shorebird foraging		Species not provided
AT5	other habitat	eagle nesting		Species not provided
AT572	other habitat	saline pond, general wildlife use		Species not provided
AT578	other habitat	saline pond, general wildlife use		Species not provided
AT7	other habitat	eagle nesting		Species not provided
AT71	migratory bird	salt marsh, willets nesting	G	*Catoptrophorus semipalmatus*
AT710	other habitat	saline pond, general wildlife use		Species not provided
AT72	migratory bird	salt marsh, willets nesting	G	*Catoptrophorus semipalmatus*
AT722	other habitat	saline pond, general wildlife use		Species not provided
AT76	other habitat	salt marsh		Species not provided
AT77	of concern	salt marsh		Species not provided
AT8	other habitat	eagle nesting		Species not provided
AT817	of concern	eagles nesting, osprey foraging, salmonids	G	*Pandion haliaetus* - Eagle and salmon specis not provided
AT818	other habitat	eagles and osprey foraging	G	*Pandion haliaetus* - Eagle and salmon specis not provided
AT82	migratory bird	salt marsh, willets nesting	G	*Catoptrophorus semipalmatus*
AT821	other habitat	osprey nesting	G	*Pandion haliaetus*
AT826	of concern	Coffee Tinker's Weed occurrence	Y	*Triosteum aurantiacum*
AT827	of concern	Umbellate Bastard Toad Flax, Slender FlatSedge occurrence	R	*Comandra umbellata*
AT83	migratory bird	salt marsh, willets nesting	G	*Catoptrophorus semipalmatus*
AT84	migratory bird	salt marsh, willets nesting	G	*Catoptrophorus semipalmatus*

Table B1 Mainland Significant Habitats

WLD#	WC1	Common Name/Activity	Status[1]	Scientific Name
AT842	species at risk	Atlantic Salmon	R	*Salmo salar*
AT843	of concern	Atlantic Salmon	R	*Salmo salar*
AT844	of concern	Atlantic Salmon	R	*Salmo salar*
AT849	of concern	Atlantic Salmon	R	*Salmo salar*
AT851	other habitat	No Record		Species not provided
AT87	migratory bird	salt marsh, willets nesting	G	*Catoptrophorus semipalmatus*
AT88	migratory bird	salt marsh, willets nesting	G	*Catoptrophorus semipalmatus*
AT89	migratory bird	salt marsh, willets nesting	G	*Catoptrophorus semipalmatus*
AT9	other habitat	eagle nesting		Species not provided
AT90	migratory bird	salt marsh, willets nesting	G	*Catoptrophorus semipalmatus*
GU855	other habitat	Species not provided		Species not provided
GU858	other habitat	possible eider nesting		Species not provided
GU871	migratory bird	waterfowl general		Species not provided
GU872	of concern	Common Eider colony, limestone scurvy grass occurrence	G, R	*Somateria mollissima, Cochlearia tridactylites*
GU873	of concern	Common Eider colony, limestone scurvy grass occurrence	G, R	*Somateria mollissima, Cochlearia tridactylites*
GU874	of concern	Common Eider colony, limestone scurvy grass occurrence	G, R	*Somateria mollissima, Cochlearia tridactylites*
GU875	other habitat	General wildlife significance		Species not provided
GU876	other habitat	General wildlife significance		Species not provided
GU877	other habitat	General wildlife significance		Species not provided
GU887	other habitat	Country Island, Roseate Terns, Gulls	R	*Sterna dougallii*
GU888	other habitat	Significant Area, coastal island, colonial seabirds		Species not provided
GU897	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
GU898	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
GU899	other habitat	eagle nesting area		Species not provided
GU900	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
GU901	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
GU902	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
GU903	other habitat	freshwater island, general wildlife values		Species not provided

Table B1 Mainland Significant Habitats

WLD#	WC1	Common Name/Activity	Status[1]	Scientific Name
GU904	other habitat	osprey nesting area	G	*Pandion haliaetus*
GU905	of concern	loon nesting area		Species not provided
GU906	other habitat	eagle nesting area		Species not provided
GU907	other habitat	osprey nesting area	G	*Pandion haliaetus*
GU914	migratory bird	Canada goose staging area, feeding	G	*Branta canadensis*
GU915	migratory bird	common eider feeding area	G	*Somateria mollissima*
GU919	of concern	Common merganser feeding area; Atlantic salmon, Brook Trout,and Mackerel concentrations	G, R, Y	*Mergus merganser, Salmo salar, Salvelinus fontinalis*
GU920	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
GU921	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
GU922	of concern	Atlantic salmon, Mackerel, and Brook Trout concentration areas	R, Y	*Salmo salar, Salvelinus fontinalis*
GU938	species at risk	Roseate Tern colony	R	*Sterna dougallii*
GU940	species at risk	Roseate Tern colony	R	*Sterna dougallii*
GU957	of concern	Northern Bur-Reed	Y	*Sparganium hyperboreum*
GU958	of concern	Northern Bur-Reed	Y	*Sparganium hyperboreum*
GU959	of concern	No Record		
GU963	rare plant	sea blite, hare figwort		
GU972	of concern	Atlantic Salmon river	R	*Salmo salar*
GU973	of concern	Atlantic Salmon river	R	*Salmo salar*
GU974	of concern	Atlantic Salmon river	R	*Salmo salar*
GU975	of concern	saline pond, waterfowl, migratory birds staging, feeding		Species not provided
GU976	of concern	Species not provided		Species not provided
GU977	of concern	Species not provided		Species not provided
GU983	species at risk	No specific record for this occurrence-possibly Atlantic salmon river	R	*Salmo salar*- Definitive species not provided

Table B2 Cape Breton Island Significant Habitats

WLD#	WC1	Common Name	Status[1]	Scientific Name
IN10	migratory bird	Double Crested Cormorant nests	G	*Phalacrocorax auritus*
IN101	of concern	Loons nesting area		Species not provided
IN102	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
IN104	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
IN107	of concern	False mermaid weed	Y	*Floerkea proserpinacoides*
IN108	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
IN109	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
IN112	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
IN113	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
IN114	other habitat	eagle nest		Species not provided
IN115	of concern	eagle nest		Species not provided
IN116	other habitat	Osprey nest	G	*Pandion haliaetus*
IN117	other habitat	seabirds and eagles feeding area		Species not provided
IN118	freshwater	Smelt spawn		Species not provided
IN119	other habitat	eagle nest		Species not provided
IN120	other habitat	eagle nest		Species not provided
IN121	of concern	small island in Long Pond - possible tern site		Species not provided
IN122	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
IN123	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
IN124	other habitat	eagle nest		Species not provided
IN125	other habitat	eagle nest		Species not provided
IN126	of concern	Tern nests		Species not provided
IN127	of concern	Lance-leafed Grape Fern	Y	*Botrychium lanceolatum*
IN128	other habitat	Osprey nest	G	*Pandion haliaetus*
IN129	other habitat	eagle nest		Species not provided
IN130	other habitat	eagle nest		Species not provided
IN134	other habitat	eagle nest		Species not provided
IN135	other habitat	eagle nest		Species not provided
IN136	rare plant	Bloody beard lichen		*Usnea mutabilis* - Other species not provided
IN139	other habitat	eagle nest		Species not provided

Table B2 Cape Breton Island Significant Habitats

WLD#	WC1	Common Name	Status[1]	Scientific Name
IN140	other habitat	eagle nest		Species not provided
IN144	other habitat	eagle nest		Species not provided
IN145	other habitat	eagle nest		Species not provided
IN150	other habitat	eagle nest		Species not provided
IN152	other habitat	eagle nest		Species not provided
IN154	of concern	Trout spawning		Species not provided
IN155	other habitat	eagle nest		Species not provided
IN156	migratory bird	Waterfowl conc.		Species not provided
IN157	migratory bird	Heron colony		Species not provided
IN158	other habitat	eagle nest		Species not provided
IN162	of concern	Tern nests		Species not provided
IN166	species at risk	River Denys River System - Wood Turtle, Trout , Salmon, lamprey, Smelt	Y, G, G	*Clemmys insculpta, Petromyzon marinus* - Trout, salmon and smelt species not provided
IN167	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
IN168	other habitat	eagle nest		Species not provided
IN17	other habitat	eagle nest		Species not provided
IN170	other habitat	eagle nest		Species not provided
IN173	other habitat	eagle nest		Species not provided
IN174	of concern	Tern nests		Species not provided
IN175	other habitat	eagle nest		Species not provided
IN176	freshwater	Smelt spawning	G	Species not provided
IN177	other habitat	eagle nest		Species not provided
IN178	of concern	Gaspereau spawn	Y	*Alosa pseudoharengus*
IN179	other habitat	eagle nest		Species not provided
IN18	of concern	Kalm's Lobelia	Y	**Lobelia kalmii**
IN186	freshwater	Brooks and ponds		*Species not provided*
IN187	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
IN188	other habitat	eagle nest		Species not provided
IN189	freshwater	Smelt spawning	G	Species not provided
IN190	of concern	Cuckoo Flower	R	*Cardamine pratensis*

Table B2 Cape Breton Island Significant Habitats

WLD#	WC1	Common Name	Status[1]	Scientific Name
IN193	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
IN194	freshwater	Smelt spawning	G	Specific species not provided
IN196	of concern	Tern nests		Specific species not provided
IN198	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
IN200	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
IN204	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
IN208	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
IN210	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
IN211	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
IN213	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
IN215	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
IN216	ecological site	Bornish Hills Nature Reserve		Species not provided
IN218	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
IN22	other habitat	eagle nest		Species not provided
IN220	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
IN228	of concern	Dwarf Rattlesnake Plantain	Y	*Goodyera repens*
IN23	other habitat	eagle nest		Species not provided
IN231	of concern	Tern nests		Species not provided
IN232	migratory bird	Black-back Gull nests		
IN237	of concern	Tern nests		Species not provided
IN24	other habitat	eagle nest		Species not provided
IN240	of concern	Tern nests		Species not provided
IN242	of concern	Tern nests		Species not provided
IN244	other habitat	Diogenes Cave		Species not provided
IN245	migratory bird	Heron colony		Species not provided
IN248	migratory bird	Heron colony		Species not provided
IN25	of concern	Gaspereau spawning	Y	*Alosa pseudoharengus*
IN26	other habitat	otter den	G	*Lontra canadensis*
IN261	of concern	Holly fern		Species not provided
IN265	rare plant	Swamp Milkweed	G	*Asclepias incarnata*

Table B2 Cape Breton Island Significant Habitats

WLD#	WC1	Common Name	Status[1]	Scientific Name
IN267	of concern	Holly Fern		Species not provided
IN27	other habitat	eagle nest		Species not provided
IN273	rare plant	Grove Meadow Grass		*Poa alsodes* - Other Species not provided
IN275	of concern	False Mermaid	Y	*Floerkea proserpinacoides*
IN28	other habitat	eagle nest		Species not provided
IN285	species at risk	Wood turtle	Y	*Clemmys insculpta*
IN29	freshwater	Smelt spawning		Species not provided
IN292	other habitat	eagle nest		Species not provided
IN30	of concern	Two Rivers that drain into Whycocomah Bay - Smelt, Speckled		Species not provided
IN31	other habitat	Osprey nest	G	*Pandion haliaetus*
IN32	other habitat	eagle nest		Species not provided
IN33	freshwater	Smelt spawning		Species not provided
IN337	of concern	Loon nest		Species not provided
IN34	other habitat	eagle nest		Species not provided
IN343	species at risk	Wood turtle, Atlantic Salmon, Brook and rainbow trout, and Gaspereau(Alewife), Sea Lamprey, Freshwater mussels	Y, G, Y, G	*Cardamine pratensis, Salmo salar, Oncorhynchus mykiss, Alosa pseudoharengus, Petromyzon marinus* - Fresh water mussel species not provided
IN35	deer wintering	deer wintering area	G	*Odocoileus virginianus*
IN36	other habitat	eagle nest		Species not provided
IN37	other habitat	eagle nest		Species not provided
IN376	of concern	Swamp Milkweed, Showy Lady's- slipper	G, R	*Asclepias incarnata, Cypripedium reginae*
IN39	other habitat	eagle nest		Species not provided
IN393	of concern	Squashberry	Y	*Viburnum edule*
IN40	other habitat	eagle nest		Species not provided
IN409	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
IN415	of concern	Showy Ladyslipper	R	*Cypripedium regina*
IN42	migratory bird	Waterfowl		Species not provided
IN43	other habitat	eagle nest		Species not provided

Table B2 Cape Breton Island Significant Habitats

WLD#	WC1	Common Name	Status[1]	Scientific Name
IN44	other habitat	eagle nest		Species not provided
IN45	of concern	Smelt spawning		Species not provided
IN46	freshwater	Smelt spawning		Species not provided
IN47	other habitat	eagle nest		Species not provided
IN48	freshwater	Smelt spawning		Species not provided
IN49	other habitat	eagle nest		Species not provided
IN50	freshwater	Smelt spawning		Species not provided
IN51	other habitat	eagle nest		Species not provided
IN52	other habitat	eagle nest		Species not provided
IN55	other habitat	eagle nest		Species not provided
IN56	other habitat	eagle nest		Species not provided
IN57	of concern	False Mermaid-Weed, Northern Bog Violet	Y	*Floerka proserpinacoides* , *Viola nephrophylla*
IN59	other habitat	eagle nest		Species not provided
IN60	other habitat	eagle nest		Species not provided
IN64	other habitat	eagle nest		Species not provided
IN65	other habitat	eagle nest		Species not provided
IN68	other habitat	eagle nest		Species not provided
IN70	other habitat	eagle nest		Species not provided
IN71	other habitat	eagle nest		Species not provided
IN74	other habitat	eagle nest		Species not provided
IN75	other habitat	eagle nest		Species not provided
IN78	other habitat	eagle nest		Species not provided
IN79	other habitat	eagle nest		Species not provided
IN8	migratory bird	Double Crested Cormorant nests	G	*Phalacrocorax auritus*
IN82	other habitat	eagle nest		Species not provided
IN83	other habitat	eagle nest		Species not provided
IN87	other habitat	eagle nest		Species not provided
IN88	other habitat	eagle nest		Species not provided
IN93	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
IN94	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*

Table B2 Cape Breton Island Significant Habitats

WLD#	WC1	Common Name	Status[1]	Scientific Name
IN95	other habitat	eagle nest		Species not provided
IN96	other habitat	eagle nest		Species not provided
IN97	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
RI101	of concern	Common Loon	Y	*Gavia immer*
RI113	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
RI234	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI238	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI242	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI246	migratory bird	Green-winged Teal	G	*Anas crecca*
RI246	migratory bird	American Black Duck	G	*Anas rubripes*
RI246	migratory bird	Great Blue Heron	G	*Ardea herodias*
RI247	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI248	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
RI250	of concern	Common Tern	Y	*Sterna hirundo*
RI255	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI259	of concern	Common Tern	Y	*Sterna hirundo*
RI261	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI263	of concern	Common Loon	Y	*Gavia immer*
RI266	of concern	Spotted Sandpiper	G	*Actitis macularia*
RI267	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI270	of concern	Tern (unclassified)		Species not provided
RI270	of concern	Shorebirds (unclassified)		Species not provided
RI270	of concern	Waterfowl (unclassified)		Species not provided
RI271	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI272	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI272	other habitat	Osprey	G	*Pandion haliaetus*
RI273	of concern	Arctic Tern	Y	*Sterna paradisaea*
RI274	of concern	Common Loon	Y	*Gavia immer*
RI275	other habitat	Osprey	G	*Pandion haliaetus*
RI276	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*

Table B2 Cape Breton Island Significant Habitats

WLD#	WC1	Common Name	Status[1]	Scientific Name
RI277	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI278	of concern	Common Loon	Y	*Gavia immer*
RI279	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI280	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI280	other habitat	Osprey	G	*Pandion haliaetus*
RI280	other habitat	Great Blue Heron	G	*Ardea herodias*
RI281	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI282	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI282	other habitat	Great Horned Owl	G	*Bubo virginianus*
RI283	of concern	Common Loon	Y	*Gavia immer*
RI284	other habitat	Osprey	G	*Pandion haliaetus*
RI285	migratory bird	Waterfowl (unclassified)		*Species not provided*
RI286	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI286	other habitat	Osprey	G	*Pandion haliaetus*
RI287	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI288	other habitat	Osprey	G	*Pandion haliaetus*
RI289	of concern	Common Loon	Y	*Gavia immer*
RI290	other habitat	Osprey	G	*Pandion haliaetus*
RI291	migratory bird	Waterfowl (unclassified)		Species not provided
RI292	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI293	of concern	Great Blue Heron	G	*Ardea herodias*
RI293	of concern	Tern (unclassified)		Species not provided
RI294	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI295	migratory bird	Waterfowl (unclassified)		Species not provided
RI296	of concern	Common Tern	Y	*Sterna hirundo*
RI297	migratory bird	Common Eider	G	*Somateria mollissima*
RI297	migratory bird	Double-crested Cormorant	G	*Phalacrocorax auritus*
RI298	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI300	of concern	Tern (unclassified)		Species not provided
RI301	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*

Table B2 Cape Breton Island Significant Habitats

WLD#	WC1	Common Name	Status[1]	Scientific Name
RI302	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI303	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI304	species at risk	Livid Sedge	R	*Carex livida var. radicaulis*
RI304	species at risk	Moor Rush	Y	*Juncus stygius ssp. americanus*
RI304	species at risk	New Jersey Rush	Y	*Juncus caesariensis*
RI304	species at risk	a moss		*Scorpidium scorpioides*
RI304	species at risk	Sparse-Flowered Sedge	R	*Carex tenuiflora*
RI305	other habitat	Osprey	G	*Pandion haliaetus*
RI306	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI307	of concern	Common Loon	Y	*Gavia immer*
RI308	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
RI309	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI310	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
RI311	of concern	Common Loon	Y	*Gavia immer*
RI312	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI313	other habitat	Great Horned Owl	G	*Bubo virginianus*
RI313	other habitat	Red-tailed Hawk	G	*Buteo jamaicensis*
RI314	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI315	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI316	of concern	Tern (unclassified)		Species not provided
RI317	species at risk	Lynx	R	*Lynx canadensis*
RI318	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI319	of concern	Tern (unclassified)		Species not provided
RI320	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI321	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI322	of concern	Common Loon	Y	*Gavia immer*
RI323	migratory bird	Species not provided		Species not provided
RI324	of concern	Common Tern, Arctic Tern	Y	*Sterna hirundo, Sterna paradisaea*
RI325	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI326	of concern	Common Loon	Y	*Gavia immer*

Table B2 Cape Breton Island Significant Habitats

WLD#	WC1	Common Name	Status[1]	Scientific Name
RI327	other habitat	Osprey	G	*Pandion haliaetus*
RI328	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI329	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI330	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI331	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI331	other habitat	Great Blue Heron	G	*Ardea herodias*
RI332	migratory bird	Waterfowl (unclassified), Wood Duck	G	*Aix sponsa*
RI333	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI334	other habitat	Osprey	G	*Pandion haliaetus*
RI335	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI336	other habitat	Species not provided		Species not provided
RI337	of concern	Common Loon	Y	*Gavia immer*
RI338	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI339	other habitat	Osprey	G	*Pandion haliaetus*
RI340	migratory bird	Waterfowl (unclassified)		Species not provided
RI340	migratory bird	Gull (unclassified)		Species not provided
RI341	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI342	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI342	other habitat	Great Blue Heron	G	*Ardea herodias*
RI343	species at risk	Species not provided		Species not provided
RI344	of concern	Bald Eagle	G	*Haliaeetus leucocephalus*
RI344	of concern	Atlantic Salmon	R	*Salmo salar*
RI344	of concern	Brook Trout	Y	*Salvelinus fontinalis*
RI344	of concern	Rainbow Trout	G	*Oncorhynchus mykiss*
RI344	of concern	Sea Lamprey	G	*Petromyzon marinus*
RI345	of concern	Tern (unclassified)		Species not provided
RI346	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI346	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI347	of concern	Species not provided		Species not provided
RI348	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*

Table B2 Cape Breton Island Significant Habitats

WLD#	WC1	Common Name	Status[1]	Scientific Name
RI348	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI349	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI349	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI352	other habitat	Osprey	G	*Pandion haliaetus*
RI358	migratory bird	Species not provided		Species not provided
RI359	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
RI360	of concern	Common Tern	Y	*Sterna hirundo*
RI360	of concern	Great Black-backed Gull	G	*Larus marinus*
RI360	of concern	Double-crested Cormorant	G	*Phalacrocorax auritus*
RI361	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI364	of concern	Tern (unclassified)		Species not provided
RI366	of concern	Common Loon	Y	*Gavia immer*
RI367	migratory bird	Whimbrel	G	*Numenius phaeopus*
RI369	species at risk	New Jersey Rush	Y	*Juncus caesariensis*
RI374	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
RI375	migratory bird	Whimbrel	G	*Numenius phaeopus*
RI376	of concern	Tern (unclassified)		Species not provided
RI378	migratory bird	Wood Duck	G	*Aix sponsa*
RI379	species at risk	New Jersey Rush	Y	*Juncus caesariensis*
RI382	other habitat	Bald Eagle	G	*Haliaeetus leucocephalus*
RI383	species at risk	New Jersey Rush	Y	*Juncus caesariensis*
RI385	migratory bird	Wood Duck	G	*Aix sponsa*
RI392	of concern	Arctic Tern	Y	*Sterna paradisaea*
RI397	of concern	Moor Rush	Y	*Juncus stygius ssp. americanus*
RI398	species at risk	New Jersey Rush	Y	*Juncus caesariensis*
RI400	of concern	Water Pigmy-Weed	Y	*Crassula aquatica*
RI400	of concern	Livid Sedge	R	*Carex livida var. radicaulis*
RI403	species at risk	New Jersey Rush	Y	*Juncus caesariensis*
RI403	species at risk	Moor Rush	Y	*Juncus stygius ssp. americanus*
RI404	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*

Table B2 Cape Breton Island Significant Habitats

WLD#	WC1	Common Name	Status[1]	Scientific Name
RI409	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
RI411	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
RI413	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
RI415	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
RI422	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
RI430	of concern	Tern (unclassified)		Species not provided
RI435	of concern	Tern (unclassified)		Species not provided
RI438	deer wintering	White-tailed Deer	G	*Odocoileus virginianus*
RI441	migratory bird	Great Cormorant	G	*Phalacrocorax carbo*
RI441	migratory bird	Double-crested Cormorant	G	*Phalacrocorax auritus*
RI441	migratory bird	Great Cormorant	G	*Phalacrocorax carbo*
RI441	migratory bird	Double-crested Cormorant	G	*Phalacrocorax auritus*
RI442	of concern	Tern (unclassified)		*Species not provided*
RI445	migratory bird	Great Cormorant	G	*Phalacrocorax carbo*
RI460	of concern	Alewife (Gaspereau)	Y	*Alosa pseudoharengus*
RI461	freshwater	Rainbow Trout	E	*Oncorhynchus mykiss*
RI462	of concern	Brook Trout	Y	*Salvelinus fontinalis*
RI465	of concern	Atlantic Salmon	R	*Salmo salar*
RI465	of concern	Alewife (Gaspereau)	Y	*Alosa pseudoharengus*
RI465	of concern	American Shad	G	*Alosa sapidissima*
RI465	of concern	Eastern Pearlshell	G	*Margaritifera margaritifera*
RI465	of concern	Eastern Pearlshell	G	*Margaritifera margaritifera*
RI465	of concern	Eastern Pearlshell	G	*Margaritifera margaritifera*
RI465	of concern	Eastern Pearlshell	G	*Margaritifera margaritifera*
RI465	of concern	Eastern Pearlshell	G	*Margaritifera margaritifera*
RI465	of concern	Eastern Pearlshell	G	*Margaritifera margaritifera*
RI465	of concern	Eastern Pearlshell	G	*Margaritifera margaritifera*
RI465	of concern	Alewife Floater	G	*Anodonta implicata*
RI465	of concern	Alewife Floater	G	*Anodonta implicata*
RI465	of concern	Alewife Floater	G	*Anodonta implicata*

Table B2 Cape Breton Island Significant Habitats

WLD#	WC1	Common Name	Status[1]	Scientific Name
RI465	of concern	Alewife Floater	G	*Anodonta implicata*
RI465	of concern	Alewife Floater	G	*Anodonta implicata*
RI465	of concern	Eastern Pearlshell	G	*Margaritifera margaritifera*
RI465	of concern	Alewife Floater	G	*Anodonta implicata*
RI468	of concern	Species not provided		Species not provided
RI469	freshwater	Species not provided		Species not provided
RI470	of concern	Species not provided		Species not provided
RI481	species at risk	Species not provided		Species not provided
RI491	species at risk	Species not provided		Species not provided
RI541	of concern	Species not provided		Species not provided
RI574	other habitat	Species not provided		Species not provided
RI575	other habitat	Species not provided		Species not provided
RI579	rare plant	Species not provided		Species not provided
RI664	of concern	Species not provided		Species not provided
RI680	of concern	Species not provided		Species not provided
RI681	of concern	Species not provided		Species not provided
VI210	other habitat	eagle nest		Species not provided
VI213	other habitat	eagle nest		Species not provided
VI215	other habitat	eagle nest		Species not provided
VI30	other habitat	eagle nest		Species not provided

[1] **R = Red** Species are at risk or may be at risk of extirpation or extinction.
G = Green Species are not believed to be at risk, or sensitive.
Y = Yellow Species are not believed to be at risk of immediate extirpation or extinction, but may require special attention or protection to prevent them from becoming at risk.
E = Exotic Species have migrated beyond natural range, as a result of human activity.

APPENDIX 5.10-C

BREEDING BIRD SURVEY – RAW DATA AND FIELD SUMMARY REPORT

Breeding Bird Data Summary Report
Proposed Melford International Terminal, Guysborough County, NS
June to July 2007

Introduction

Breeding bird surveys were conducted between 20 June and 1 July, 2007, to collect data on species of birds breeding in different habitats within the site of the proposed Melford International Terminal, and along the associated rail and road corridor between the communities of Melford and Mulgrave in Guysborough County, NS.

Executive Summary

A total of ninety-two species of birds were found to be present during the breeding season in the proposed project footprint and within 750 metres of the proposed rail and road corridor. Of these, twenty-three species were confirmed to be breeding in the area.

Ten species of special concern, as identified by NSDNR General Species status and/or ACCDC ranks, were observed within the project area. Nonetheless, with respect to breeding bird populations, no serious problems are anticipated with establishing a container terminal at the proposed location. Two raptor species were among the confirmed breeding species.

Methods

As requested by the Canadian Wildlife Service, breeding bird data were collected according to the approach outlined in the guidance document for environmental assessment of linear right-of-way projects. Data were recorded on species presence during the breeding season, along with information on their breeding status and relative abundance. These data were recorded for the entire project footprint, as well as the rail and highway corridor.

All surveys were carried out by an experienced birder who has over 25 years of birding knowledge and is trained in the methods of scientific bird observation and data collection. Bird species were detected and identified by sight, songs and call notes.

Point counts carried out in all of the main habitat types identified from maps of the project area. The objective was to complete 30 point counts in each of the major habitat types (i.e., mixed forest and regenerating forest). Habitat parcels were selected for surveys based on size and accessibility, and care was taken to ensure that point counts were spatially distributed over the project area. Due to accessibility, point counts were all conducted within 300 metres of roadways in the project area. Listening began a minute after the arriving at the point count site, and continued until no new birds were heard, for a minimum of 10 minutes.

Surveys were conducted between 20 June and 1 July, 2007. Observations began shortly after dawn, and continued until bird activity lessened at around mid-day. Owl surveys were not carried out during this field program because the time of year was not suitable; however, any owls heard during morning observations were noted.

At all times, species of special status and their nests, including raptors, were alertly watched and listened for. Surveys were conducted in a manner that would provide as little disturbance as possible to any breeding species.

Summary of Observations on Breeding Birds

The proposed project area is primarily forested, with stands of mixed forest, hardwood and softwood throughout. There are large areas of regenerating forest due to forestry operations in the area. A number of wetlands are located in the project footprint and along the proposed rail/highway corridor. The project footprint includes almost a kilometre of shoreline along Melford Loop, as well as some urban habitat.

For the purpose of the Breeding Bird Surveys, the project area consisted of the entire project footprint, as well as a buffer zone of 750 metres to either side along the length of the proposed rail and highway line. A total of 113 point counts were conducted in nine different habitat types identified in the project area (Table C1). The target number of 30 point counts in each major habitat type was not attained due to time constraints as a result of weather delays; however, it is felt that each habitat type has been proportionally well-represented.

Table C1. Habitat Types Identified in the Proposed Project Area

Habitat Type	Description	Number of Point Counts
Mixed Forest	Forest stands composed of no more than 75% of one tree type (deciduous or coniferous).	25
Hardwood Forest	Forest stands composed of more than 75% deciduous trees.	15
Softwood Forest	Forest stands composed of more than 75% coniferous trees.	12
Regenerating Forest	Areas of re-growth, most often following forestry activity, but also abandoned agricultural areas fields and other disturbed areas. Dominated by young trees (seedlings, saplings) and shrubs (often alders).	25
Wetland	Including bogs, fens, marshes, swamps, lakeshore wetlands and (wet) meadows.	20
Marine Flat	Level or gently sloping shoreline areas, intertidal or subtidal	6
Urban	Areas of human habitation; residential, industrial and related structures, lawns, city parks, cemeteries, golf courses, etc.	7
Riparian	Habitat along watercourses.	1
Miscellaneous Untreed	Non-forested areas not covered by any of the other types, including old mill sides, rifle range, tower site, quarry (but not gravel pit), mining activity, dams, wharfs, etc. Vegetation may be sparse, dominated by grasses and other herbaceous plants.	2

In total, data were collected on 92 bird species. These species are listed in Table C2, along with breeding status and relative abundance in the project area based on survey observations.

Table C2. Species observed during breeding bird surveys in the proposed project area.

Scientific Name	Common Name	Forest interior?	Status	# of Individuals
Gavis immer	Common Loon	No	Observed at one location 50 m offshore.	1
Phalacrocorax auritus	Double-crested Cormorant	No	Common offshore species.	8
Mergus merganser	Common	No	Observed in a small pond adjacent to a	1

Table C2. Species observed during breeding bird surveys in the proposed project area.

Scientific Name	Common Name	Forest interior?	Status	# of Individuals
	Merganser		regenerating forest site.	
Mergus serrator	Red-breasted Merganser	No	Observed at one location 50 m offshore.	5
Larus marinus	Great Black-backed Gull	No	Commonly observed offshore.	13
Larus argentatus	Herring Gull	No	Commonly observed offshore.	85
Sterna paradisaea	Arctic Tern	No	Uncommon offshore species.	2
Sterna hirundo	Common Tern	No	Commonly observed offshore.	29
Ardea herodias	Great Blue Heron	No	Observed on shore at one marine flat location.	1
Porzana carolina	Sora	No	Observed at one wetland site.	1
Actitis macularia	Spotted Sandpiper	No	Common on marine flats.	3
Accipiter striatus	Sharp-shinned Hawk	No	Confirmed breeder in hardwood forest.	2
Buteo platypterus	Broad-winged Hawk	Yes	Observed at single hardwood forest site.	2
Falco columbarius	Merlin	No	Confirmed breeder in hardwood forest.	1
Bubo virginianus	Great Horned Owl	No	Observed at single mixed forest site.	1
Bonasa umbellus	Ruffed Grouse	No	Fairly common in mixed and hardwood forests and near urban habitat. Confirmed breeding in hardwood forest.	5
Ceryle alcyon	Belted Kingfisher	No	Confirmed breeding in project footprint.	2
Archilochus colubris	Ruby-throated Hummingbird	No	Widespread and commonly observed. Probable breeder in the project footprint, as courtship display and agitated behaviour were observed.	22
Zenaida macroura	Mourning Dove	No	Commonly observed in urban and mixed forest habitats.	7
Tachycineta bicolor	Tree Swallow	No	Confirmed breeding in urban habitat in project footprint.	15
Hirundo rustica	Barn Swallow	No	Observed in urban habitat.	2
Sphyrapicus varius	Yellow-bellied Sapsucker	Yes	Widespread and commonly observed.	8
Picoides pubescens	Downy Woodpecker	No	Widespread and commonly observed.	5
Picoides villosus	Hairy Woodpecker	Yes	Confirmed breeding in project footprint. Widespread and commonly observed.	7
Dryocopus pileatus	Pileated Woodpecker	Yes	Widespread and commonly observed.	5
Picoides arcticus	Black-backed Woodpecker	Yes	Observed at single wetland location.	1
Colaptes auratus	Northern Flicker	No	Confirmed breeding in hardwood forest. Widespread; most commonly observed woodpecker in project area.	40
Sitta canadensis	Red Breasted Nuthatch	No	Confirmed breeding in project footprint. Widespread and commonly observed.	51
Certhia americana	Brown Creeper	Yes	Uncommon in mixed and hardwood forest.	2
Corvus brachyrhynchos	American Crow	No	Confirmed breeding in project footprint. Widespread and commonly observed.	106
Cyanocitta cristata	Blue Jay	No	Confirmed breeding in project footprint.	87

Table C2. Species observed during breeding bird surveys in the proposed project area.

Scientific Name	Common Name	Forest interior?	Status	# of Individuals
			Widespread and commonly observed.	
Perisoreus Canadensis	Gray Jay	Yes	Confirmed breeding in project footprint. Widespread and commonly observed.	28
Parus atricapillus	Black-capped Chickadee	No	Confirmed breeding in project area. Widespread and commonly observed.	151
Parus hudsonicus	Boreal Chickadee	Yes	Confirmed breeding in project area. Widespread and commonly observed in softwood and mixed wood forests and wetlands.	41
Regulus satrapa	Golden-crowned Kinglet	No	Confirmed breeder in softwood forests. Common in mixed and softwood forests.	21
Regulus calendula	Ruby-crowned Kinglet	No	Widespread and commonly observed.	103
Troglodytes troglodytes	Winter Wren	No	Common in mixed and softwood forests,	21
Empidonax alnorum	Alder Flycatcher	No	Widespread common breeder.	250
Empidonax minimus	Least Flycatcher	Yes	Widespread and commonly observed in mixed and hardwood forests.	27
Empidonax flaviventris	Yellow-bellied Flycatcher	Yes	Widespread and commonly observed.	26
Contopus borealis	Olive-sided Flycatcher	Yes	Widespread and commonly observed.	16
Contopus virens	Eastern Wood-pewee	Yes	Observed in hardwood forests.	4
Myiarchus crinitus	Great Crested Flycatcher	Yes	Probably breeding; pair observed in hardwood forest site.	2
Sturnus vulgaris	European Starling	No	Confirmed breeding in project footprint. Widespread and fairly commonly observed.	24
Bombycilla cedrorum	Cedar Waxwing	No	Widespread and commonly observed.	52
Agelaius phoeniceus	Red-winged Blackbird	No	Common in wetland habitat.	48
Quiscalus quiscula	Common Grackle	No	Confirmed breeding in project area. Widespread and commonly observed.	94
Turdus migratorius	American Robin	Yes	Confirmed breeding in project area. Widespread and commonly observed.	281
Catharus guttatus	Hermit Thrush	Yes	Widespread and commonly observed.	146
Catharus ustulatus	Swainson's Thrush	Yes	Widespread and commonly observed.	83
Catharus fuscescens	Veery	Yes	Widespread and commonly observed.	15
Hylocichla mustelina	Wood Thrush	Yes	Single observation at hardwood forest site.	1
Dumetella carolinensis	Gray Catbird	No	Single observation in urban habitat.	1
Vireo solitatius	Blue Headed Vireo	Yes	Widespread and commonly observed.	36
Vireo olivaceus	Red-eyed Vireo	No	Widespread and commonly observed.	198
Vermivora peregrina	Tennessee Warbler	Yes	Commonly observed in wetland habitats.	9
Vermivora ruficapilla	Nashville Warbler	Yes	Widespread and commonly observed.	49
Parula Americana	Northern Parula	Yes	Widespread and commonly observed.	46
Dendroica petechia	Yellow Warbler	No	Widespread and commonly observed.	201
Dendroica magnolia	Magnolia Warbler	No	Confirmed breeding in project area.	192

Table C2. Species observed during breeding bird surveys in the proposed project area.

Scientific Name	Common Name	Forest interior?	Status	# of Individuals
			Widespread and commonly observed.	
Dendroica coronata	Yellow-rumped Warbler	No	Single observation in regenerating forest habitat.	1
Mniotitla varia	Black-and-white Warbler	Yes	Widespread and commonly observed.	121
Geothlypis trichas	Common Yellowthroat	No	Widespread and commonly observed.	211
Dendroica pensylvanica	Chestnut-sided Warbler	Yes	Commonly observed in mixed and regenerating forest.	33
Dendroica virens	Black-throated Green Warbler	Yes	Widespread and commonly observed.	54
Dendroica caerulescens	Black-throated Blue Warbler	Yes	Commonly observed in mixed and hardwood forest.	14
Dendroica castanea	Bay-breasted Warbler	Yes	Observed in two hardwood forest sites.	3
Wilsonea canadensis	Canada Warbler	Yes	Uncommonly observed in wetland, hardwood and mixed forest habitat.	4
Dendroica fusca	Blackburnian Warbler	Yes	Fairly common in mixed and softwood forest.	24
Dendroica palmarum	Palm Warbler	No	Widespread and fairly commonly observed.	8
Dendroica striata	Blackpoll Warbler	No	Widespread and commonly observed.	28
Setophaga ruticilla	American Redstart	No	Widespread and commonly observed.	253
Seiurus aurocapillus	Ovenbird	Yes	Commonly observed in mixed and hardwood forest.	47
Seiurus noveboracensis	Northern Waterthrush	Yes	Observed at two locations in the project area.	2
Oporornis philadelphia	Mourning Warbler	Yes	Widespread and fairly commonly observed.	31
Wilsonia pusilla	Wilson's Warbler	No	Uncommonly observed in wetland and mixed forest habitat.	3
Piranga olivacea	Scarlet Tanager	Yes	One individual observed in hardwood forest.	1
Passerculus sandwichensis	Savannah Sparrow	No	Observed in miscellaneous untreed (grassy) habitat.	2
Melospiza melodia	Song Sparrow	No	Confirmed breeding in project area. Widespread and commonly observed.	164
Spizella passerina	Chipping Sparrow	No	One individual observed in urban habitat.	1
Melospiza georgiana	Swamp Sparrow	No	Observed in two wetland areas.	4
Passerella iliaca	Fox Sparrow	No	Observed at two regenerating forest sites.	3
Melospiza lincolnii	Lincoln's Sparrow	No	Commonly observed in regenerating forest habitat.	18
Zonotrichia albicollis	White-throated Sparrow	No	Confirmed breeding in project area. Widespread and commonly observed.	491
Junco hyemalis	Dark-eyed Junco	Yes	Confirmed breeding in project area. Widespread and commonly observed.	73
Carpodacus purpureus	Purple Finch	No	Widespread and commonly observed.	145
Carduelis pinus	Pine Siskin	Yes	Widespread and commonly observed.	46
Pheucticus ludovicianus	Rose Breasted Grosbeak	Yes	Uncommonly observed in hardwood and mixed forest habitat.	2

Table C2. Species observed during breeding bird surveys in the proposed project area.

Scientific Name	Common Name	Forest interior?	Status	# of Individuals
Coccothraustes vespertinus	Evening Grosbeak	No	Widespread and commonly observed.	15
Loxia leucoptera	White-winged Crossbill	Yes	Confirmed breeding in project area. Widespread and fairly commonly observed.	23
Carduelis tristis	American Goldfinch	No	Widespread and commonly observed.	369
Passer domesticus	House Sparrow	No	Fairly common in urban habitat.	8

Avian Species of Special Status

Six species of special status according to ACCDC were found during the breeding bird surveys inside the project area. These species were the Arctic Tern, Common Tern, Red-breasted Merganser, Great Crested Flycatcher, Wood Thrush and Scarlet Tanager.

The two tern species and the Red-breasted Merganser were observed flying over or feeding along the coast offshore from the proposed project footprint. These three species are listed as species of special concern in their breeding habitat according to ACCDC; because no nesting activity was observed in the immediate project area, it is unlikely that the project would impact these populations.

Great Crested Flycatcher, Wood Thrush and Scarlet Tanager were each observed at just one location within the 1500 m buffer along the proposed rail/highway corridor.

Six species were identified in the project area that have been classified as Yellow species by the Nova Scotia Department of Natural Resources, indicating that while not currently at risk, they are sensitive to human activities or natural events. These species were the Barn Swallow, Common Loon, Boreal Chickadee, Canada Warbler, Gray Jay, Olive-sided Flycatcher, and the above-noted Common and Arctic Tern. Boreal Chickadees and Gray Jays were confirmed breeding; these two species as well as Olive-sided Flycatchers were widespread and commonly observed in the Project area. Canada Warblers were widespread but uncommon in the project area; single birds were observed in two wetland point counts, one in hardwood forest, and one in mixed forest. Two Barn Swallows were observed during a single point count in the project footprint, in urban habitat, and a single Common Loon was observed swimming 50 metres offshore from the footprint.

It should be noted that the Savannah Sparrows observed in the project area were not the “Ipswich Sparrow “subspecies (*Passerculus sandwichensis princeps*), which is considered a species of special concern by COSEWIC.

Two raptor species were confirmed to be breeding in hardwood forest habitat along the proposed corridor, Merlin and Sharp-shinned Hawk.

Conclusions & Recommendations

With respect to local breeding bird populations, no major problems are anticipated with establishing a container terminal at the proposed location. However, the surveys described above were breeding bird surveys only, and should be followed up by

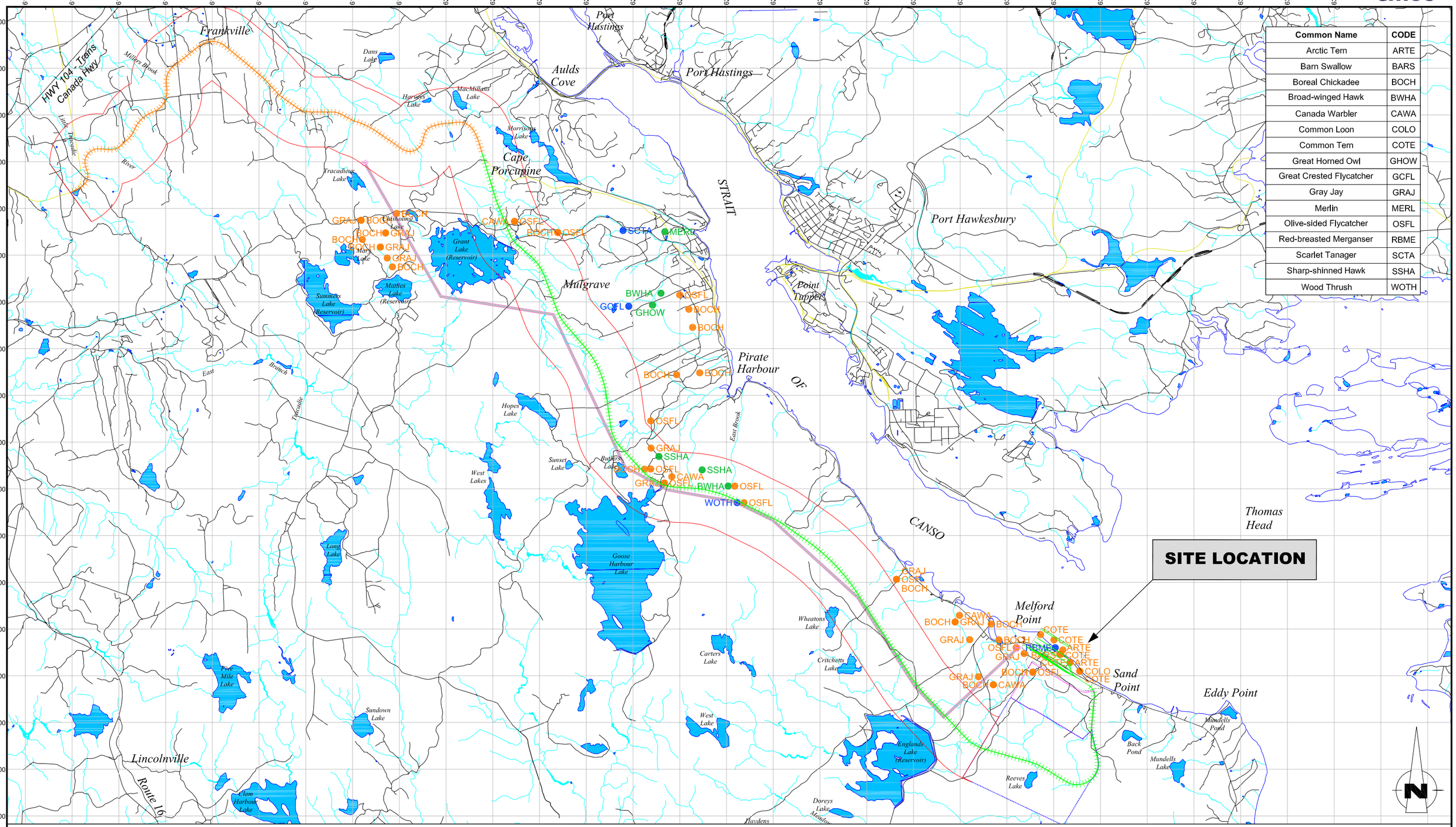
additional surveys to gain a more comprehensive understanding of bird life in the area. In order to gain that information the following surveys are recommended:

1. Shorebird surveys should be carried out during the peak of the shorebird migration.

2. To determine the full value of this area, bird surveys should be carried out during the winter months to determine the usage by winter residents, winter visitors and winter use by year round residents.

3. Owl surveys should be carried out in the late winter and early spring due to the fact that one species, the Great Horned Owl, was detected during the breeding bird surveys and appropriate breeding habitat is found in the proposed project site. These nocturnal surveys would also provide data on other nocturnal species such as night herons, bitterns, rails, and night hawks.

4. Waterfowl surveys should be carried out during the peak of the waterfowl spring migration. Waterfowl fall migration surveys are likely not needed but can be carried out if requested. Waterfowl movement in the other seasons will be noted in the summer and winter surveys.



Common Name	CODE
Arctic Tern	ARTE
Barn Swallow	BARS
Boreal Chickadee	BOCH
Broad-winged Hawk	BWHA
Canada Warbler	CAWA
Common Loon	COLO
Common Tern	COTE
Great Horned Owl	GHOW
Great Crested Flycatcher	GCFL
Gray Jay	GRAJ
Merlin	MERL
Olive-sided Flycatcher	OSFL
Red-breasted Merganser	RBME
Scarlet Tanager	SCTA
Sharp-shinned Hawk	SSHA
Wood Thrush	WOTH

LEGEND:

- Proposed Melford Rail Track
- Proposed Melford Rail Track (On Existing Rail Bed)
- Existing Route 344
- Road Network
- Railroad Network
- Proposed Melford International Terminal
- Environmental Baseline Study Corridor
- Initial Logistics Park
- Future Logistics Park Expansion
- Species at Risk (NSESA, NSDNR, COSEWIC, SARA)
- Species of Conservation Concern (ACCDC)
- Raptors

Figure 5.10-C-1
Rare Bird Locations (Breeding Bird Survey)
Melford International Terminal
Environmental Assessment Services
July 2008

APPENDIX 5.10-D

BREEDING BIRD SURVEY – SPECIES OBSERVATIONS

TV71002 - Melford Breeding Bird Survey
Table A.1: Species Recorded in Mixed Forest Habitat

Species	Total Number of Individuals	Site #	MX01	MX02	MX03	MX04	MX05	MX06	MX07	MX08	MX09	MX10	MX11	MX12	MX13	MX14	MX15	MX22	MX23	MX24
		Survey Date	23,29,30-Jun-07	23-Jun-07	24-Jun-07	24-Jun-07	24-Jun-07	27-Jun-07	25-Jun-07	29-Jun-07	25-Jun-07	25-Jun-07	8,30-Jun-0	25-Jun-07	7,29-Jun-0	29-Jun-07	27-Jun-07	30-Jun-07	1-Jul-07	30-Jun-07
Ruffed Grouse	**2**	#	1			1														
		Distance (m)	100			150														
Broad-winged Hawk	**1**	#						1												
		Distance (m)						200												
Mourning Dove	**4**	#		1								1							1	1
		Distance (m)		150								150							150	200
Great Horned Owl	**1**	#																1		
		Distance (m)																20		
Ruby-throated Hummingbird	**5**	#	1						1				1					1		
		Distance (m)	1						10				10					5		
Yellow-bellied Sapsucker	**4**	#		2											1					
		Distance (m)		50											100					
Downy Woodpecker	**1**	#	1																	
		Distance (m)	50																	
Hairy Woodpecker	**3**	#									1					1				
		Distance (m)									75					50				
Northern Flicker	**13**	#				2				2	1	1		1	2	1			1	
		Distance (m)				3-100				50-200	150	150		100	100-200	100			100	
Pileated Woodpecker	**2**	#	1															1		
		Distance (m)	100															200		
Olive-sided Flycatcher	**3**	#						1						1					1	
		Distance (m)						200						200					150	
Yellow-bellied Flycatcher	**18**	#	1	2			4		2		1	2		3	1	1				
		Distance (m)	100	75			100		50		100	100		100	75	150				
Alder Flycatcher	**1**	#																		
		Distance (m)																		
Least Flycatcher	**10**	#	2			2								2				4		
		Distance (m)	100			150								100				100-200		
Blue-headed Vireo	**17**	#	2	1		1	1	4				2		2		1				1
		Distance (m)	100	75		100	100	50-200				50-100		100		50				100
Red-eyed Vireo	**78**	#	4		1	2	3	5	8			3	5	6	6	4	4	5	4	
		Distance (m)	50-150		50	50-100	50-150	50-200	50-200			50-100	50-200	50-200	20-200	5-200	50-200	75-200	50-200	
Gray Jay	**7**	#				1	2							4						
		Distance (m)				100	100							150						
Blue Jay	**31**	#	1		1					2	2						1	8	1	2
		Distance (m)	50		75					100-200	150						50	50-150	100	100
American Crow	**43**	#	4		2	2			1	6	1	1			1			2	2	1
		Distance (m)	50		75	100			200	150	200	200			100			150	100	150
Black-capped Chickadee	**42**	#	6	2	2	1	2	2	6			2		1	4					2
		Distance (m)	50-200	50	100	50	50	100	5-50			100		50	50-150					200
Boreal Chickadee	**8**	#		2						2						2	2			
		Distance (m)		50						50						100	50			
Red-breasted Nuthatch	**13**	#	1	2				2	2	1							1	2		
		Distance (m)	100	50				150	75	50							50	150		
Brown Creeper	**1**	#																		
		Distance (m)																		
Winter Wren	**15**	#				1	2		2		2	1	2		1		1			
		Distance (m)				150	100		150-200		100	150	50-150		100		150			
Golden-crowned Kinglet	**8**	#			2						2	2		2						
		Distance (m)			20						50	50		50						
Ruby-crowned Kinglet	**41**	#	3	2	3	4	2		4	2	4	3		4		1	1		2	1
		Distance (m)	50-200	50-100	50-100	50-150	50-100		50-200	50-150	75-200	100-200		50-200		100	100		100-150	100
Veery	**6**	#	1	2			1						1							
		Distance (m)	100	50-100			200						75							
Swainson's Thrush	**24**	#	1	4		2	6		2	1			1		2	1				
		Distance (m)	100	50-200		150	150		200	100			100		50-150	100				
Hermit Thrush	**49**	#	4	8	1	4	5	1	7	1	2	4	1	4			1	1	2	
		Distance (m)	50-200	150	100	200	150	150	200	100	200	100-200	100	200			150	200	200	
American Robin	**85**	#	3	3	2	4	4		6	5		2	1	5	8	5	2	4	5	
		Distance (m)	50-100	10-50	10-50	50-100	50-200		50-200	50-200		50-100	100	100-200	20-200	50-200	50-100	50-200	50-200	
European Starling	**4**	#																		
		Distance (m)																		

TV71002 - Melford Breeding Bird Survey
Table A.1: Species Recorded in Mixed Forest Habitat

Species	Total Number of Individuals	Site #	MX01	MX02	MX03	MX04	MX05	MX06	MX07	MX08	MX09	MX10	MX11	MX12	MX13	MX14	MX15	MX22	MX23	MX24
		Survey Date	23,29,30-Jun-07	23-Jun-07	24-Jun-07	24-Jun-07	24-Jun-07	27-Jun-07	25-Jun-07	29-Jun-07	25-Jun-07	25-Jun-07	8,30-Jun-0	25-Jun-07	7,29-Jun-0	29-Jun-07	27-Jun-07	30-Jun-07	1-Jul-07	30-Jun-07
Cedar Waxwing	20	#					2		4	2				2						6
		Distance (m)					50		50	50				100						50
Tennessee Warbler	1	#				1														
		Distance (m)				100														
Nashville Warbler	7	#	1			2											4			
		Distance (m)	100			100											50-200			
Northern Parula	18	#	3	2		2		3		3			2			1				
		Distance (m)	50-200	50-100		50-100		10-150		50-200			100			50				
Yellow Warbler	24	#		4		4	4			2										
		Distance (m)		25		50-200	50-100			100										
Chestnut-sided Warbler	3	#														1				
		Distance (m)														50				
Magnolia Warbler	65	#	3	5	8	5	6		5	4	5	6		7	1	2			5	
		Distance (m)	50-100	20-150	50-150	50-200	50-150		50-200	50-200	10-150	50-200		50-200	50	75			50-200	
Black-throated Blue Warbler	2	#											2							
		Distance (m)											50-100							
Black-throated Green Warbler	32	#		1				3	6		2	4		3	3		2	3	4	
		Distance (m)		75				50-150	50-200		100-150	100-200		50-200	50-100		50-150	100-200	50-200	
Blackburnian Warbler	14	#	1	1				6												4
		Distance (m)	50	100				50-200												50-150
Palm Warbler	2	#			2															
		Distance (m)			50															
Blackpoll Warbler	2	#			1															
		Distance (m)			50															
Black-and-white Warbler	52	#	2	2		4	6	4				6	3	5	3	2				3
		Distance (m)	50-100	50-100		50-150	20-150	50-200				50-150	100-200	50-200	50-200	50				50-150
American Redstart	99	#		5	6	8	5	7	3	6			8	15	8	6			6	2
		Distance (m)		20-200	50-200	50-200	50-150	50-200	50-100	50-200			50-200	50-200	50-200	50-200			50-200	50-100
Ovenbird	22	#	1	2		2			2	2	1		2	1	2				1	3
		Distance (m)	150	50-100		100-150			100-200	50-200	75		100-200	100	50-100				20	50-200
Mourning Warbler	3	#								1	1	1								
		Distance (m)								50	200	150								
Common Yellowthroat	14	#	1				7					2		4						
		Distance (m)	100				10-150					100		50-100						
Wilson's Warbler	1	#																		
		Distance (m)																		
Canada Warbler	1	#		1																
		Distance (m)		50																
Song Sparrow	15	#		1	2		2													
		Distance (m)		25	50		50													
White-throated Sparrow	44	#	4		6	6	6				6	6		4		3	2			
		Distance (m)	100		50-150	50-150	20-100				50-100	50-150		50-100		50	50-100			
Dark-eyed Junco	33	#	1	8				5		12		2			2	1				
		Distance (m)	50	20-200				50-200		50-100		5			100	100				
Rose-breasted Grosbeak	1	#							1											
		Distance (m)							150											
Common Grackle	5	#	2	1			2													
		Distance (m)	100	100			50													
Purple Finch	62	#	2	2		6	4			2				1	35		2		4	2
		Distance (m)	50	75		50-100	50-100			100				100	50		50-100		50-200	100
White-winged Crossbill	8	#							1		1	2								
		Distance (m)							100		75	50								
Pine Siskin	2	#		2																
		Distance (m)		50																
American Goldfinch	71	#	4	4	2	2	4				4	2			4	2	2	3		6
		Distance (m)	50	30	50	50	50-100				50-100	50			50	100	50	10		10-100
Evening Grosbeak	10	#	2		2															
		Distance (m)	50		50															
	1173																			

Breeding Evidence:	
	Singing or observed in suitable habitat
	Courtship or display
	Agitated behaviour
60 spp.	Nest with young
	Nest containing eggs
	Carrying food
	Fledged young

Species	Total Number of Individuals	Site #	MX27	MX29	MX30	MX31	MX32	MX33	MX34
		Survey Date	30-Jun-07	-Jun, 01-Jul-	29-Jun-07	29-Jun-07	1-Jul-07	1-Jul-07	1-Jul-07
Ruffed Grouse	2	#							
		Distance (m)							
Broad-winged Hawk	1	#							
		Distance (m)							
Mourning Dove	4	#							
		Distance (m)							
Great Horned Owl	1	#							
		Distance (m)							
Ruby-throated Hummingbird	5	#				1			
		Distance (m)				10			
Yellow-bellied Sapsucker	4	#					1		
		Distance (m)					200		
Downy Woodpecker	1	#							
		Distance (m)							
Hairy Woodpecker	3	#			1				
		Distance (m)			50				
Northern Flicker	13	#		1		1			
		Distance (m)		5		100			
Pileated Woodpecker	2	#							
		Distance (m)							
Olive-sided Flycatcher	3	#							
		Distance (m)							
Yellow-bellied Flycatcher	18	#	1						
		Distance (m)	50						
Alder Flycatcher	1	#					1		
		Distance (m)					50		
Least Flycatcher	10	#							
		Distance (m)							
Blue-headed Vireo	17	#			1	1			
		Distance (m)			100	50			
Red-eyed Vireo	78	#		1	4	5	8		
		Distance (m)		<200	50-200	50-200	50-200		
Gray Jay	7	#							
		Distance (m)							
Blue Jay	31	#		4		1		8	
		Distance (m)		100		50		50-150	
American Crow	43	#					6	8	6
		Distance (m)					100-200	50-500	50
Black-capped Chickadee	42	#		2	4	2		2	2
		Distance (m)		50	50-150	100		50	100
Boreal Chickadee	8	#							
		Distance (m)							
Red-breasted Nuthatch	13	#						2	
		Distance (m)						50-100	
Brown Creeper	1	#		1					
		Distance (m)		20					
Winter Wren	15	#	1		1			1	
		Distance (m)	100		150			200	
Golden-crowned Kinglet	8	#							
		Distance (m)							
Ruby-crowned Kinglet	41	#			3		1		1
		Distance (m)			50-200		50		100
Veery	6	#						1	
		Distance (m)						150	
Swainson's Thrush	24	#					4		
		Distance (m)					200		
Hermit Thrush	49	#		1		2			
		Distance (m)		100		200			
American Robin	85	#		4	3	6	7	5	1
		Distance (m)		50-200	100-200	50-200	50-200	50-200	100
European Starling	4	#					4		
		Distance (m)					50		

Species	Total Number of Individuals	Site #	MX27	MX29	MX30	MX31	MX32	MX33	MX34
		Survey Date	30-Jun-07	-Jun, 01-Jul-	29-Jun-07	29-Jun-07	1-Jul-07	1-Jul-07	1-Jul-07
Cedar Waxwing	20	#			2		2		
		Distance (m)			100		50		
Tennessee Warbler	1	#							
		Distance (m)							
Nashville Warbler	7	#							
		Distance (m)							
Northern Parula	18	#				1		1	
		Distance (m)				50		50	
Yellow Warbler	24	#					10		
		Distance (m)					50-200		
Chestnut-sided Warbler	3	#					2		
		Distance (m)					50		
Magnolia Warbler	65	#		1				2	
		Distance (m)		100				50-100	
Black-throated Blue Warbler	2	#							
		Distance (m)							
Black-throated Green Warbler	32	#	1						
		Distance (m)	100						
Blackburnian Warbler	14	#			2				
		Distance (m)			100				
Palm Warbler	2	#							
		Distance (m)							
Blackpoll Warbler	2	#			1				
		Distance (m)			50				
Black-and-white Warbler	52	#	1	2	2	2	3	2	
		Distance (m)	50	50-100	50-100	50-100	50-150	50-200	
American Redstart	99	#		1			5	6	2
		Distance (m)		<200			50-150	50-200	50-100
Ovenbird	22	#		1				2	
		Distance (m)		<200				50-200	
Mourning Warbler	3	#							
		Distance (m)							
Common Yellowthroat	14	#							
		Distance (m)							
Wilson's Warbler	1	#					1		
		Distance (m)					50		
Canada Warbler	1	#							
		Distance (m)							
Song Sparrow	15	#					6	4	
		Distance (m)					50-200	50-200	
White-throated Sparrow	44	#			1				
		Distance (m)			50				
Dark-eyed Junco	33	#			2				
		Distance (m)			50-100				
Rose-breasted Grosbeak	1	#							
		Distance (m)							
Common Grackle	5	#							
		Distance (m)							
Purple Finch	62	#			2				
		Distance (m)			100				
White-winged Crossbill	8	#				4			
		Distance (m)				100			
Pine Siskin	2	#							
		Distance (m)							
American Goldfinch	71	#	4	2			16	8	2
		Distance (m)	50-100	50			100	50-200	50
Evening Grosbeak	10	#					2	2	2
		Distance (m)					50	50	50
	1173								
			Br						

Species	Total Number of Individuals	Site #	H01	H02	H04	H05	H06	H07	H08	H09	H10	H11	H12	H15	H19	H20	H21
		Survey Date	21-Jun-07	23-Jun-07	25,26-Jun-07	28-Jun-07	26-Jun-07	25-Jun-07	30-Jun-07	29,30-Jun-07	29,30-Jun-07	30-Jun-07	1-Jul-07	27-Jun-07	27-Jun-07	27-Jun-07	29-Jun-07
Ruffed Grouse	2	#		1										1			
		Distance (m)		150										50			
Sharp-shinned Hawk	2	#					1									1	
		Distance (m)					20									50	
Broad-winged Hawk	1	#										1					
		Distance (m)										150					
Merlin	1	#											1				
		Distance (m)											50				
Ruby-throated Hummingbird	1	#		1													
		Distance (m)		2													
Yellow-bellied Sapsucker	2	#		1											1		
		Distance (m)		30											150		
Downy Woodpecker	1	#								1							
		Distance (m)								150							
Hairy Woodpecker	1	#															1
		Distance (m)															50
Northern Flicker	8	#		1	1	3	1				1			1			
		Distance (m)		100	50	100-200	100				15			50			
Pileated Woodpecker	2	#								1							1
		Distance (m)								200							100
Olive-sided Flycatcher	3	#													3		
		Distance (m)													50-200		
Eastern Wood-pewee	4	#												1	2	1	
		Distance (m)												200	100-200	200	
Least Flycatcher	17	#					1	5		3		4			4		
		Distance (m)					150	50-150		10-200		50-200			100-200		
Great Crested Flycatcher	2	#								2							
		Distance (m)								15-50							
Blue-headed Vireo	4	#			1		1				1	1					
		Distance (m)			50		50				50	50					
Red-eyed Vireo	50	#		2	6	2	3	4	7	2	4	5	3	2	7	2	1
		Distance (m)		50-100	50-200	50-200	100	50-200	20-200	150-200	50-100	50-200	50	50-100	50-200	100-200	100
Gray Jay	4	#			4												
		Distance (m)			75												
Blue Jay	11	#			4		1	2	2		1			1			
		Distance (m)			150		150	100	50		50			100			
American Crow	10	#		1	4						1	2	1		1		
		Distance (m)		200	200						50	150-200	50		200		
Black-capped Chickadee	31	#	2			2	2	4	4	2	6	4		2	1		2
		Distance (m)	10			50	50	100	20-150	150	50-150	50-100		10	100		50
Red-breasted Nuthatch	2	#									2						
		Distance (m)									5						
Brown Creeper	1	#														1	
		Distance (m)														50	
Ruby-crowned Kinglet	4	#			1							1				1	1
		Distance (m)			100							10				200	100
Veery	4	#			1	1						1			1		
		Distance (m)			100	200						100			200		
Swainson's Thrush	11	#		4							2				5		
		Distance (m)		20-100							100-150				50-200		
Hermit Thrush	23	#			2	7	6				6				2		
		Distance (m)			150	150	50-100				150				200		
Wood Thrush	1	#													1		
		Distance (m)													200		
American Robin	31	#	1		4	3	4	7		2	1			2	4	2	1
		Distance (m)	100		50-200	50-200	100-200	50-100		50-200	<200			100-200	100-200	100-200	200
European Starling	1	#	1														
		Distance (m)	50														
Cedar Waxwing	4	#			2							2					
		Distance (m)			50							100					
Northern Parula	6	#								2	3			1			
		Distance (m)								150-200	50-100			50			
Yellow Warbler	2	#											1	1			
		Distance (m)											50	100			

Table A.2: Species Recorded in Hardwood Forest Habitat

Species	Total Number of Individuals	Site #	H01	H02	H04	H05	H06	H07	H08	H09	H10	H11	H12	H15	H19	H20	H21
		Survey Date	21-Jun-07	23-Jun-07	25,26-Jun-07	28-Jun-07	26-Jun-07	25-Jun-07	30-Jun-07	29,30-Jun-07	29,30-Jun-07	30-Jun-07	1-Jul-07	27-Jun-07	27-Jun-07	27-Jun-07	29-Jun-07
Magnolia Warbler	**4**	#			1		1		1		1						
		Distance (m)			50		50		50		<200						
Black-throated Blue Warbler	**12**	#						2	2	1	1	2		1	2	1	
		Distance (m)						150	100-200	150	100	100-150		100	50-150	50	
Black-throated Green Warbler	**14**	#			1			4			3			1		4	1
		Distance (m)			150			20-150			50-100			100		100-200	150
Bay-breasted Warbler	**3**	#								2	1						
		Distance (m)								10-200	75						
Black-and-white Warbler	**34**	#		1	5	1			5	2	9	3		1	7		
		Distance (m)		50	50-200	100			100-200	150-200	50-150	50-200		50	50-200		
American Redstart	**35**	#			8	9	4			3	5	5		1			
		Distance (m)			30-200	50-200	50-150			75-200	50-100	50-200		100			
Ovenbird	**25**	#		1	2	1	4	2	5		3			1	3	2	1
		Distance (m)		100	100-150	150	50-100	100	50-200		50-150			100	100-200	100-200	100
Mourning Warbler	**2**	#					2										
		Distance (m)					100										
Canada Warbler	**1**	#				1											
		Distance (m)				5											
Scarlet Tanager	**1**	#												1			
		Distance (m)												150			
White-throated Sparrow	**7**	#			1	2	2			1	1						
		Distance (m)			50	50	50			10	<200						
Dark-eyed Junco	**8**	#					5							2	1		
		Distance (m)					50							50-100	10		
Rose-breasted Grosbeak	**1**	#				1											
		Distance (m)				100											
Common Grackle	**2**	#			1		1										
		Distance (m)			50		150										
Purple Finch	**6**	#					2		1			1	1		1		
		Distance (m)					100		100			50	50		75		
American Goldfinch	**6**	#					2					2		2			
		Distance (m)					50					100		20			
Evening Grosbeak	**2**	#													2		
		Distance (m)													100		
	410																

Breeding Evidence:		Singing or observed in suitable habitat
		Courtship or display
		Agitated behaviour
49 spp.		Nest with young
		Nest containing eggs
		Carrying food
		Fledged young

Table A.3: Species Recorded in Softwood Forest Habitat

Species	Total Number of Individuals	Site #	S01	S02	S03	S05	S06	S07	S08	S09	S11	S12	S13	S14
		Survey Date	20-Jun-07	20-Jun-07	21-Jun-07	24-Jun-07	1-Jul-07	1-Jul-07	1-Jul-07	29,30-Jun-07	1-Jul-07	26-Jun-07	1-Jul-07	1-Jul-07
Downy Woodpecker	**1**	#	1											
		Distance (m)	75											
Hairy Woodpecker	**1**	#			1									
		Distance (m)			50									
Northern Flicker	**2**	#	1									1		
		Distance (m)	100									50		
Pileated Woodpecker	**1**	#										1		
		Distance (m)										100		
Olive-sided Flycatcher	**6**	#		1	4				1					
		Distance (m)		150	150-200				100					
Yellow-bellied Flycatcher	**4**	#									2	2		
		Distance (m)									50	50		
Blue-headed Vireo	**13**	#	1	2	2	1			1	1			3	2
		Distance (m)	100	50-100	50-100	50			100	100			50-200	50-200
Gray Jay	**6**	#	1						1				4	
		Distance (m)	100						100				50-200	
Blue Jay	**18**	#	4	4				8				2		
		Distance (m)	100	100				50				50		
American Crow	**20**	#	6	2				4					6	2
		Distance (m)	50-150	100				50-200					50-200	200
Black-capped Chickadee	**26**	#	4	6		2		8	2				4	
		Distance (m)	50-100	50-200		50		50-200	50				50-200	
Boreal Chickadee	**18**	#			2	2	2		6	2		2	2	
		Distance (m)			30	50	50		50	100		50	50-200	
Red-breasted Nuthatch	**31**	#			4	2	1	8	8		2			6
		Distance (m)			50-100	50-100	50	50-200	50		100			50-200
Winter Wren	**6**	#		1									3	2
		Distance (m)		200									50-200	100
Golden-crowned Kinglet	**11**	#					7	2			2			
		Distance (m)					50-100	100			50			
Ruby-crowned Kinglet	**36**	#	5	4	2		2	4	3		1	1	8	6
		Distance (m)	50-200	50-200	100		50-150	50-200	50-200		10	50	50-200	50-200
Swainson's Thrush	**11**	#	6		4					1				
		Distance (m)	50-200		50					200				
Hermit Thrush	**23**	#				2		2		1		2	8	8
		Distance (m)				100		50-200		150		50	50-200	50-200
American Robin	**54**	#	7	8	1	2	2	10	2	1			14	7
		Distance (m)	20-200	20-200	50	50-100	50-100	50-200	50-200	50			50-200	50-200
Cedar Waxwing	**4**	#	2						2					
		Distance (m)	50						50					
Tennessee Warbler	**1**	#				1								
		Distance (m)				20								
Northern Parula	**21**	#				4	2			1			10	4
		Distance (m)				50-100	50			100			50-200	50-200
Yellow Warbler	**1**	#		1										
		Distance (m)		50										
Magnolia Warbler	**72**	#	5	8	8	4	4	9			1	3	18	12
		Distance (m)	100-200	50-200	20-150	50-100	50-100	50-200			50	50	50-200	50-200
Black-throated Green Warbler	**7**	#						2	2					3
		Distance (m)						50-200	50-200					50-200
Blackburnian Warbler	**10**	#				2		4					4	
		Distance (m)				50		50-200					50-200	
Palm Warbler	**1**	#										1		
		Distance (m)										50		
Blackpoll Warbler	**18**	#	2		5			1	1		2	1	5	1
		Distance (m)	50		20-100			50	50		50	50	50-200	50
Black-and-white Warbler	**1**	#										1		
		Distance (m)										50		
Northern Waterthrush	**1**	#				1								
		Distance (m)				75								
White-throated Sparrow	**3**	#			3									
		Distance (m)			50									
Dark-eyed Junco	**18**	#		6		6		5		1				
		Distance (m)		50-200		50-150		50-200		50				

Table A.3: Species Recorded in Softwood Forest Habitat

Species	Total Number of Individuals	Site #	S01	S02	S03	S05	S06	S07	S08	S09	S11	S12	S13	S14
		Survey Date	20-Jun-07	20-Jun-07	21-Jun-07	24-Jun-07	1-Jul-07	1-Jul-07	1-Jul-07	29,30-Jun-07	1-Jul-07	26-Jun-07	1-Jul-07	1-Jul-07
Red-winged Blackbird	**4**	**#**	4											
		Distance (m)	75											
Common Grackle	**7**	**#**						1	6					
		Distance (m)						50	50					
Purple Finch	**16**	**#**	2	4		4		4					2	
		Distance (m)	50	50-100		100		50-200					50-200	
White-winged Crossbill	**7**	**#**			5						2			
		Distance (m)			20						75			
Pine Siskin	**17**	**#**		2		2		10		1		2		
		Distance (m)		100		50		50		<200		50		
American Goldfinch	**6**	**#**	4			2								
		Distance (m)	100			50								
	503													

Breeding Evidence:		
		Singing or observed in suitable habitat
		Courtship or display
		Agitated behaviour
38 spp.		Nest with young
		Nest containing eggs
		Carrying food
		Fledged young

Table A.4: Species Recorded in Regenerating Forest Habitat

Species	Total Number of Individuals	Site #	R01	R02	R03	R04	R05	R06	R07	R08	R09	R10	R11	R12	R13	R14	R15
		Survey Date	20-Jun-07	20-Jun-07	20-Jun-07	20-Jun-07	20-Jun-07	20-Jun-07	20-Jun-07	20-Jun-07	20-Jun-07	21-Jun-07	21-Jun-07	21-Jun-07	26,28-Jun-07	27-Jun-07	26-Jun-07
Common Merganser	**1**	#					1										
		Distance (m)					50										
Ruby-throated Hummingbird	**3**	#															
		Distance (m)															
Downy Woodpecker	**2**	#											1				
		Distance (m)											50				
Northern Flicker	**14**	#			1										1		1
		Distance (m)			50										150		50
Olive-sided Flycatcher	**2**	#													1		1
		Distance (m)													200		150
Alder Flycatcher	**166**	#		13	4	6	10	12	9	10		6	7		12		7
		Distance (m)		50-200	50-100	50-150	50-200	50-200	10-200	20-200		50-100	20-150		50-200		50-150
Blue-headed Vireo	**1**	#															
		Distance (m)															
Red-eyed Vireo	**54**	#	4	1	2	1	3	8		1	3			2	5		13
		Distance (m)	50-100	100	100	50	50-100	50-200		200	50-200			50-100	100-200		50-150
Blue Jay	**24**	#			4	2											4
		Distance (m)			50	50											100-150
American Crow	**12**	#			4	2	2		1				1			1	
		Distance (m)			200	100	100		150				50			100	
Tree Swallow	**1**	#						1									
		Distance (m)						50									
Black-capped Chickadee	**35**	#	4		2	2	2		4						4		2
		Distance (m)	1-50		50	50	100		50-100						50-200		75
Ruby-crowned Kinglet	**9**	#			2			2		1			2	1			1
		Distance (m)			50			100		100			50-100	100			150
Swainson's Thrush	**23**	#	2	6				3							1		
		Distance (m)	5-100	150				100-200							200		
Hermit Thrush	**31**	#	5	4				8					3		4		
		Distance (m)	50-150	150				50-200					50-150		200		
American Robin	**80**	#	4	5	7	9	9	6		4		2	2	4	1		6
		Distance (m)	25-200	50-200	10-150	20-200	50-200	50-100		50-500		50	50-150	50-200	<200		100-150
Cedar Waxwing	**17**	#									2			4	1	2	
		Distance (m)									50			50	<200	10	
Nashville Warbler	**38**	#					2	8	7	4	4	3		5	2		
		Distance (m)					50	10-200	20-200	50-200	50-200	50-100		50-200	50-200		
Northern Parula	**1**	#				1											
		Distance (m)				75											
Yellow Warbler	**114**	#	4	14		12	10	14	6	9			3		7		
		Distance (m)	20-150	5-150		20-200	5-150	20-200	50-200	20-200			100-200		20-200		
Chestnut-sided Warbler	**30**	#		2											2		7
		Distance (m)		50											50-150		50-150
Magnolia Warbler	**31**	#		4	2	5								1	2		4
		Distance (m)		50-100	50	20								150	10-100		50-100
Yellow-rumped Warbler	**1**	#					1										
		Distance (m)					50										
Black-throated Green Warbler	**1**	#															
		Distance (m)															
Palm Warbler	**2**	#															
		Distance (m)															
Blackpoll Warbler	**1**	#				1											
		Distance (m)				50											
Black-and-white Warbler	**26**	#		1	4	4		2	2	1		2			2		
		Distance (m)		50	50-150	50-100		100	100	150		50			10-150		
American Redstart	**94**	#		3			4		4		8	5	6	6	6	1	10
		Distance (m)		10-100			50-100		10-200		20-200	50-150	50-150	50-200	50-200	100	50-150
Mourning Warbler	**26**	#														1	8
		Distance (m)														100	50-150
Common Yellowthroat	**145**	#	7	11	6	10		14	8	8		8	12		8	2	7
		Distance (m)	10-150	20-200	50-200	20-200		20-200	50-200	50-200		20-150	10-200		10-200	10-100	10-150
Fox Sparrow	**3**	#							1	2							
		Distance (m)							20	100-150							

Table A.4: Species Recorded in Regenerating Forest Habitat

Species	Total Number of Individuals	Site #	R01	R02	R03	R04	R05	R06	R07	R08	R09	R10	R11	R12	R13	R14	R15
		Survey Date	20-Jun-07	20-Jun-07	20-Jun-07	20-Jun-07	20-Jun-07	20-Jun-07	20-Jun-07	20-Jun-07	20-Jun-07	21-Jun-07	21-Jun-07	21-Jun-07	26,28-Jun-07	27-Jun-07	26-Jun-07
Song Sparrow	**73**	#	3	6		4	6				4		4	2			8
		Distance (m)	20-100	10-100		50-100	5-100				50-200		50-150	50			10-100
Lincoln's Sparrow	**17**	#															1
		Distance (m)															50
White-throated Sparrow	**408**	#	8	21	8	26	16	16	12	12	6	12	15	11	13	3	34
		Distance (m)	10-150	20-200	50-200	5-200	20-200	5-200	20-200	20-200	100	20-150	10-150	50-200	50-200	10-100	10-150
Dark-eyed Junco	**7**	#	1				2								2	1	
		Distance (m)	50				100								50-100	100	
Common Grackle	**8**	#		1				1	4						2		
		Distance (m)		50				50	50-100						20		
Purple Finch	**28**	#	2	4			1		2	1					4		
		Distance (m)	100	50-100			100		5-100	100					75-200		
Pine Siskin	**8**	#			4	2	2										
		Distance (m)			20	50	50										
American Goldfinch	**149**	#	4	7	6	4	2	10	4	6	6	4		2	6	4	
		Distance (m)	50	5-75	20-100	50-100	50	50-200	50-100	50-200	100	50		50	50-200	10-100	
Evening Grosbeak	**3**	#							1								
		Distance (m)							50								
	1689																
			40 spp.														

Breeding Evidence:	
	Singing or observed in suitable habitat
	Courtship or display
	Agitated behaviour
	Nest with young
	Nest containing eggs
	Carrying food
	Fledged young

Table A.4: Species Recorded in Regenerating Forest Habitat

Species	Total Number of Individuals	Site #	R16	R17	R18	R19	R20	R21	R22	R23	R24	R25
		Survey Date	28-Jun-07	28-Jun-07	30-Jun-07	30-Jun-07	29,30-Jun-07	29-Jun-07	1-Jul-07	28,29-Jun-07	1-Jul-07	29-Jun-07
Common Merganser	**1**	#										
		Distance (m)										
Ruby-throated Hummingbird	**3**	#					1			2		
		Distance (m)					50			20		
Downy Woodpecker	**2**	#		1								
		Distance (m)		50								
Northern Flicker	**14**	#		2		2				2		5
		Distance (m)		100-200		50-100				100-200		150
Olive-sided Flycatcher	**2**	#										
		Distance (m)										
Alder Flycatcher	**166**	#	8	15		5	12	6	1	18		5
		Distance (m)	50-200	10-200		50-100	50-200	50-200	50	20-100		50-200
Blue-headed Vireo	**1**	#			1							
		Distance (m)			50							
Red-eyed Vireo	**54**	#	4					1		2	1	3
		Distance (m)	100-200					150		100-200	50	100-200
Blue Jay	**24**	#	2	4			1			6		1
		Distance (m)	100	100-200			50			150		100
American Crow	**12**	#					1					
		Distance (m)					200					
Tree Swallow	**1**	#										
		Distance (m)										
Black-capped Chickadee	**35**	#	4	4			2		2	2	1	
		Distance (m)	50-200	50-150			100		100	100	50	
Ruby-crowned Kinglet	**9**	#										
		Distance (m)										
Swainson's Thrush	**23**	#	5	6								
		Distance (m)	50-200	100-200								
Hermit Thrush	**31**	#	3			1					2	1
		Distance (m)	150-200			200					50-100	200
American Robin	**80**	#	1			5	6	4		5		
		Distance (m)	150			50	50-100	50-200		100-200		
Cedar Waxwing	**17**	#	2							2		4
		Distance (m)	100							100		50
Nashville Warbler	**38**	#					2					1
		Distance (m)					50-200					50
Northern Parula	**1**	#										
		Distance (m)										
Yellow Warbler	**114**	#		14		1	7	2		11		
		Distance (m)		50-200		100	50-200	50		50-200		
Chestnut-sided Warbler	**30**	#	4	8				3	4			
		Distance (m)	50-200	50-200				50-200	50-200			
Magnolia Warbler	**31**	#	3	6			2					2
		Distance (m)	50-200	50-150			50-200					100-200
Yellow-rumped Warbler	**1**	#										
		Distance (m)										
Black-throated Green Warbler	**1**	#	1									
		Distance (m)	20									
Palm Warbler	**2**	#					2					
		Distance (m)					10-200					
Blackpoll Warbler	**1**	#										
		Distance (m)										
Black-and-white Warbler	**26**	#	2	1						2	1	2
		Distance (m)	50-100	50						50-100	50	50-150
American Redstart	**94**	#		5		4	14	4				14
		Distance (m)		50-200		50-100	10-200	100-150				50-200
Mourning Warbler	**26**	#		3	1	1	4	1				7
		Distance (m)		100-200	50	100	50-200	50				50-200
Common Yellowthroat	**145**	#		6	1	3		8	6	10		10
		Distance (m)		50-150	50	50		50-200	50-200	5-200		50-200
Fox Sparrow	**3**	#										
		Distance (m)										

Table A.4: Species Recorded in Regenerating Forest Habitat

Species	Total Number of Individuals	Site #	R16	R17	R18	R19	R20	R21	R22	R23	R24	R25
		Survey Date	28-Jun-07	28-Jun-07	30-Jun-07	30-Jun-07	29,30-Jun-07	29-Jun-07	1-Jul-07	28,29-Jun-07	1-Jul-07	29-Jun-07
Song Sparrow	**73**	**#**		10			12			8		6
		Distance (m)		50-200			50-200			20-100		50-200
Lincoln's Sparrow	**17**	**#**		1			5					10
		Distance (m)		100			50-200					50-200
White-throated Sparrow	**408**	**#**	10	42	4	14	28	12	15	18	8	44
		Distance (m)	50-200	10-200	50	50-200	10-200	50-200	50-200	50-200	50-100	5-200
Dark-eyed Junco	**7**	**#**									*1*	
		Distance (m)									*50*	
Common Grackle	**8**	**#**										
		Distance (m)										
Purple Finch	**28**	**#**		12				2				
		Distance (m)		100-200				10				
Pine Siskin	**8**	**#**										
		Distance (m)										
American Goldfinch	**149**	**#**	4	36	2	4	10	4		10		14
		Distance (m)	50-200	10-200	50	50-200	50-200	50-100		20-100		50-200
Evening Grosbeak	**3**	**#**							2			
		Distance (m)							50			
	1689											
		Breed										

Table A.5: Species Recorded in Urban Habitat

Species	Total Number of Individuals	Site #	U01	U02	U03	U04	U05	U06	U07
		Survey Date	22-Jun-07	22-Jun-07	22-Jun-07	22-Jun-07	22-Jun-07	22-Jun-07	22-Jun-07
Ruffed Grouse	**1**	**#**							1
		Distance (m)							50
Mourning Dove	**3**	**#**				2		1	
		Distance (m)				5		75	
Ruby-throated Hummingbird	**13**	**#**			6	1	4	2	
		Distance (m)			20-30	30	30	70	
Yellow-bellied Sapsucker	**2**	**#**			2				
		Distance (m)			30				
Hairy Woodpecker	**2**	**#**	2						
		Distance (m)	10						
Northern Flicker	**1**	**#**							1
		Distance (m)							100
Alder Flycatcher	**43**	**#**	24	7	6	4		2	
		Distance (m)	5-100	20-100	50-100	50-100		50	
Red-eyed Vireo	**8**	**#**		2	4				2
		Distance (m)		20-100	50-100				75-100
Blue Jay	**2**	**#**				1			1
		Distance (m)				50			75
American Crow	**13**	**#**	2	1	2	1	2	1	4
		Distance (m)	10-50	100	100	50	50	100	50-75
Tree Swallow	**12**	**#**				12			
		Distance (m)				20-100			
Barn Swallow	**2**	**#**				2			
		Distance (m)				70			
Black-capped Chickadee	**11**	**#**	2	1				4	4
		Distance (m)	75	50				2-50	50-75
Red-breasted Nuthatch	**1**	**#**			1				
		Distance (m)			20				
American Robin	**12**	**#**	1		2	1	2	2	4
		Distance (m)	50		100	50	50-100	75	10-100
Gray Catbird	**1**	**#**					1		
		Distance (m)					50		
European Starling	**19**	**#**	3			8			8
		Distance (m)	50-100			50-100			50-100
Cedar Waxwing	**2**	**#**			2				
		Distance (m)			50				
Yellow Warbler	**29**	**#**	13		3		3	5	5
		Distance (m)	5-100		50-100		20-50	50-100	50-100
Black-and-white Warbler	**1**	**#**					1		
		Distance (m)					20		
American Redstart	**1**	**#**							1
		Distance (m)							75
Common Yellowthroat	**7**	**#**	6				1		
		Distance (m)	5-100				50		
Chipping Sparrow	**1**	**#**				1			
		Distance (m)				30			
Song Sparrow	**68**	**#**	12	5	5	18	13	8	7
		Distance (m)	5-100	20-100	50-200	20-100	20-100	50-100	50-100
White-throated Sparrow	**4**	**#**		2				2	
		Distance (m)		50				50-100	
Dark-eyed Junco	**1**	**#**					1		
		Distance (m)					50		
Common Grackle	**22**	**#**				8	8	*6*	
		Distance (m)				50-100	50	*70*	
Purple Finch	**31**	**#**				10	17	4	
		Distance (m)				20-50	20-100	50-100	
Pine Siskin	**15**	**#**		1		14			
		Distance (m)		50		50			
American Goldfinch	**106**	**#**	8		2	62	23	5	6
		Distance (m)	20-100		50	10-100	20-100	50-100	50
House Sparrow	**8**	**#**				6			2
		Distance (m)				50			50
	442								

Breeding Evidence:		
		Singing or observed in suitable habitat
		Courtship or display
		Agitated behaviour
31 spp.		Nest with young
		Nest containing eggs
		Carrying food
		Fledged young

Species	Total Number of Individuals	Site #	WL1	WL2	WL3	TSS01	TBG02	SFE33	TBG40	TBG54	DWS55	TSS56	SBG58	TBG63	TBG64	TBG65	TBG66
		Survey Date	21-Jun-07	21-Jun-07	21-Jun-07	24-Jun-07	24-Jun-07	25-Jun-07	29-Jun-07	1-Jul-07	23-Jun-07	28-Jun-07	1-Jul-07	1-Jul-07	1-Jul-07	1-Jul-07	1-Jul-07
Sora	**1**	#	1														
		Distance (m)	100														
Black-backed Woodpecker	**1**	#															
		Distance (m)															
Northern Flicker	**2**	#				2											
		Distance (m)				100-150											
Olive-sided Flycatcher	**2**	#								1	1						
		Distance (m)								50	150						
Yellow-bellied Flycatcher	**4**	#						2							1		
		Distance (m)						50-100							50		
Alder Flycatcher	**39**	#				1	16	5			9	8					
		Distance (m)				100	50	50-100			30-100	50-100					
Blue-headed Vireo	**1**	#															
		Distance (m)															
Red-eyed Vireo	**5**	#				3					2						
		Distance (m)				75-100					5-50						
Gray Jay	**11**	#													1	2	4
		Distance (m)													50	50	50
Blue Jay	**1**	#									1						
		Distance (m)									100						
American Crow	**7**	#				2	4				1						
		Distance (m)				100	50				200						
Black-capped Chickadee	**6**	#				2	2				2						
		Distance (m)				50	50				40						
Boreal Chickadee	**15**	#								2				2		2	2
		Distance (m)								50				50		50	50
Red-breasted Nuthatch	**4**	#				2			1								
		Distance (m)				100			50								
Golden-crowned Kinglet	**2**	#												2			
		Distance (m)												50			
Ruby-crowned Kinglet	**13**	#				3	2							1		1	2
		Distance (m)				50-150	50							50		50	50
Veery	**5**	#				1					4						
		Distance (m)				150					150						
Swainson's Thrush	**14**	#				8	6										
		Distance (m)				50	50										
Hermit Thrush	**20**	#					14	2				2					1
		Distance (m)					50	100				50-100					50
American Robin	**15**	#				2	2	2	1	2	4	2					
		Distance (m)				150	50	50-100	50	50-100	50-100	50-100					
Cedar Waxwing	**5**	#				2					3						
		Distance (m)				50					20						
Tennessee Warbler	**7**	#	1												1		1
		Distance (m)	30												50		50
Nashville Warbler	**4**	#					3	1									
		Distance (m)					50	100									
Yellow Warbler	**31**	#	9			3	6	5				8					
		Distance (m)	10-100			50-100	50	50-100				50-100					
Magnolia Warbler	**20**	#						8					1		2	2	
		Distance (m)						50-100					50		50	50	
Palm Warbler	**3**	#							1							1	
		Distance (m)							50							50	
Blackpoll Warbler	**7**	#												2		1	1
		Distance (m)												50		50	50
Black-and-white Warbler	**7**	#				4	2				1						
		Distance (m)				50-100	50				50						
American Redstart	**20**	#				4	6	4			2	4					
		Distance (m)				50-100	50	50-100			50	50-100					
Common Yellowthroat	**45**	#	7			5	10	12			1	8					
		Distance (m)	50-100			50-100	50	50-100			50	50-100					
Wilson's Warbler	**2**	#					1										
		Distance (m)					50										

Table A.6: Species Recorded in Wetland Habitat

Species	Total Number of Individuals	Site #	WL1	WL2	WL3	TSS01	TBG02	SFE33	TBG40	TBG54	DWS55	TSS56	SBG58	TBG63	TBG64	TBG65	TBG66
		Survey Date	21-Jun-07	21-Jun-07	21-Jun-07	24-Jun-07	24-Jun-07	25-Jun-07	29-Jun-07	1-Jul-07	23-Jun-07	28-Jun-07	1-Jul-07	1-Jul-07	1-Jul-07	1-Jul-07	1-Jul-07
Canada Warbler	**2**	**#**					1				1						
		Distance (m)					50				50						
Song Sparrow	**1**	**#**					1										
		Distance (m)					50										
Lincoln's Sparrow	**1**	**#**															
		Distance (m)															
Swamp Sparrow	**4**	**#**	2		2												
		Distance (m)	30		75												
White-throated Sparrow	**24**	**#**				8	4				11						
		Distance (m)				10-100	50				10-100						
Dark-eyed Junco	**6**	**#**								1							
		Distance (m)								50							
Red-winged Blackbird	**44**	**#**	28		10							6					
		Distance (m)	50-100		10-70							50-100					
Common Grackle	**50**	**#**	32		14	4											
		Distance (m)	10-100		10-70	50-100											
Purple Finch	**2**	**#**														2	
		Distance (m)														50	
White-winged Crossbill	**8**	**#**												1			5
		Distance (m)												50			50
Pine Siskin	**3**	**#**					2		1								
		Distance (m)					50		50								
American Goldfinch	**26**	**#**					8				10	6			2		
		Distance (m)					50				50	50-100			50		
	490																
			43 spp.														

Breeding Evidence:	
	Singing or observed in suitable habitat
	Courtship or display
	Agitated behaviour
	Nest with young
	Nest containing eggs
	Carrying food
	Fledged young

Table A.6: Species Recorded in Wetland Habitat

Species	Total Number of Individuals	Site #	TBG70	TBG71	TBG74	TBG81	TBG82
		Survey Date	28-Jun, 01-Jul-07	28-Jun, 01-Jul-07	28-Jun, 01-Jul-07	29-Jun, 01-Jul-07	28-Jun, 01-Jul-07
Sora	1	#					
		Distance (m)					
Black-backed Woodpecker	1	#				1	
		Distance (m)				75	
Northern Flicker	2	#					
		Distance (m)					
Olive-sided Flycatcher	2	#					
		Distance (m)					
Yellow-bellied Flycatcher	4	#				1	
		Distance (m)				50	
Alder Flycatcher	39	#					
		Distance (m)					
Blue-headed Vireo	1	#					1
		Distance (m)					50
Red-eyed Vireo	5	#					
		Distance (m)					
Gray Jay	11	#				4	
		Distance (m)				5-50	
Blue Jay	1	#					
		Distance (m)					
American Crow	7	#					
		Distance (m)					
Black-capped Chickadee	6	#					
		Distance (m)					
Boreal Chickadee	15	#	1		2	2	2
		Distance (m)	50		50	50	50
Red-breasted Nuthatch	4	#					1
		Distance (m)					50
Golden-crowned Kinglet	2	#					
		Distance (m)					
Ruby-crowned Kinglet	13	#	1			2	1
		Distance (m)	50			50	50
Veery	5	#					
		Distance (m)					
Swainson's Thrush	14	#					
		Distance (m)					
Hermit Thrush	20	#				1	
		Distance (m)				100	
American Robin	15	#					
		Distance (m)					
Cedar Waxwing	5	#					
		Distance (m)					
Tennessee Warbler	7	#	1	1	1	1	
		Distance (m)	50	50	50	20	
Nashville Warbler	4	#					
		Distance (m)					
Yellow Warbler	31	#					
		Distance (m)					
Magnolia Warbler	20	#	2	1	2	2	
		Distance (m)	50	50	50	50-100	
Palm Warbler	3	#				1	
		Distance (m)				50	
Blackpoll Warbler	7	#	2		1		
		Distance (m)	50		50		
Black-and-white Warbler	7	#					
		Distance (m)					
American Redstart	20	#					
		Distance (m)					
Common Yellowthroat	45	#	1			1	
		Distance (m)	50			50	
Wilson's Warbler	2	#	1				
		Distance (m)	50				

Table A.6: Species Recorded in Wetland Habitat

Species	Total Number of Individuals	Site #	TBG70	TBG71	TBG74	TBG81	TBG82
		Survey Date	28-Jun, 01-Jul-07	28-Jun, 01-Jul-07	28-Jun, 01-Jul-07	29-Jun, 01-Jul-07	28-Jun, 01-Jul-07
Canada Warbler	**2**	#					
		Distance (m)					
Song Sparrow	**1**	#					
		Distance (m)					
Lincoln's Sparrow	**1**	#					1
		Distance (m)					50
Swamp Sparrow	**4**	#					
		Distance (m)					
White-throated Sparrow	**24**	#	1				
		Distance (m)	50				
Dark-eyed Junco	**6**	#	1	1		2	1
		Distance (m)	50	50		40	50
Red-winged Blackbird	**44**	#					
		Distance (m)					
Common Grackle	**50**	#					
		Distance (m)					
Purple Finch	**2**	#					
		Distance (m)					
White-winged Crossbill	**8**	#				2	
		Distance (m)				50	
Pine Siskin	**3**	#					
		Distance (m)					
American Goldfinch	**26**	#					
		Distance (m)					
	490						
		Breed					

Table A.7: Species Recorded in Marine Flat Habitat

Species	Total Number of Individuals	Site #	MF01	MF02	MF03	MF04	MF05	MF06
		Survey Date	20-Jun-07	20-Jun-07	20-Jun-07	22-Jun-07	22-Jun-07	22-Jun-07
Red-breasted Merganser	**4**	#			4			
		Distance (m)			50			
Common Loon	**1**	#						1
		Distance (m)						50
Double-crested Cormorant	**8**	#	1			2	3	2
		Distance (m)	800			50	50	50
Great Blue Heron	**1**	#		1				
		Distance (m)		1				
Spotted Sandpiper	**3**	#					2	1
		Distance (m)					20	1
Herring Gull	**85**	#	16	5	8	8		48
		Distance (m)	10-1100	100-1000	10-1100	20-100		50-1000
Great Black-backed Gull	**13**	#	2	2	4	1	2	2
		Distance (m)	1000	1000	100-1100	50	50	50
Common Tern	**29**	#	4		5	12	6	2
		Distance (m)	1000		1000	50	50	75
Arctic Tern	**2**	#				1	1	
		Distance (m)				50	50	
Belted Kingfisher	**2**	#				2		
		Distance (m)				10		
Tree Swallow	**2**	#			2			
		Distance (m)			10-20			

150

11 spp.

Breeding Evidence:	
	Singing or observed in suitable habitat
	Courtship or display
	Agitated behaviour
	Nest with young
	Nest containing eggs
	Carrying food
	Fledged young

Table A.8: Species Recorded in Other Habitat Types

Species	Total Number of Individuals	Habitat Type	Riparian	Miscellaneous Untreed	Miscellaneous Untreed
		Site #	RIP01	UT01	UT02
		Survey Date	23-Jun-07	21-Jun-07	21-Jun-07
Alder Flycatcher	1	#		1	
		Distance (m)		50	
Red-eyed Vireo	3	#	3		
		Distance (m)	20-100		
American Crow	1	#			1
		Distance (m)			75
American Robin	4	#		3	1
		Distance (m)		50	50
American Redstart	4	#	4		
		Distance (m)	5-100		
Northern Waterthrush	1	#	1		
		Distance (m)	30		
Savannah Sparrow	2	#			2
		Distance (m)			50-100
Song Sparrow	7	#		4	3
		Distance (m)		50	50
White-throated Sparrow	1	#	1		
		Distance (m)	50		
Pine Siskin	1	#	1		
		Distance (m)	50		
American Goldfinch	5	#		2	3
		Distance (m)		50	50
	30				
			11 spp.		

Breeding Evidence:	
	Singing or observed in suitable habitat
	Courtship or display
	Agitated behaviour
	Nest with young
	Nest containing eggs
	Carrying food
	Fledged young

APPENDIX 5.10-E

2006-2007 MARITIME BREEDING BIRD ATLAS DATA

Table E1 Species List and Breeding Status for MBBA Square 20PR24

Square	Species	Breeding Status
20PR24	Alder Flycatcher	Possible
20PR24	American Crow	Possible
20PR24	American Goldfinch	Probable
20PR24	American Redstart	Possible
20PR24	American Robin	Confirmed
20PR24	Bald Eagle	Possible
20PR24	Belted Kingfisher	Possible
20PR24	Black-and-white Warbler	Possible
20PR24	Blackburnian Warbler	Possible
20PR24	Black-capped Chickadee	Possible
20PR24	Black-throated Green Warbler	Possible
20PR24	Blue Jay	Possible
20PR24	Blue-headed Vireo	Possible
20PR24	Canada Warbler	Confirmed
20PR24	Cedar Waxwing	Possible
20PR24	Chipping Sparrow	Possible
20PR24	Common Goldeneye	Possible
20PR24	Common Grackle	Possible
20PR24	Common Loon	Probable
20PR24	Common Merganser	Confirmed
20PR24	Common Tern	Observed
20PR24	Common Yellowthroat	Possible
20PR24	Dark-eyed Junco	Confirmed
20PR24	Double-crested Cormorant	Observed
20PR24	Downy Woodpecker	Possible
20PR24	Golden-crowned Kinglet	Possible
20PR24	Great Blue Heron	Observed
20PR24	Greater Yellowlegs	Observed
20PR24	Herring Gull	Observed
20PR24	Lincoln's Sparrow	Possible
20PR24	Magnolia Warbler	Confirmed
20PR24	Mourning Dove	Possible
20PR24	Northern Flicker	Possible
20PR24	Northern Parula	Possible
20PR24	Olive-sided Flycatcher	Possible
20PR24	Osprey	Possible
20PR24	Palm Warbler	Possible
20PR24	Purple Finch	Possible
20PR24	Red-breasted Merganser	Observed
20PR24	Red-breasted Nuthatch	Possible
20PR24	Red-eyed Vireo	Possible
20PR24	Rock Pigeon	Possible
20PR24	Ruby-crowned Kinglet	Possible
20PR24	Ruby-throated Hummingbird	Possible
20PR24	Ruffed Grouse	Possible
20PR24	Song Sparrow	Confirmed

Table E1 Species List and Breeding Status for MBBA Square 20PR24

Square	Species	Breeding Status
20PR24	Spotted Sandpiper	Confirmed
20PR24	Swainson's Thrush	Possible
20PR24	Swamp Sparrow	Possible
20PR24	Tree Swallow	Possible
20PR24	White-throated Sparrow	Probable
20PR24	Wilson's Snipe	Possible
20PR24	Winter Wren	Possible
20PR24	Yellow-rumped Warbler	Possible

Table E2 Species list and breeding status for MBBA Square 20PR25

Square	Species	Breeding Status
20PR25	Alder Flycatcher	Probable
20PR25	American Bittern	Possible
20PR25	American Black Duck	Confirmed
20PR25	American Crow	Confirmed
20PR25	American Goldfinch	Confirmed
20PR25	American Kestrel	Possible
20PR25	American Redstart	Confirmed
20PR25	American Robin	Confirmed
20PR25	American Woodcock	Probable
20PR25	Bay-breasted Warbler	Possible
20PR25	Belted Kingfisher	Probable
20PR25	Black-and-white Warbler	Possible
20PR25	Blackburnian Warbler	Probable
20PR25	Black-capped Chickadee	Confirmed
20PR25	Blackpoll Warbler	Probable
20PR25	Black-throated Green Warbler	Possible
20PR25	Blue Jay	Possible
20PR25	Blue-headed Vireo	Confirmed
20PR25	Boreal Chickadee	Confirmed
20PR25	Brown-headed Cowbird	Observed
20PR25	Canada Warbler	Probable
20PR25	Cedar Waxwing	Probable
20PR25	Chestnut-sided Warbler	Confirmed
20PR25	Chipping Sparrow	Confirmed
20PR25	Common Grackle	Possible
20PR25	Common Loon	Possible
20PR25	Common Merganser	Confirmed
20PR25	Common Raven	Confirmed
20PR25	Common Tern	Confirmed
20PR25	Common Yellowthroat	Confirmed
20PR25	Dark-eyed Junco	Confirmed
20PR25	Downy Woodpecker	Confirmed
20PR25	Eastern Wood-Pewee	Probable
20PR25	European Starling	Confirmed

Table E2 Species list and breeding status for MBBA Square 20PR25

Square	Species	Breeding Status
20PR25	Golden-crowned Kinglet	Probable
20PR25	Gray Catbird	Confirmed
20PR25	Great Blue Heron	Observed
20PR25	Green-winged Teal	Confirmed
20PR25	Hairy Woodpecker	Possible
20PR25	Hermit Thrush	Possible
20PR25	House Sparrow	Confirmed
20PR25	Killdeer	Confirmed
20PR25	Least Flycatcher	Possible
20PR25	Lincoln's Sparrow	Probable
20PR25	Magnolia Warbler	Confirmed
20PR25	Mourning Dove	Confirmed
20PR25	Nashville Warbler	Confirmed
20PR25	Northern Flicker	Confirmed
20PR25	Northern Harrier	Probable
20PR25	Northern Mockingbird	Possible
20PR25	Northern Parula	Probable
20PR25	Northern Saw-whet Owl	Possible
20PR25	Osprey	Confirmed
20PR25	Ovenbird	Confirmed
20PR25	Palm Warbler	Probable
20PR25	Pileated Woodpecker	Possible
20PR25	Pine Siskin	Probable
20PR25	Purple Finch	Probable
20PR25	Red Crossbill	Observed
20PR25	Red-breasted Nuthatch	Probable
20PR25	Red-eyed Vireo	Confirmed
20PR25	Red-winged Blackbird	Confirmed
20PR25	Ring-necked Duck	Confirmed
20PR25	Ruby-crowned Kinglet	Confirmed
20PR25	Ruby-throated Hummingbird	Confirmed
20PR25	Ruffed Grouse	Confirmed
20PR25	Song Sparrow	Confirmed
20PR25	Spotted Sandpiper	Confirmed
20PR25	Swainson's Thrush	Possible
20PR25	Swamp Sparrow	Probable
20PR25	Tree Swallow	Confirmed
20PR25	White-throated Sparrow	Probable
20PR25	Willet	Possible
20PR25	Wilson's Snipe	Probable
20PR25	Wilson's Warbler	Possible
20PR25	Yellow Warbler	Confirmed
20PR25	Yellow-bellied Flycatcher	Possible
20PR25	Yellow-rumped Warbler	Confirmed

Table E3 Species list and breeding status for MBBA Square 20PR34		
Square	**Species**	**Breeding Status**
20PR34	Alder Flycatcher	Possible
20PR34	American Black Duck	Probable
20PR34	American Crow	Confirmed
20PR34	American Goldfinch	Confirmed
20PR34	American Kestrel	Possible
20PR34	American Redstart	Confirmed
20PR34	American Robin	Confirmed
20PR34	Bald Eagle	Possible
20PR34	Belted Kingfisher	Possible
20PR34	Black-and-white Warbler	Probable
20PR34	Blackburnian Warbler	Probable
20PR34	Black-capped Chickadee	Probable
20PR34	Black-throated Green Warbler	Probable
20PR34	Blue Jay	Probable
20PR34	Blue-headed Vireo	Possible
20PR34	Boreal Chickadee	Probable
20PR34	Cedar Waxwing	Probable
20PR34	Chestnut-sided Warbler	Probable
20PR34	Common Grackle	Confirmed
20PR34	Common Loon	Confirmed
20PR34	Common Raven	Possible
20PR34	Common Tern	Possible
20PR34	Common Yellowthroat	Probable
20PR34	Dark-eyed Junco	Probable
20PR34	Double-crested Cormorant	Possible
20PR34	Downy Woodpecker	Confirmed
20PR34	European Starling	Possible
20PR34	Golden-crowned Kinglet	Probable
20PR34	Great Black-backed Gull	Possible
20PR34	Great Blue Heron	Possible
20PR34	Greater Yellowlegs	Observed
20PR34	Hairy Woodpecker	Possible
20PR34	Hermit Thrush	Possible
20PR34	Herring Gull	Possible
20PR34	House Sparrow	Possible
20PR34	Least Flycatcher	Confirmed
20PR34	Lincoln's Sparrow	Probable
20PR34	Magnolia Warbler	Confirmed
20PR34	Mallard x Am. Black Duck Hybrid	Possible
20PR34	Merlin	Possible
20PR34	Nashville Warbler	Probable
20PR34	Northern Flicker	Confirmed
20PR34	Northern Gannet	Observed
20PR34	Northern Parula	Probable
20PR34	Northern Waterthrush	Possible
20PR34	Olive-sided Flycatcher	Possible
20PR34	Osprey	Possible

Table E3 Species list and breeding status for MBBA Square 20PR34		
Square	**Species**	**Breeding Status**
20PR34	Ovenbird	Confirmed
20PR34	Palm Warbler	Probable
20PR34	Purple Finch	Probable
20PR34	Red-breasted Nuthatch	Possible
20PR34	Red-eyed Vireo	Probable
20PR34	Red-winged Blackbird	Confirmed
20PR34	Ring-billed Gull	Observed
20PR34	Ring-necked Duck	Confirmed
20PR34	Ruby-crowned Kinglet	Confirmed
20PR34	Ruby-throated Hummingbird	Probable
20PR34	Savannah Sparrow	Possible
20PR34	Song Sparrow	Probable
20PR34	Spotted Sandpiper	Confirmed
20PR34	Spruce Grouse	Confirmed
20PR34	Swainson's Thrush	Possible
20PR34	Swamp Sparrow	Probable
20PR34	Tree Swallow	Confirmed
20PR34	Veery	Possible
20PR34	White-throated Sparrow	Confirmed
20PR34	Wilson's Snipe	Probable
20PR34	Wood Duck	Probable
20PR34	Yellow Warbler	Probable
20PR34	Yellow-rumped Warbler	Probable

APPENDIX 5.10-F
1990 MARITIME BREEDING BIRD ATLAS DATA

Common Name	Srank	Survey Site	Breeding Status
Alder Flycatcher	S5B	Sand Point	Confirmed breeding: adult attending young
American Black Duck	S5B	Sand Point	Confirmed breeding: fledged young
American Crow	S5	Sand Point	Confirmed breeding: fledged young
American Goldfinch	S5	Sand Point	Probable breeding: terrritorial behaviour twice in same location
American Kestrel	S5B	Sand Point	Probable breeding: terrritorial behaviour twice in same location
American Redstart	S5B	Sand Point	Confirmed breeding: fledged young
American Robin	S5B	Sand Point	Confirmed breeding: adult attending young
American Woodcock	S4S5B	Sand Point	Possible breeding: adult observed in nesting habitat
Bald Eagle	S5B,S3N	Sand Point	Probable breeding: terrritorial behaviour twice in same location
Barn Swallow	S5B	Sand Point	Confirmed breeding: adult occupying nest
Bay-breasted Warbler	S5B	Sand Point	Possible breeding: adult observed in nesting habitat
Belted Kingfisher	S5B	Sand Point	Probable breeding: terrritorial behaviour twice in same location
Black-and-White Warbler	S5B	Steep Creek	Confirmed breeding: adult attending young
Black-backed Woodpecker	S4	Steep Creek	Possible breeding: adult observed in nesting habitat
Blackburnian Warbler	S4S5B	Sand Point	Confirmed breeding: adult attending young
Black-capped Chickadee	S5	Sand Point	Confirmed breeding: fledged young
Blackpoll Warbler	S5B	Sand Point	Confirmed breeding: adult attending young
Black-throated Blue Warbler	S5B	Sand Point	Possible breeding: adult observed in nesting habitat
Black-throated Green Warbler	S5B	Sand Point	Probable breeding: terrritorial behaviour twice in same location
Blue Jay	S5	Sand Point	Probable breeding: terrritorial behaviour twice in same location
Blue-headed Vireo	S5B	Sand Point	Confirmed breeding: fledged young
Boreal Chickadee	S3S4	Sand Point	Confirmed breeding: fledged young
Canada Warbler	S5B	Sand Point	Confirmed breeding: fledged young
Cape May Warbler	S5B	Steep Creek	Possible breeding: adult observed in nesting habitat
Cedar Waxwing	S5B	Sand Point	Probable breeding: pair observed (sexes similar)
Chipping Sparrow	S5B	Sand Point	Confirmed breeding: adult attending young
Common Grackle	S5B	Sand Point	Confirmed breeding: fledged young
Common Loon	S4B,S4N	Sand Point	Probable breeding: pair observed (sexes similar)
Common Nighthawk	S4B	Sand Point	Probable breeding: pair observed (sexes similar)
Common Raven	S5	Sand Point	Confirmed breeding: adult occupying nest
Common Snipe		Steep Creek	Possible breeding: adult observed in nesting habitat
Common Tern	S3B	Sand Point	Possible breeding: adult observed in nesting habitat
Common Yellowthroat	S5B	Sand Point	Confirmed breeding: adult attending young

Common Name	Srank	Survey Site	Breeding Status
Dark-eyed Junco	S5	Sand Point	Confirmed breeding: fledged young
Double-crested Cormorant	S5B	Steep Creek	Possible breeding: adult observed in nesting habitat
Downy Woodpecker	S5	Steep Creek	Possible breeding: adult observed in nesting habitat
Eastern Wood-Pewee	S5B	Steep Creek	Possible breeding: adult observed in nesting habitat
European Starling	SE	Steep Creek	Confirmed breeding: adult attending young
Golden-crowned Kinglet	S5B	Sand Point	Confirmed breeding: adult attending young
Gray Catbird	S5B	Sand Point	Possible breeding: adult observed in nesting habitat
Gray Jay	S5	Sand Point	Probable breeding: courtship behaviour of male, female
Great Black-backed Gull	S5B	Steep Creek	Possible breeding: adult observed in nesting habitat
Great Blue Heron	S5B	Steep Creek	Possible breeding: adult observed in nesting habitat
Hairy Woodpecker	S5	Sand Point	Confirmed breeding: fledged young
Hermit Thrush	S5B	Sand Point	Confirmed breeding: adult attending young
Herring Gull	S5B,S5N	Steep Creek	Possible breeding: adult observed in nesting habitat
Least Flycatcher	S5B	Sand Point	Probable breeding: terrritorial behaviour twice in same location
Lincoln's Sparrow	S5B	Sand Point	Confirmed breeding: adult attending young
Magnolia Warbler	S5B	Sand Point	Confirmed breeding: fledged young
Mourning Warbler	S5B	Sand Point	Confirmed breeding: adult attending young
Nashville Warbler	S5B	Sand Point	Probable breeding: terrritorial behaviour twice in same location
Northern Flicker	S5B	Sand Point	Confirmed breeding: adult occupying nest
Northern Goshawk	SNR	Sand Point	Possible breeding: adult observed in nesting habitat
Northern Harrier	S5B	Sand Point	Possible breeding: adult observed in nesting habitat
Northern Parula	S5B	Sand Point	Probable breeding: terrritorial behaviour twice in same location
Northern Waterthrush	S5B	Sand Point	Possible breeding: adult observed in nesting habitat
Olive-sided Flycatcher	S4S5B	Sand Point	Probable breeding: terrritorial behaviour twice in same location
Osprey	S5B	Sand Point	Probable breeding: terrritorial behaviour twice in same location
Ovenbird	S5B	Sand Point	Confirmed breeding: adult attending young
Palm Warbler	S5B	Sand Point	Confirmed breeding: fledged young
Pine Grosbeak	S5	Sand Point	Probable breeding: terrritorial behaviour twice in same location

Common Name	Srank	Survey Site	Breeding Status
Pine Siskin	S5	Sand Point	Confirmed breeding: fledged young
Purple Finch	S5B	Sand Point	Probable breeding: pair observed (sexes similar)
Red-breasted Nuthatch	S5	Sand Point	Probable breeding: terrritorial behaviour twice in same location
Red-eyed Vireo	S5B	Sand Point	Confirmed breeding: adult attending young
Red-winged Blackbird	S5B	Sand Point	Confirmed breeding: adult attending young
Ring-necked Duck	S5B	Sand Point	Confirmed breeding: fledged young
Ruby-crowned Kinglet	S5B	Sand Point	Confirmed breeding: fledged young
Ruffed Grouse	S5	Sand Point	Confirmed breeding: fledged young
Rusty Blackbird	S3S4B	Sand Point	Possible breeding: adult observed in nesting habitat
Savannah Sparrow	S5B	Sand Point	Confirmed breeding: fledged young
Song Sparrow	S5B	Sand Point	Confirmed breeding: fledged young
Spotted Sandpiper	S5B	Steep Creek	Probable breeding: agitated, indicating nesting
Spruce Grouse	S5	Sand Point	Confirmed breeding: fledged young
Swainson's Thrush	S5B	Sand Point	Confirmed breeding: fledged young
Swamp Sparrow	S5B	Sand Point	Confirmed breeding: adult attending young
Tennessee Warbler	S5B	Sand Point	Confirmed breeding: adult attending young
Tree Swallow	S5B	Sand Point	Confirmed breeding: adult occupying nest
Veery	S5B	Sand Point	Probable breeding: terrritorial behaviour twice in same location
White-throated Sparrow	S5B,SZN	Sand Point	Confirmed breeding: adult attending young
Wilson's Warbler	S4B	Sand Point	Probable breeding: agitated, indicating nesting
Winter Wren	S5B	Sand Point	Probable breeding: terrritorial behaviour twice in same location
Yellow Warbler	S5B	Sand Point	Probable breeding: pair observed (sexes similar)
Yellow-bellied Flycatcher	S5B	Sand Point	Possible breeding: adult observed in nesting habitat
Yellow-rumped Warbler	S5B	Sand Point	Confirmed breeding: fledged young

APPENDIX 5.10-G
SHOREBIRDS SURVEY REPORT

Shorebird Data Summary Report
Proposed Melford International Terminal, Guysborough County, NS
10 August 2007

Introduction

A shorebird survey was conducted on 10 August 2007 to collect data on numbers and species of birds utilizing the site of the proposed Melford International Terminal in Guysborough County, NS during the fall migration period. The proposed project footprint includes almost a kilometre of shoreline along Melford Loop, which has potential to be utilized by migrating shorebirds.

Executive Summary

Only two shorebird species were found to be present in the proposed project footprint during the course of the survey, which was conducted from just after high tide until low tide during the peak of the fall migration period. There were no species of special concern identified in the project area.

Methods

The project area consists of the project footprint, as well as a buffer zone of 750 metres to either side along the length of the proposed rail and highway line. The project footprint includes almost a kilometre of shoreline along Melford Loop, which is the only major parcel of potential shorebird habitat.

As requested by the Canadian Wildlife Service, shorebird data were collected according to the Atlantic Canada Shorebird Survey protocol. Surveyors walked back and forth along the length of the shoreline within the project area from around high tide until low tide, recording numbers and species of shorebirds seen on each pass, as well as distance for any shorebirds in flight.

The survey was carried out by an experienced birder who has over ten years of birding knowledge and is trained in the methods of scientific bird observation and data collection, and who has participated in the Atlantic Canada Shorebird Survey for three years. Bird species were detected and identified by sight and call notes. Surveys were conducted in a manner that would provide as little disturbance as possible to any breeding species.

Summary of Shorebird Observations

The survey was conducted on 10 August 2007. Observations began shortly after high tide at 09:15 am, and continued until just after low tide at 14:20. Weather conditions were excellent for observation, with low wind speed and mostly clear sky throughout the survey.

A total of five complete passes along the length of the shore were conducted. A pair of

Spotted Sandpipers were seen on shore near the northernmost end of the survey site, and a third Spotted Sandpiper was seen further south. It is possible that these Spotted Sandpipers were the same birds that were heard during Breeding Bird Survey point counts conducted in the same area, as this species does not leave its breeding area until August to September (Tufts, 1986). A single Yellowlegs sp. was seen flying past in a northerly direction, approximately 20 metres from the observers. As it flew by fairly quickly and did not call, it was not possible to determine whether this was a Greater or Lesser Yellowlegs; both are fairly common migrants in Nova Scotia during the month of August.

Avian Species of Special Status

No species of special status were found during the shorebird survey along the shore of the project footprint. The Nova Scotia breeding population of Greater Yellowlegs is considered rare according to ACCDC, but as this species breeds in May to June (Tufts, 1986) the unidentified Yellowlegs seen during the survey is considered to be migratory.

Conclusions & Recommendations

With respect to local breeding bird populations, no major problems are anticipated with establishing a container terminal at the proposed location.

Reference

Tufts, R.W. 1986. *Birds of Nova Scotia,* 3rd edition. Nimbus Publishing, Halifax, NS.

Report on Additional Shorebird Surveys (Sept, 2007)

Shore bird surveys were carried out following the guidance of the CWS procedure. During each survey various basic site parameters were recorded such as date, time, wind, tide. When completing a survey, the length of the sample area was walked beginning with a scan of the portion of beach ahead and then advancing. There would be incremental stops along the survey to look up ahead to spot any birds before disturbing them from their natural movements. Any birds that were sighted were recorded by species and number, watched as to nature of their movements (i.e feeding, resting etc) and then a GPS location was taken once the area was reached were the birds were spotted.

The following are details on the three surveys that were completed by AMEC representative David McGinnis during the fall survey:

- Sunday September 9th ,2007; A cool overcast Fall day with moderate winds and water in area between mid and high tide. The survey was completed from 1:00pm to 1:30pm.

- Wednesday September 12th, 2007; A survey was completed for comparison in poor conditions with heavy overcast and moderate to high winds. The water was between mid to low tide and extended from 4:30pm to 5:00pm.

- Saturday September 16th, 2007; A final survey was done under next to ideal conditions with nearly no wind, sunny skies and water at mid tide. Also the survey was completed earlier between 11:00am and 12:00pm.

APPENDIX 5.10-H
WINTERING LAND BIRD POPULATIONS
(ACBC RESULTS 2005, 2006, 2007)

Table H1 Results from ACBC for the Melford Area (2005, 2006 and 2007)

Scientific Name	Common Name	2007	2006	2005
Waterfowl				
Anas rubripes	American Black Duck	24	24	12
Anas platyrhynchos	Mallard	1		
Aytha marila	Greater Scaup	1		
Somateria mollissima	Common Eider	18	2	
Melanitta perspicillata	Surf Scoter	1	1	
Melanitta fusca	White-winged Scoter	1		2
Melanitta nigra	Black Scoter	1		1
Clangula hyemalis	Long-tailed Duck	22	9	2
Bucephala clangula	Common Goldeneye	1	1	19
*Bucephala islandica**	Barrow's Goldeneye	1		
Mergus merganser	Common Merganser	1		
Mergus serrator	Red-breasted Merganser	38	41	84
Gavia stellata	Red-throated Loon			1
*Gavia immer**	Common Loon	10	3	4
Phalacrocorax auritus	Double-crested cormorant	1		
Podiceps grisegena	Red-necked Grebe	2		1
Seabirds/Aerialists				
Larus ridibundus	Black-headed Gull	2	15	
Larus Philadelphia	Bonaparte's Gull		2	
Larus argentatus	Herring Gull	33	17	22
Larus glaucoides	Iceland Gull	23	16	15
Larus marinus	Great-Black-backed Gull	1	1	3
Alle alle	Dovekie	5		
Cepphus grylle	Black Guillemont	25	4	7
	Unknown gull species			2
Birds of Prey				
Haliaeetus leucocephalus	Bald Eagle		2	2
Gamebirds				
Bonasa umbellus	Ruffed Grouse		1	
Non-aligned species				
Dryocopus pileatus	Pileated Woodpecker	1		
Passerines				
Columba livia	Rock pigeon	4		
Cyanocitta cristata	Blue Jay	3	2	1
Corvus brachyrhynchos	American Crow	46	25	19
Corvus corax	Common Raven	2	4	2
Parus atricappillus	Black-capped Chickadee	10	13	11
*Parus hudsonicus **	Boreal Chickadee		4	
Sitta canadensis	Red-breasted Nuthatch			1
Certhia Americana	Brown Creeper		1	
Regulus satrapa	Golden-crowned Kinglet		4	
Turdus migratorius	American Robin	2	2	
Sturnus vulgaris	European Starling	19	1	
Bombycilla garrulus	Bohemian waxwing	16		
Spizzella arborea	American Tree Sparrow	2		1
Passerella iliaca	Fox Sparrow		1	
Melospiza melodia	Song Sparrow		3	
Pinicola enucleator	Pine Grosbeak	4		
Loxia leucoptera	White-winged Crossbill	21		
Junco hyemalis	Dark-eyed Junco		1	8
Plectrophenax nivalis	Snow Bunting		7	
Carduelis flammea	Common Redpoll	47		

APPENDIX I
SPECIES-AT-RISK DATABASE RANK DEFINITIONS

1. COSEWIC

COSEWIC determines the national status of wild Canadian species, subspecies and separate populations suspected of being at risk. COSEWIC bases its decisions on the best up-to-date scientific information and Aboriginal Traditional Knowledge available. All native mammals, birds, reptiles, amphibians, fish, molluscs, lepidopterans (butterflies and moths), vascular plants, mosses and lichens are included in its current mandate.

COSEWIC categorizes listed species based on a qualitative classification system as follows:

- Extinct – Species that no longer exists.
- Endangered – Species is facing imminent extirpation or extinction.
- Extirpated – Species that no longer exists in the wild in Canada, but occurs elsewhere.
- Threatened – Species is likely to become endangered if limiting factors are not reversed.
- Special concern – Species has characteristics that make it particularly sensitive to human activities or natural events.
- Not at Risk – Species that has been evaluated and found to be not a risk.
- Data Deficient – Species for which there is insufficient information to designate a status.

Although there are 7 categories of classifications, review of the COSEWIC database is limited to those species listed as endangered, extirpated, threatened, and of special concern.

2. NSDNR

The General Status Ranks of Wild Species in Nova Scotia is compiled by the Nova Scotia Department of Natural Resources. The broad goal is to prevent species from becoming extinct or extirpated as a result of human activities. This commitment will help identify those species most in need of immediate conservation and recovery action. The approach also helps to identify gaps in scientific knowledge and serves as an early warning system that better aligns human priorities for species conservation recognizing the need for a heightened focus on prevention in decision-making.

The General Status Assessment process is a system that provides an overall indication of viability of species in Nova Scotia, highlighting which species populations are secure, which are sensitive and which are at risk.

The General Status Ranks of Wild Species in Nova Scotia categorizes listed species based on a colour designation system as follows:

- Blue – Species are extirpated or extinct.
- Red – Species are at risk or may be at risk of extirpation or extinction.

- Yellow – Species are not believed to be at risk of immediate extirpation or extinction, but may require special attention or protection to prevent them from becoming at risk.
- Green – Species are not believed to be at risk, or sensitive.
- Undetermined – Species for which insufficient data, information, or knowledge is available.
- Not Assessed – Species that are known to be regularly present, but not yet assessed.
- Exotic – Species have migrated beyond natural range, as a result of human activity.
- Accidental – Species occurring infrequently and unpredictably, outside natural range.

Although there are 8 colour ranked categories, review of the General Status of Wildlife in Nova Scotia is limited to those species listed as Red and Yellow.

3. NOVA SCOTIA MUSEUM OF NATURAL HISTORY

The Nova Scotia Museum of Natural History is an active partner with the provincial government in evaluating, protecting, and aiding in recovery efforts of habitats and species at risk. The Museum relies heavily on the COSEWIC and NSDNR General Status Ranks to identify species at risk but compile records of confirmed sightings or collections of such species.

The Museum has developed a resource book titled *Natural History of Nova Scotia* that is intended to provide a framework in which the significant natural resources of the province of Nova Scotia can be understood, managed and interpreted. The information is useful for parks and natural areas planning, management and interpretation; land use planning for municipalities; development project planning, assessment and evaluation; eco-tourism and recreational planning. Accordingly, the Museum has generated a broad base of knowledge pertaining to Nova Scotia environment, and therefore, is an exceptional source for information related to species at risk and potential for species to be present at the wind farm site.

4. ACCDC

Conservation Data Centres (CDCs), as part of The NatureServe (formally The Nature Conservancy) international network, track biodiversity at two levels: species and ecological communities. Species and ecological communities are referred to as elements of biodiversity. Elements are ranked in each jurisdiction (province or state) and at global and national levels in order to help prioritize conservation efforts.

NatureServe and all CDCs (called Heritage Programs in the US) use a standardized element ranking system that has evolved over 30 years with input from hundreds of scientists, managers and conservationists. The ranking system is very elaborate and comprehensive, thus, the following material describes only the provincial-level ranking used in this investigation, as follows:

- S1 – Extremely rare throughout its range in the province, and may be especially vulnerable to extirpation.
- S2 – Rare throughout its range in the province, and may be vulnerable to extirpation due to rarity or other factors.
- S3 – Uncommon throughout its range in the province, or found only in a restricted range, even if abundant in at some locations.
- S4= Usually widespread, fairly common throughout its range in the province, and apparently secure with many occurrences, but the element is of long-term concern
- S5= Demonstrably widespread, abundant, and secure throughout its range in the province, and essentially ineradicable under present conditions.

APPENDIX 5.10-J
SHORT LIST OF PRIORITY SPECIES

Common Name	Scientific Name	Priority List	Status	Habitat	Region	Habitat in Study Area
Vascular Plants						
Northern Maidenhair-Fern*	*Adiantum pedatum*	NSDNR General Status	Red	In fertile or alkaline soils. Under oak, birch or sugar maple trees.	Yarmouth to north Cape Breton Island along Meander River.	yes
White Snakeroot	*Ageratina altissima*	NSDNR General Status	Yellow	Clearings, thickets, and moist woods.	A recording west of Advocate (North East NS), and unconfirmed near Antigonish.	yes
Short-Awn Foxtail	*Alopecurus aequalis*	NSDNR General Status	Yellow	The muddy edges of rivers and shallow ponds, and gravel margins.	Top of Cape Blomidon, and from Cumberland County to Strathlorne and Margaree in Cape Breton.	no
Canada Anemone	*Anemone canadensis*	NSDNR General Status	Yellow	Damp thickets, meadows, and gravelly shores, on calcareous or alluvial soils.	Near the sea at Cape Jack and Havre Boucher, Antigonish County. North of Cheticamp, at Presquille, Cape North, and Bay St. Lawrence, Cape Breton. Meander River area, Hants County, and Queens County.	yes
Wood Anemone	*Anemone quinquefolia*	NSDNR General Status	Yellow	Wooded riverbanks and shaded intervales.	North of Bridgetown, Annapolis County. Newport, Hants County; and Middle Stewiacke, Colchester County. Two miles north of Sherbrooke, Guysborough County. Cape Breton.	yes
Wood Anemone	*Anemone quinquefolia var. quinquefolia*	NSDNR General Status	Yellow			
Virginia Anemone	*Anemone virginiana*	NSDNR General Status	Yellow	Streamsides. Calcareous and slaty ledges, shores, and thickets.	Meander River in Hants County; Colchester and Pictou counties; Northern Cape Breton; Truro area.	yes
Virginia Anemone	*Anemone virginiana var. alba*	NSDNR General Status	Yellow			
Virginia Anemone	*Anemone virginiana var. virginiana*	NSDNR General Status	Yellow			
Drummond Rockcress	*Arabis drummondii*	NSDNR General Status	Yellow	Dry slopes and talus. Occasionally in fertile areas at lower elevations.	The head of the Bay of Fundy and northern Cape Breton. Hayfields in West New Annan, Colchester County.	infrequent

Northern Arnica	*Arnica lonchophylla*	NSDNR General Status	Red	Calcareous gravel ledges, cliffs.	Waterfall at Grand Anse River (Inverness). Some in Cape Breton Island. Cliff edges at Big Southwest Brook (Victoria), and once in Richmond County.	no
Maidenhair Spleenwort	*Asplenium trichomanes*	NSDNR General Status	Yellow	Damp shaded cliffs, and talus slopes. Near acid rocks such as granite, basalt and sandstone.- Hinds: shaded, calcareous cliffs	rare and local in Northern Cape Breton. Locally common at Big Intervale, Margeree. Infrequent in mainland Nova Scotia except for scattered locations in the cobequids along with Annapolis and Kings counties.	no
Green Spleenwort	*Asplenium trichomanes-ramosum*	NSDNR General Status	Yellow	Shaded cliffs along streams, on limestone or other basic rocks.	East branch of Five Islands River, Colchester County. Cumberland County and Cape Breton.	no
Northern Birch	*Betula borealis*	NSDNR General Status	Yellow	Rocky and Peaty barrens of subalpine summits or boreal forest openings.	Cape Breton Highlands (S.B.)	no
Michaux's Dwarf Birch*	*Betula michauxii*	NSDNR General Status	Yellow	Peat and sphagnous bogs.	Brier Island east to Guysborough County. Also located in Cape Breton and Inverness counties.	infrequent
Glandular Dwarf Birch	*Betula nana*	NSDNR General Status	Yellow	see *B. michauxii;* taxonomy not clear (S.B)		infrequent
Swamp Birch	*Betula pumila*	NSDNR General Status	Yellow	Bogs and bog meadows. Mixed with alders of the same size.	Northern Victoria and Inverness counties. Black River, Inverness County at 60 m a.s.l.	yes
Purple-Stem Swamp Beggar-Ticks	*Bidens connata*	NSDNR General Status	Yellow	Boggy swales, and the borders of ponds and ditches.. Thickets and swales behind brackish shores.	La Have River, Bridgewater; along the Atlantic shore; Annapolis River; and in the Minas area of Hants County. Sable Island.	yes
Estuary Beggar-Ticks	*Bidens hyperborea*	NSDNR General Status	Yellow	Estuarine, or tidal mudflats.	River Philip, Oxford, Cumberland County. The estuaries at Antigonish, and Margaree, Inverness County.	no
Triangle (Lance-Leaf) Grape-Fern	*Botrychium lanceolatum*	NSDNR General Status	Yellow	Rich, wooded hillsides.	Kentville ravine, Kings County. Colchester and Cumberland counties. Indian Brook, Cheticamp River, and Grand Anse in Northern Cape Breton.	yes

Moonwort Grape-Fern*	*Botrychium lunaria*	NSDNR General Status	Red	Open, turfy and gravelly slopes, shores, and meadows on basic soils.	New Campbellton and Indian Brook in northern Cape Breton Island. Also Halifax County: Conrad's Beach.	no
Least Grape-Fern	*Botrychium simplex*	NSDNR General Status	Yellow	Lakeshores, or mossy edges of streams or waterfalls.	A number of locations from Yarmouth County to northern Cape Breton (Cedar Lake, Yarmouth County; West Berlin, Queens County; Petpeswick, Halifax County; Antigonish, Victoria, and Inverness counties).	infrequent
Broad-Glumed Brome	*Bromus latiglumis*	NSDNR General Status	Red	Aluvial Floodplain	Yarmouth County to northern Cape Breton	yes
Slim-Stem Small-Reedgrass	*Calamagrostis stricta*	NSDNR General Status	Yellow	Around lakes and bogs, and wet cliff-faces.	Some lakes near Amherst. Reported at Beaver Lake, Yarmouth County. A larch bog at Big Baddeck, Cape Breton; and at Lockhart Brook, Salmon River, Cape Breton.	infrequent
Marsh Marigold	*Caltha palustris*	NSDNR General Status	Yellow	Swamps, wet meadows, and wet rocks.	The coastal plain of northern Inverness County, near Mabou; Northeast Margaree; Margaree River; St. Joseph du Moine; Cheticamp; and occasionally near the mouth of Grand Anse Brook, Pleasant Bay. Merigomish Island, Pictou County.	yes
Marsh Bellflower	*Campanula aparinoides*	NSDNR General Status	Yellow	Meadows, ditches and river banks.	Cumberland and Hants counties to Antigonish County. One location in Cape Breton County.	yes
Small-Flower Bitter-Cress*	*Cardamine parviflora*	NSDNR General Status	Yellow	Dry woods, shaded or exposed ledges, and in sandy soils.	The Bay of Fundy from Brier Island to Cape Blomidon and Cape d'Or. Halifax County to Victoria County in Northern Central Cape Breton.	yes
Cuckooflower	*Cardamine pratense*	NSDNR General Status	Red	Meadows, low fields and moist areas.	common along annopolis river. Scattered along atlantic coast and occasionally along roadsides as in central Cape Breton.	terminal and logistics park only

Crowded Sedge	*Carex adusta*	NSDNR General Status	Yellow	Dry open woods, gravels, rocks, and clearings. Also in acidic soils.	Uncommon and scattered in: Armdale, Halifax County; Victoria Park in Truro; Liscomb Mills, Guysborough Cty, Black Brook and Warren Brook in Victoria County.	yes
Foxtail Sedge	*Carex alopecoidea*	NSDNR General Status	Red	Moist, overgrown, clearcut woods near coast.	St. Georges Bay, east of Antigonish.	yes
Black Sedge	*Carex atratiformis*	NSDNR General Status	Yellow	Along river banks, moist cliffs and associated with rock crevaces.	Fairly common in Northern Cape Breton. Only one mainland collection from McAsle Brook, Prospect, Cumberland County.	infrequent
Bebb's Sedge	*Carex bebbii*	NSDNR General Status	Red	Northern alkaline regions in poorly drained areas.	Both local and rare in Hants and antigonish counties as well as central Cape Breton.	yes
Chestnut-Colored Sedge	*Carex castanea*	NSDNR General Status	Red	Swamps and wet meadows, cliff crevices and ledges.	Northern Cape Breton, and expected elsewhere.	yes
Ebony Sedge	*Carex eburnea*	NSDNR General Status	Yellow	Cliffs and talus slopes. Under conifers in calcareous soil.	From Cumberland and Hants counties to Antigonish and Cape Breton.	no
Northern Bog Sedge	*Carex gynocrates*	NSDNR General Status	Red	Sphagnum bogs and coniferous swamps.	St. Paul Island and bog at Black River, Inverness County.	yes
Cloud Sedge	*Carex haydenii*	NSDNR General Status	Red	Wet Meadows and rocky shores.		infrequent
Pubescent Sedge	*Carex hirtifolia*	NSDNR General Status	Yellow	Calcareous regions in meadows and thickets on forest slopes.	Shubenacadie and Brookfield.	yes
A Sedge	*Carex houghtoniana*	NSDNR General Status	Yellow	Sandy soils and roadside banks.	Scattered from Queens to Colchester counties.	yes
Porcupine Sedge	*Carex hystericina*	NSDNR General Status	Red	Swamps, swales and along brooks.	Uncommon and not noticed. Scattered in Kings County and possibly near Lake Ainslie in Cape Breton.	yes
Livid Sedge*	*Carex livida*	NSDNR General Status	Red	Calcareous bogs and meadows.	Reported from Windsor, collected at Louisbourg, some in Richmond County.	yes
Livid Sedge	*Carex livida var. radicaulis*	NSDNR General Status	Red			
Necklace Spike Sedge*	*Carex ormostachya*	NSDNR General Status	Red	Mostly located in rich hardwoods. Less likely in acidic regions (S.B.).	Across Nova Scotia (S.B.)	yes

White- Tinged Sedge*	*Carex peckii*	NSDNR General Status	Red	Uncommon on rocky slopes, clearing and dry woods, often on calacareous soils. Especially deciduous woods (S.B).	Across Nova Scotia (S.B.)	yes
Wooly Sedge	*Carex pellita*	NSDNR General Status	Red	Calcareous and semi-calcareous rivers.	East Rriver, Pictou Cty, Wallace River; could occur elsewhere (S.B.)	no
Beaked Sedge*	*Carex rostrata*	NSDNR General Status	Red	Wet meadows, swales and around boggy pond margins.	Common throughout the province.	infrequent
Slender Sedge	*Carex tenera*	NSDNR General Status	Yellow	Meadows, woodlands, moist or dry openings.	uncommon and not well known; Scattered Cumberland to Antigonish counties.	yes
Sparse-Flowered Sedge	*Carex tenuiflora*	NSDNR General Status	Red	Wet woods and bogs	Little Harbour, Richmond County.	yes
Tinged Sedge	*Carex tincta*	NSDNR General Status	Red	Rich soils, at the edge of mixed woods.	West of Bay Field in St. Georges Bay, Inverness County.	yes
(Little Green Sedge)	*Carex viridula ssp. brachyrrhyncha*	NSDNR General Status	Red	Sphagnous swales, rocky and gravelly shores, and low pastures near coast or borders of brackish ponds.	Scattered around province.	no
Blue Cohosh	*Caulophyllum thalictroides*	NSDNR General Status	Red	Deciduous Forests	Colchester, Hants, Kings and Inverness Counties.	yes
Coast-Blite Goosefoot	*Chenopodium rubrum*	NSDNR General Status	Red	Salt marshes, seashores and saline soils.	Common on Sable Island, found in Northumberland region and in Cape Breton.	no
Stout Wood Reed-Grass	*Cinna arundinacea*	NSDNR General Status	Red	Aluvial Floodplain	Sable Island	yes
Limestone Scurvy-grass	*Cochlearia tridactylites*	NSDNR General Status	Red	Calcareous or brackish soils. Salt loving species.	Little White Island and Big White Island in Halifax County.	terminal and logistics park only, infrequent
Umbellate Bastard Toad-Flax	*Comandra umbellata*	NSDNR General Status	Red	Damp, sandy areas, dunes and exposed headlands; open coniferious woods.	Rare and local in Northern Cape Breton: Sydney Mines, Black Point, a few clumps near South Pond, Aspy Bay. Common at Pomquet Beach, Antigonish County.	terminal and logistics park only
Swedish Dwarf Dogwood	*Cornus suecica*	NSDNR General Status	Yellow	Sphagnous depressions in barrens, gravelly shores, and dry exposed headlands.	St. Paul Island , Scatarie Island, and Canso. Near Port Mouton, Queens County.	no

Water Pigmy-Weed	*Crassula aquatica*	NSDNR General Status	Yellow	Brackish, muddy shore and muddy flats and borders of muddy ponds near the coast.	Shelburne County; Peggy's Cove; Along the coast from Point Michaud to Scatarie Island, Cape Breton County and Richmond County. Locally near coast but often overlooked.	no
A Hawthorn*	*Crataegus flabellata*	NSDNR General Status	Yellow	Hedgerows and thickets.	Eastern NS and northern Cape Breton. Hants County and Kentville.	no
Fragile Rockbrake	*Cryptogramma stelleri*	NSDNR General Status	Red	Shaded limestone cliffs, and shaded crevices in conglomerate cliff-face.	Hillsborough and Waycobah, Inverness County. The region of Windsor.	no
Button-Bush Dodder	*Cuscuta cephalanthi*	NSDNR General Status	Red	Low-lying ground near sea-shores, often parasitic on asters.	Luxuriant at Loch Broom, Pictou County; collected from Hubbards and Antigonish.	terminal and logistics park only
Small Yellow Lady's-Slipper	*Cypripedium parviflorum*	NSDNR General Status	Yellow	Calcareous soils, near outcrops of gypsum, or limestone. Occasionally in deciduous forests.	The Windsor-Brooklyn area of Hants County, sparingly west to Kings County, east to Cape Breton (Iona Area).	yes
Showy Lady's-Slipper	*Cypripedium reginae*	NSDNR General Status	Red	Alkaline swamps and bogs	Hants and Cumberland Counties to Northern Cape Breton County.	yes
Hairy Swamp Loosestrife	*Decodon verticillatus*	NSDNR General Status	Yellow	Quaking margins of ponds or lakes.	Shelburne County and New Tusket, Digby County. Kejimkujik National Park.	infrequent
Showy Tick-Trefoil	*Desmodium canadense*	NSDNR General Status	Red	Open woods and river banks	Lake Kejimkujik to rivers of Pictou County.	no
Rock Whitlow-Grass	*Draba arabisans*	NSDNR General Status	Yellow	Muddy soils or calcareous rocks. Cliff crevices and ledges.	Cumberland and Kings counties; Northern Cape Breton.	no
Rock Whitlow-Grass*	*Draba glabella*	NSDNR General Status	Red	Crevises of cliff ledges and talus slopes.	Head of Bay of Fundy; northern and eastern Cape Breton Island; Cape Blomidon, Kings County. Isle Haute cliffs; Cape D'Or, and on a high cliff at New Prospect cliffs, all in Cumberland County.	no
Rock Whitlow-Grass*	*Draba glabella var. glabella*	NSDNR General Status	Red			
Fragrant Cliff Wood Fern	*Dryopteris fragrans*	NSDNR General Status	Yellow	Dry overhanging cliffs, and in cliff crevices along streams or near waterfalls.	Between Earltown and Parrsboro. Along streams in Northern Cape Breton.	infrequent

Capitate Spikerush	*Eleocharis olivacea*	NSDNR General Status	Yellow	Peaty mud of bogs. Wet sandy shores, and swales.	Argyle Head, Yarmouth County; Italy Cross, Lunenburg County; Tiddville, Digby County. Also in Antigonish County.	no
Ovate Spikerush*	*Eleocharis ovata*	NSDNR General Status	Yellow	Muddy shores and ditches.	Common throughout the province.	no
Few-Flower Spikerush	*Eleocharis quinqueflora (Eleocharis pauciflora)*	NSDNR General Status	Red	Alkaline bogs and occasionally on Maritime cliffs.	Digby Neck, and central Cape Breton.	yes
Bottle-Brush Grass	*Elymus hystix var. bigeloviana*	NSDNR General Status	Red	Rich hardwoods and clearings.	Near windsor, and in the Cobequid mountains (Roland and Smith 1969)	yes
Wiegand's Wild Rye	*Elymus wiegandii*	NSDNR General Status	Red	Streambanks and meadows	Sydney, Alma and River John, Pictou County.	yes
Purple-Leaf Willow-Herb	*Epilobium coloratum*	NSDNR General Status	Yellow	Low-lying ground, springy slopes, and similar locations.	Scattered in mainland Nova Scotia, from Digby County to Guysborough.	no
Hornemann Willow-Herb	*Epilobium hornemannii*	NSDNR General Status	Yellow	Damp rocks, margins of rills, and similar locations.	Northern Cape Breton.	no
Downy Willow-Herb	*Epilobium strictum*	NSDNR General Status	Yellow	Boggy areas and meadows.	Scattered throughout Cape Breton. Infrequent from Cumberland County to Queens County.	yes
Meadow Horsetail*	*Equisetum pratense*	NSDNR General Status	Yellow	Richer, calcareous soils primarily along river and stream floodplains, usually in fairly deep shade. Open woods and wet meadows, usually in circumneutral soils.	No existing collections. (S.B.: rare but fairly widespread in northern Nova Scotia.)	yes
Daisy Fleabane	*Erigeron hyssopifolius*	NSDNR General Status	Yellow	Gypsum outcrops in central NS, or damp stream banks between flood levels. Banks, ledges, and cliff crevices in northern Cape Breton.	Hants County, near Antigonish, and northern Cape Breton.	no
Philadelphia Fleabane	*Erigeron philadelphicus*	NSDNR General Status	Yellow	Oil fields, meadow and springy slopes.	Uncommon and scattered in Digby, Halifax and Antigonish counties as well as central Cape Breton.	terminal and logistics park only, infrequent
Slender Cotton-Grass	*Eriophorum gracile*	NSDNR General Status	Yellow	Wet peat and inundated shores.	Annapolis eastward.	yes
False Mermaid-Weed	*Floerkea proserpinacoides*	NSDNR General Status/ COSEWIC	Yellow/ N.A.R.	Deciduous ravine slopes, river margins, and intervale forests.	Glenora Falls and central Cape Breton. Antigonish County, Truro, and Shefield Mills, Kings County.	infrequent

Black Ash	*Fraxinus nigra*	NSDNR General Status	Yellow	Low ground, damp woods, and swamps.	Digby and central Lunenburg counties to northern Cape Breton. Scattered through northern part of NS.	yes
Boreal Bedstraw	*Galium kamtschaticum*	NSDNR General Status	Yellow	Rich Deciduous forests and ravines. In fir-birch areas on top of Cape Breton plateau.	Grand Anse to the Lakes O'Law and Waycobah in northern Cape Breton, Richmond County.	yes
Bog Bedstraw	*Galium labradoricum*	NSDNR General Status	Yellow	Wet meadows and Alkaline bogs. Dune slacks and coastal bogs on PEI.	Victoria, Inverness and Cape Breton counties.	yes
Northern Comandra	*Geocaulon lividum*	NSDNR General Status	Yellow	Sterile soils and damp sands, in acid or peaty areas.	Kingston, Kings County. Auburn, Kings County. Cape Breton and Spicer's Cove Cumberland County.	terminal and logistics park only, infrequent
Giant Rattlesnake-Plantain	*Goodyera oblongifolia*	NSDNR General Status	Yellow	Deciduous climax forest. Slopes in damp, mixed forests, and ravines.	Northern Cape Breton.	infrequent
Dwarf Rattlesnake-Plantain (Creeping Rattlesnake-Plantain)	*Goodyera repens*	NSDNR General Status	Yellow	Under conifers, growing typically on its own.	Local but plentiful where found; Atlantic coast near Shelburne and Queens counties to Guysborough county. Scattered at the head of the Bay of Fundy and in northern Cape Breton.	yes
Spurred Gentian	*Halenia deflexa*	NSDNR General Status	Yellow	Bleak exposed headlands.	Rare on mainland, spotted on Hall's Harbour in Kings County, and Sherbrooke in Guysborough County. Common in Northern Cape Breton and Scatarie Island.	no
American Pennyroyal	*Hedeoma pulegioides*	NSDNR General Status	Yellow	Stoney soil and upland pastures throughout northern NS, occasionally near seashores.	Common in the slopes of the Annapolis Valley; Scattered collection from Cumberland and Colchester counties westward.	no
Robbinson's Hawkweed	*Hieracium robinsii*	NSDNR General Status	Yellow	Rock crevices,cliffs, cobble shores and along streams.	Big Intervale Inverness County, Tusket Island Yarmouth County, also Truro and Earltown Colchester County.	yes
(Tomentose) Sand-Heather	*Hudsonia tomentosa*	NSDNR General Status	Red	Sandy shores and dunes.	Near coast on sandy shore near Pictou and New Glasgow.	no
Disguised St. John's Wort	*Hypericum dissimilatum*	NSDNR General Status	Yellow	On shores and in damp open areas		infrequent
Larger Canadian St. John's Wort	*Hypericum majus*	NSDNR General Status	Red	Wet or dry open soil.	Big Baddeck Victoria County, and Halifax.	yes

Pale Jewel-Weed	*Impatiens pallida*	NSDNR General Status	Yellow	Rich alluvial soils, damp thickets and along intervales.	Kings County to northern Cape Breton, becoming more frequent eastward. The slope of Isle Haute, Cumberland County.	yes
Slender Blue Flag	*Iris prismatica*	NSDNR General Status	Red	Wet ground near the coast.	Annapolis, Guysborough, and Inverness. Possibly Louisbourg.	terminal and logistics park only
Acadian Quillwort	*Isoetes acadiensis*	NSDNR General Status	Yellow	Water up to 1 m deep, bordering lakes or ponds, and occasionally along rivers.	Yarmouth County to northern Cape Breton. Lake Kejimkujik, near exit of Grafton Brook.	infrequent
New Jersey Rush	*Juncus caesariensis*	NSDNR General Status / NSESA / COSEWIC	Yellow / Vulnerable / Special Concern	Bogs and fens along Cape Breton's southeastern coastal plain.	Gracieville, Richmond County. Lower L'Ardoise to Fourchu, Cape Breton County, and inland to Loch Lomond.	yes
Dudley's Rush	*Juncus dudleyi (Juncus tenius var. dudleyi)*	NSDNR General Status	Yellow	Fields, roadsides and open thickets.	Annapolis, Hants and Lunenburg counties.	yes
Moor Rush	*Juncus stygius*	NSDNR General Status	Yellow	Wet moss, bogs, and bog pools.	Gracieville, Richmond County. Isle Madame, and Louisbourg.	yes
Highland Rush	*Juncus trifidus*	NSDNR General Status	Yellow	Dry cliff crevices. North-facing cliffs in northern Cape Breton.	Margaree, the Cheticamp River, Gray Glen Brook, and Lockhart Brook, all in Cape Breton.	infrequent
Wood Nettle	*Laportea canadensis*	NSDNR General Status	Yellow	Alluvial woods of mixed or deciduous trees. Floodplains on Cape Breton plateau. Only the most fertile places.	From Coldbrook, Kings County, to northwestern Cape Breton.	no
Yellow Canada Lily	*Lilium canadense*	NSDNR General Status	Yellow	In meadows and in stream banks.	Kings and Cumberland counties to Middle River and Margaree in Cape Breton.	yes
Mudwort	*Limosella australis* (syn. *Limosella subulata)*	NSDNR General Status	Yellow	Low areas by ponds, gravel lakeshores, the muddy edges of ponds behind barrier beaches, and muddy river margins.	The coast near Yarmouth and Shelburne counties. Near Wallace Lake on Sable Island. Cape Breton. Scattered elsewhere.	no
Southern Twayblade	*Listera australis*	NSDNR General Status	Red	Sphagnum moss bogs or damp woods. Always near small spruce or tamarac.	Between Hay's River and Lake Ainslie Chapel, south of Inverness. Also one location in King's County. At Halifax International Airport.	yes
Kalm's Lobelia	*Lobelia kalmii*	NSDNR General Status	Yellow	Dripping cliffs, meadows, and bogs. Usually in calcareous or marly locations.	Alkaline bog at Black River, Inverness County. A wet, quaking bog near McAdam Lake, Cape Breton County.	yes

White Adder's Mouth	*Malaxis monophylla (syn. M. brachypoda)*	NSDNR General Status	Red	Moss cushions and wet, mossy cliff-edges, where there is little competition from other plant species	Isle Haute, Cape Blomidon and along Five Mile River in Colchester County; and Guysborough County.	infrequent
Beck Water-Marigold	*Megalodonta beckii (Bidens beckii)*	NSDNR General Status	Yellow	Shallow, quiet waters, slow moving streams, and ponds.	Scattered throughout NS. Infrequent in the south west, and abundant from Pictou to Cape Breton.	infrequent
Mountain Sandwort*	*Minuartia groenlandica (Arenaria groenlandica)*	NSDNR General Status	Yellow	Granitic ledges and gravel. On coasts at higher elevations.	Halifax and Lunenburg counties. Collected from rocks at Northwest Arm but not typical. Found in a gorge south of French Lake, Inverness County.	no
Fountain Miner's-Lettuce	*Montia fontana*	NSDNR General Status	Red	Springy or seepy slopes, wet shores and brackish spots.	Collected on a mossy bank above the sea on the Northwest Arm, Halifax. Brier Island. Port Hawkesbury, Inverness County. Burke Brook, Advocate, Cumberland County.	terminal and logistics park only, infrequent
Fountain Miner's-Lettuce	*Montia fontana ssp. fontana*	NSDNR General Status	Red	Springy or seepy slopes, wet shores and brackish spots.	Northwest Arm Halifax (1883); rare but spotted on Brier Island; sighting in Port Hawksbury Inverness County; abundant on the east side of Burke Brook -Advocate, Cumberland County.	infrequent
Farwell's Water- Milfoil	*Myriophyllum farwelli*	NSDNR General Status	Yellow	Ponds and slow moving streams.	Scattered across mainland NS.	infrequent
Whorled Water- Milfoil	*Myriophyllum verticillatum*	NSDNR General Status	Yellow	Shallow waters, mainly in fine, muddy settlement or calacarious regions.	Spring pools south of Amherst, Oxbow ponds near Antigonish and Cheticamp in northern Cape Breton. Also in Hants County.	infrequent
Adder's Tongue	*Ophioglossum pusillum*	NSDNR General Status	Yellow	Sterile meadows, grassy swamps, and damp, sandy, or cobble beaches of lakes.	Yarmouth and Digby Counties, east to Halifax and Amherst, George River in Cape Breton.	no
Smoother Sweet- Cicely	*Osmorhiza longistylis*	NSDNR General Status	Yellow	Rich decidious forests, Intervales.	Scattered along North Mountain and Cape Blomidon in Kings Cty., directly north to Cumberland Cty; Infrequent in Cape Breton.	yes
Marsh Grass- of-Parnassus	*Parnassia palustris*	NSDNR General Status	Red	Grassy hollows in sand dunes, and on tussocks in swamps.	Mabou Harbour and northward in Cape Breton.	infrequent
Purple Lousewort*	*Pedicularis palustris*	NSDNR General Status	Red	Marshes and meadows.	Specimens reported in Guysborough County, not common.	infrequent

Canada Clearweed	*Pilea pumila*	NSDNR General Status	Red	Cool, moist, shaded places.	Seepage slope in rich maple-beech woods at West Branch, Pictou County.	yes
Large Round-Leaved Orchid	*Platanthera macrophylla (syn. Platanthera orbiculata var. macrophylla)*	NSDNR General Status	Yellow	Damp woods in deep shade	Scattered from Hants County and the Cobequid region to northern Cape Breton.	yes
White Bluegrass	*Poa glauca*	NSDNR General Status	Yellow	Cliff crevices, on shelves, and talus slopes.	Cumberland County, Cape Breton, Cape Blomidon, and Isle Haute.	no
Field Milkwort	*Polygala sanguinea*	NSDNR General Status	Yellow	Poor or acidic fields, damp slopes, and open woods or bush.	Cumberland, Annapolis, and Kings County.	infrequent
Frankton Knotweed*	*Polygonum franktonii (included in Polygonum neglectum)*	NSDNR General Status	Yellow	Freshwater and marine shores (*P. neglectum* is a weed of disturbed sites: Roadsides, vacant lots, etc.).	North central NS, and Inverness County.	yes
Climbing False-Buckwheat	*Polygonum scandens*	NSDNR General Status	Yellow	Low thickets along river intervales. Luxuriant after ground has been disturbed or woods cleared.	Northern distribution from Digby to Richmond counties.	yes
Viviparous Knotweed	*Polygonum viviparum*	NSDNR General Status	Red	High mountains	Only one collection; St Peter's area of Richmond County.	no
Northern Holly-Fern	*Polystichum lonchitis*	NSDNR General Status	Yellow	Alkaline areas. On or near limestone or gypsum in rocky areas, and cool shaded places.	Cape North, Bay St. Lawrence, south to Waycobah and River Denys in Cape Breton.	no
Blunt-Leaf Pondweed	*Potamogeton obtusifolius*	NSDNR General Status	Yellow	Ponds, lakes and slow moving streams, often on substrate of deep mud.	Cumberland County to Pictou County, north to north central Cape Breton.	infrequent
Flatstem Pondweed	*Potamogeton zosteriformis*	NSDNR General Status	Yellow	Lakes and deep rivers in less acid regions.	Rare in Kings, Colchester, Cumberland, and Halifax counties. Mouth of the Hays River, Inverness County.	no
Lesser Wintergreen	*Pyrola minor*	NSDNR General Status	Yellow	Mature coniferous woods in northern Cape Breton.	Scattered north from Digby Neck to Kentville and east Cape Breton.	infrequent

Cursed Crowfoot	*Ranunculus sceleratus*	NSDNR General Status	Red	Pools and rills from brackish to freshwater habitat.	Local and rare; Damp roadside at Barrie Beach, marsh at McNabs Island, brackish pond in Eastern Passage Halifax County. Abundant in swamp pond at Main-a-Dieu Cape Breton County, and on the beach at West Berlin in Queens County.	yes
Alderleaf Buckthorn	*Rhamnus alnifolia*	NSDNR General Status	Yellow	Swampy woods and boggy meadows. Alkaline areas, near limestone or in marl bogs in rich, alluvial soil. Poorly drained swamps in Cape Breton.	Central Nova Scotia and southern Inverness County.	yes
Horned Beakrush	*Rhynchospora capillacea*	NSDNR General Status	Red	Alkaline bogs	Southern end of Lake Ainslie at Black River and in the Baddeck Bay region.	yes
Cut-Leaved Coneflower	*Rudbeckia laciniata*	NSDNR General Status	Yellow	Swales, the edges of swamps or in gullies, in small colonies.	Kings County. Isolated from Annapolis and Cumberland counties to Guysborough County.	no
Willow Dock	*Rumex salicifolius*	NSDNR General Status	Yellow	Beaches or along rivers.	Sweets Corner, Hants County, and River Inhabitants, Inverness County. Below a bridge in Kentville.	infrequent
Hoary Willow	*Salix candida*	NSDNR General Status	Red	Calcareous bogs and thickets	Black River bog in Inverness. Halifax County (possible)	yes
Bog Willow	*Salix pedicellaris*	NSDNR General Status	Yellow	Swampy thickets, poorly drained soils, bogs, and heavy soils.	From Digby County to Cape Breton. Uncommon near the Atlantic coast, and not known in northern Cape Breton.	yes
Valerand's Brookweed	*Samolus valerandi ssp. parviflorus (syn. S. floribundus)*	NSDNR General Status	Yellow	Brackish meadows, and tidal banks. Edge of salt marshes.	From Tusket River, Yarmouth to Bridgewater. Also Antigonish.	no
Black Snake-Root (Cluster Sanicle/Yellow Sanicle)	*Sanicula odorata (syn. S. gregaria)*	NSDNR General Status	Red	Rich alluvial woods and Intervales. Only the richest intervale forest habitats	Five Mile River, Hants County; Cornwallis River at Cambridge, Kings County; West River, Pictou County; Southwest Margaree, Inverness County.	infrequent
White Mountain Saxifrage	*Saxifraga paniculata (syn. Saxifraga aizoon)*	NSDNR General Status	Yellow	Pockets in cliffs, mossy hillsides, dripping cliffs, and limestone ledges.	Cape Blomidon. Cape d'Or and northern Cape Breton.	no

Three-Square Bulrush*	*Schoenoplectus americanus (syn.Scirpus americanus)*	NSDNR General Status	Yellow	Brackish marshes, and sometimes in bogs near the coast. Forms colonies on wet sand around depressions where sand is rather salty.	Common	no
Low Spike-Moss	*Selaginella selaginoides*	NSDNR General Status	Red	Moist areas bordering bog tussocks, peat bogs and stream margins.	Brier Island; West L'Ardoise, Richmond County; northern Cape Breton.	yes
Seabeach Groundsel	*Senecio pseudoarnica*	NSDNR General Status	Yellow	Gravelly seashores.	Scattered along Atlantic coast to Northern Cape Breton.	terminal and logistics park only
Canada Buffalo-Berry	*Shepherdia canadensis*	NSDNR General Status	Yellow	Gypsum or talus slopes. Along the coast in the reach of salt spray. Grows with Shrubby Cinquefoil and *Senecio pauperculus*.	The roadside between Windsor and Brooklyn, and in northern Cape Breton.	no
Hairy Goldenrod	*Solidago hispida*	NSDNR General Status	Red	Dry wooded banks and rocky shores.	Infrequent and only occasionaly seen (e.g. Digby, Yarmouth, Halifax counties).	no
Northern Bur-Reed	*Sparganium hyperboreum*	NSDNR General Status	Yellow	Peaty pools.	Cape Breton. New Harbour, Guysborough County.	infrequent
Shining Ladies'-Tresses	*Spiranthes lucida*	NSDNR General Status	Red	Alluvial soils and dampy rocky shores as well as thickets and meadows.	Northumberland straight from Pictou County to Cheticamp, also in Kings, Annapolis and Yarmouth counties.	yes
Creeping Sandwort	*Stellaria humifusa*	NSDNR General Status	Yellow	Around salt marshes.	Cumberland, Colchester and Guysborough counties.Shoreward reaches of salt marshes in Cape Breton.	no
Boreal American-Aster	*Symphiotrichum boreale*	NSDNR General Status	Yellow	Gravelly soil and lake beaches, along streams and the edges of bogs.	Scattered from Yarmouth to Cape Breton (Rather uncommon).	yes
Lindley's Aster	*Symphiotrichum ciliolatum*	NSDNR General Status	Yellow	Open fields, lawns and edges of woods.	Scattered from southern Hants County to adjacent Colchester County and to Musquodobit to Halifax County. Also Ile Haute in Cumberland County, Cape Breton and Guysborough counties.	infrequent
American Germander	*Teucrium canadense*	NSDNR General Status	Yellow	Gravelly seacoasts, the crest of the beach, beyond the reach of the tide.	Scattered.	terminal and logistics park only
Heart-Leaved Foam Flower	*Tiarella cordifolia*	NSDNR General Status	Yellow	Deciduous forests and gravelly roadsides.	Colchester and Pictou counties. Huntington Point, Kings County.	yes

Sticky False-Asphodel	*Triantha glutinosa (syn. Tofieldia glutinosa)*	NSDNR General Status	Red	Swamps, bogs and rochy beaches.	Black River bog and Cheticamp in Inverness.	yes
Coffee Tinker's-Weed	*Triosteum aurantiacum*	NSDNR General Status	Yellow	Rich soils along rivers. Limestones banks in one location.	Rare above Truro. Found in Kemptown in Colchester County, and near New Glasgow. Meander River, also in central and north Cape Breton.	yes
Humped Bladderwort	*Utricularia gibba*	NSDNR General Status	Yellow	Shallow lake margins. Small pools, and small ponds in quagmires or peat.	Southwest of Nova Scotia and St. Paul Island; one location in central NS.	yes
Northeastern Bladderwort	*Utricularia resupinata*	NSDNR General Status	Red	Ponds, lakes and river shores.	Digby Neck; Barren Lake in Richmond County; near Argyle, Yarmouth County.	infrequent
Northern Blueberry	*Vaccinium boreale*	NSDNR General Status	Red	Exposed headlands and barrens.	Cape Breton, and 2 records on the mainland.	no
Dwarf Huckleberry	*Vaccinium cespitosum*	NSDNR General Status	Yellow	Rocky cliffs and crevices. Dry or wet acidic sites from sea level to 3800 m.	Black River, Gaspereau Valley, Kings County. Northern Victoria and Inverness Counties. Halifax County.	no
Oval-Leaf Huckleberry	*Vaccinium ovalifolium*	NSDNR General Status	Red	Moist coniferous woods to an elevation of 2100 m a.s.l.	North Cape Breton Island	yes
Alpine Blueberry	*Vaccinium uliginosum*	NSDNR General Status	Yellow	Dry or wet, organic or inorganic acid soils. Tolerant of high copper concentrations.	Northern and eastern Cape Breton. Halifax and Digby counties.	?
Eel-Grass	*Vallisneria americanum*	NSDNR General Status	Red	Quiet waters	Locally abundant in marginal waters; Shorts Lake Brookfield Colchester County. Reported in several different locations from Musquodobit River in Halifax County to Northern Cape Breton.	infrequent
Squashberry	*Viburnum edule*	NSDNR General Status	Yellow	Cold woods and along streams. Climax coniferous forest	Northern Cape Breton.	infrequent
Northern Bog Violet	*Viola nephrophylla*	NSDNR General Status	Yellow	Cool mossy bogs. Borders of streams, and damp woods.	Wet woods north of Truro. Occasionally in Cape Breton. Also Wolfville and Shelburne County.	yes
Northern Woodsia	*Woodsia alpina*	NSDNR General Status	Red	Dryish cliffs	North Aspy River, Cape Breton. Cheticamp River and Big Southwest Brook, Inverness County; Indian Brook, Victoria County.	no

Smooth Woodsia	*Woodsia glabella*	NSDNR General Status	Yellow	Shaded vertical cliffs. Along streams in Northern Cape Breton.	Jeffers Brook, Cumberland County. Big Southwest Brook, Lockhart Brook, and Skye Glen Mountain, northern Cape Breton.	no
Common Alexanders	*Zizia aurea*	NSDNR General Status	Yellow	Meadows, shores, damp thickets, and wet woods. Roadsides.	Ponmquet River and South River, Antigonish County. Upper Musquodobit, Halifax County. Truro area and northeast.	yes
Non-Vascular Plants						
Salted Shell Lichen	*Coccocarpia palmicola*	NSDNR General Status	Yellow	Corticolous or mossy rocks, in shaded situations.		yes
	Collema nigrescens	NSDNR General Status	Yellow	Corticolous, on base of poplar and other trees.		yes
	Degelia plumbea	NSDNR General Status	Yellow	Corticolous; moss covered trees and rocks in Scotland and Ireland.	very rare in North America	infrequent
Shag Lichen	*Ephebe lanata*	NSDNR General Status	Yellow	On wet, silicacous rocks on lake and stream shores or dripping rock walls.		infrequent at best
	Erioderma mollissimum	NSDNR General Status	Red	corticolous		infrequent
Boreal Felt Lichen (Atlantic population)	*Erioderma pedicellatum*	NSDNR/ NSESA / SARA and COSEWIC	Red/ Endangered / Endangered	Cool, maritime climates. Highly sensitive to acid rain. Grow on bark of coniferous trees.	Found in Maritime climates throughout NS, NB and NL. A 90% reduction in NS and NB populations in past 2 decades; in lichen rich locations.	infrequent
	Euopsis granatina	NSDNR General Status	Yellow	Wet silicacous rocks, often seepage, along stream or lakeshore, rarely on soil. In NS it can be found on wet or dry and exposed silicacous boulders.		infrequent
	Fuscopannaria ahlneri	NSDNR General Status	Red	In NS mainly corticolous, occasionally saxicolous, sometimes muscicolous on rocks.		yes
	Fuscopannaria leucophaea	NSDNR General Status	Yellow	Various kinds of rock, in the shade, especially where there is seepage and the rock is wet.		infrequent
	Fuscopannaria leucosticta	NSDNR General Status	Yellow	Corticolous, occasional on rocks, often among mosses.		yes

Waterfan	*Hydrothyria venosa*	NSDNR General Status	Red	Aquatic, on rocks in cool mountain brooks and streams; **must** grow entirely submerged.		infrequent
Blistered Jellyskin	*Leptogium corticola*	NSDNR General Status	Yellow	Corticolous; hardwoods, occasionally on White Cedar in the North; sometimes on mossy rocks.		yes
	Leptogium dactylinum	NSDNR General Status	Red	Usually on shaded, mossy limestone, but occasionally on tree bases as well. In NS found on rocks in shaded streams, generally in hemlock ravines on the North Mountain	Im Nova Scotia confirmed on the North Mountain in the Annapolis Valley.	No
	Leptogium laceroides	NSDNR General Status	Yellow	In NS corticolous.		yes
Stretched Jellyskin	*Leptogium milligranum*	NSDNR General Status	Red	Corticolous, especially on oaks. In NS only found on Red Maple.		yes
Bearded Jellyskin	*Leptogium saturninum*	NSDNR General Status	Yellow	Corticolous, especially on poplars and willows; sometimes on mossy rocks. In NS only found on Red Maple.		yes
	Leptogium subtile	NSDNR General Status	Red	In NS muscicolous, on trees, generally bases of trees.		yes
	Leptogium tenuissimum	NSDNR General Status	Red	Sandy soil, less frequently on sandstone or bark. In NS only found on Red Maple.		yes
	Moelleropsis nebulosa ssp. frullaniae	NSDNR General Status	Red	In NS, muscicolous on Balsam Fir, one site on rock.		infrequent
Arctic Kidney Lichen	*Nephroma arcticum*	NSDNR General Status	Yellow	ground, usually among mosses		yes
Mealy-rimmed Shingle Lichen	*Pannaria conoplea*	NSDNR General Status	Yellow	corticolous, less frequently on rocks		yes
Veined Shingle Lichen	*Pannaria lurida*	NSDNR General Status	Red	corticolous or mossy rocks		yes
Brown-eyed Shingle Lichen	*Pannaria rubiginosa*	NSDNR General Status	Yellow	corticolous in shaded forests		yes
Ruffled Freckle Pelt	*Peltigera leucophlebia*	NSDNR General Status	Yellow	moist or dry mossy soil, logs or rock; especially in calcareous habitats		yes

Fan Lichen	*Peltigera venosa*	NSDNR General Status	Red	bare mineral soils in moist, shaded areas, such as banks of creeks or roads. Regions of high rainfall.		infrequent
	Placynthium flabellosum	NSDNR General Status	Yellow	siliceous rocks periodically covered with water; beside streams, lakes		yes
Moss-thorns	*Polychidium muscicola*	NSDNR General Status	Yellow	among mosses of exposed or shaded rocks		infrequent
Ghost Antler	*Pseudevernia cladonia*	COSEWIC	Special Concern	corticolous on twigs of conifers in cool montane and coastal spruce-fir forests	eastern North America; NS, NB, Quebec	infrequent
Frosted Glass-whiskers (NS population)	*Sclerophora peronella*	SARA and COSEWIC	Special Concern	exposed heartwood of red maple trees in mature/old growth forest	rare over much of its global range; two of the three known location in Canada are in Nova Scotia, in protected areas on Cape Breton Island.	infrequent
Common Chocolate Chip Lichen	*Solorina saccata*	NSDNR General Status	Red	soil or rocks , especially those rich in calcium; moist tundra hummocks; cliff seepages or lakeside rocks		infrequent
Peppered Moon Lichen	*Sticta fuliginosa*	NSDNR General Status	Yellow	mossy bark, rarely mossy rock		yes
Powdered Moon Lichen	*Sticta limbata*	NSDNR General Status	Red	mossy bark and rock, especially in coastal forest		yes

Note: NSDNR General Status Ranks of Wild Species in Nova Scotia, NSESA, COSEWIC/SARA current as of October 22, 2007.

Common Name	Scientific Name	Priority List	Status	Habitat	Region
Mammals					
Moose (mainland population)	*Alces alces*	NSDNR General Status / NSESA	Red / Endangered	Young deciduous shrubs and trees	Cobequid Mountains and Tobeatic Wildlife Reserve
Lynx	*Lynx lynx*	NSDNR General Status / NSESA/ COSEWIC	Red / Endangered/ N.A.R.	Dense climax Boreal Forest with a dense undercover of thickest and windfalls. (http://museum.gov.ns.ca/mnh/nature/nhns/t11/t11-9.pdf.)	Highlands of Cape Breton Island
American Marten (Cape Breton population)	*Martes americana*	NSDNR General Status / NSESA	Red / Endangered (Cape Breton Population)	mature softwood forest	Cape Breton Island, few recent sightings in SW NS after reintroduction of species in Keji 1986-1990
Little Brown Bat	*Myotis lucifugus*	NSDNR General Status	Yellow	Caves, mine tunnels, hollow trees, buildings. Dead trees close to lakes and ponds. Colonial. Most hibernate together in caves.	Nova Scotia, Newfoundland, Labrador, Quebec, West
Northern Long-eared Bat	*Myotis septentrionalis*	NSDNR General Status	Yellow	Dense forest and caves	Nova Scotia, New Bnrunswick, Newfoundland
Gaspe Shrew	*Sorex gaspensis*	NSDNR General Status / SARA/ COSEWIC	Yellow / --/ N.A.R.	The Gaspé Shrew prefers rock outcrops and talus slopes in highlands where there are steep slopes.	At the present time there are four populations of the Gaspé Shrew in Canada: one in the Gaspé peninsula, two in New Brunswick, and one in northern Nova Scotia.
Birds					
Northern Goshawk	*Accipiter gentilis*	NSDNR General Status/ COSEWIC	Yellow/ N.A.R.	Forested areas, farms and woodlots.	Scattered throughout NS
Razorbill	*Alca torda*	NSDNR General Status	Yellow	Islands	Hertford/Ciboux Islands, Pearl Island, and Margaree Island, NS

Short-eared Owl	*Asio flammeus*	NSDNR General Status / SARA / COSEWIC	Yellow / Special Concern/ Special Concern	Nests are slight depression in the ground. In Ontario, are cups of dried weeds or flattened grasses. Often hidden under low shrubs, reeds, and grasses near water. Prefers extensive stretches of relatively open habitat such as marshland or deep grass fields. Hunts in abandoned pastures, airports, grain stubble and meadows, but marshes in the winter.	Found in middle America, Europe, Asia and Africa for a global range. Breeds in every province and territory in Canada. It is absent from the Boreal Forest and other heavily forested areas. In winter, it withdraws from north and remains in southern range.
Brant	*Branta bernicla*	NSDNR General Status	Yellow	Coastal areas/ feeding areas.	Feeding grounds, Northunmberalnd Straight, Cape Sabel(late winter), Brier Island, Wallace Harbour in Cumberland county and Minus Basin.
Barrow's Goldeneye	*Bucephala islandica*	NSDNR General Status / SARA/ COSEWIC	Yellow / Special Concern/ Special Concern	Birds appear to be restricted to high elevation lakes north of St. Lawrence Estuary and Gulf. Eastern Canada populations have dwindled in recent years as a result of habitat loss due to fish introduction, logging and contamination.	Small numbers breed and winter in Maritimes. During non-breeding season, species found in coastal waters of Estary and Gulf. During late fall, winter and early spring, large numbers are found in a few areas of St. Lawerence corridor.
Red Knot	*Calidris canutus*	NSDNR General Status / NSESA/ COSEWIC	Yellow / Endangered/ Endangered	Sand beaches adjacent to mud flats, meadows,	Grand Pre Kings county, Sable Island.
Purple Sandpiper	*Calidris maritima*	NSDNR General Status	Yellow	Coastal Environments.	Rocky shores on the Atlantic and Fundy coasts, Minus Basin. Breeds in Arctic
Bicknell's Thrush	*Catharus minimus or C. bicknellii*	NSDNR General Status / NSESA / SARA and COSEWIC	Yellow / Vulnerable/ Special Concern	Breed at high elevation, dense and stunted fir/spruce forests (726 m to 914 m a.s.l.) on rocky peaks. Favour a wet, cool, windy climate that increases in severity with elevation.	Found throughout the maritimes. Primarily breed in Quebec, but some populations breed in New Brunswick and Cape Breton Highlands.

Chimney Swift	*Chaetura pelagica*	NSDNR General Status / NSESA/ COSEWIC	Yellow / Endangered/ Threatened	Most of the time stays in flight; nests in chimney type structures (sometime artificial) and clings to a perpendicular wall.	Scattered from Yarmouth county to Cape Breton; Large colony once discovered in Wolfville.
Piping Plover	*Charadrius melodus ssp. melodus*	NSDNR General Status / NSESA / SARA and COSEWIC	Red / Endangered / Endangered	Nest above normal high water mark on sand and gravel beaches.	Lunenburg County, Queens, Shelburne, Cape Breten Highlands, Pictou and Colchester
Common Nighthawk	*Chordeiles minor*	NSDNR General Status / NSESA/ COSEWIC	Yellow / Threatened/ Threatened	prefer clearings and barren outcrop (pine) areas in forested land, wastelands.	Scattered throughout NS, with emphasis to the eastern side as well as Cape Breton.
Olive-sided Flycatcher	*Contopus borealis*	NSDNR General Status	Yellow	Open wood lands, clearing with remaining trees.	Scattered sparsely throughout NS.
Bobolink	*Dolichonyx oryzivorus*	NSDNR General Status	Yellow	Beaver meadows and lush grasses along flood plains	Throughout NS.
Rusty Blackbird	*Euphagus carolinus*	NSDNR General Status/ COSEWIC	Yellow/ Special Concern	Frequents cool habitats in spruce bogs, swamps, and damp alder swales.	uncommon but present throughout NS.
Peregrine Falcon	*Falco peregrinus ssp. anatum*	NSDNR General Status / NSESA/ SARA / COSEWIC	Red / Vulnerable / Threatened/ Special Concern	Cliff ledges	Colchester County
Atlantic Puffin	*Fratercula arctica*	NSDNR General Status	Yellow	Islands	Machais Seal Island, NB; Pearl Island, NS; and Hertford/Ciboux Islands, NS
Common Loon	*Gavia immer*	NSDNR General Status/ COSEWIC	Yellow/ N.A.R.	Lakes larger than 40 hectares where plant growth is sparse.	Scattered throughout NS
Barn Swallow	*Hirundo rustica*	NSDNR General Status	Yellow	Nests inside barns	Throughout NS. Especially in farming areas.
Harlequin Duck	*Histrionicus histrionicus*	NSDNR General Status / NSESA / SARA and COSEWIC	Yellow/ Endangered / Special Concern	Nests built on ground on islands or banks of fast-flowing streams. Favour marine environments, but move inland to breed. In winter, occurs along headlands where surf breaks against rocks. Feed close to rocky shorelines or skerries.	Breed in eastern Hudson Bay, but some inland on north shore of Gulf of St. Lawrence and Gaspe Peninsila. Many winter in east and south caosts of NL, southern NS, NB, Maine and Cape Cod.

Eskimo Curlew	*Numenius borealis*	NSDNR/ SARA and COSEWIC	Undet./ Endangered	Tundra to Transitional Woodland	NWT, Fly east to Maritimes during migration
Black-crowned Night-Heron	*Nycticorax nycticorax*	NSDNR General Status	Yellow	Spruce or fir trees and islands.	Amherst and Southwestern NS
Boreal Chickadee	*Parus hudsonicus (syn. Poecile hudsonicus)*	NSDNR General Status	Yellow	Coniferous areas, bogs, swamps.	relatively common throughout NS.
Ipswich Sparrow (Savannah Sparrow)	*Passerculus sandwichensis ssp. principes*	NSDNR General Status / SARA/ COSEWIC	Yellow / Special Concern	Nests of grass and vegetation built on hollows scratched in ground under shelter of shrub, small tree or tussock of grass. Nest in heath-dominated terrain in dense marram grass on coastal dunes and upper beaches. Prefer outer dune beaches with good grass coverage.	Nest almost exclusively on Sable Island. Some on beaches in NS and northern Florida. Some winter in NS.
Gray Jay	*Perisoreus canadensis*	NSDNR General Status	Yellow	Favours coniferious forests.	Scattered throughout NS.
Vesper Sparrow	*Pooecetes gramineus*	NSDNR General Status	Yellow	Short grass or low shrubs, such as pastures, blueberry fields, and clearings	Northern NS
Purple Martin	*Progne subis*	NSDNR General Status	Red	Agricultural lands	Northwest NS
Eastern Bluebird	*Sialia sialis*	NSDNR General Status/ COSEWIC	Yellow/ N.A.R.	Clear cut areas amid forests	Northern and Central NS
Common Tern	*Sterna hirundo*	NSDNR General Status/ COSEWIC	Yellow/ N.A.R.	Coastal areas and lakes in Southwest NS	Scattered throughout NS
Arctic Tern	*Sterna paradisaea*	NSDNR General Status	Yellow	Islands facing the open sea.	Lower Bay of Fundy to Cape Breton Island
Roseate Tern	*Sterna dougallii*	NSDNR General Status / NSESA / SARA and COSEWIC	Red / Endangered / Endangered	Nest on small offshore islands and inlets	Brothers Islands, Grassy Island, and Country Island Complex
Canada Warbler	*Wilsonia canadense*	NSDNR General Status	Yellow	Wet, swampy mixed wood areas. Prefers to nest in decaying matter on/near ground	Fairly common throughout province
Reptiles					

Wood Turtle	*Clemmys insculpta (syn. Glyptemis insculpta)*	NSDNR General Status / NSESA / SARA and COSEWIC	Yellow / Vulnerable / Special Concern	The species is associated with moving water; it frequents streams, creeks and rivers. One of the most terrestrial members of its family and occupies a great variety of habitats, including forests, but favours riparian areas with open canopy. Prefers moderate currents, clear streams and drainages. Generally, it overwinters in water, spends its spring and fall in or near water, and summers on the ground. It appears to select habitats rather than use them randomly.	The species has been reported in most of New Brunswick, north-central Nova Scotia (including Cape Breton Island), southern Quebec, and both south-central and north-central Ontario.
Odonata					
Taiga Bluet	*Coenagrion resolutum*	NSDNR General Status	Red	Ponds (*P.B.)	Guysborough County (*P.B.)
Little Bluet	*Enallagma minusculum*	NSDNR General Status	Yellow	Ponds, shallow gravel-bottomed margins of mesotrophic lakes, where there are sparse emergent plants; occasionally larger heavily vegetated ponds.	Guysborough County (*P.B.)
Prince Baskettail	*Epitheca princeps*	NSDNR General Status	Yellow	Rivers, streams and lakes. Only active wave washed shores of lakes and slow running streams and rivers	Guysborough County (*P.B.)
Seaside Dragonlet	*Erythrodiplax berenice*	NSDNR General Status	Yellow	Salt marshes(*P.B.)	Guysborough County (*P.B.)
Harlequin Darner	*Gomphaeschna furcillata*	NSDNR General Status	Yellow	Swamps or bogs	Guysborough County (*P.B.)
Harpoon Clubtail	*Gomphus descriptus*	NSDNR General Status	Yellow	Live in stream in particularly open forest.	
Zorro Clubtail (Northern Pygmy Clubtail)	*Lanthus parvulus*	NSDNR General Status	Yellow	Clear streams and brooks with strong currents over clean gravel, cobbles, or bedrock, on comparatively unproductive soils	Guysborough County (*P.B.)

Brook Snaketail	*Ophiogomphus aspersus*	NSDNR General Status	Red	Clear sand bottomed streams with intermittant rapids. Sand or gravel; Current may be slow to strong.	Guysborough County (*P.B.)
Twinhorned Snaketail (Maine Snaketail)	*Ophiogomphus mainensis*	NSDNR General Status	Red	High gradient streams/rivers with rapids (*P.B.)	
Rusty Snaketail	*Ophiogomphus rupinsulensis*	NSDNR General Status	Red	Common along rivers. Inhabits generally low-flowing mesotrophic rivers with diverse substratum.	Guysborough County (*P.B.)
Muskeg Emerald	*Somatochlora septentrionalis*	NSDNR General Status	Yellow	Shallow and Sphagnum-choked ponds within bogs	In Nova Scotia confined to the Cape Breton Highlands
Clamptipped Emerald	*Somatochlora tenebrosa*	NSDNR General Status	Yellow	Forest streams (*P.B.)	Guysborough County (*P.B.)
Williamson's Emerald	*Somatochlora williamsoni*	NSDNR General Status	Red	Forest streams (*P.B.)	Guysborough County (*P.B.)
Zebra Clubtail	*Stylurus scudderi*	NSDNR General Status	Undet. (was: Red)	Streams and rivers with slight to moderate current and gravel or sandy bottoms	Cornwallis River at Hwy 101, Annapollis River at Middleton and Guysborough County (*P.B.)
Ebony Boghaunter	*Williamsonia fletcheri*	NSDNR General Status	Red	fens (*P.B.); Lentic; Bogs and fens, also found sometimes water suspended/saturated sphagnum.	Guysborough County (*P.B.)
Lepidoptera					
Arctic (Titania) Fritillary	*Boloria chariclea*	NSDNR General Status	Yellow	Boreal forest and bogs	Parrsboro aerea, likely accidental;
Monarch	*Danaus plexippus*	NSDNR General Status / SARA and COSEWIC	Yellow / Special Concern	Monarchs in Canada exist primarily wherever milkweed (Asclepius) and wildflowers (such as Goldenrod, asters, and Purple Loosestrife) exist. This includes abandoned farmland, along roadsides, and other open spaces where these plants grow.	The eastern population includes all Monarchs east of the Rocky Mountains, from the Gulf coast to southern Canada, and from the Great Plain States and Prairie Provinces east to the Atlantic coast.
Freshwater Mussels					
Brook Floater (Swollen Wedge Mussel)	*Alasmidonta varicosa*	NSDNR General Status	Yellow	Usually found in rapids or riffles on rocky or gravel substrates and in sandy shoals. Most abundant in small rivers and creeks.	From Nova Scotia and New Brunswick to North Carolina

Triangle Floater	*Alasmidonta undulata*	NSDNR General Status	Yellow	Rivers and lakes. Found especiallly on sand or gravel bottoms.	Atlantic Drainage from Nova Scotia and the St. Lawrence River and its tributaries south to Florida.
Delicate Lamp Mussel (Tidewater Mucket)	*Lampsilis ochraceae*	NSDNR General Status	Red	Occurs in quiet water, ie. ponds, canals, and slow moving parts of rivers. Found in mud or sand bottoms. Occurs only near the seacoast.	Atlantic coastal plain from Cape Breton to Savannah River, Georgia
Yellow Lamp Mussel	*Lampsilis cariosa*	NSDNR General Status / NSESA/ SARA and COSEWIC	Red / Threatened/ Special Concern	Predominantly a river species. Occurs in swift currents on shoals or in riffles and principally on sand bottom. Occasionally found in ponds.	Only NS location in Sydney River, Cape Breton. Scattered distribution from NS to Georgia.

Note: Animals: COSEWIC, SARA current as of October 22, 2007.

NSDNR General Status Ranks of Wild Species in Nova Scotia, NSESA current as of October 16th, 2007

APPENDIX 5.10-K
ACCDC RESULTS FOR SPECIES AT RISK AND SPECIES OF CONSERVATION CONCERN

Scientific Name	Common Name	S-Rank
Ageratina altissima	White Snakeroot	S1
Allium schoenoprasum var. sibiricum	Wild Chives	S2
Alopecurus aequalis	Short-Awn Foxtail	S2S3
Amelanchier fernaldii	Fernald Serviceberry	S2?
Anemone canadensis	Canada Anemone	S2
Anemone quinquefolia	Wood Anemone	S2
Anemone virginiana var. alba	River Anemone	S1S2
Arabis drummondii	Drummond Rockcress	S2
Arnica lonchophylla ssp. lonchophylla	Northern Arnica	S1
Asclepias incarnata	Swamp Milkweed	S3
Asclepias incarnata ssp. pulchra	Swamp Milkweed	S2S3
Asplenium trichomanes	Maidenhair Spleenwort	S2
Asplenium trichomanes-ramosum	Green Spleenwort	S2
Atriplex acadiensis	Maritime Saltbush	S1?
Bartonia virginica	Yellow Screwstem	S3
Betula borealis	Northern Birch	S2
Betula pumila	Swamp Birch	S2S3
Bidens connata	Purple-Stem Swamp Beggar-Ticks	S3?
Bidens hyperborea	Estuary Beggar-Ticks	S1
Botrychium dissectum	Cutleaf Grape-Fern	S3
Botrychium lanceolatum var. angustisegmentum	Lance-Leaf Grape-Fern	S2
Botrychium simplex	Least Grape-Fern	S2S3
Bromus latiglumis	Broad-Glumed Brome	S1
Calamagrostis stricta ssp. stricta	Northern Reedgrass	S1S2
Caltha palustris	Marsh Marigold	S2
Campanula aparinoides	Marsh Bellflower	S3?
Cardamine pratensis var. angustifolia	Cuckooflower	S1?
Carex adusta	Crowded Sedge	S2S3
Carex albicans var. emmonsii	Emmons Sedge	S3S4
Carex alopecoidea	Foxtail Sedge	S1
Carex atlantica ssp. capillacea	Howe Sedge	S2
Carex atratiformis	Black Sedge	S2
Carex bebbii	Bebb's Sedge	S1S2
Carex bromoides	Brome-Like Sedge	S3
Carex eburnea	Ebony Sedge	S3
Carex gynocrates	Northern Bog Sedge	S1
Carex haydenii	Cloud Sedge	S1
Carex hystericina	Porcupine Sedge	S1S2
Carex livida var. radicaulis	Livid Sedge	S1
Carex tenera	Slender Sedge	S1S2
Carex tenuiflora	Sparse-Flowered Sedge	S1
Carex tincta	Tinged Sedge	S1
Carex vacillans	Estuarine Sedge	S1S3
Carex viridula var. elatior	A Sedge	S1
Caulophyllum thalictroides	Blue Cohosh	S2
Chenopodium rubrum	Coast-Blite Goosefoot	S1?
Cinna arundinacea	Stout Wood Reed-Grass	S1
Cochlearia tridactylites	Limestone Scurvy-grass	S1
Comandra umbellata	Umbellate Bastard Toad-Flax	S2
Corallorhiza trifida	Early Coralroot	S3

Cornus suecica	Swedish Dwarf Dogwood	S1S2
Crassula aquatica	Water Pigmy-Weed	S2
Crataegus robinsonii	A Hawthorn	S1?
Crataegus submollis	A Hawthorn	S1?
Cryptogramma stelleri	Fragile Rockbrake	S1
Cuscuta cephalanthi	Button-Bush Dodder	S1
Cyperus lupulinus	Slender Flatsedge	SH
Cyperus lupulinus ssp. macilentus	Slender Flatsedge	SH
Cypripedium parviflorum	Small Yellow Lady's-Slipper	S2S3
Cypripedium parviflorum var. makasin	Small Yellow Lady's-Slipper	S2
Cypripedium parviflorum var. pubescens	Large Yellow Lady's-Slipper	S2
Cypripedium reginae	Showy Lady's-Slipper	S2
Cystopteris bulbifera	Bulblet Fern	S3S4
Cystopteris laurentiana	Laurentian Bladder Fern	S1?
Cystopteris tenuis	A Bladderfern	S3?
Decodon verticillatus	Hairy Swamp Loosestrife	S2S3
Dichanthelium clandestinum	Deer-Tongue Witchgrass	S3
Draba arabisans	Rock Whitlow-Grass	S2
Dryopteris filix-mas	Male Fern	S3
Dryopteris fragrans var. remotiuscula	Fragrant Fern	S2
Eleocharis olivacea	Capitate Spikerush	S2
Eleocharis olivacea var. olivacea	Capitate Spikerush	S2
Eleocharis quinqueflora	Few-Flower Spikerush	S2
Elymus wiegandii	Wiegand's Wild Rye	S1
Epilobium coloratum	Purple-Leaf Willow-Herb	S2?
Epilobium hornemannii	Hornemann Willow-Herb	S2S3
Epilobium strictum	Downy Willow-Herb	S3
Equisetum scirpoides	Dwarf Scouring Rush	S3S4
Erigeron hyssopifolius	Daisy Fleabane	S2S3
Erigeron philadelphicus	Philadelphia Fleabane	S2
Eriophorum gracile	Slender Cotton-Grass	S2
Floerkea proserpinacoides	False Mermaid-Weed	S2S3
Fraxinus nigra	Black Ash	S3
Galium kamtschaticum	Boreal Bedstraw	S3
Galium labradoricum	Bog Bedstraw	S2
Goodyera oblongifolia	Giant Rattlesnake-Plantain	S2S3
Goodyera repens	Dwarf Rattlesnake-Plantain	S2S3
Goodyera tesselata	Checkered Rattlesnake-Plantain	S3
Halenia deflexa	Spurred Gentian	S2S3
Hedeoma pulegioides	American Pennyroyal	S2S3
Hieracium robinsonii	Robinson's Hawkweed	S2
Hudsonia tomentosa	Sand-Heather	S1
Hypericum dissimulatum	Disguised St. John's-Wort	S2S3
Hypericum majus	Larger Canadian St. John's Wort	S1
Impatiens pallida	Pale Jewel-Weed	S2
Iris prismatica	Slender Blue Flag	S1
Isoetes acadiensis	Acadian Quillwort	S3
Isoetes lacustris	Lake Quillwort	S3?
Juncus alpinoarticulatus	A Rush	S1S2
Juncus alpinoarticulatus ssp. nodulosus	Richardson's Rush	S1S2
Juncus caesariensis	New Jersey Rush	S2
Juncus dudleyi	Dudley's Rush	S2?

Juncus greenei	Greene's Rush	S1S2
Juncus stygius ssp. americanus	Moor Rush	S1
Juncus trifidus	Highland Rush	S2
Laportea canadensis	Wood Nettle	S3
Lilium canadense	Canada Lily	S2S3
Limosella australis	Mudwort	S2S3
Liparis loeselii	Loesel's Twayblade	S3S4
Listera australis	Southern Twayblade	S1
Listera convallarioides	Broad-Leaved Twayblade	S3
Lobelia kalmii	Kalm's Lobelia	S1S2
Luzula parviflora	Small-Flowered Wood-Rush	S3
Lycopodiella appressa	Southern Bog Clubmoss	S3
Lycopodium complanatum	Trailing Clubmoss	S3?
Lycopodium sabinifolium	Ground-Fir	S3?
Lycopodium sitchense	Alaskan Clubmoss	S3?
Lysimachia thyrsiflora	Water Loosestrife	S3S4
Malaxis brachypoda	White Adder's-Mouth	S1
Megalodonta beckii	Beck Water-Marigold	S3
Milium effusum var. cisatlanticum	Tall Millet-Grass	S3
Montia fontana	Fountain Miner's-Lettuce	S1
Myriophyllum farwellii	Farwell's Water-Milfoil	S2
Myriophyllum sibiricum	Common Water-Milfoil	S3S4
Ophioglossum pusillum	Adder's Tongue	S2S3
Osmorhiza longistylis	Smoother Sweet-Cicely	S2
Packera paupercula	Balsam Groundsel	S3
Paludella squarrosa	a Moss	S1
Parnassia palustris var. parviflora	a Marsh Grass-of-Parnassus	S2
Pilea pumila	Canada Clearweed	S1
Platanthera grandiflora	Large Purple-Fringe Orchis	S3
Platanthera hookeri	Hooker Orchis	S3
Platanthera orbiculata	Large Roundleaf Orchid	S3
Poa glauca	White Bluegrass	S2S3
Poa glauca ssp. glauca	White Bluegrass	S2S3
Polygonum pensylvanicum	Pennsylvania Smartweed	S3
Polygonum raii	Pondshore Knotweed	S2S3SE
Polygonum scandens	Climbing False-Buckwheat	S2
Polygonum viviparum	Viviparous Knotweed	S1
Polystichum braunii	Braun's Holly-Fern	S3S4
Polystichum lonchitis	Northern Holly-Fern	S2
Potamogeton friesii	Fries' Pondweed	S2
Potamogeton nodosus	Longleaf Pondweed	S1
Potamogeton obtusifolius	Blunt-Leaf Pondweed	S2
Potamogeton praelongus	White-Stem Pondweed	S3?
Potamogeton richardsonii	Redhead Grass	S3?
Potamogeton zosteriformis	Flatstem Pondweed	S2S3
Primula laurentiana	Bird's-Eye Primrose	S3
Proserpinaca palustris	Marsh Mermaid-Weed	S3S4
Pyrola minor	Lesser Wintergreen	S2
Ranunculus flammula var. flammula	Greater Creeping Spearwort	S2
Ranunculus sceleratus	Cursed Crowfoot	S1S2
Rhamnus alnifolia	Alderleaf Buckthorn	S3
Rhynchospora capillacea	Horned Beakrush	S1

Rubus flagellaris	Northern Dewberry	S1?
Rudbeckia laciniata var. gaspereauensis	Cut-Leaved Coneflower	S2S3
Rumex salicifolius	Willow Dock	S2
Rumex salicifolius var. mexicanus	Willow Dock	S2
Salix candida	Hoary Willow	S1
Salix pedicellaris	Bog Willow	S2
Salix pellita	Satiny Willow	S3?
Samolus valerandi ssp. parviflorus	Water Pimpernel	S2
Sanicula odorata	Black Snake-Root	S1
Saxifraga paniculata ssp. neogaea	a White Mountain Saxifrage	S2
Schizaea pusilla	Curly-Grass Fern	S3
Schoenoplectus robustus	Saltmarsh Bulrush	S1?
Scirpus pedicellatus	Stalked Bulrush	S1
Selaginella selaginoides	Low Spike-Moss	S2
Senecio pseudoarnica	Seabeach Groundsel	S2
Shepherdia canadensis	Canada Buffalo-Berry	S2
Solidago simplex var. randii	Mountain Goldenrod	SH
Sparganium fluctuans	Floating Bur-Reed	S3?
Sparganium hyperboreum	Northern Bur-Reed	S1S2
Sparganium natans	Small Bur-Reed	S3
Sphenopholis intermedia	Slender Wedge Grass	S3S4
Spiranthes lucida	Shining Ladies'-Tresses	S2
Spiranthes romanzoffiana	Hooded Ladies'-Tresses	S3S4
Stellaria humifusa	Creeping Sandwort	S2
Stuckenia filiformis	Slender Pondweed	S2S3
Stuckenia vaginata	Sheathed Pondweed	S1
Suaeda calceoliformis	American Sea-Blite	S2S3
Suaeda maritima ssp. richii	Rich's Sea-blite	S1
Symphyotrichum boreale	Boreal American-Aster	S2?
Symphyotrichum ciliolatum	Lindley's Aster	S2S3
Teucrium canadense	American Germander	S2S3
Triantha glutinosa	Sticky False-Asphodel	S1
Triglochin gaspensis	Gaspe Peninsula Arrow-Grass	S1?
Triosteum aurantiacum	Coffee Tinker's-Weed	S2
Utricularia gibba	Humped Bladderwort	S2
Utricularia resupinata	Northeastern Bladderwort	S1
Vaccinium boreale	Northern Blueberry	S2
Vaccinium caespitosum	Dwarf Blueberry	S2
Vaccinium ovalifolium	Oval-Leaf Huckleberry	S1
Vaccinium uliginosum	Alpine Blueberry	S2
Verbena hastata	Blue Vervain	S3
Viola canadensis	Canada Violet	S1
Viola nephrophylla	Northern Bog Violet	S2
Woodsia alpina	Northern Woodsia	S1S2
Woodsia glabella	Smooth Woodsia	S2
Zizia aurea	Common Alexanders	S1S2

Scientific Name	Common Name	Group	S-Rank
Accipiter gentilis	Northern Goshawk	bird	S3B
Alca torda	Razorbill	bird	S1B,SZN
Ammodramus nelsoni	Nelson's Sharp-tailed Sparrow	bird	S3B
Asio otus	Long-eared Owl	bird	S1S2
Bucephala clangula	Common Goldeneye	bird	S2B, S4N
Calidris maritima	Purple Sandpiper	bird	S2N
Caprimulgus vociferus	Whip-Poor-Will	bird	S1?B
Catharus bicknelli	Bicknell's Thrush	bird	S1S2B
Cepphus grylle	Black Guillemot	bird	S3
Charadrius melodus	Piping Plover	bird	S1B
Coccyzus erythropthalmus	Black-billed Cuckoo	bird	S3B
Dolichonyx oryzivorus	Bobolink	bird	S3B
Euphagus carolinus	Rusty Blackbird	bird	S3B
Hylocichla mustelina	Wood Thrush	bird	S2B
Icterus galbula	Baltimore Oriole	bird	S3B
Loxia curvirostra	Red Crossbill	bird	S3S4
Mergus serrator	Red-breasted Merganser	bird	S3B
Mimus polyglottos	Northern Mockingbird	bird	S3B
Nycticorax nycticorax	Black-crowned Night-heron	bird	S1B
Passerculus sandwichensis princeps	"Ipswich" Savannah Sparrow	bird	S1B
Picoides dorsalis	American Three-toed Woodpecker	bird	S2
Piranga olivacea	Scarlet Tanager	bird	S2B
Pooecetes gramineus	Vesper Sparrow	bird	S2S3B
Rallus limicola	Virginia Rail	bird	S2B
Rissa tridactyla	Black-legged Kittiwake	bird	S2B,SZN
Sayornis phoebe	Eastern Phoebe	bird	S2S3B
Sialia sialis	Eastern Bluebird	bird	S2S3B
Sterna dougallii	Roseate Tern	bird	S1B
Sterna hirundo	Common Tern	bird	S3B
Sterna paradisaea	Arctic Tern	bird	S3B
Tringa melanoleuca	Greater Yellowlegs	bird	S2B,S5M
Vireo gilvus	Warbling Vireo	bird	S1?B
Vireo philadelphicus	Philadelphia Vireo	bird	S1?B
Salmo salar	Atlantic Salmon	fish	S2
Glyptemys insculpta	Wood Turtle	herpetile	S3
Hemidactylium scutatum	Four-toed Salamander	herpetile	S3
Aglais milberti	Milbert's Tortoiseshell	lepidoptera	S2
Boloria chariclea	Arctic Fritillary	lepidoptera	S2
Callophrys polios	Hoary Elfin	lepidoptera	S3S4
Danaus plexippus	Monarch Butterfly	lepidoptera	S2B
Erynnis juvenalis	Juvenal's Duskywing	lepidoptera	S2S3
Euphydryas phaeton	Baltimore Checkerspot	lepidoptera	S3
Hesperia comma	Common Branded Skipper	lepidoptera	S3
Hesperia comma laurentina	Laurentian Skipper	lepidoptera	S3
Nymphalis vaualbum	Compton Tortoiseshell	lepidoptera	S1S2
Papilio brevicauda	Short-Tailed Swallowtail	lepidoptera	S1S2
Pieris oleracea	Mustard White	lepidoptera	S2
Polygonia faunus	Green Comma	lepidoptera	S3
Polygonia gracilis	Hoary Comma	lepidoptera	S1
Polygonia interrogationis	Question Mark	lepidoptera	S3B
Polygonia progne	Gray Comma	lepidoptera	S3S4

Speyeria aphrodite	Aphrodite Fritillary	lepidoptera	S3S4
Speyeria aphrodite	Aphrodite Fritillary	lepidoptera	S3S4
Alces americanus	Moose	mammal	S1
Lynx canadensis	Lynx	mammal	S1
Martes americana	American Marten	mammal	S1
Microtus chrotorrhinus	Rock Vole	mammal	S2
Sorex gaspensis	Gaspé Shrew	mammal	S2
Synaptomys cooperi	Southern Bog Lemming	mammal	S3S4
Alasmidonta undulata	Triangle Floater	mussel	S2S3
Alasmidonta varicosa	Brook Floater	mussel	S1S2
Lampsilis cariosa	Yellow Lampmussel	mussel	S1
Lampsilis radiata	Eastern Lampmussel	mussel	S2
Leptodea ochracea	Tidewater Mucket	mussel	S1
Aeshna canadensis	Canada Darner	odonate	S3
Aeshna clepsydra	Mottled Darner	odonate	S2
Aeshna eremita	Lake Darner	odonate	S3
Aeshna sitchensis	Zigzag Darner	odonate	S2
Aeshna subarctica	Subarctic Darner	odonate	S3
Aeshna tuberculifera	Black-Tipped Darner	odonate	S3
Aeshna verticalis	Green-Striped Darner	odonate	S2
Amphiagrion saucium	Eastern Red Damsel	odonate	S2
Anax junius	Common Green Darner	odonate	S3
Argia fumipennis violacea	Variable Dancer	odonate	S3
Argia moesta	Powdered Dancer	odonate	S3
Basiaeschna janata	Springtime Darner	odonate	S3
Boyeria grafiana	Ocellated Darner	odonate	S2
Boyeria vinosa	Fawn Darner	odonate	S3
Calopteryx aequabilis	River Jewelwing	odonate	S3
Calopteryx amata	Superb Jewelwing	odonate	S3
Chromagrion conditum	Aurora Damsel	odonate	S3
Coenagrion interrogatum	Subarctic Bluet	odonate	S1
Cordulegaster diastatops	Delta-Spotted Spiketail	odonate	S3
Cordulegaster maculata	Twin-Spotted Spiketail	odonate	S3
Cordulia shurtleffii	American Emerald	odonate	S3
Didymops transversa	Stream Cruiser	odonate	S3
Dorocordulia lepida	Petite Emerald	odonate	S3
Dorocordulia libera	Racket-Tailed Emerald	odonate	S2
Enallagma aspersum	Azure Bluet	odonate	S2
Enallagma boreale	Boreal Bluet	odonate	S3
Enallagma carunculatum	Tule Bluet	odonate	S1
Enallagma civile	Familiar Bluet	odonate	S3
Enallagma cyathigerum vernale	Springtime Bluet	odonate	S2
Enallagma ebrium	Marsh Bluet	odonate	S3
Enallagma hageni	Hagen's Bluet	odonate	S3
Epitheca canis	Beaverpond Baskettail	odonate	S3
Epitheca cynosura	Common Baskettail	odonate	S3
Epitheca spinigera	Spiny Baskettail	odonate	S3
Gomphaeschna furcillata	Harlequin Darner	odonate	S1
Gomphus adelphus	Moustached Clubtail	odonate	S2
Gomphus borealis	Beaverpond Clubtail	odonate	S2
Gomphus descriptus	Harpoon Clubtail	odonate	S2
Gomphus exilis	Lancet Clubtail	odonate	S3

Gomphus spicatus	Dusky Clubtail	odonate	S2
Hagenius brevistylus	Dragonhunter	odonate	S3
Helocordulia uhleri	Uhler's Sundragon	odonate	S3
Ischnura posita	Fragile Forktail	odonate	S3
Ladona exusta	White Corporal	odonate	S3
Lanthus parvulus	Northern Pygmy Clubtail	odonate	S2
Lestes congener	Spotted Spreadwing	odonate	S3
Lestes dryas	Emerald Spreadwing	odonate	S3
Lestes eurinus	Amber-Winged Spreadwing	odonate	S2
Lestes forcipatus	Sweetflag Spreadwing	odonate	S2
Lestes rectangularis	Slender Spreadwing	odonate	S3
Lestes unguiculatus	Lyre-Tipped Spreadwing	odonate	S2
Leucorrhinia frigida	Frosted Whiteface	odonate	S3
Leucorrhinia glacialis	Crimson-Ringed Whiteface	odonate	S3
Leucorrhinia hudsonica	Hudsonian Whiteface	odonate	S3
Leucorrhinia intacta	Dot-Tailed Whiteface	odonate	S3
Leucorrhinia proxima	Red-Waisted Whiteface	odonate	S3
Libellula julia	Chalk-Fronted Corporal	odonate	S3
Macromia illinoiensis	Illinois River Cruiser	odonate	S3
Nannothemis bella	Elfin Skimmer	odonate	S2
Nehalennia gracilis	Sphagnum Sprite	odonate	S2
Nehalennia irene	Sedge Sprite	odonate	S3
Ophiogomphus aspersus	Brook Snaketail	odonate	S1
Ophiogomphus carolus	Riffle Snaketail	odonate	S3
Ophiogomphus mainensis	Maine Snaketail	odonate	S1
Plathemis lydia	Common Whitetail	odonate	S3
Somatochlora cingulata	Lake Emerald	odonate	S2
Somatochlora elongata	Ski-Tailed Emerald	odonate	S3
Somatochlora forcipata	Forcipate Emerald	odonate	S2
Somatochlora incurvata	Incurvate Emerald	odonate	S3
Somatochlora minor	Ocellated Emerald	odonate	S2
Somatochlora septentrionalis	Muskeg Emerald	odonate	S1
Somatochlora tenebrosa	Clamp-Tipped Emerald	odonate	S2
Somatochlora walshii	Brush-Tipped Emerald	odonate	S3
Somatochlora williamsoni	Williamson's Emerald	odonate	S1
Stylogomphus albistylus	Least Clubtail	odonate	S3
Sympetrum costiferum	Saffron-Winged Meadowhawk	odonate	S3
Sympetrum danae	Black Meadowhawk	odonate	S2
Sympetrum obtrusum	White-Faced Meadowhawk	odonate	S3
Sympetrum rubicundulum	Ruby Meadowhawk	odonate	S2
Sympetrum semicinctum	Band-Winged Meadowhawk	odonate	S3
Sympetrum vicinum	Yellow-Legged Meadowhawk	odonate	S3

Scientific Name	Common Name	S-rank
Ageratina altissima	White Snakeroot	S1
Agrimonia gryposepala	Tall Hairy Groovebur	S3?
Allium schoenoprasum var. sibiricum	Wild Chives	S2
Alopecurus aequalis	Short-Awn Foxtail	S2S3
Amelanchier fernaldii	Fernald Serviceberry	S2?
Amelanchier stolonifera	Running Serviceberry	S1?
Anemone canadensis	Canada Anemone	S2
Anemone quinquefolia	Wood Anemone	S2
Anemone virginiana	Virginia Anemone	S1S2
Anemone virginiana var. alba	River Anemone	S1S2
Arnica lonchophylla	Northern Arnica	S1
Asclepias incarnata	Swamp Milkweed	S3
Asclepias incarnata ssp. pulchra	Swamp Milkweed	S2S3
Asplenium trichomanes	Maidenhair Spleenwort	S2
Asplenium trichomanes-ramosum	Green Spleenwort	S2
Atriplex acadiensis	Maritime Saltbush	S1?
Bartonia virginica	Yellow Screwstem	S3
Betula borealis	Northern Birch	S2
Betula pumila	Swamp Birch	S2S3
Bidens connata	Purple-Stem Swamp Beggar-Tick	S3?
Bidens hyperborea	Estuary Beggar-Ticks	S1
Botrychium dissectum	Cutleaf Grape-Fern	S3
Botrychium lanceolatum var. angusti	Lance-Leaf Grape-Fern	S2
Botrychium simplex	Least Grape-Fern	S2S3
Bromus latiglumis	Broad-Glumed Brome	S1
Calamagrostis stricta ssp. stricta	Northern Reedgrass	S1S2
Caltha palustris	Marsh Marigold	S2
Campanula aparinoides	Marsh Bellflower	S3?
Cardamine pratensis var. angustifoli	Cuckooflower	S1?
Carex adusta	Crowded Sedge	S2S3
Carex albicans var. emmonsii	Emmons Sedge	S3S4
Carex alopecoidea	Foxtail Sedge	S1
Carex atlantica ssp. capillacea	Howe Sedge	S2
Carex atratiformis	Black Sedge	S2
Carex bebbii	Bebb's Sedge	S1S2
Carex bromoides	Brome-Like Sedge	S3
Carex castanea	Chestnut-Colored Sedge	S2
Carex eburnea	Ebony Sedge	S3
Carex gynocrates	Northern Bog Sedge	S1
Carex haydenii	Cloud Sedge	S1
Carex hirtifolia	Pubescent Sedge	S2S3
Carex hystericina	Porcupine Sedge	S1S2
Carex livida var. radicaulis	Livid Sedge	S1
Carex pellita	Woolly Sedge	S1
Carex rosea	Rosy Sedge	S3
Carex tenera	Slender Sedge	S1S2
Carex tenuiflora	Sparse-Flowered Sedge	S1
Carex tincta	Tinged Sedge	S1
Carex vacillans	Estuarine Sedge	S1S3
Carex viridula var. elatior	A Sedge	S1
Carex wiegandii	Wiegand's Sedge	S1S2

Caulophyllum thalictroides	Blue Cohosh	S2
Chenopodium rubrum	Coast-Blite Goosefoot	S1?
Cinna arundinacea	Stout Wood Reed-Grass	S1
Cochlearia tridactylites	Limestone Scurvy-grass	S1
Comandra umbellata	Umbellate Bastard Toad-Flax	S2
Corallorhiza trifida	Early Coralroot	S3
Cornus suecica	Swedish Dwarf Dogwood	S1S2
Crassula aquatica	Water Pigmy-Weed	S2
Crataegus robinsonii	A Hawthorn	S1?
Crataegus submollis	A Hawthorn	S1?
Cryptogramma stelleri	Fragile Rockbrake	S1
Cuscuta cephalanthi	Button-Bush Dodder	S1
Cyperus lupulinus ssp. macilentus	Slender Flatsedge	SH
Cypripedium parviflorum	Small Yellow Lady's-Slipper	S2S3
Cypripedium parviflorum var. makas	Small Yellow Lady's-Slipper	S2
Cypripedium parviflorum var. pubesc	Large Yellow Lady's-Slipper	S2
Cypripedium reginae	Showy Lady's-Slipper	S2
Cystopteris bulbifera	Bulblet Fern	S3S4
Cystopteris laurentiana	Laurentian Bladder Fern	S1?
Cystopteris tenuis	A Bladderfern	S3?
Decodon verticillatus	Hairy Swamp Loosestrife	S2S3
Desmodium canadense	Showy Tick-Trefoil	S1
Dichanthelium acuminatum var. lindl	Panic Grass	S1?
Dichanthelium clandestinum	Deer-Tongue Witchgrass	S3
Dichanthelium linearifolium	Slim-Leaf Witchgrass	S2?
Draba arabisans	Rock Whitlow-Grass	S2
Dryopteris filix-mas	Male Fern	S3
Dryopteris fragrans var. remotiuscul	Fragrant Fern	S2
Eleocharis olivacea	Capitate Spikerush	S2
Eleocharis quinqueflora	Few-Flower Spikerush	S2
Elymus hystrix var. bigeloviana	Bottlebrush Grass	S1
Elymus wiegandii	Wiegand's Wild Rye	S1
Empetrum eamesii	Rock Crowberry	S2?
Empetrum eamesii ssp. atropurpure	Purple Crowberry	S2?
Epilobium coloratum	Purple-Leaf Willow-Herb	S2?
Epilobium hornemannii	Hornemann Willow-Herb	S2S3
Epilobium strictum	Downy Willow-Herb	S3
Equisetum scirpoides	Dwarf Scouring Rush	S3S4
Equisetum variegatum	Variegated Horsetail	S3
Erigeron hyssopifolius	Daisy Fleabane	S2S3
Erigeron philadelphicus	Philadelphia Fleabane	S2
Erioderma pedicellatum	Boreal Felt Lichen	S1S2
Eriophorum gracile	Slender Cotton-Grass	S2
Floerkea proserpinacoides	False Mermaid-Weed	S2S3
Fraxinus nigra	Black Ash	S3
Galium kamtschaticum	Boreal Bedstraw	S3
Galium labradoricum	Bog Bedstraw	S2
Goodyera oblongifolia	Giant Rattlesnake-Plantain	S2S3
Goodyera repens	Dwarf Rattlesnake-Plantain	S2S3
Goodyera tesselata	Checkered Rattlesnake-Plantain	S3
Halenia deflexa	Spurred Gentian	S2S3
Hedeoma pulegioides	American Pennyroyal	S2S3

Hieracium robinsonii	Robinson's Hawkweed	S2
Hudsonia ericoides	Golden-Heather	S1
Hudsonia tomentosa	Sand-Heather	S1
Humulus lupulus var. lupuloides	American Hop	S1?
Huperzia selago	Fir Clubmoss	S1S3
Hypericum dissimulatum	Disguised St. John's-Wort	S2S3
Hypericum majus	Larger Canadian St. John's Wort	S1
Impatiens pallida	Pale Jewel-Weed	S2
Iris prismatica	Slender Blue Flag	S1
Isoetes acadiensis	Acadian Quillwort	S3
Isoetes lacustris	Lake Quillwort	S3?
Juncus alpinoarticulatus ssp. nodulo	Richardson's Rush	S1S2
Juncus caesariensis	New Jersey Rush	S2
Juncus dudleyi	Dudley's Rush	S2?
Juncus greenei	Greene's Rush	S1S2
Juncus nodosus	Knotted Rush	S3S4
Juncus stygius ssp. americanus	Moor Rush	S1
Juncus subcaudatus	Woods-Rush	S3
Juncus trifidus	Highland Rush	S2
Laportea canadensis	Wood Nettle	S3
Lilium canadense	Canada Lily	S2S3
Limosella australis	Mudwort	S2S3
Lindernia dubia	Yellow-Seed False-Pimpernel	S3S4
Liparis loeselii	Loesel's Twayblade	S3S4
Listera australis	Southern Twayblade	S1
Listera convallarioides	Broad-Leaved Twayblade	S3
Lobelia kalmii	Kalm's Lobelia	S1S2
Luzula parviflora	Small-Flowered Wood-Rush	S3
Lycopodiella appressa	Southern Bog Clubmoss	S3
Lycopodium complanatum	Trailing Clubmoss	S3?
Lycopodium sabinifolium	Ground-Fir	S3?
Lycopodium sitchense	Alaskan Clubmoss	S3?
Lysimachia thyrsiflora	Water Loosestrife	S3S4
Malaxis brachypoda	White Adder's-Mouth	S1
Megalodonta beckii	Beck Water-Marigold	S3
Milium effusum var. cisatlanticum	Tall Millet-Grass	S3
Montia fontana	Fountain Miner's-Lettuce	S1
Myriophyllum farwellii	Farwell's Water-Milfoil	S2
Myriophyllum sibiricum	Common Water-Milfoil	S3S4
Oenothera fruticosa ssp. glauca	Shrubby Sundrops	S2SE
Osmorhiza longistylis	Smoother Sweet-Cicely	S2
Packera paupercula	Balsam Groundsel	S3
Paludella squarrosa	a Moss	S1
Parnassia palustris var. parviflora	a Marsh Grass-of-Parnassus	S2
Pilea pumila	Canada Clearweed	S1
Platanthera grandiflora	Large Purple-Fringe Orchis	S3
Platanthera hookeri	Hooker Orchis	S3
Platanthera orbiculata	Large Roundleaf Orchid	S3
Poa glauca	White Bluegrass	S2S3
Polygala sanguinea	Field Milkwort	S2S3
Polygonum buxiforme	Small's Knotweed	S2S3SE
Polygonum pensylvanicum	Pennsylvania Smartweed	S3

Polygonum raii	Pondshore Knotweed	S2S3SE
Polygonum scandens	Climbing False-Buckwheat	S2
Polygonum viviparum	Viviparous Knotweed	S1
Polystichum braunii	Braun's Holly-Fern	S3S4
Polystichum lonchitis	Northern Holly-Fern	S2
Potamogeton friesii	Fries' Pondweed	S2
Potamogeton nodosus	Longleaf Pondweed	S1
Potamogeton obtusifolius	Blunt-Leaf Pondweed	S2
Potamogeton praelongus	White-Stem Pondweed	S3?
Potamogeton richardsonii	Redhead Grass	S3?
Potamogeton zosteriformis	Flatstem Pondweed	S2S3
Primula laurentiana	Bird's-Eye Primrose	S3
Proserpinaca palustris var. crebra	Marsh Mermaid-Weed	S3S4
Pyrola minor	Lesser Wintergreen	S2
Ranunculus flammula var. flammula	Greater Creeping Spearwort	S2
Ranunculus sceleratus	Cursed Crowfoot	S1S2
Rhamnus alnifolia	Alderleaf Buckthorn	S3
Rhynchospora capillacea	Horned Beakrush	S1
Rubus flagellaris	Northern Dewberry	S1?
Rubus pensilvanicus	Pennsylvania Blackberry	S1?
Rudbeckia laciniata var. gaspereaue	Cut-Leaved Coneflower	S2S3
Rumex maritimus	Sea-Side Dock	S2S3
Rumex salicifolius var. mexicanus	Willow Dock	S2
Sagina nodosa ssp. borealis	Knotted Pearlwort	S1S2
Salix candida	Hoary Willow	S1
Salix pedicellaris	Bog Willow	S2
Salix pellita	Satiny Willow	S3?
Samolus valerandi ssp. parviflorus	Water Pimpernel	S2
Sanguinaria canadensis	Bloodroot	S3S4
Sanicula odorata	Black Snake-Root	S1
Saxifraga paniculata ssp. neogaea	a White Mountain Saxifrage	S2
Schizaea pusilla	Curly-Grass Fern	S3
Schoenoplectus robustus	Saltmarsh Bulrush	S1?
Scirpus pedicellatus	Stalked Bulrush	S1
Sclerophora peronella	frosted glass-whiskers	S1?
Selaginella selaginoides	Low Spike-Moss	S2
Senecio pseudoarnica	Seabeach Groundsel	S2
Shepherdia canadensis	Canada Buffalo-Berry	S2
Sisyrinchium angustifolium	Pointed Blue-Eyed-Grass	S3S4
Solidago hispida	Hairy Goldenrod	S1?
Solidago simplex var. randii	Mountain Goldenrod	SH
Sparganium fluctuans	Floating Bur-Reed	S3?
Sparganium hyperboreum	Northern Bur-Reed	S1S2
Sparganium natans	Small Bur-Reed	S3
Sphenopholis intermedia	Slender Wedge Grass	S3S4
Spiranthes lucida	Shining Ladies'-Tresses	S2
Spiranthes romanzoffiana	Hooded Ladies'-Tresses	S3S4
Stellaria humifusa	Creeping Sandwort	S2
Stuckenia filiformis ssp. alpina	Northern Slender Pondweed	S2S3
Stuckenia vaginata	Sheathed Pondweed	S1
Suaeda calceoliformis	American Sea-Blite	S2S3
Suaeda maritima ssp. richii	Rich's Sea-blite	S1

Symphyotrichum boreale	Boreal American-Aster	S2?
Symphyotrichum ciliolatum	Lindley's Aster	S2S3
Teucrium canadense	American Germander	S2S3
Tiarella cordifolia	Heart-Leaved Foam-Flower	S2
Triantha glutinosa	Sticky False-Asphodel	S1
Triglochin gaspensis	Gaspe Peninsula Arrow-Grass	S1?
Triosteum aurantiacum	Coffee Tinker's-Weed	S2
Trisetum spicatum	Narrow False Oats	S3
Utricularia gibba	Humped Bladderwort	S2
Utricularia resupinata	Northeastern Bladderwort	S1
Vaccinium boreale	Northern Blueberry	S2
Vaccinium caespitosum	Dwarf Blueberry	S2
Vaccinium ovalifolium	Oval-Leaf Huckleberry	S1
Vaccinium uliginosum	Alpine Blueberry	S2
Verbena hastata	Blue Vervain	S3
Viburnum edule	Squashberry	S2
Viola canadensis	Canada Violet	S1
Viola nephrophylla	Northern Bog Violet	S2
Woodsia alpina	Northern Woodsia	S1S2
Woodsia glabella	Smooth Woodsia	S2
Zizia aurea	Common Alexanders	S1S2

Scientific Name	Common Name	Group	S-rank
Accipiter gentilis	Northern Goshawk	bird	S3B
Alca torda	Razorbill	bird	S1B,SZN
Ammodramus nelsoni	Nelson's Sharp-tailed Sparrow	bird	S3B
Anas clypeata	Northern Shoveler	bird	S3B
Asio otus	Long-eared Owl	bird	S1S2
Bucephala clangula	Common Goldeneye	bird	S2B,S4N
Bucephala islandica	Barrow's Goldeneye - Eastern population	bird	S1N
Calidris bairdii	Baird's Sandpiper	bird	S2M
Calidris canutus	Red Knot	bird	S3M
Calidris maritima	Purple Sandpiper	bird	S2N
Caprimulgus vociferus	Whip-Poor-Will	bird	S1?B
Catharus bicknelli	Bicknell's Thrush	bird	S1S2B
Cepphus grylle	Black Guillemot	bird	S3
Charadrius melodus	Piping Plover	bird	S1B
Coccyzus erythropthalmus	Black-billed Cuckoo	bird	S3B
Dolichonyx oryzivorus	Bobolink	bird	S3B
Euphagus carolinus	Rusty Blackbird	bird	S3B
Hylocichla mustelina	Wood Thrush	bird	S2B
Icterus galbula	Baltimore Oriole	bird	S3B
Limosa haemastica	Hudsonian Godwit	bird	S2S3M
Loxia curvirostra	Red Crossbill	bird	S3S4
Mergus serrator	Red-breasted Merganser	bird	S3B
Mimus polyglottos	Northern Mockingbird	bird	S3B
Numenius phaeopus	Whimbrel	bird	S3M
Nycticorax nycticorax	Black-crowned Night-heron	bird	S1B
Papilio brevicauda	Short-Tailed Swallowtail	bird	S1S2
Passerculus sandwichensis princeps	"Ipswich" Savannah Sparrow	bird	S1B
Picoides dorsalis	American Three-toed Woodpecker	bird	S2
Piranga olivacea	Scarlet Tanager	bird	S2B
Pluvialis dominica	American Golden-Plover	bird	S3S4M
Pooecetes gramineus	Vesper Sparrow	bird	S2S3B
Rallus limicola	Virginia Rail	bird	S2B
Sayornis phoebe	Eastern Phoebe	bird	S2S3B
Sialia sialis	Eastern Bluebird	bird	S2S3B
Sterna dougallii	Roseate Tern	bird	S1B
Sterna hirundo	Common Tern	bird	S3B
Sterna paradisaea	Arctic Tern	bird	S3B
Tringa melanoleuca	Greater Yellowlegs	bird	S2B,S5M
Tringa solitaria	Solitary Sandpiper	bird	S1B
Vireo gilvus	Warbling Vireo	bird	S1?B
Vireo philadelphicus	Philadelphia Vireo	bird	S1?B
Salmo salar	Atlantic Salmon	fish	S2
Glyptemys insculpta	Wood Turtle	herpetile	S3
Hemidactylium scutatum	Four-toed Salamander	herpetile	S3
Aglais milberti	Milbert's Tortoiseshell	lepidoptera	S2
Amblyscirtes vialis	Common Roadside-Skipper	lepidoptera	S2
Boloria chariclea	Arctic Fritillary	lepidoptera	S2
Callophrys polios	Hoary Elfin	lepidoptera	S3S4
Danaus plexippus	Monarch Butterfly	lepidoptera	S2B
Enodia anthedon	Northern Pearly-Eye	lepidoptera	S3

Erynnis juvenalis	Juvenal's Duskywing	lepidoptera	S2S3
Euphydryas phaeton	Baltimore Checkerspot	lepidoptera	S3
Hesperia comma	Common Branded Skipper	lepidoptera	S3
Hesperia comma laurentina	Laurentian Skipper	lepidoptera	S3
Nymphalis vaualbum	Compton Tortoiseshell	lepidoptera	S1S2
Pieris oleracea	Mustard White	lepidoptera	S2
Polygonia faunus	Green Comma	lepidoptera	S3
Polygonia gracilis	Hoary Comma	lepidoptera	S1
Polygonia interrogationis	Question Mark	lepidoptera	S3B
Polygonia progne	Gray Comma	lepidoptera	S3S4
Satyrium acadicum	Acadian Hairstreak	lepidoptera	S1
Speyeria aphrodite	Aphrodite Fritillary	lepidoptera	S3S4
Thorybes pylades	Northern Cloudywing	lepidoptera	S2
Alces americanus	Moose	mammal	S1
Lynx canadensis	Canada Lynx	mammal	S1
Martes americana	American Marten	mammal	S1
Microtus chrotorrhinus	Rock Vole	mammal	S2
Sorex gaspensis	Gaspé Shrew	mammal	S2
Synaptomys cooperi	Southern Bog Lemming	mammal	S3S4
Alasmidonta undulata	Triangle Floater	mussel	S2S3
Alasmidonta varicosa	Brook Floater	mussel	S1S2
Lampsilis radiata	Eastern Lampmussel	mussel	S2
Aeshna canadensis	Canada Darner	odonate	S3
Aeshna clepsydra	Mottled Darner	odonate	S2
Aeshna constricta	Lance-Tipped Darner	odonate	S2
Aeshna eremita	Lake Darner	odonate	S3
Aeshna sitchensis	Zigzag Darner	odonate	S2
Aeshna subarctica	Subarctic Darner	odonate	S3
Aeshna tuberculifera	Black-Tipped Darner	odonate	S3
Aeshna verticalis	Green-Striped Darner	odonate	S2
Amphiagrion saucium	Eastern Red Damsel	odonate	S2
Anax junius	Common Green Darner	odonate	S3
Argia fumipennis violacea	Variable Dancer	odonate	S3
Argia moesta	Powdered Dancer	odonate	S3
Basiaeschna janata	Springtime Darner	odonate	S3
Boyeria grafiana	Ocellated Darner	odonate	S2
Boyeria vinosa	Fawn Darner	odonate	S3
Calopteryx aequabilis	River Jewelwing	odonate	S3
Calopteryx amata	Superb Jewelwing	odonate	S3
Chromagrion conditum	Aurora Damsel	odonate	S3
Coenagrion interrogatum	Subarctic Bluet	odonate	S1
Coenagrion resolutum	Taiga Bluet	odonate	S2
Cordulegaster diastatops	Delta-Spotted Spiketail	odonate	S3
Cordulegaster maculata	Twin-Spotted Spiketail	odonate	S3
Cordulia shurtleffii	American Emerald	odonate	S3
Didymops transversa	Stream Cruiser	odonate	S3
Dorocordulia lepida	Petite Emerald	odonate	S3
Dorocordulia libera	Racket-Tailed Emerald	odonate	S2
Enallagma aspersum	Azure Bluet	odonate	S2
Enallagma boreale	Boreal Bluet	odonate	S3
Enallagma carunculatum	Tule Bluet	odonate	S1
Enallagma civile	Familiar Bluet	odonate	S3

Enallagma cyathigerum vernale	Springtime Bluet	odonate	S2
Enallagma ebrium	Marsh Bluet	odonate	S3
Enallagma hageni	Hagen's Bluet	odonate	S3
Epitheca canis	Beaverpond Baskettail	odonate	S3
Epitheca cynosura	Common Baskettail	odonate	S3
Epitheca spinigera	Spiny Baskettail	odonate	S3
Gomphaeschna furcillata	Harlequin Darner	odonate	S1
Gomphus adelphus	Moustached Clubtail	odonate	S2
Gomphus borealis	Beaverpond Clubtail	odonate	S2
Gomphus descriptus	Harpoon Clubtail	odonate	S2
Gomphus exilis	Lancet Clubtail	odonate	S3
Gomphus spicatus	Dusky Clubtail	odonate	S2
Hagenius brevistylus	Dragonhunter	odonate	S3
Helocordulia uhleri	Uhler's Sundragon	odonate	S3
Ischnura posita	Fragile Forktail	odonate	S3
Ladona exusta	White Corporal	odonate	S3
Lanthus parvulus	Northern Pygmy Clubtail	odonate	S2
Lestes congener	Spotted Spreadwing	odonate	S3
Lestes dryas	Emerald Spreadwing	odonate	S3
Lestes eurinus	Amber-Winged Spreadwing	odonate	S2
Lestes forcipatus	Sweetflag Spreadwing	odonate	S2
Lestes rectangularis	Slender Spreadwing	odonate	S3
Lestes unguiculatus	Lyre-Tipped Spreadwing	odonate	S2
Leucorrhinia frigida	Frosted Whiteface	odonate	S3
Leucorrhinia glacialis	Crimson-Ringed Whiteface	odonate	S3
Leucorrhinia hudsonica	Hudsonian Whiteface	odonate	S3
Leucorrhinia intacta	Dot-Tailed Whiteface	odonate	S3
Leucorrhinia proxima	Red-Waisted Whiteface	odonate	S3
Libellula julia	Chalk-Fronted Corporal	odonate	S3
Macromia illinoiensis	Illinois River Cruiser	odonate	S3
Nannothemis bella	Elfin Skimmer	odonate	S2
Nehalennia gracilis	Sphagnum Sprite	odonate	S2
Nehalennia irene	Sedge Sprite	odonate	S3
Ophiogomphus aspersus	Brook Snaketail	odonate	S1
Ophiogomphus carolus	Riffle Snaketail	odonate	S3
Ophiogomphus mainensis	Maine Snaketail	odonate	S1
Plathemis lydia	Common Whitetail	odonate	S3
Somatochlora cingulata	Lake Emerald	odonate	S2
Somatochlora elongata	Ski-Tailed Emerald	odonate	S3
Somatochlora forcipata	Forcipate Emerald	odonate	S2
Somatochlora incurvata	Incurvate Emerald	odonate	S3
Somatochlora minor	Ocellated Emerald	odonate	S2
Somatochlora septentrionalis	Muskeg Emerald	odonate	S1
Somatochlora tenebrosa	Clamp-Tipped Emerald	odonate	S2
Somatochlora walshii	Brush-Tipped Emerald	odonate	S3
Somatochlora williamsoni	Williamson's Emerald	odonate	S1
Stylogomphus albistylus	Least Clubtail	odonate	S3
Sympetrum costiferum	Saffron-Winged Meadowhawk	odonate	S3
Sympetrum danae	Black Meadowhawk	odonate	S2
Sympetrum obtrusum	White-Faced Meadowhawk	odonate	S3
Sympetrum rubicundulum	Ruby Meadowhawk	odonate	S2
Sympetrum semicinctum	Band-Winged Meadowhawk	odonate	S3

Sympetrum vicinum	Yellow-Legged Meadowhawk	odonate	S3

APPENDIX 5.10-L

AMEC STUDY TEAM NAMES AND CREDENTIALS

KEY STUDY TEAM MEMBERS

Name	Title	Credentials
Fred Meth	Senior Consultant	B.Sc., M.Sc.
Uwe Wittkugel	Senior Environmental Planner	Dipl.Ing., M.E.Des.
Marion Sensen	Environmental Scientist	Ph.D.
Carys Burgess	Environmental Scientist	B.Sc., MMM.
Bruce Moore	Marine Biologist	
Patrick Roussel	Senior Oceanographer	M.Eng., M.Sc.
Maureen Cameron-MacMillan	Biologist	B.Sc., M.Sc.
Nancy Griffiths	Environmental Planner	
Bill Chew	Area Supervisor	Environmental Technology Diploma, B.Sc.
Jennifer Duncan	Environmental Engineer (in training)	B.Eng, B.E.Sc., EIT
Susan Sherk	Associate Socio-economist	BA
Chris Elliott	Head, Environmental Services	P.Eng
Clarence Stevens	Ornithologist	Ph. D.
Stephen Davis	Archaeologist / Principal Investigator	Davis Archaeological Consultants Ltd.