



Atlantic Canada Conservation Data Centre
Centre de données sur la conservation du Canada Atlantique

A vascular plant inventory and wetland delineation along a proposed transmission line corridor near Mount Stewart, PEI



Habitat (foreground) where Bicknell's Crane's-bill (*Geranium bicknellii*, S1, Undetermined) (inset) was found on the property at West St. Peters.

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for Stantec

METHODS

Sarah Robinson and John Klymko conducted 30 hours of fieldwork surveying along the proposed transmission line on September 18 and 19, 2013. Fieldwork was on foot and focused on covering the development footprint (highway right-of-ways and a 100 m x 150 m land parcel. The areas covered in the field were recorded with GPS units set to record position approximately every 15 seconds while moving (the “more often” track recording setting on Garmin GPS units). A full vascular plant list was recorded for the entire survey and ranked by their relative commonness. Wetlands were classified using dominant species and hydrology then delineated within the provincial right-of-way with flagging tape and GPS.

Definitions for S-ranks and for Prince Edward Island General Status ranks (the primary ranks by which species’ significance is determined by PEI Department of Agriculture and Forestry), are given in Appendix 1.

Results and Discussion

I. Site Coverage

Over 30 km were walked during the 30 person hours spent during the two day survey. The study area consisted of the highway right-of-ways on the north side of Highway #2 between McBride Road and Settlement Road, the west side of Settlement Road, the west side Green Meadows Road between Settlement Road and Byrnes Road, the west side of Byrnes Road, and both sides of Indian Bridge Road between Green Meadows Road and Indian Road (Figure 1). A 100 m x 150 m parcel along Highway #2 was also surveyed. The northwest portion of this parcel is mowed, the rest is wooded. GPS tracks of areas covered are mapped in Figures 2 and 3. Fieldwork results should represent a rather complete picture of the vascular flora in the study area. Additional fieldwork (especially earlier in the growing season) would undoubtedly add more plant species to the site’s list, but there is low potential for undocumented provincially rare species based on the habitats present within the study area.

II. Species Information

We recorded 272 vascular plant species (161 native or potentially native, 112 exotic, including three new species for PEI). The full species list is given in Table 1.

The new species for PEI are Bicknell’s Crane-bill (*Geranium bicknellii*), Austrian Pine (*Pinus nigra*), and Amur Maple (*Acer ginnala*). Bicknell’s Crane-bill was found on the property at West St. Peter’s along the southern edge of the moved area. It is an annual or biennial herb that prefers open sites, woodlands, roadsides, fields, waste places and does especially well in recently burned areas.¹ The species is ranked S3 (Secure) in both

¹ Information from NatureServe Explorer <http://www.natureserve.org/explorer/>

New Brunswick and Nova Scotia and may be a recent inadvertent introduction to PEI. Alternately, it may have spread to the disturbed roadside from a native Prince Edward Island occurrence nearby. As a precautionary approach, it should be treated as a potentially native species of conservation concern. Austrian Pine was found on Settlement Road. Four small trees were growing adjacent to a pasture on a weedy road embankment with Grey Birch and White Spruce. These appear to be growing spontaneously. They are almost certainly the progeny of large ornamental Austrian Pines growing in a mowed lawn approximately 80 m away. This exotic species is not known to grow outside of cultivation elsewhere in the Maritimes, but it has reported in Maine and Quebec². Amur Maple was found along Green Meadows Road in a birch-dominated windbreak at the edge of a field. This species is popular in ornamental plantings and the observed individual likely represents an adventive seedling from a nearby planted tree. This exotic species is also known to grow outside of cultivation in New Brunswick².

Seven taxa of conservation concern based on General Status Ranks or S-ranks were recorded during the survey: Bicknell's Crane's-bill (*Geranium bicknellii*, S1, Undetermined), Early Goldenrod (*Solidago juncea*, S1, May Be At Risk), Dense Sedge (*Carex cumulata*, S1, May Be At Risk), Staghorn Sumac (*Rhus typhina*, S1S2, May Be At Risk), Red Pine (*Pinus resinosa*, S2, Sensitive), Mexican Muhly (*Muhlenbergia mexicana*, S2, Undetermined), Thread Rush (*Juncus filiformis*, S2S3, Sensitive) and White Elm (*Ulmus americana*, S3, Sensitive). See Table 2 for more detail on the species of conservation concern and their locations within the study area.

Three of the exotic species encountered are listed as invasive according to the PEI Invasive Species Council³: Purple Loosestrife (*Lythrum salicaria*), Himalayan Balsam (*Impatiens glandulifera*) and Japanese Knotweed (*Polygonum cuspidatum*). Purple Loosestrife is a wetland species and was found in ditches and in some of the wetlands in the project area. We considered it to be fairly common during our survey. Himalayan Balsam was found growing around the culvert of the stream associated with wetland 9 (WC-9, 353). Japanese Knotweed is a plant of more upland habitats and is sometimes introduced via horticulture. It was found at two locations along the proposed transmission line, both associated with private residences (46.36536°N, 62.87784°W and 46.36788°N, 62.87554°W).

II. Wetland Delineation and Description

Descriptions of each of the wetland types along the proposed transmission line are given in Table 3.

² NatureServe. 2013. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer>. (Accessed: October 3, 2013).

³ PEI Invasive Species Council website: <http://peiinvasives.ca/>

Table 1. Vascular plants recorded in the study area, with PEI S-ranks and General Status (GS) ranks (defined in Appendix 1). Taxonomy follows Kartesz (1999) – *Synthesis of the North American Flora*, CD-ROM. “Abund.” refers to a generalized assessment of the abundance of the species within the project area. “r” = rare, “u” = uncommon, “f” = fairly common, “c” = common. Scientific names followed by the symbol “±” are listed as invasive by the PEI Invasive Species Council, those marked by “†” have high to moderate invasive potential in the Maritimes⁴. Abundance estimates followed by an asterisk “*” indicate species that were seen only at the additional land parcel in West St. Peter’s. Square brackets “[]” indicate a rank that has not been officially assigned.

Family / Species Scientific Name	Common Name	Abund.	ID note	S-rank	GS Rank
Equisetaceae					
<i>Equisetum arvense</i>	Field Horsetail	c		S5	Secure
<i>Equisetum sylvaticum</i>	Woodland Horsetail	u		S5	Secure
Osmundaceae					
<i>Osmunda cinnamomea</i>	Cinnamon Fern	f		S5	Secure
Dennstaedtiaceae					
<i>Dennstaedtia punctilobula</i>	Eastern Hay-Scented Fern	r*		S5	Secure
<i>Pteridium aquilinum</i> var. <i>latiusculum</i>	Bracken Fern	u		S5	Secure
Dryopteridaceae					
<i>Athyrium filix-femina</i> ssp. <i>angustum</i>	Common Lady Fern	r		S5	Secure
<i>Dryopteris carthusiana</i>	Spinulose Wood Fern	u		S4S5	Secure
<i>Dryopteris intermedia</i>	Evergreen Wood Fern	u		S5	Secure
<i>Onoclea sensibilis</i>	Sensitive Fern	f		S5	Secure
Taxaceae					
<i>Taxus canadensis</i>	Canada Yew	r		S5	Secure
Pinaceae					
<i>Abies balsamea</i>	Balsam Fir	f		S5	Secure
<i>Larix laricina</i>	Tamarack	f		S5	Secure
<i>Picea glauca</i>	White Spruce	c		S5	Secure
<i>Picea rubens</i>	Red Spruce	u		S5	Secure
<i>Pinus nigra</i>	Austrian Pine	r		SNA	[exotic]
<i>Pinus resinosa</i>	Red Pine	r		S2	Sensitive
<i>Pinus sylvestris</i>	Scotch Pine	r		SNA	Exotic

⁴ David Mazerolle, Botanist AC CDC, pers. comm.

Family / Species Scientific Name	Common Name	Abund.	ID note	S-rank	GS Rank
Ranunculaceae					
<i>Ranunculus acris</i>	Common Buttercup	r		SNA	Exotic
<i>Ranunculus repens</i> [†]	Creeping Buttercup	f		SNA	Exotic
Ulmaceae					
<i>Ulmus americana</i>	White Elm	r		S3	Sensitive
Myricaceae					
<i>Comptonia peregrina</i>	Sweet-fern	f		S5	Secure
<i>Morella pensylvanica</i>	Northern Bayberry	f		S5	Secure
<i>Myrica gale</i>	Sweet Gale	r		S5	Secure
Fagaceae					
<i>Fagus grandifolia</i>	American Beech	u		S5	Secure
<i>Quercus rubra</i>	Northern Red Oak	u		S4	Secure
Betulaceae					
<i>Alnus incana ssp. rugosa</i>	Speckled Alder	c		S5	Secure
<i>Alnus viridis ssp. crispa</i>	Green Alder	f		S5	Secure
<i>Betula papyrifera</i>	Paper Birch	f		S5	Secure
<i>Betula populifolia</i>	Gray Birch	c		S5	Secure
Chenopodiaceae					
<i>Chenopodium album</i>	Common Lamb's Quarters	c		SNA	Exotic
Amaranthaceae					
<i>Amaranthus retroflexus</i>	Green Amaranth	u		SNA	Exotic
Caryophyllaceae					
<i>Cerastium fontanum ssp. vulgare</i>	Common Chickweed	f		SNA	Exotic
<i>Dianthus armeria</i>	Deptford Pink	r		SNA	Exotic
<i>Moehringia lateriflora</i>	Blunt-leaved Sandwort	r		S5	Secure
<i>Saponaria officinalis</i>	Bouncing-Bet	r		SNA	Exotic
<i>Spergula arvensis</i>	Common Corn Spurrey	f		SNA	Exotic
<i>Spergularia rubra</i>	Ruby Sandspurrey	r*		SNA	Exotic
<i>Stellaria graminea</i>	Little Starwort	f		SNA	Exotic
<i>Stellaria media</i>	Common Starwort	r		SNA	Exotic
Polygonaceae					
<i>Polygonum aviculare</i>	Prostrate Knotweed	c		SNA	Secure
<i>Polygonum convolvulus var. convolvulus</i>	Eurasian Black Bindweed	f		SNA	Exotic
<i>Polygonum cuspidatum</i> [±]	Japanese Knotweed	r		SNA	Exotic

Family / Species Scientific Name	Common Name	Abund.	ID note	S-rank	GS Rank
<i>Polygonum hydropiper</i>	Marshpepper Smartweed	r		SNA	Exotic
<i>Polygonum persicaria</i>	Spotted Lady's-thumb	u		SNA	Exotic
<i>Polygonum sagittatum</i>	Arrow-leaved Smartweed	r		S5	Secure
<i>Rumex acetosella</i>	Sheep Sorrel	f		SNA	Exotic
<i>Rumex crispus</i>	Curled Dock	f		SNA	Exotic
<i>Rumex longifolius</i>	Long-leaved Dock	r		SNA	Exotic
<i>Rumex obtusifolius</i>	Bitter Dock	f		SNA	Exotic
<i>Rumex orbiculatus</i>	Greater Water Dock	u		S5	Secure
Clusiaceae					
<i>Hypericum perforatum</i>	Common St. John's- wort	c		SNA	Exotic
Tiliaceae					
<i>Tilia x vulgaris</i>	Large-Leaf Linden	r		SNA	Exotic
Malvaceae					
<i>Malva moschata</i>	Musk Mallow	r		SNA	Exotic
Violaceae					
<i>Viola macloskeyi ssp. pallens</i>	Small White Violet	r*	ID only probable to species	S5	Secure
<i>Viola septentrionalis</i>	Northern Woodland Violet	r*	ID only probable to species	S5	Secure
<i>Viola tricolor</i>	Johnny-jump-up	r		SNA	Exotic
Salicaceae					
<i>Populus alba</i>	White Poplar	u		SNA	Exotic
<i>Populus grandidentata</i>	Large-toothed Aspen	r		S5	Secure
<i>Populus sp.</i>	a Poplar	r		SNA	[exotic]
<i>Populus tremuloides</i>	Trembling Aspen	c		S5	Secure
<i>Salix bebbiana</i>	Bebb's Willow	c		S5	Secure
<i>Salix discolor</i>	Pussy Willow	r		S5	Secure
<i>Salix humilis</i>	Upland Willow	r		S5	Secure
<i>Salix lucida</i>	Shining Willow	u		S4S5	Secure
Brassicaceae					
<i>Capsella bursa-pastoris</i>	Shepherd's Purse	r		SNA	Exotic
<i>Erysimum cheiranthoides</i>	Worm-seeded Wallflower	r		SNA	Exotic
<i>Raphanus raphanistrum</i>	Wild Radish	f		SNA	Exotic
Ericaceae					

Family / Species Scientific Name	Common Name	Abund.	ID note	S-rank	GS Rank
<i>Chamaedaphne calyculata</i>	Leatherleaf	r		S5	Secure
<i>Epigaea repens</i>	Trailing Arbutus	u		S5	Secure
<i>Gaultheria procumbens</i>	Eastern Teaberry	f		S5	Secure
<i>Gaylussacia baccata</i>	Black Huckleberry	r		S5	Secure
<i>Kalmia angustifolia</i>	Sheep Laurel	r		S5	Secure
<i>Ledum groenlandicum</i>	Common Labrador Tea	r		S5	Secure
<i>Rhododendron canadense</i>	Rhodora	u		S5	Secure
<i>Vaccinium angustifolium</i>	Late Lowbush Blueberry	f		S5	Secure
Pyrolaceae					
<i>Chimaphila umbellata ssp. cisatlantica</i>	Common Pipsissewa	r		S4	Secure
<i>Orthilia secunda</i>	One-sided Wintergreen	r*		S5	Secure
<i>Pyrola elliptica</i>	Shinleaf	r*		S5	Secure
Primulaceae					
<i>Lysimachia terrestris</i>	Swamp Yellow Loosestrife	r		S5	Secure
<i>Trientalis borealis</i>	Northern Starflower	f		S5	Secure
Grossulariaceae					
<i>Ribes hirtellum</i>	Smooth Gooseberry	u		S5	Secure
<i>Ribes lacustre</i>	Bristly Black Currant	r		S5	Secure
<i>Ribes rubrum</i>	European Red Currant	r		SNA	Exotic
Rosaceae					
<i>Amelanchier bartramiana</i>	Bartram's Serviceberry	r*		S4	Secure
<i>Amelanchier sp.</i>	a Serviceberry	c			[native]
<i>Argentina anserina</i>	Common Silverweed	r		S5	Secure
<i>Crataegus monogyna</i>	English Hawthorn	r		SNA	Exotic
<i>Crataegus sp.</i>	a Hawthorn	c			[native]
<i>Fragaria virginiana</i>	Wild Strawberry	c		S5	Secure
<i>Fragaria x ananassa</i>	Domestic Strawberry	r*		SNA	Exotic
<i>Geum rivale</i>	Water Avens	r	ID only probable to species	S5	Secure
<i>Geum sp.</i>	an Avens	u			[native, non-rare]
<i>Malus pumila</i>	Common Apple	u		SNA	Exotic
<i>Photinia floribunda</i>	Purple Chokeberry	f		S5	Secure

Family / Species Scientific Name	Common Name	Abund.	ID note	S-rank	GS Rank
<i>Potentilla argentea</i>	Silvery Cinquefoil	f		SNA	Exotic
<i>Potentilla norvegica</i> ssp. <i>monspeliensis</i>	Rough Cinquefoil	r		S5	Secure
<i>Potentilla recta</i>	Sulphur Cinquefoil	u		SNA	Exotic
<i>Potentilla simplex</i>	Old Field Cinquefoil	r		S4?	Secure
<i>Prunus pensylvanica</i>	Pin Cherry	f		S5	Secure
<i>Prunus virginiana</i>	Chokecherry	f		S5	Secure
<i>Rosa virginiana</i>	Virginia Rose	c		S5	Secure
<i>Rubus allegheniensis</i>	Alleghaney Blackberry	f		S5	Secure
<i>Rubus hispidus</i>	Bristly Dewberry	r		S4	Secure
<i>Rubus idaeus</i> ssp. <i>strigosus</i>	Red Raspberry	f		S5	Secure
<i>Rubus pubescens</i>	Dwarf Red Raspberry	f		S5	Secure
<i>Sorbus americana</i>	American Mountain Ash	r*		S5	Secure
<i>Sorbus aucuparia</i>	European Mountain Ash	u		SNA	Exotic
<i>Spiraea alba</i> var. <i>latifolia</i>	White Meadowsweet	c		S5	Secure
Fabaceae					
<i>Lathyrus palustris</i>	Marsh Vetchling	r		S5	Secure
<i>Lathyrus sylvestris</i>	Flat Vetchling	r		SNA	Exotic
<i>Lotus corniculatus</i>	Garden Bird's-foot Trefoil	c		SNA	Exotic
<i>Lupinus polyphyllus</i>	Large-Leaved Lupine	f		SNA	Exotic
<i>Medicago lupulina</i>	Black Medick	u		SNA	Exotic
<i>Medicago sativa</i>	Alfalfa	r		SNA	Exotic
<i>Melilotus albus</i>	White Sweet-clover	c		SNA	Exotic
<i>Trifolium arvense</i>	Rabbit's-foot Clover	c		SNA	Exotic
<i>Trifolium aureum</i>	Yellow Clover	f		SNA	Exotic
<i>Trifolium campestre</i>	Low Hop Clover	c		SNA	Exotic
<i>Trifolium hybridum</i>	Alsike Clover	f		SNA	Exotic
<i>Trifolium pratense</i>	Red Clover	c		SNA	Exotic
<i>Trifolium repens</i>	White Clover	c		SNA	Exotic
<i>Vicia cracca</i>	Tufted Vetch	c		SNA	Exotic
Lythraceae					
<i>Lythrum salicaria</i> ±	Purple Loosestrife	f		SNA	Exotic
Onagraceae					
<i>Chamerion angustifolium</i>	Fireweed	f		S5	Secure
<i>Epilobium ciliatum</i>	Northern Willowherb	f		S5	Secure

Family / Species Scientific Name	Common Name	Abund.	ID note	S-rank	GS Rank
<i>Epilobium leptophyllum</i>	Bog Willowherb	r		S5	Secure
<i>Oenothera biennis</i>	Common Evening Primrose	c	ID uncertain vs. <i>parviflora</i>	S5	Secure
Cornaceae					
<i>Cornus canadensis</i>	Bunchberry	f		S5	Secure
<i>Cornus sericea</i>	Red Osier Dogwood	f		S5	Secure
Aquifoliaceae					
<i>Ilex verticillata</i>	Common Winterberry	f		S5	Secure
<i>Nemopanthus mucronatus</i>	Mountain Holly	r		S5	Secure
Aceraceae					
<i>Acer ginnala</i>	Amur Maple	r		SNA	[exotic]
<i>Acer pensylvanicum</i>	Striped Maple	r		S5	Secure
<i>Acer platanoides</i> [†]	Norway Maple	f		SNA	Exotic
<i>Acer rubrum</i>	Red Maple	c		S5	Secure
<i>Acer saccharum</i>	Sugar Maple	r		S5	Secure
Anacardiaceae					
<i>Rhus typhina</i>	Staghorn Sumac	r		S1S2	May Be At Risk
Oxalidaceae					
<i>Oxalis stricta</i>	European Wood Sorrel	c		S5	Secure
Geraniaceae					
<i>Geranium bicknellii</i>	Bicknell's Crane's-bill	r*		S1	[undeterm.]
Balsaminaceae					
<i>Impatiens capensis</i>	Spotted Jewelweed	u		S5	Secure
<i>Impatiens glandulifera</i> [±]	Himalayan Balsam	r		SNA	Exotic
Araliaceae					
<i>Aralia nudicaulis</i>	Wild Sarsaparilla	u		S5	Secure
Apiaceae					
<i>Aegopodium podagraria</i>	Bishop's Goutweed	r		SNA	Exotic
<i>Cicuta maculata</i>	Spotted Water-Hemlock	r		S5	Secure
<i>Daucus carota</i>	Queen Anne's Lace	c		SNA	Exotic
<i>Sium suave</i>	Common Water Parsnip	u		S5	Secure
Apocynaceae					
<i>Apocynum androsaemifolium</i>	Spreading Dogbane	r		S5	Secure

Family / Species Scientific Name	Common Name	Abund.	ID note	S-rank	GS Rank
Convolvulaceae					
<i>Calystegia sepium</i>	Hedge False Bindweed	f		S5	Secure
Boraginaceae					
<i>Symphytum officinale</i>	A comfrey	r		SNA	Exotic
Lamiaceae					
<i>Galeopsis tetrahit</i>	Common Hemp-nettle	u		SNA	Exotic
<i>Glechoma hederacea</i>	Ground Ivy	r		SNA	Exotic
<i>Lycopus americanus</i>	American Water Horehound	r		S5	Secure
<i>Lycopus uniflorus</i>	Northern Water Horehound	u		S5	Secure
<i>Mentha arvensis</i>	Wild Mint	r		S5	Secure
<i>Prunella vulgaris</i>	Common Self-heal	f		S5	Secure
<i>Scutellaria lateriflora</i>	Mad-dog Skullcap	r		S5	Secure
<i>Thymus pulegioides</i>	Lemon Thyme	c		SNA	Exotic
Plantaginaceae					
<i>Plantago lanceolata</i>	English Plantain	c		SNA	Exotic
<i>Plantago major</i>	Common Plantain	c		SNA	Exotic
<i>Plantago maritima var. juncooides</i>	Seaside Plantain	u		S5	Secure
Oleaceae					
<i>Fraxinus americana</i>	White Ash	u		S4	Secure
Scrophulariaceae					
<i>Chelone glabra</i>	White Turtlehead	r		S5	Secure
<i>Euphrasia stricta</i>	Stiff Eyebright	f		SNA	Exotic
<i>Linaria vulgaris</i>	Butter-and-Eggs	f		SNA	Exotic
<i>Odontites vernus ssp. serotinus</i>	Red Bartsia	u		SNA	Exotic
<i>Rhinanthus minor</i>	Little Yellow Rattle	c		S5	Secure
<i>Verbascum thapsus</i>	Common Mullein	f		SNA	Exotic
<i>Veronica americana</i>	American Speedwell	r		S4	Secure
<i>Veronica arvensis</i>	Corn Speedwell	r		SNA	Exotic
<i>Veronica chamaedrys</i>	Germander Speedwell	r		SNA	Exotic
<i>Veronica officinalis</i>	Common Speedwell	r*		SNA	Exotic
<i>Veronica serpyllifolia</i>	Thyme-Leaved Speedwell	r		SNA	Exotic
Rubiaceae					
<i>Galium mollugo</i>	Smooth Bedstraw	f		SNA	Exotic

Family / Species Scientific Name	Common Name	Abund.	ID note	S-rank	GS Rank
<i>Galium palustre</i>	Common Marsh Bedstraw	r		S5	Secure
Caprifoliaceae					
<i>Diervilla lonicera</i>	Northern Bush Honeysuckle	u		S5	Secure
<i>Lonicera canadensis</i>	Canada Fly Honeysuckle	r		S5	Secure
<i>Sambucus nigra ssp. canadensis</i>	Black Elderberry	r		S5	Secure
<i>Viburnum nudum var. cassinoides</i>	Northern Wild Raisin	f		S5	Secure
<i>Viburnum opulus</i>	Highbush Cranberry	r		S4	Secure
Asteraceae					
<i>Achillea millefolium</i>	Common Yarrow	c		S5?	Secure
<i>Ambrosia artemisiifolia</i>	Common Ragweed	f		S5	Secure
<i>Anaphalis margaritacea</i>	Pearly Everlasting	r		S5	Secure
<i>Arctium minus</i>	Common Burdock	u		SNA	Exotic
<i>Bidens cernua</i>	Nodding Beggarticks	u		S5	Secure
<i>Bidens frondosa</i>	Devil's Beggarticks	r		S5	Secure
<i>Cichorium intybus</i>	Wild Chicory	r		SNA	Exotic
<i>Cirsium arvense</i>	Canada Thistle	u		SNA	Exotic
<i>Cirsium vulgare</i>	Bull Thistle	r		SNA	Exotic
<i>Conyza canadensis</i>	Canada Horseweed	c		S5	Secure
<i>Doellingeria umbellata</i>	Hairy Flat-top White Aster	c		S5	Secure
<i>Erechtites hieraciifolia</i>	Eastern Burnweed	r		S4	Secure
<i>Erigeron strigosus</i>	Rough Fleabane	f		S5	Secure
<i>Euthamia graminifolia</i>	Grass-leaved Goldenrod	c		S5	Secure
<i>Gnaphalium uliginosum</i>	Marsh Cudweed	c		SNA	Exotic
<i>Hieracium aurantiacum</i>	Orange Hawkweed	c		SNA	Exotic
<i>Hieracium caespitosum</i> †	Field Hawkweed	c		SNA	Exotic
<i>Leontodon autumnalis</i>	Fall Dandelion	c		SNA	Exotic
<i>Leucanthemum vulgare</i>	Oxeye Daisy	c		SNA	Exotic
<i>Matricaria discoidea</i>	Pineapple Weed	c		SNA	Exotic
<i>Oclemena acuminata</i>	Whorled Wood Aster	r		S5	Secure
<i>Omalotheca sylvatica</i>	Woodland Cudweed	r*		S4?	Secure
<i>Prenanthes trifoliolata</i>	Three-leaved Rattlesnakeroot	r		S5	Secure
<i>Rudbeckia hirta var. pulcherrima</i>	Black-Eyed Susan	f		SNA	Exotic

Family / Species Scientific Name	Common Name	Abund.	ID note	S-rank	GS Rank
<i>Senecio jacobaea</i>	Tansy Ragwort	u		SNA	Exotic
<i>Senecio vulgaris</i>	Common Ragwort	r*		SNA	Exotic
<i>Solidago bicolor</i>	White Goldenrod	f		S4	Secure
<i>Solidago canadensis</i>	Canada Goldenrod	c		S5	Secure
<i>Solidago juncea</i>	Early Goldenrod	r		S1	May Be At Risk
<i>Solidago puberula</i>	Downy Goldenrod	u		S5	Secure
<i>Solidago rugosa</i>	Rough-stemmed Goldenrod	c		S5	Secure
<i>Solidago sempervirens</i>	Seaside Goldenrod	r		S5	Secure
<i>Sonchus arvensis</i> †	Field Sow Thistle	c		SNA	Exotic
<i>Sonchus asper</i>	Prickly Sow Thistle	c		SNA	Exotic
<i>Sonchus oleraceus</i>	Common Sow Thistle	r*		SNA	Exotic
<i>Symphotrichum lanceolatum</i>	Lance-leaved Aster	u		S4	Secure
<i>Symphotrichum lateriflorum</i>	Calico Aster	u		S5	Secure
<i>Symphotrichum novi-belgii</i>	New York Aster	c		S5	Secure
<i>Taraxacum officinale</i>	Common Dandelion	c		SNA	Exotic
<i>Tragopogon pratensis</i>	Meadow Goatsbeard	f		SNA	Exotic
<i>Tripleurospermum perforata</i>	Scentless Chamomile	f		SNA	Exotic
Lemnaceae					
<i>Lemna turionifera</i>	Turion Duckweed	r		S5	Secure
Juncaceae					
<i>Juncus articulatus</i>	Jointed Rush	r		S5	Secure
<i>Juncus balticus</i> var. <i>littoralis</i>	Arctic Rush	f		S5	Secure
<i>Juncus bufonius</i>	Toad Rush	u		S5	Secure
<i>Juncus effusus</i>	Soft Rush	f		S5	Secure
<i>Juncus filiformis</i>	Thread Rush	u		S2S3	Sensitive
<i>Juncus tenuis</i>	Path Rush	f		S5	Secure
<i>Luzula multiflora</i>	Common Woodrush	c		S5	Secure
Cyperaceae					
<i>Carex cumulata</i>	Dense Sedge	r		S1	May Be At Risk
<i>Carex intumescens</i>	Bladder Sedge	f		S5	Secure
<i>Carex projecta</i>	Necklace Sedge	u		S5	Secure
<i>Carex scoparia</i>	Broom Sedge	c		S5	Secure
<i>Carex trisperma</i> var. <i>trisperma</i>	Three-seeded Sedge	r		S5	Secure

Family / Species Scientific Name	Common Name	Abund.	ID note	S-rank	GS Rank
<i>Scirpus cyperinus</i>	Common Woolly Bulrush	f		S5	Secure
Poaceae					
<i>Agrostis canina</i>	Velvet Bent Grass	f		SNA	Exotic
<i>Agrostis capillaris</i>	Colonial Bent Grass	c		SNA	Exotic
<i>Agrostis gigantea</i>	Redtop	c		SNA	Exotic
<i>Agrostis stolonifera</i>	Creeping Bent Grass	f		S5	Secure
<i>Avena sativa</i>	Cultivated Oats	c		SNA	Exotic
<i>Bromus inermis</i>	Smooth Brome	f		SNA	Exotic
<i>Calamagrostis canadensis</i>	Bluejoint Reed Grass	f		S5	Secure
<i>Dactylis glomerata</i>	Orchard Grass	c		SNA	Exotic
<i>Danthonia spicata</i>	Poverty Oat Grass	r*		S5	Secure
<i>Deschampsia flexuosa</i>	Wavy Hair Grass	u		S5	Secure
<i>Digitaria ischaemum</i>	Smooth Crab Grass	f		SNA	Exotic
<i>Echinochloa crus-galli</i>	Large Barnyard Grass	c		SNA	Exotic
<i>Elymus repens</i>	Quack Grass	c		SNA	Exotic
<i>Festuca filiformis</i>	Hair Fescue	f		SNA	Exotic
<i>Festuca rubra</i>	Red Fescue	c		S5	Secure
<i>Glyceria striata</i>	Fowl Manna Grass	r		S5	Secure
<i>Hordeum jubatum</i>	Foxtail Barley	r		S5	Secure
<i>Lolium arundinaceum</i>	Tall Fescue	f		SNA	Exotic
<i>Muhlenbergia mexicana</i>	Mexican Muhly	r		S2	Undetermined
<i>Panicum capillare</i>	Common Witch Grass	c		SNA	Exotic
<i>Panicum dichotomiflorum</i>	Fall Panic Grass	f		SNA	Exotic
<i>Phalaris arundinacea</i> †	Reed Canary Grass	f		SNA	Exotic
<i>Phleum pratense</i>	Common Timothy	c		SNA	Exotic
<i>Poa annua</i>	Annual Blue Grass	f		SNA	Exotic
<i>Poa compressa</i>	Canada Blue Grass	r		SNA	Exotic
<i>Poa palustris</i>	Fowl Blue Grass	c		S5	Secure
<i>Poa pratensis</i>	Kentucky Blue Grass	c		S5	Secure
<i>Puccinellia distans</i>	Spreading Alkali Grass	f		SNA	Exotic
<i>Secale cereale</i>	Common Rye	r		SNA	Exotic
<i>Setaria glauca</i>	Yellow Foxtail	f		SNA	Exotic
<i>Spartina pectinata</i>	Prairie Cord Grass	c		S5	Secure
<i>Sporobolus vaginiflorus</i>	Sheathed Dropseed	f		SNA	Exotic
Sparganiaceae					

Family / Species Scientific Name	Common Name	Abund.	ID note	S-rank	GS Rank
<i>Sparganium eurycarpum</i>	Broad-fruited Burreed	r	ID only probable to species	S4S5	Secure
Typhaceae					
<i>Typha latifolia</i>	Broad-leaved Cattail	f		S5	Secure
Liliaceae					
<i>Asparagus officinalis</i>	Garden Asparagus	r		SNA	Exotic
<i>Clintonia borealis</i>	Yellow Bluebead Lily	r		S5	Secure
<i>Maianthemum canadense</i>	Wild Lily-of-The-Valley	u		S5	Secure
Iridaceae					
<i>Iris versicolor</i>	Harlequin Blue Flag	u		S5	Secure

Table 2. Notes and locations for the six species of conservation concern found during the survey.

Species	Location and Notes	Coordinates
Bicknell's Crane's-bill (<i>Geranium bicknellii</i> , S1, Undetermined)	Along southern margin of mowed area in a weedy regrowth area. We are considering this species to be native to PEI as it is native and found in similar habitats in both NB and NS.	46.41142°N, 62.77793°W
Early Goldenrod (<i>Solidago juncea</i> , S1, May Be At Risk)	Along Highway #2, three small patches in pine-dominated hedgerow between highway verge and agricultural land.	46.35027°N, 62.92080°W
Dense Sedge (<i>Carex cumulata</i> , S1, May Be At Risk)	Byrnes Road along highway verge with other graminoids.	46.31775°N, 62.73883°W
Staghorn Sumac (<i>Rhus typhina</i> , S1S2, May Be At Risk)	Hwy #2 near Canavoy. Parent trees likely planted, in overgrown area between field and road beside residential yard. Settlement Road. 30-40 stems, all under 2m, some with fruit. In brush-hogged road verge.	46.39971°N, 62.81167°W 46.38848°N, 62.72715°W to 46.38834°N, 62.72718°W
Red Pine (<i>Pinus resinosa</i> , S2, Sensitive)	Green Meadows Road. Plantation, many trees approx. 12m from road midline. All trees were planted.	46.35409°N, 62.74237°W to 46.35555°N, 62.74106°W
Mexican Muhly (<i>Muhlenbergia mexicana</i> , S2, Undetermined)	Hwy#2 near Scotchfort. 100s of plants in blueberry field, common at least along edge of highway.	46.35079°N, 62.9185°W
Thread Rush (<i>Juncus filiformis</i> , S2S3, Sensitive)	Hwy#2 near Glenroy, scattered in wet ditches along the length of Highway #2.	46.35756°N, 62.88958°W
White Elm (<i>Ulmus americana</i> , S3, Sensitive)	Hwy#2 near Scotchfort. One small multistemmed tree in road verge, subject to brush hogging. Settlement Road, one mature tree, 7m tall tree, about 10m from road midline, in small patch of trees. Green Meadows Road. One 7m tree, approx. 15m from midline of road. Settlement Road. Five small trees, <2m, in hedgerow.	46.35048°N, 62.91958°W 46.38514°N, 62.72725°W 46.34935°N, 62.74404°W 46.38478°N, 62.72722°W

Table 3. Descriptions of the 15 wetlands present along the proposed transmission line right-of-way.

Wetland ID	Wetland location	Description	Dominant Species
WC-1	Hwy #2 near Scotchfort	Shrub and herbaceous dominated wetland receiving seepage from commercial blueberry field. Wetland is confined to the road drainage ditch. It extends from field access road (46.35068°N, 62.91906°W) in the west and continues east along the ditch to (46.35081°N, 62.91833°W). The majority if not all of the wetland is outside of the provincial right-of-way (approximately 7m from the center line of the road).	<i>Onoclea sensibilis</i> , <i>Spiraea alba</i> var. <i>latifolia</i> , <i>Alnus incana</i> ssp. <i>rugosa</i> , <i>Chelone glabra</i> , <i>Salix bebbiana</i> .
WC-2	Hwy #2 near Glenroy	Herbaceous and tall shrub dominated swamp bordering a small stream flowing south into road culvert. Wetland begins in the west at the ditch culvert at the Ultramar Station and extends to the ditch culvert of the adjacent residential property. The west side of the stream is a graminoid and herbaceous wet meadow. The east side of the stream is tall shrub and tree dominated fringe swamp with some surficial water flow. The wetland lies outside of the provincial right-of-way.	West side of culvert: <i>Spartina pectinata</i> , <i>Impatiens capensis</i> , <i>Bromus inermis</i> , <i>Phalaris arundinacea</i> , <i>Solidago rugosa</i> . East side of culvert: <i>Spiraea alba</i> var. <i>latifolia</i> , <i>Glyceria striata</i> , <i>Prunus virginiana</i> .
WC-3	Hwy #2 near Mount Stewart (near Anderson Road)	Herbaceous and tall shrub dominated swamp bordering a controlled flow stream from Doyles Pond. Wetland extends from residential property in the west and continues along ditch to Anderson Road. Majority of the wetland in the west is graminoid dominated and in the east it is shrub dominated.	<i>Alnus incana</i> ssp. <i>rugosa</i> , <i>Prunus virginiana</i> , <i>Phalaris arundinacea</i> , <i>Lythrum salicaria</i> , <i>Lysimachia terrestris</i> , <i>Juncus effusus</i> .

Wetland ID	Wetland location	Description	Dominant Species
WC-4	Hwy #2 near Mount Stewart (west of French Village Road)	Tall shrub and herbaceous swamp with open water near culvert. Areas of seepage from the west and east with evidence of an intermittent ditch-confined stream from the west. On the west side of the culvert the wetland begins at small mown access road and is confined by the road ditch until (46.37995°N, 62.86698°W). The main wetland continues to the east until (46.38040°N, 62.86698°W) then is largely confined to the ditch until French Village Road. Road verge and south slope of the ditch are mowed up to the edge of the wetland.	<i>Calamagrostis canadensis</i> , <i>Lythrum salicaria</i> , <i>Typha latifolia</i> , <i>Alnus incana</i> ssp. <i>rugosa</i> , <i>Osmunda cinnamomea</i> , <i>Juncus effusus</i> .
WC-5	Hwy #2 near Mount Stewart (east of French Village Road)	Wetland consists of a shrub and herbaceous ditch wetland from (46.38064°N, 62.86608°W) to a mown access road then starts again at (46.38083°N, 62.86513°W) and continues along the ditch until (46.38098°N, 62.86552°W). The main wetland consists of a cattail and graminoid dominated marsh with standing water and some shrubs and dead trees (snags). The marsh continues to (46.38210°N, 62.86273°W) with wetland vegetation in the ditch continuing to the east for approximately 200m.	Shrub and herbaceous ditched wetland: <i>Salix bebbiana</i> , <i>Typha latifolia</i> , <i>Phalaris arundinacea</i> , <i>Spartina pectinata</i> , <i>Ranunculus repens</i> . Main wetland: <i>Typha latifolia</i> , <i>Calamagrostis canadensis</i> , <i>Scirpus cyperinus</i> , <i>Phalaris arundinacea</i> , <i>Lemna turionifera</i> , <i>Betula populifolia</i> .
WC-6	Hwy #2 west of Saint Andrews	Tree, shrub, and herbaceous wet meadow with some surface water. Areas of open graminoid marsh and dense alder swamp. Wetland begins at (46.38329°N, 62.85952°W) and continues along ditch to (46.38269°N, 62.86053°W). Wetland vegetation is present on south slope of road drainage ditch near (46.38313°N, 62.86001°W).	<i>Calamagrostis canadensis</i> , <i>Typha latifolia</i> , <i>Phalaris arundinacea</i> , <i>Ilex verticillata</i> , <i>Alnus incana</i> ssp. <i>rugosa</i> , <i>Lythrum salicaria</i> , <i>Symphyotrichum lateriflorum</i> , <i>Solidago rugosa</i> .
WC-7	Hwy #2 east of Saint Andrews	Cattail marsh. Seepage from tamarack swamp to the west and wet mixed woods to the east. A row of trees separates the road verge and the marsh. Wetland is completely outside of provincial right-of-way.	<i>Typha latifolia</i> , <i>Rumex orbiculatus</i> , <i>Acer rubrum</i> .
WC-8	Hwy #2 east of Canavoy	Stream in steep-sided ravine flowing north from culvert under highway. Some seepage from shrub thicket to the east. All wetland is outside of right-of-way.	N/A

Wetland ID	Wetland location	Description	Dominant Species
WC-9	Hwy #2 east of West St. Peters	Fringe wetland along the banks of a small river flowing north. Wetland is confined to ditch within the right-of-way. Wetland begins in the west along ditch (46.41338°N, 62.75133°W), continues along to a small ditch creek at (46.41347°N, -62.75133°W), then encompasses the river and its banks continuing to the east to a tall shrub swamp until Lot 40 Road. The majority of the wetland is outside the right-of-way.	Ditched wetland to the west of the river: <i>Juncus effusus</i> , <i>Salix bebbiana</i> , <i>Alnus incana ssp. rugosa</i> , <i>Spiraea alba var. latifolia</i> . River fringe: <i>Alnus incana ssp. rugosa</i> , <i>Calamagrostis canadensis</i> , <i>Phalaris arundinacea</i> . Tall shrub swamp to the east of the river: <i>Alnus incana ssp. rugosa</i> , <i>Prunus virginiana</i> , <i>Onoclea sensibilis</i> .
WC-10	Hwy #2 east of West St. Peters	Fringe wetland along small stream flowing south from a cattail marsh. Wetland extends from eastern edge of residential property at civic number 8306 to western edge of residential property at civic number 8290.	<i>Bromus inermis</i> , <i>Alnus incana ssp. rugosa</i> , <i>Acer rubrum</i> , <i>Spartina pectinata</i> , <i>Scirpus cyperinus</i> , <i>Juncus effusus</i> .
WC-11	Hwy #2 east of West St. Peters	No wetland present along the northern boundary of the provincial right-of-way.	N/A
WC-12	Settlement Road	Tree and shrub swamp with areas of mixed graminoid-shrub marsh. Wetland extends from (46.40924°N, 62.73388°W) in the south and continues along ditch to civic number 56 in the north.	Tree and shrub swamp: <i>Alnus incana ssp. rugosa</i> , <i>Acer rubrum</i> , <i>Onoclea sensibilis</i> , <i>Osmunda cinnamomea</i> , <i>Rubus pubescens</i> , <i>Spiraea alba var. latifolia</i> , <i>Viburnum nudum var. cassinoides</i> . Marsh: <i>Typha latifolia</i> , <i>Schoenoplectus spp.</i> , <i>Salix bebbiana</i> , <i>Scirpus cyperinus</i> , <i>Juncus effusus</i> , <i>Alnus incana ssp. rugosa</i> , <i>Acer rubrum</i> .
WC-13	Green Meadows Road	Shrub and herbaceous swamp. Southern boundary (46.35271°N, 62.74348°W), northern boundary (46.35308°N, 62.74309°W)	<i>Typha latifolia</i> , <i>Alnus incana ssp. rugosa</i> , <i>Acer rubrum</i> , <i>Salix bebbiana</i> , <i>Solidago rugosa</i> , <i>Scirpus cyperinus</i> , <i>Onoclea sensibilis</i> , <i>Glyceria striata</i> .
WC-14	Green Meadows Road	Fringe wetland along small stream flowing north extending from (46.35114°N, 62.74484°W) to (46.35119°N, 62.74475°W) within right-of-way. Wetland consists of alder swale immediately surrounding stream with wet tamarack woods to the south. Stream travels north paralleling the road until (46.35128°N, 62.74470°W).	<i>Alnus incana ssp. rugosa</i> , <i>Calamagrostis canadensis</i> , <i>Alnus incana ssp. rugosa</i> , <i>Acer rubrum</i> , <i>Abies balsamea</i> , <i>Spiraea alba var. latifolia</i> , <i>Larix laricina</i> , <i>Onoclea sensibilis</i> , <i>Osmunda cinnamomea</i> .

Wetland ID	Wetland location	Description	Dominant Species
WC-15	Byrnes Road	Graminoid dominated marsh with areas of open water fringed by tall tree-shrub swamp. Marsh extends from (46.31482°N, 62.73763°W) to (46.31380°N, -62.73729°W)	<i>Glyceria striata</i> , <i>Typha latifolia</i> , <i>Calamagrostis canadensis</i> , <i>Impatiens capensis</i> , <i>Rumex orbiculatus</i> , <i>Alnus incana ssp. rugosa</i> , <i>Juncus effusus</i> , <i>Acer rubrum</i> .

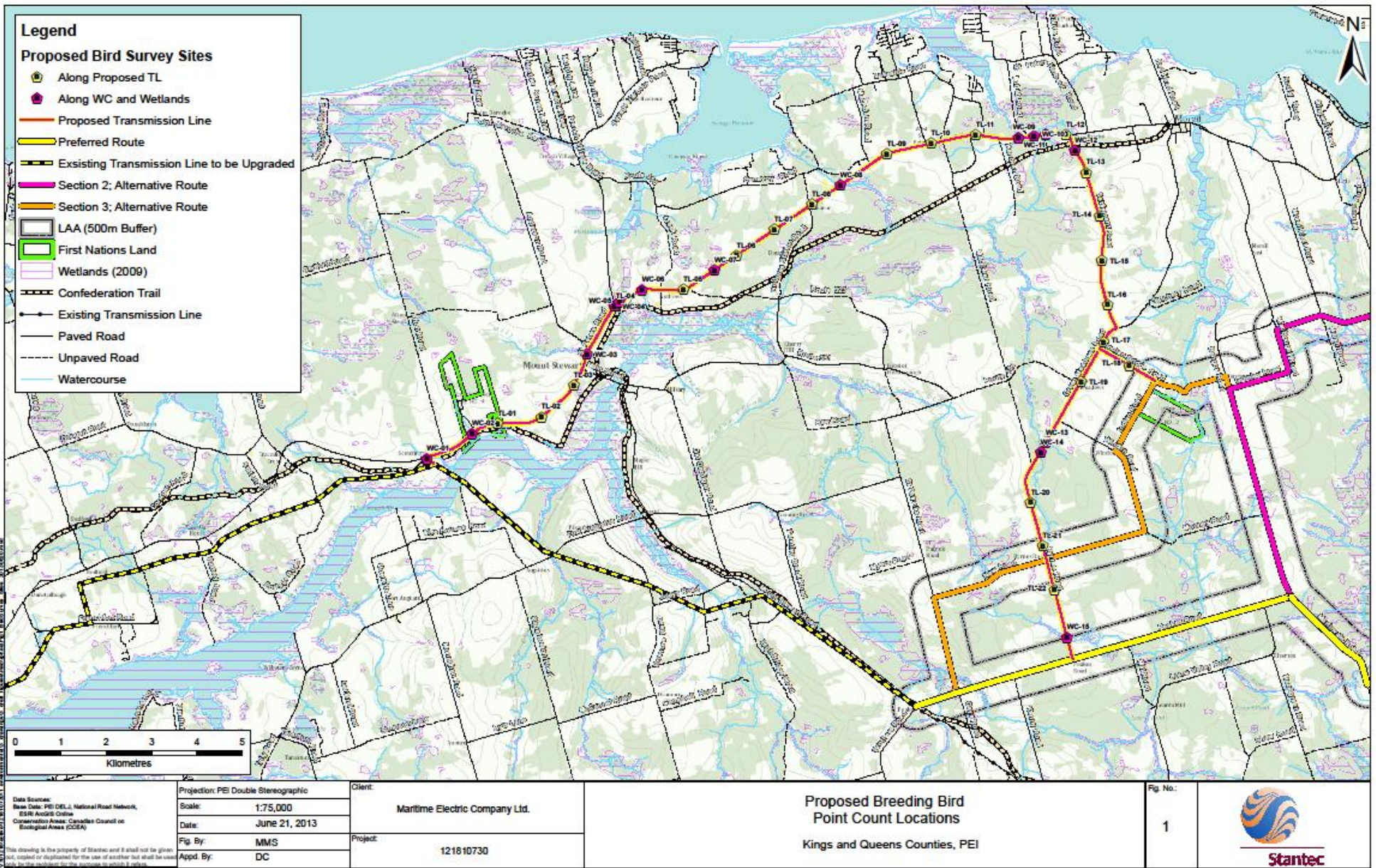


Figure 1. Proposed project layout for the Mount Stewart, PE site. The proposed transmission line is marked in red. Figure from Stantec.

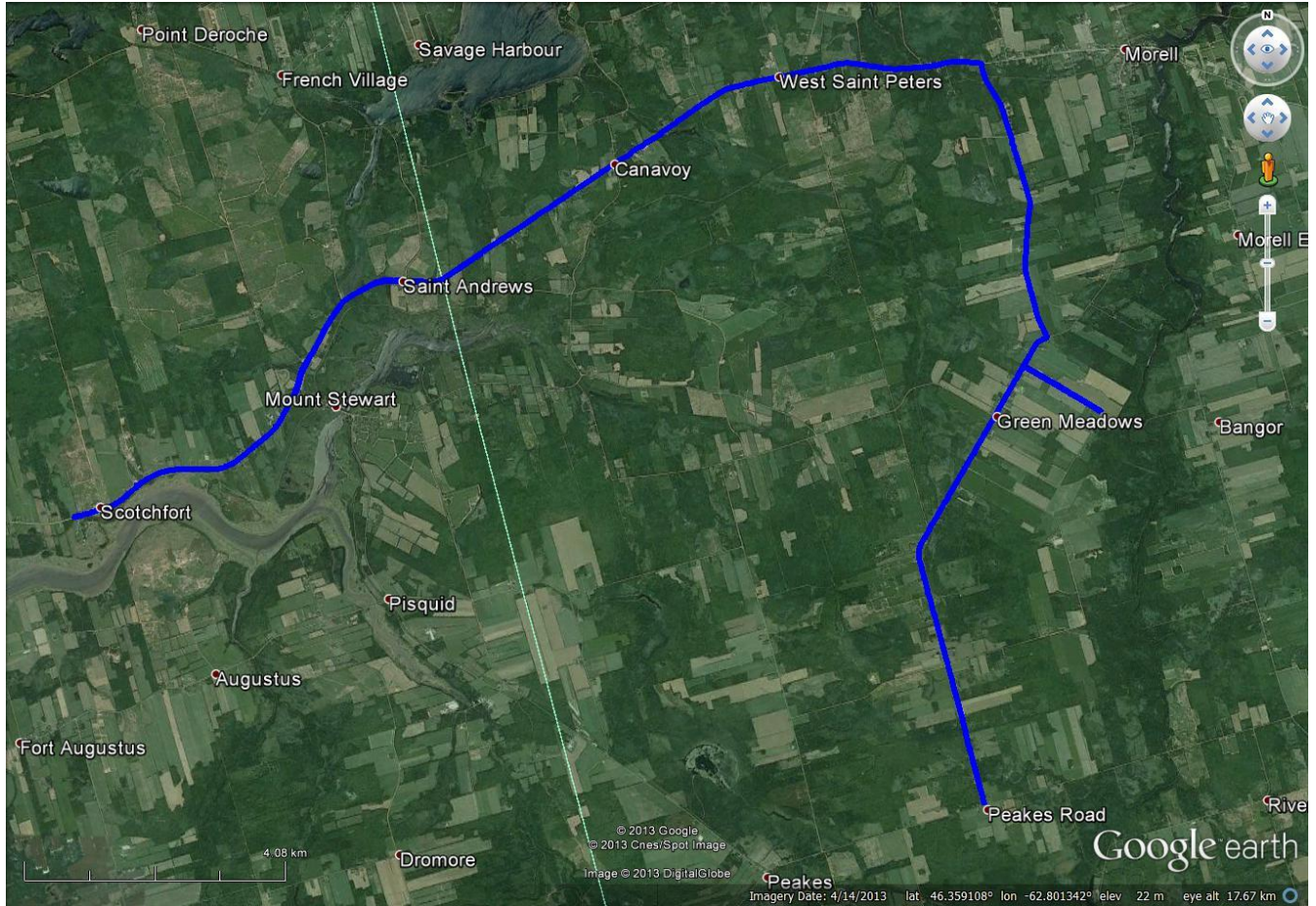


Figure 2. Track taken in the field as recorded by GPS (blue line) along the proposed transmission line. Aerial photography from Google Earth.



Figure 3. Track taken in the field as recorded by GPS (blue line) at the additional property at West Saint Peters. Aerial photography from Google Earth.

Appendix 1. Definitions of Atlantic Canada Conservation Data Centre (AC CDC) provincial ranks (S-ranks) and PEI Department of Agriculture and Forestry General Status Ranks. Both sets of ranks were developed through the consensus of the PEI Flora Ranking Committee, cooperatively led by PEI Department of Agriculture and Forestry and AC CDC. The ranks reflect the best understanding of plant status at the time of ranking, but are subject to revision as new information becomes available.

Definitions of provincial (subnational) ranks (S-ranks):

- S1 Extremely rare throughout its range in the province (typically 5 or fewer occurrences or very few remaining individuals). May be especially vulnerable to extirpation.
- S2 Rare throughout its range in the province (usually 6 to 20 occurrences or few remaining individuals). May be vulnerable to extirpation due to rarity or other factors.
- S Uncommon throughout its range in the province (usually 21 to 100 occurrences), 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 (usually 100+ occurrences), and apparently secure, 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 (100+ occurrences).
- S#S# Numeric range rank: A range between two consecutive numeric ranks. Denotes range of uncertainty about the exact rarity of the Element (e.g., S1S2).
- SNA Conservation status not applicable: The taxon is exotic, its occurrence in the jurisdiction is not confirmed, or it is a hybrid without conservation value.
- ? Is used as a qualifier indicating uncertainty: for numeric ranks, denotes inexactness, e.g., SE? denotes uncertainty of exotic status. (The ? qualifies the character immediately preceding it in the SRANK).

Definitions of National General Status Ranks (from *Wild Species: the General Status Program in Canada*, Lisa Twolan and Simon Nadeau, 2004, Canadian Wildlife Service, Ottawa)

- *Extirpated*: species that have disappeared from (or are no longer present in) a given geographic area but which occur in other areas
- *Extinct*: species that are extirpated worldwide (i.e., they no longer exist anywhere)
- *At Risk*: species for which a formal detailed risk assessment (COSEWIC assessment or provincial or territorial equivalent) has been completed, and which have been determined to be at risk of extirpation or extinction (i.e., Endangered) or are likely to become at risk of extirpation or extinction if limiting factors are not reversed (i.e., Threatened)
- *May Be At Risk*: species that may be at risk of extirpation or extinction and are, therefore, candidates for a detailed risk assessment by COSEWIC or the provincial or territorial equivalent

- *Sensitive*: species that are believed to not be at risk of extirpation or extinction but which may require special attention or protection to prevent them from becoming at risk
- *Secure*: species that are believed to not belong in the categories At Risk, May Be At Risk, Extirpated, Extinct, Accidental, or Exotic. This category includes some species that show a declining trend in numbers in Canada but which remain relatively widespread or abundant.
- *Undetermined*: species for which insufficient data, information, or knowledge is available with which to reliably evaluate their general status
- *Not Assessed*: species that are known or believed to be present in the geographic area in Canada to which the general status rank applies but which have not yet been assessed
- *Exotic*: species that have been moved beyond their natural range as a result of human activity. In the *Wild Species 2005* report, exotic species have been purposefully excluded from all other categories.
- *Accidental*: species occurring infrequently and unpredictably outside their usual range

Appendix C Vascular Plant Species Found in the Project Development Area (2012)

Common Name	Scientific Name	AC CDC S-Rank	CESCC Rank
Yellow Sedge	<i>Carex flava</i>	S2	May be at Risk
Ribbon-leaved Pondweed	<i>Potamogeton epihydrus</i>	S2	May be at Risk
Red Pine	<i>Pinus resinosa</i>	S2	Sensitive
White Fringed Orchid	<i>Platanthera blephariglottis</i>	S2	Sensitive
Fox Sedge	<i>Carex vulpinoidea</i>	S2S3	Sensitive
Virginia Clematis	<i>Clematis virginiana</i>	S2S3	Sensitive
Dotted Smartweed	<i>Polygonum punctatum</i>	S2S3	Not assessed
Beechdrops	<i>Epifagus virginiana</i>	S3	Sensitive
Jack Pine	<i>Pinus banksiana</i>	S3	Sensitive
White Elm	<i>Ulmus americana</i>	S3	Sensitive
Bog Yellowcress	<i>Rorippa palustris</i>	S3	Undetermined
Lake Sedge	<i>Carex lacustris</i>	S3S4	Sensitive
Eastern White Cedar	<i>Thuja occidentalis</i>	S3S4	Sensitive
Starry False Solomon's Seal	<i>Maianthemum stellatum</i>	S3	Secure
Royal Fern	<i>Osmunda regalis</i>	S3	Secure
Herb Robert	<i>Geranium robertianum</i>	S3S4	Secure
Alpine Rush	<i>Juncus alpinoarticulatus</i>	S3S4	Secure
Brown-Fruited Rush	<i>Juncus pelocarpus</i>	S3S4	Secure
Swamp Red Currant	<i>Ribes triste</i>	S3S4	Secure
Great Duckweed	<i>Spirodela polyrrhiza</i>	S3S4	Secure
Woodland Cudweed	<i>Omalotheca sylvatica</i>	S4?	Secure
Old Field Cinquefoil	<i>Potentilla simplex</i>	S4?	Secure
Crawford's Sedge	<i>Carex crawfordii</i>	S4	Secure
Rough Sedge	<i>Carex scabrata</i>	S4	Secure
Rough Avens	<i>Geum laciniatum</i>	S4	Secure
Rough Hawkweed	<i>Hieracium scabrum</i>	S4	Secure
Pale Bog Laurel	<i>Kalmia polifolia</i>	S4	Secure
Rice Cut Grass	<i>Leersia oryzoides</i>	S4	Secure
Mountain Fly Honeysuckle	<i>Lonicera villosa</i>	S4	Secure
Three-leaved False Soloman's Seal	<i>Maianthemum trifolium</i>	S4	Secure
Small Forget-Me-Not	<i>Myosotis laxa</i>	S4	Secure
Siberian Water Milfoil	<i>Myriophyllum sibiricum</i>	S4	Secure
Weak Blue Grass	<i>Poa saltuensis</i>	S4	Secure
Tall Rattlesnakeroot	<i>Prenanthes altissima</i>	S4	Secure
Northern Red Oak	<i>Quercus rubra</i>	S4	Secure
Shining Rose	<i>Rosa nitida</i>	S4	Secure
Bristly Dewberry	<i>Rubus hispidus</i>	S4	Secure
Balsam Willow	<i>Salix pyrifolia</i>	S4	Secure
Highbush Cranberry	<i>Viburnum opulus</i>	S4	Secure
Bristly Sarsaparilla	<i>Aralia hispida</i>	S4S5	Secure
Boreal Bog Sedge	<i>Carex magellanica</i>	S4S5	Secure
Spinulose Wood Fern	<i>Dryopteris carthusiana</i>	S4S5	Secure
Tawny Cottongrass	<i>Eriophorum virginicum</i>	S4S5	Secure
Broad-fruited Burreed	<i>Sparganium eurycarpum</i>	S4S5	Secure
Velvet-leaved Blueberry	<i>Vaccinium myrtilloides</i>	S4S5	Secure
Common Yarrow	<i>Achillea millefolium</i>	S5?	Secure
Common Eyebright	<i>Euphrasia nemorosa</i>	S5?	Secure
Balsam Fir	<i>Abies balsamea</i>	S5	Secure
Striped Maple	<i>Acer pensylvanicum</i>	S5	Secure
Red Maple	<i>Acer rubrum</i>	S5	Secure

Appendix C Vascular Plant Species Found in the Project Development Area (2012)

Common Name	Scientific Name	AC CDC S-Rank	CESCC Rank
Sugar Maple	<i>Acer saccharum</i>	S5	Secure
Rough Bent Grass	<i>Agrostis scabra</i>	S5	Secure
Creeping Bent Grass	<i>Agrostis stolonifera</i>	S5	Secure
Speckled Alder	<i>Alnus incana</i>	S5	Secure
Green Alder	<i>Alnus viridis</i>	S5	Secure
Pearly Everlasting	<i>Anaphalis margaritacea</i>	S5	Secure
Spreading Dogbane	<i>Apocynum androsaemifolium</i>	S5	Secure
Wild Sarsaparilla	<i>Aralia nudicaulis</i>	S5	Secure
Common Lady Fern	<i>Athyrium filix-femina</i>	S5	Secure
Yellow Birch	<i>Betula alleghaniensis</i>	S5	Secure
Paper Birch	<i>Betula papyrifera</i>	S5	Secure
Gray Birch	<i>Betula populifolia</i>	S5	Secure
Fringed Brome	<i>Bromus ciliatus</i> var. <i>ciliatus</i>	S5	Secure
Bluejoint Reed Grass	<i>Calamagrostis canadensis</i>	S5	Secure
Wild Calla	<i>Calla palustris</i>	S5	Secure
Yellow Marsh Marigold	<i>Caltha palustris</i>	S5	Secure
Hedge False Bindweed	<i>Calystegia sepium</i>	S5	Secure
Drooping Woodland Sedge	<i>Carex arctata</i>	S5	Secure
Silvery Sedge	<i>Carex canescens</i> ssp. <i>disjuncta</i>	S5	Secure
White-edged Sedge	<i>Carex debilis</i>	S5	Secure
Star Sedge	<i>Carex echinata</i>	S5	Secure
Nodding Sedge	<i>Carex gynandra</i>	S5	Secure
Bladder Sedge	<i>Carex intumescens</i>	S5	Secure
New England Sedge	<i>Carex novae-angliae</i>	S5	Secure
Necklace Sedge	<i>Carex projecta</i>	S5	Secure
Cyperuslike Sedge	<i>Carex pseudocyperus</i>	S5	Secure
Broom Sedge	<i>Carex scoparia</i>	S5	Secure
Three-seeded Sedge	<i>Carex trisperma</i>	S5	Secure
Leatherleaf	<i>Chamaedaphne calyculata</i>	S5	Secure
Fireweed	<i>Chamerion angustifolium</i>	S5	Secure
White Turtlehead	<i>Chelone glabra</i>	S5	Secure
Bulbous Water-hemlock	<i>Cicuta bulbifera</i>	S5	Secure
Spotted Water-Hemlock	<i>Cicuta maculata</i>	S5	Secure
Small Enchanter's Nightshade	<i>Circaea alpina</i>	S5	Secure
Yellow Bluebead Lily	<i>Clintonia borealis</i>	S5	Secure
Marsh Cinquefoil	<i>Comarum palustre</i>	S5	Secure
Sweet-fern	<i>Comptonia peregrina</i>	S5	Secure
Canada Horseweed	<i>Conyza canadensis</i>	S5	Secure
Goldthread	<i>Coptis trifolia</i>	S5	Secure
Bunchberry	<i>Cornus canadensis</i>	S5	Secure
Red Osier Dogwood	<i>Cornus sericea</i>	S5	Secure
Beaked Hazel	<i>Corylus cornuta</i>	S5	Secure
Pink Lady's-Slipper	<i>Cypripedium acaule</i>	S5	Secure
Poverty Oat Grass	<i>Danthonia spicata</i>	S5	Secure
Eastern Hay-Scented Fern	<i>Dennstaedtia punctilobula</i>	S5	Secure
Hairy Flat-top White Aster	<i>Doellingeria umbellata</i>	S5	Secure
Crested Wood Fern	<i>Dryopteris cristata</i>	S5	Secure
Evergreen Wood Fern	<i>Dryopteris intermedia</i>	S5	Secure
Trailing Arbutus	<i>Epigaea repens</i>	S5	Secure
Northern Willowherb	<i>Epilobium ciliatum</i>	S5	Secure
Field Horsetail	<i>Equisetum arvense</i>	S5	Secure

Appendix C Vascular Plant Species Found in the Project Development Area (2012)

Common Name	Scientific Name	AC CDC S-Rank	CESCC Rank
Water Horsetail	<i>Equisetum fluviatile</i>	S5	Secure
Woodland Horsetail	<i>Equisetum sylvaticum</i>	S5	Secure
Rough Fleabane	<i>Erigeron strigosus</i>	S5	Secure
Narrow-leaved Cottongrass	<i>Eriophorum angustifolium</i> ssp. <i>subarcticum</i>	S5	Secure
Spotted Joe-pye-weed	<i>Eupatorium maculatum</i>	S5	Secure
Grass-leaved Goldenrod	<i>Euthamia graminifolia</i>	S5	Secure
American Beech	<i>Fagus grandifolia</i>	S5	Secure
Red Fescue	<i>Festuca rubra</i>	S5	Secure
Wild Strawberry	<i>Fragaria virginiana</i>	S5	Secure
Creeping Snowberry	<i>Gaultheria hispidula</i>	S5	Secure
Eastern Teaberry	<i>Gaultheria procumbens</i>	S5	Secure
Large-Leaved Avens	<i>Geum macrophyllum</i>	S5	Secure
Water Avens	<i>Geum rivale</i>	S5	Secure
Common Tall Manna Grass	<i>Glyceria grandis</i>	S5	Secure
Fowl Manna Grass	<i>Glyceria striata</i>	S5	Secure
Common Cow Parsnip	<i>Heracleum maximum</i>	S5	Secure
Common Winterberry	<i>Ilex verticillata</i>	S5	Secure
Spotted Jewelweed	<i>Impatiens capensis</i>	S5	Secure
Harlequin Blue Flag	<i>Iris versicolor</i>	S5	Secure
Jointed Rush	<i>Juncus articulatus</i>	S5	Secure
Short-tailed Rush	<i>Juncus brevicaudatus</i>	S5	Secure
Path Rush	<i>Juncus tenuis</i>	S5	Secure
Sheep Laurel	<i>Kalmia angustifolia</i>	S5	Secure
Tamarack	<i>Larix laricina</i>	S5	Secure
Common Labrador Tea	<i>Ledum groenlandicum</i>	S5	Secure
Twinflower	<i>Linnaea borealis</i>	S5	Secure
Canada Fly Honeysuckle	<i>Lonicera canadensis</i>	S5	Secure
Hairy Woodrush	<i>Luzula acuminata</i>	S5	Secure
Common Woodrush	<i>Luzula multiflora</i>	S5	Secure
Common Woodrush	<i>Luzula multiflora</i> var. <i>multiflora</i>	S5	Secure
Stiff Clubmoss	<i>Lycopodium annotinum</i>	S5	Secure
Round-branched Tree-clubmoss	<i>Lycopodium dendroideum</i>	S5	Secure
Southern Clubmoss	<i>Lycopodium digitatum</i>	S5	Secure
American Water Horehound	<i>Lycopus americanus</i>	S5	Secure
Swamp Yellow Loosestrife	<i>Lysimachia terrestris</i>	S5	Secure
Large False Solomon's Seal	<i>Maianthemum racemosum</i> ssp. <i>racemosum</i>	S5	Secure
Ostrich Fern	<i>Matteuccia struthiopteris</i>	S5	Secure
Indian Cucumber Root	<i>Medeola virginiana</i>	S5	Secure
American Cow Wheat	<i>Melampyrum lineare</i>	S5	Secure
Wild Mint	<i>Mentha arvensis</i>	S5	Secure
Indian Pipe	<i>Monotropa uniflora</i>	S5	Secure
Northern Bayberry	<i>Myrica pensylvanica</i>	S5	Secure
Mountain Holly	<i>Nemopanthus mucronatus</i>	S5	Secure
Variiegated Pond-lily	<i>Nuphar lutea</i> ssp. <i>variegata</i>	S5	Secure
Whorled Wood Aster	<i>Oclemena acuminata</i>	S5	Secure
Common Evening Primrose	<i>Oenothera biennis</i>	S5	Secure
Sensitive Fern	<i>Onoclea sensibilis</i>	S5	Secure
One-sided Wintergreen	<i>Orthilia secunda</i>	S5	Secure
Cinnamon Fern	<i>Osmunda cinnamomea</i>	S5	Secure
Interrupted Fern	<i>Osmunda claytoniana</i>	S5	Secure

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Common Name	Scientific Name	AC CDC S-Rank	CESCC Rank
European Wood Sorrel	<i>Oxalis stricta</i>	S5	Secure
White Spruce	<i>Picea glauca</i>	S5	Secure
Black Spruce	<i>Picea mariana</i>	S5	Secure
Red Spruce	<i>Picea rubens</i>	S5	Secure
Eastern White Pine	<i>Pinus strobus</i>	S5	Secure
Fowl Blue Grass	<i>Poa palustris</i>	S5	Secure
Kentucky Blue Grass	<i>Poa pratensis</i>	S5	Secure
Arrow-leaved Smartweed	<i>Polygonum sagittatum</i>	S5	Secure
Trembling aspen	<i>Populus tremuloides</i>	S5	Secure
Three-leaved Rattlesnakeroot	<i>Prenanthes trifoliolata</i>	S5	Secure
Common Self-heal	<i>Prunella vulgaris</i>	S5	Secure
Pin Cherry	<i>Prunus pensylvanica</i>	S5	Secure
Chokecherry	<i>Prunus virginiana</i>	S5	Secure
Bracken Fern	<i>Pteridium aquilinum</i>	S5	Secure
Shinleaf	<i>Pyrola elliptica</i>	S5	Secure
Little Yellow Rattle	<i>Rhinanthus minor ssp. minor</i>	S5	Secure
Rhodora	<i>Rhododendron canadense</i>	S5	Secure
Skunk Currant	<i>Ribes glandulosum</i>	S5	Secure
Bristly Black Currant	<i>Ribes lacustre</i>	S5	Secure
Allegheny Blackberry	<i>Rubus allegheniensis</i>	S5	Secure
Smooth Blackberry	<i>Rubus canadensis</i>	S5	Secure
Red Raspberry	<i>Rubus idaeus</i>	S5	Secure
Dwarf Red Raspberry	<i>Rubus pubescens</i>	S5	Secure
Broad-leaved Arrowhead	<i>Sagittaria latifolia</i>	S5	Secure
Bebb's Willow	<i>Salix bebbiana</i>	S5	Secure
Pussy Willow	<i>Salix discolor</i>	S5	Secure
Black Elderberry	<i>Sambucus nigra ssp. canadensis</i>	S5	Secure
Black-girdled Bulrush	<i>Scirpus atrocinctus</i>	S5	Secure
Common Woolly Bulrush	<i>Scirpus cyperinus</i>	S5	Secure
Mad-dog Skullcap	<i>Scutellaria lateriflora</i>	S5	Secure
Common Water Parsnip	<i>Sium suave</i>	S5	Secure
Downy Goldenrod	<i>Solidago puberula</i>	S5	Secure
Rough-stemmed Goldenrod	<i>Solidago rugosa</i>	S5	Secure
American Mountain Ash	<i>Sorbus americana</i>	S5	Secure
White Meadowsweet	<i>Spiraea alba</i>	S5	Secure
Rose Twisted-stalk	<i>Streptopus lanceolatus</i>	S5	Secure
Calico Aster	<i>Symphyotrichum lateriflorum</i>	S5	Secure
New York Aster	<i>Symphyotrichum novi-belgii</i>	S5	Secure
Purple-stemmed Aster	<i>Symphyotrichum puniceum</i>	S5	Secure
Canada Yew	<i>Taxus canadensis</i>	S5	Secure
Tall Meadow-Rue	<i>Thalictrum pubescens</i>	S5	Secure
Fraser's Marsh St. John's-wort	<i>Triadenum fraseri</i>	S5	Secure
Northern Starflower	<i>Trientalis borealis</i>	S5	Secure
Painted Trillium	<i>Trillium undulatum</i>	S5	Secure
Narrow-Leaved Cattail	<i>Typha angustifolia</i>	S5	Secure
Broad-leaved Cattail	<i>Typha latifolia</i>	S5	Secure
Late Lowbush Blueberry	<i>Vaccinium angustifolium</i>	S5	Secure
Large Cranberry	<i>Vaccinium macrocarpon</i>	S5	Secure
Northern Wild Raisin	<i>Viburnum nudum</i>	S5	Secure
Marsh Blue Violet	<i>Viola cucullata</i>	S5	Secure

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Common Name	Scientific Name	AC CDC S-Rank	CESCC Rank
Greater Water Dock	<i>Rumex orbiculatus</i>	S5	Not assessed
Red Trillium	<i>Trillium erectum</i>	SNA	Secure
Manitoba Maple	<i>Acer negundo</i>	SNA	Exotic
Green Amaranth	<i>Amaranthus retroflexus</i>	SNA	Exotic
Large Sweet Vernal Grass	<i>Anthoxanthum odoratum</i>	SNA	Exotic
Common Milkweed	<i>Asclepias syriaca</i>	SNA	Exotic
Cultivated Oats	<i>Avena sativa</i>	SNA	Exotic
Smooth Brome	<i>Bromus inermis</i>	SNA	Exotic
Common Lamb's Quarters	<i>Chenopodium album</i>	SNA	Exotic
Wild Chicory	<i>Cichorium intybus</i>	SNA	Exotic
Canada Thistle	<i>Cirsium arvense</i>	SNA	Exotic
Bull Thistle	<i>Cirsium vulgare</i>	SNA	Exotic
Field Bindweed	<i>Convolvulus arvensis</i>	SNA	Exotic
Bigfruit Hawthorn	<i>Crataegus monogyna</i>	SNA	Exotic
Narrow-leaved Hawksbeard	<i>Crepis tectorum</i>	SNA	Exotic
Orchard Grass	<i>Dactylis glomerata</i>	SNA	Exotic
Queen Anne's Lace	<i>Daucus carota</i>	SNA	Exotic
Smooth Crab Grass	<i>Digitaria ischaemum</i>	SNA	Exotic
Large Barnyard Grass	<i>Echinochloa crus-galli</i>	SNA	Exotic
Quack Grass	<i>Elymus repens</i>	SNA	Exotic
Helleborine	<i>Epipactis helleborine</i>	SNA	Exotic
Stiff Eyebright	<i>Euphrasia stricta</i>	SNA	Exotic
Glossy Buckthorn	<i>Frangula alnus</i>	SNA	Exotic
Common Hemp-nettle	<i>Galeopsis tetrahit</i>	SNA	Exotic
Smooth Bedstraw	<i>Galium mollugo</i>	SNA	Exotic
Marsh Cudweed	<i>Gnaphalium uliginosum</i>	SNA	Exotic
Dame's Rocket	<i>Hesperis matronalis</i>	SNA	Exotic
Orange Hawkweed	<i>Hieracium aurantiacum</i>	SNA	Exotic
Common Hawkweed	<i>Hieracium lachenalii</i>	SNA	Exotic
Mouse-ear Hawkweed	<i>Hieracium pilosella</i>	SNA	Exotic
Tall Hawkweed	<i>Hieracium piloselloides</i>	SNA	Exotic
Common Barley	<i>Hordeum vulgare</i>	SNA	Exotic
Common Hop	<i>Humulus lupulus</i> var. <i>lupulus</i>	SNA	Exotic
Common St. John's-wort	<i>Hypericum perforatum</i>	SNA	Exotic
Prickly Lettuce	<i>Lactuca serriola</i>	SNA	Exotic
Flat Vetchling	<i>Lathyrus sylvestris</i>	SNA	Exotic
Fall Dandelion	<i>Leontodon autumnalis</i> ssp. <i>autumnalis</i>	SNA	Exotic
Oxeye Daisy	<i>Leucanthemum vulgare</i>	SNA	Exotic
Butter-And-Eggs	<i>Linaria vulgaris</i>	SNA	Exotic
Perennial Rye Grass	<i>Lolium perenne</i>	SNA	Exotic
Garden Bird's-foot Trefoil	<i>Lotus corniculatus</i>	SNA	Exotic
Large-Leaved Lupine	<i>Lupinus polyphyllus</i>	SNA	Exotic
Large-Leaved Lupine	<i>Lupinus polyphyllus</i> ssp. <i>polyphyllus</i>	SNA	Exotic
Purple Loosestrife	<i>Lythrum salicaria</i>	SNA	Exotic
Common Apple	<i>Malus pumila</i>	SNA	Exotic
Pineapple Weed	<i>Matricaria discoidea</i>	SNA	Exotic
White Sweet-clover	<i>Melilotus albus</i>	SNA	Exotic
Yellow Sweet-clover	<i>Melilotus officinalis</i>	SNA	Exotic
Common Witch Grass	<i>Panicum capillare</i>	SNA	Exotic
Reed Canary Grass	<i>Phalaris arundinacea</i>	SNA	Exotic
Scotch Pine	<i>Pinus sylvestris</i>	SNA	Exotic

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Common Name	Scientific Name	AC CDC S-Rank	CESCC Rank
English Plantain	<i>Plantago lanceolata</i>	SNA	Exotic
Common Plantain	<i>Plantago major</i>	SNA	Exotic
Canada Blue Grass	<i>Poa compressa</i>	SNA	Exotic
Japanese Knotweed	<i>Polygonum cuspidatum</i>	SNA	Exotic
Marshpepper Smartweed	<i>Polygonum hydropiper</i>	SNA	Exotic
White Poplar	<i>Populus alba</i>	SNA	Exotic
Sulphur Cinquefoil	<i>Potentilla recta</i>	SNA	Exotic
Common Buttercup	<i>Ranunculus acris</i>	SNA	Exotic
Creeping Buttercup	<i>Ranunculus repens</i>	SNA	Exotic
Wild Radish	<i>Raphanus raphanistrum</i>	SNA	Exotic
Multiflora Rose	<i>Rosa multiflora</i>	SNA	Exotic
Black-Eyed Susan	<i>Rudbeckia hirta</i>	SNA	Exotic
Curled Dock	<i>Rumex crispus</i>	SNA	Exotic
Tansy Ragwort	<i>Senecio jacobaea</i>	SNA	Exotic
Yellow Foxtail	<i>Setaria glauca</i>	SNA	Exotic
Bittersweet Nightshade	<i>Solanum dulcamara</i>	SNA	Exotic
New England Aster	<i>Symphotrichum novae-angliae</i>	SNA	Exotic
Common Tansy	<i>Tanacetum vulgare</i>	SNA	Exotic
Common Dandelion	<i>Taraxacum officinale</i>	SNA	Exotic
Lemon Thyme	<i>Thymus pulegioides</i>	SNA	Exotic
Meadow Goatsbeard	<i>Tragopogon pratensis</i>	SNA	Exotic
Rabbit's-foot Clover	<i>Trifolium arvense</i>	SNA	Exotic
Yellow Clover	<i>Trifolium aureum</i>	SNA	Exotic
Low Hop Clover	<i>Trifolium campestre</i>	SNA	Exotic
Red Clover	<i>Trifolium pratense</i>	SNA	Exotic
White Clover	<i>Trifolium repens</i>	SNA	Exotic
Coltsfoot	<i>Tussilago farfara</i>	SNA	Exotic
Common Mullein	<i>Verbascum thapsus</i>	SNA	Exotic
Common Speedwell	<i>Veronica officinalis</i>	SNA	Exotic
Tufted Vetch	<i>Vicia cracca</i>	SNA	Exotic
Lesser Duckweed	<i>Lemna minor</i>	SNA	Not assessed
Showy Mountain Ash	<i>Sorbus decora</i>	SNA	Undetermined
Horse Chestnut	<i>Aesculus hippocastanum</i>	-	Not assessed
White Snakeroot	<i>Ageratina altissima</i>	-	Not assessed
Fanleaf Hawthorn	<i>Crataegus flabellata</i>	-	Not assessed
Bigfruit Hawthorn	<i>Crataegus macrosperma</i>	-	-
A Serviceberry	<i>Amelanchier</i> sp.		

KEY

ACCDC Ranking

S1: Extremely rare.
S2: Rare.
S3: Uncommon.
S4: Fairly common.
S5: Secure.

S#S#: A range between two consecutive numeric ranks. Denotes range of uncertainty about the exact rarity of the element (e.g., S1S2).

SNA: Unranked: Element is not yet ranked.

? = Inexact or uncertain: for numeric ranks, denotes inexactness, e.g., SE? denotes uncertainty of exotic status. (The "?" qualifies the character immediately preceding it in the SRANK)

'-' = No AC CDC ranking available for this species.

Wild Species: The General Status of Wild Species in Canada (CESCC Rank)

At Risk Species for which a formal, detailed risk assessment (COSEWIC status assessment or provincial or territorial

Appendix C Vascular Plant Species Found in the Project Development Area (2012)

Common Name	Scientific Name	AC CDC S-Rank	CESCC Rank
	equivalent) has been completed and that have been determined to be at risk of extirpation or extinction (<i>i.e.</i> , Endangered or Threatened). A COSEWIC designation of Endangered or Threatened automatically results in a Canada General Status Rank (Canada rank) of At Risk. Where a provincial or territorial formal risk assessment finds a species to be Endangered or Threatened in that particular region, then, under the general status program, the species automatically receives a provincial or territorial general status rank of At Risk.		
May Be At Risk	Species that may be at risk of extirpation or extinction and are therefore candidates for a detailed risk assessment by COSEWIC, or provincial or territorial equivalents.		
Sensitive	Species that 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.		
Secure	Species that are not believed to belong in the categories Extinct, Extirpated, At Risk, May Be At Risk, Sensitive, Accidental or Exotic. This category includes some species that show a trend of decline in numbers in Canada but remain relatively widespread or abundant.		
Undetermined	Species for which insufficient data, information, or knowledge is available with which to reliably evaluate their general status.		
Not Assessed	Species that are known or believed to be present regularly in the geographic area in Canada to which the rank applies, but have not yet been assessed by the general status program.		
Accidental	Species occurring infrequently and unpredictably, outside their usual range.		