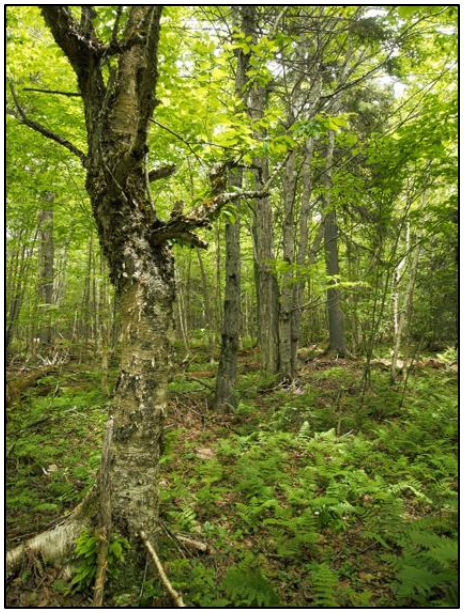
Atlantic Canada Conservation Data Centre
Centre de donneés sur la conservation du Canada atlantique

Ecological Significance of Twenty Priority Sites in the Chignecto Isthmus



A report to the ECHO Foundation, March 2016

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Introduction and Summary

The Atlantic Canada Data Centre (AC CDC) is a non-profit conservation science organization mandated to provide comprehensive, accurate and objective information about plants, animals and ecological communities in Atlantic Canada, with a focus on species that are globally, nationally, or provincially rare. Through a wide variety of projects, the AC CDC discovers and databases locations important for rare species so that impacts affecting these special places can be prevented or mitigated.

The work described in this report was fully funded under the second year of a two-year Echo Foundation grant to the AC CDC. The Echo Foundation's priorities for the funding were identified as supporting the land acquisition and stewardship activities of the Nature Conservancy of Canada (NCC) in the Chignecto Isthmus region that connects New Brunswick and Nova Scotia. The particular role of AC CDC and this project was to conduct detailed biological inventories within the Chignecto Isthmus region that would help with identifying and prioritizing additional areas of conservation significance for further conservation efforts by NCC and others.

The Chignecto Isthmus region provides the only terrestrial connection between Nova Scotia and the rest of North America. This land bridge has two major "pinch points": 1) the Moncton - Shediac corridor; and 2) along the interprovincial border between the Cumberland Basin and Baie Verte. Distances between the Bay of Fundy and the Northumberland Strait in these areas are only only 20 km and 23 km, and distances between those waterbodies do not exceed 41 km on the isthmus. Passage of terrestrial animals and plants along this critical migration corridor is already significantly impacted by anthropogenic impacts from highways, urban development, agriculture and forestry. In the Moncton – Shediac corridor ongoing residential and commercial development threatens to restrict movement of wild species even further, with potentially significant long term effects for the population genetics of uncommon mammal species such as Moose in mainland Nova Scotia. Maintaining a natural connection between Nova Scotia and New Brunswick has been identified as a regional conservation priority by a number of studies and organizations. Over the past five years Nature Conservancy of Canada has been addressing conservation needs in the Chignecto Isthmus through targetted acquisition of numerous properties, mostly in the New Brunswick – Nova Scotia border area.

We conducted 23 person days of fieldwork on priority sites across the Chignecto Isthmus, documenting vascular plant diversity with a focus on finding rare species and communities. We also compiled extensive incidental observations of breeding birds and other taxa. Across all surveyed sites, we documented 5,965 records of approximately 580 vascular plant taxa (476 native, 104 exotic), including 137 records of 29 provincially rare species. We also recorded 367 records of 79 bird species, which included 29 records of the federally-listed Olive-sided Flycatcher, Canada Warbler, Common Nighthawk, Bobolink (and Eastern Wood-Pewee and 17 records of eight additional provincially rare breeding birds, and 28 records of Moose in Nova Scotia, where it is provincially *Endangered*.

This Echo Foundation-supported project was one of the most extensive biological surveys ever conducted on the Chignecto Isthmus and the data it has produced will be very valuable in the future efforts of the Nature Conservancy of Canada and others in conserving regional land. The work serves conservation both in its identification of particular sites of high conservation value and by providing a clearer picture of the status of species and communities across the isthmus which contributes to better contextualizing any other sites under consideration for conservation action. All project data will be available in the AC CDC's database over the long term to help direct general land use decision making and mitigate impacts on biodiversity, and to inform provincial status ranking efforts.

Methods

Site Selection

Potential sites were selected via examination of aerial photography in Google Earth, based primarily on the presence of major watercourses and large wetlands, both of which are strongly correlated with local vascular plant diversity. Boundaries of areas of interest were refined to minimize inclusion of very young forest and commercial plantation forest. From a list of roughly 21 property areas which were often quite large, we selected 12 for survey, of which eight were divided into multiple sections, making a total of 20 survey sites.

Field Survey

Fieldwork was conducted over nine calendar days between June 15th and October 18th, 2015 by AC CDC biologists Sean Blaney, David Mazerolle, Alain Belliveau and Sarah Robinson. Each field site was covered by one AC CDC botanist over one field day, with the exception of four sites in which David Mazerolle and Alain Belliveau surveyed separate sections: Memramcook River and Shemogue in Westmorland County, and Nappan River in Cumberland County. AC CDC botanists devoted 23 person days, amounting to about 32 work days including overtime, to fieldwork for this project. Figure 1 maps the general location of the 20 survey sites. Observers and survey dates for each site are compiled in Table 1.

Botanists focused surveys on areas that had a high potential for supporting rare species occurrences and rare habitat types, while trying to cover all habitat types found on a site. Each botanist utilized a GPS unit to precisely document survey coverage while in the field; track logs recorded by these units are mapped in Figures 2 to 21 under "Results - Site Summaries". We compiled full vascular plant species lists for each site and a general description of abundance for each observed species was noted for most sites. For provincially rare species (those with provincial status ranks, or S-ranks, of S1 to S3S4; see Appendix 1 for rank definitions) and for biological communities of interest, we recorded precise locations by GPS, along with information on population size and extent, habitat and associated species. In the documentation of rare species occurrences, individuals or

groups of individuals separated by a distance of more than 10 m were recorded separately. Most rare species were documented by voucher specimens that will be deposited at the E.C. Smith Herbarium (ACAD) at Acadia University and the Nova Scotia Museum of Natural History Herbarium (NSPM) in Halifax and the New Brunswick Museum (NBM) in Saint John. In addition to vascular plant data, incidental observations of breeding birds were recorded using breeding status codes of the Maritimes Breeding Bird Atlas, with more detailed information on COSEWIC (Committee on the Status of Endangered Wildlife in Canada)-listed or provincially rare birds and other animals.

All species data (species lists by site with generalized locations and precisely documented records of rare species and collections) have been permanently documented in the Atlantic Canada Conservation Data Centre database.

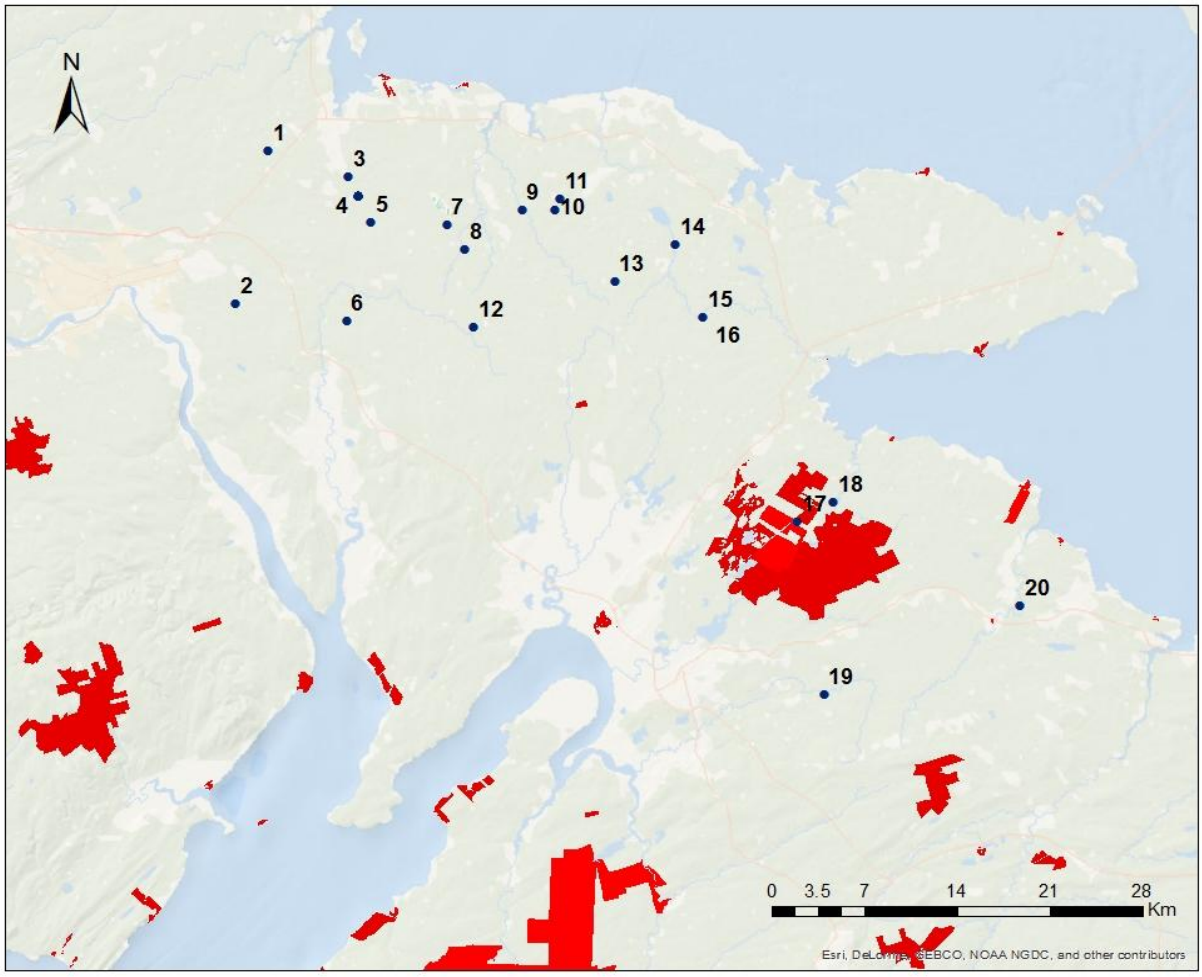


Figure 1. Location of survey sites, with the federal, provincial and private protected natural areas (red shading). Site numbers are: **1**: Batemans Brook; **2:** Melanson Settlement; **3:** Scoudouc River North; **4:** Scoudouc River Center; **5:** Scoudouc River South; **6:** Memramcook River; **7:** Basse-Aboujagane; **8:** Aboujagane River; **9:** Kinnear River; **10:** Cormier Village; **11:** Kouchibouguac River; **12:** Upper Memramcook Bogs; **13:** Shemougue; **14:** Square Lake; **15:** Anderson Settlement; **16:** Gaspereau River; **17:** Missiguash; **18:** Tidnish Bridge; **19:** Nappan River; **20:** Shinimicas River.

Table 1. Sites surveyed through this project, with county, survey date, observer(s) and statistics on observed vascular plant diversity. [Observer initials – DMM = Mazerolle, D.M.; CSB = Blaney, C.S.; AGB = Belliveau, A.G.; SLR = Robinson, S.L.].

SURVEY SITE	COUNTY	DATE	Obs.	Total Spp.	Native Spp.	Exotic Spp.	Rare Spp.	% Native	% Exotic
#1 Batemans Brook	Westmorland	8-Oct	DMM	241	213	28	1	88%	12%
#2 Melanson Settlement	Westmorland	23-Jun	DMM	233	195	37	2	84%	16%
#3 Scoudouc River North	Westmorland	16-Jun	DMM	244	202	41	1	83%	17%
#4 Scoudouc River Center	Westmorland	16-Jun	SLR	191	167	24	3	87%	13%
#5 Scoudouc River South	Westmorland	16-Jun	AGB	188	172	16	2	91%	9%
#6 Memramcook River	Westmorland	15-Jun	AGB; DMM	252	222	30	0	88%	12%
#7 Basse-Aboujagane	Westmorland	17-Jun	DMM	197	172	25	4	87%	13%
#8 Aboujagane River	Westmorland	17-Jun	AGB	205	182	23	4	89%	11%
#9 Kinnear River	Westmorland	25-Jun	DMM	249	218	31	1	88%	12%
#10 Cormier Village	Westmorland	25-Jun	AGB	195	173	22	1	89%	11%
#11 Kouchibouguac River	Westmorland	25-Jun	SLR	195	166	29	0	85%	15%
#12 Upper Memramcook Bogs	Westmorland	15-Jun	SLR	201	172	29	2	86%	14%
#13 Shemogue	Westmorland	18-Jun	AGB; DMM	247	215	32	1	87%	13%
#14 Square Lake	Westmorland	18-Jun	SLR	177	159	18	0	90%	10%
#15 Anderson Settlement	Westmorland	8-Oct	AGB	186	162	24	2	87%	13%
#16 Gaspereau River	Westmorland	16-Jun	CSB	252	219	34	1	87%	13%
#17 Missiguash	Cumberland	7-Oct	DMM	201	181	20	10	90%	10%
#18 Tidnish Bridge	Cumberland	7-Oct	AGB	246	208	38	3	85%	15%
#19 Nappan River	Cumberland	26-Jun	AGB; DMM	236	192	44	2	81%	19%
#20 Shinimicas River	Cumberland	26-Jun	SLR	224	189	35	4	84%	16%

Results and Discussion

Vascular Plant Species Richness

Across all surveyed sites, we documented 5,965 vascular plant records of approximately 580 taxa, 476 of which are native to New Brunswick and Nova Scotia and 104 of which are exotic. Appendix 3 lists all vascular plants documented by site, along with general indication of on-site abundance, where noted. Statistics summarizing plant diversity at each site are compiled in Table 1.

Native species richness ranged from 177 at Square Lake (site #14) to 252 at Memramcook River and Gaspereau River (sites 6 and 16 respectively) and averaged 218 across all sites. Native species counts equalling or exceeding 200 taxa were recorded at seven of the 20 sites; Batemans Brook (site #1), Scoudouc River North (site #3), Memramcook River (site #6), Kinnear River (site #9), Shemougue (site #13), Gasperau River (site #13) and Tidnish Bridge (site #18). Exotic species richness was lowest at Scoudouc River South (site #5) with 16 species and highest at Nappan River (site #19), with 44 species. The proportion of exotic species by site varied from 6% to 44%, with an average of roughly 29% among all sites.

Although it provides a general indication of a site's habitat diversity and richness, native plant count should not be considered a robust indicator of site condition or relative conservation value. Likewise, exotic species counts do not always provide an accurate measure of the ecological integrity of a site. Both metrics are influenced by factors such as search effort, survey coverage and the extent to which anthropogenic habitats were traversed.

Invasive Exotic Species

Invasiveness is a measure of an exotic species' ability to colonize and influence species composition in natural habitats. The project documented occurrences of 30 species noted as having at least some invasive potential in the Maritimes Region or elsewhere in temperate North America. These range from species that are highly invasive and regarded as being of great concern for biodiversity conservation in the region to species mainly limited to highly disturbed sites. The following species were documented at over 10 survey sites and noted as being at least locally common at one site or more: Colt's Foot (*Tussilago farfara*), Creeping Buttercup (*Ranunculus repens*), Bittersweet Nightshade (*Solanum dulcamara*), Glossy Buckthorn (*Frangula alnus*), and Common Valerian (*Valeriana officinalis*). Most of these represent species that are often restricted to anthropogenic habitats but readily spread and become common in natural habitats where frequent disturbances create suitable microsites for their establishment. Most of the above have limited ecological significance at the sites at which they were observed but Glossy Buckthorn (*Frangula alnus*), one of the most problematic invasive species in the Maritimes Region, was detected at 16 sites and noted as being locally dominant at Batemans Brook (site #1), Scoudouc River Center (site #4), and Soudouc River South (site #5). It is a

rapidly spreading shrub capable of reaching densities that reduce native species diversity in otherwise undisturbed habitats.

Rare Vascular Plant Species

This project documented populations of 29 provincially rare vascular plant species, including seven critically imperiled species (S1 and S1S2), five imperiled species (S2 and S2S3) and 18 vulnerable species (S3 and S3S4), (summed values total 30 because of different status ranks for one species recorded in New Brunswick and Nova Scotia). Across all sites, we documented 137 rare plant locations, comprising 25 locations for critically imperiled species, 8 locations for imperiled species and 104 locations for vulnerable species. Some additional records may be added to these totals after expert review of certain difficult specimens. Rare plant occurrences for each survey site, including provincial status ranks, are compiled in Tables 2 and 3. Additional notes on significant species are also provided in the "Site Descriptions" section below.

Rare species diversity was highest at Missiguash (site #17) with 10 species, further demonstrating the exceptional nature of this priority area of Nature Conservancy of Canada activity, and was lowest at Memramcook River, Kouchibouguac River and Square Lake with no rare species recorded. Average provincially rare plant diversity among all 20 survey sites was roughly 2 species.

Our work has demonstrated that the Chignecto Isthmus does not tend to support high concentrations of provincially rare flora on the New Brunswick side of the border. This is largely because of the generally infrequent occurrence of habitats that are provincially uncommon (especially habitats associated with basic soils) and because of the region's position at the eastern margin of New Brunswick. Native plant species that have reached the area after glacial retreat would generally have had to colonize northward via other parts of New Brunswick before reaching its eastern boundary, meaning that the species present tend not to be provincially rare.

Provincially rare plant species are somewhat more frequent on the Nova Scotia side of the Chignecto Isthmus for similar reasons. The calcareous (basic soil) peatlands, swamps, marshes and open water of the Missiguash area along the Nova Scotia – New Brunswick border are a major regional hotspot for rare plants. The position of the isthmus as the first part of Nova Scotia colonized by plants migrating northeast-ward from the rest of the continent is probably also significant in the occurrence of a few species that are rare in Nova Scotia but less so in New Brunswick.

Locally Significant Vascular Plant Records

The project documented 21 new county records for Westmorland County, New Brunswick and Cumberland County, Nova Scotia, 15 of which are not provincially rare species and are therefore not otherwise documented as significant in this report. Of these species all but three are native, six are new for Cumberland County, Nova Scotia and 15 are new for Westmorland County, New Brunswick. These species are detailed in Table 4.

Animals

We documented 489 incidental animal observations during site surveys (Tables 5 and 6). Of these, 367 were records of 79 bird species, including 29 records of the federally-listed Olive-sided Flycatcher (*Contopus cooperi*, Threatened), Canada Warbler (*Wilsonia canadensis*, Threatened), Common Nighthawk (*Chordeiles minor*, Threatened), Bobolink (*Dolichonyx oryzivorus*, Threatened) and Eastern Wood-Pewee (*Contopus virens*, Special Concern) and 17 records for 8 additional provincially rare breeding birds. We also recorded Moose activity fairly closely (68 moose records, 28 in Nova Scotia and 42 in new Brunswick) because of the significance of Chignecto Isthmus as a corridor between the relatively healthy New Brunswick population and the Endangered Nova Scotia mainland population.

Overview of Project's Contribution and Significance of the Chignecto Isthmus

This project represents one of the most extensive surveys of natural history ever conducted within the Chignecto Isthmus and it has produced a significantly increased local scale understanding of the region's natural areas, which will help further Nature Conservancy of Canada's conservation efforts in the region both directly through precise identification of areas of local significance and indirectly by placing future findings into a clearer regional context. The project has documented a significant number of provincially rare and locally rare species occurrences, including some highly notable ones such as the second New Brunswick occurrence of Atlantic Sedge (*Carex atlantica* ssp. *atlantica*) and the first Cumberland County record of the very rare Sparse-flowered Sedge (*Carex tenuiflora*). For at least one species, Russet Cottongrass (*Eriophorum russeolum*, S3S4, found at seven of 16 New Brunswick sites) observations in this study were frequent enough that they may have an impact on future provincial status assessments. All the species data compiled during the project will be permanently stored in the AC CDC database, where it will be accessed on an ongoing basis in support of efforts at conservation efforts and at mitigation of development impacts.

Although the number of rare plant records documented is significant, the rate of rare species record discovery is relatively low compared to many other areas covered by AC CDC fieldwork. This further confirmed what was suspected prior to fieldwork, that the region is not a provincial-scale hotspot for rare plants, with the exception of the very significant wetlands of the Missiguash River system along the border of New Brunswick and Nova Scotia. The dense occurrence of rare species found by project fieldwork in that area corroborates the value of Nature Conservancy of Canada focus on the Missiguash system.

Our fieldwork demonstrated a few other points about Chignecto Isthmus forests. First, the occurrence of richer floodplain forest is truly uncommon on the regions small rivers rather than just overlooked. We found a fair number of occurrences of certain relatively widespread and broadly tolerant rich floodplain forest indicator species such as Ostrich Fern (Matteuccia struthiopteris), but found no occurrences at all of the species

most characteristic of the richest floodplains (*i.e.* Bloodroot – *Sanguinaria canadensis*; Blue Cohosh – *Caulophyllum thalictroides*; Hairy-leaved Sedge – *Carex hirtifolia*), which are present at the peripheries of the Chignecto Isthmus region on larger rivers both to the north and to the south. Secondly, we clearly demonstrated the scarcity and limited extent of mature forest exceeding 100 years of age. Hundreds of years of European settlement and 50+ years of modern industrial forestry have created severe anthropogenic impacts on the region's forests. There is very limited mature forest and greatly reduced abundance of some mature forest trees (especially Eastern Hemlock, which was largely restricted to river valley slopes in our sites but was formerly an upland dominant species).

The now very limited occurrence of the mature forests that would have been the dominant feature of the landscape prior to European settlement is significant relative to designing a Chignecto Isthmus conservation corridor. Species of limited dispersal ability requiring mature forest are the ones for which passage across the isthmus will be most difficult. Our fieldwork clearly showed that mature forest and other less disturbed habitat was highly concentrated along waterways and wetlands where wet conditions, limited tree growth and watercourse forestry regulations have allowed habitats to remain more intact compared to the generally severely impacted upland forests. Incorporating these areas as much as possible into a conservation corridor should maximize its utility.

Our extensive records of Moose activity also demonstrated the region's significance the species most closely associated with the Nature Conservancy of Canada's Chignecto Isthmus corridor campaign. The region clearly offers significant hope for recovery of Moose populations in adjacent mainland Nova Scotia if the connection can be maintained. Our work also shows the significance of the region's peatlands and associated wetlands for At Risk and declining boreal birds, most notably the Canada Warbler and Olive-sided Flycatcher, but also species like Gray Jay and Boreal Chickadee that are not yet legally listed but are likely to become increasingly threatened in Atlantic Canada because of a warming climate and forestry impacts. The colder microclimates and less impacted forests associated with these peatlands are likely to make them important refugia for declining boreal species in future.

Table 2. Provincially rare vascular plant species documented during site surveys, with New Brunswick status ranks and sites where occurrences were detected. See appendices 1 and 2 for rank definitions.

SITE # 1: Batemans Brook; **2:** Melanson Settlement; **3:** Scoudouc River North; **4:** Scoudouc River Center; **5:** Scoudouc River South; **6:** Memramcook River; **7:** Basse-Aboujagane; **8:** Aboujagane River; **9:** Kinnear River; **10:** Cormier Village; **11:** Kouchibouguac River; **12:** Upper Memramcook Bogs; **13:** Shemougue; **14:** Square Lake; **15:** Anderson Settlement; **16:** Gaspereau River; **17:** Missiguash; **18:** Tidnish Bridge; **19:** Nappan River; **20:** Shinimicas River

SCIENTIFIC NAME	COMMON NAME	FAMILY	NB S-Rank	NB GS Rank	SITES
Carex atlantica ssp. *atlantica*	Atlantic Sedge	Cyperaceae	S1	May Be At Risk	15
Eriophorum gracile	Slender Cottongrass	Cyperaceae	S2	May Be At Risk	7
Spiranthes cernua	Nodding Ladies'-Tresses	Orchidaceae	S2	Sensitive	15
Agrimonia gryposepala	Hooked Agrimony	Rosaceae	S3	Secure	1
Geocaulon lividum	Northern Comandra	Santalaceae	S3	Secure	2
Samolus valerandi ssp. *parviflorus*	Seaside Brookweed	Primulaceae	S3	Secure	3
Carex haydenii	Hayden's Sedge	Cyperaceae	S3	Secure	5
Xyris montana	Northern Yellow-Eyed-Grass	Xyridaceae	S3	Secure	7
Platanthera blephariglottis	White Fringed Orchid	Orchidaceae	S3	Secure	2, 10
Polygonum arifolium	Halberd-leaved Tearthumb	Polygonaceae	S3	Secure	4, 5, 16
Salix pedicellaris	Bog Willow	Salicaceae	S3	Secure	4, 7
Epilobium strictum	Downy Willowherb	Onagraceae	S3	Secure	4, 8
Carex wiegandii	Wiegand's Sedge	Cyperaceae	S3	Secure	7, 12
Zannichellia palustris	Horned Pondweed	Zannichelliaceae	S3	Secure	9, 13
Utricularia gibba	Humped Bladderwort	Lentibulariaceae	S3S4	Secure	13
Potamogeton oakesianus	Oakes' Pondweed	Potamogetonaceae	S3S4	Secure	13
Eriophorum russeolum	Russet Cottongrass	Cyperaceae	S3S4	Secure	2, 6, 7, 9, 12, 13, 16

Table 3. Provincially rare vascular plant species documented during site surveys, with Nova Scotia status ranks and sites where occurrences were detected. See appendices 1 and 2 for rank definitions.

SITE # 1: Batemans Brook; **2:** Melanson Settlement; **3:** Scoudouc River North; **4:** Scoudouc River Center; **5:** Scoudouc River South; **6:** Memramcook River; **7:** Basse-Aboujagane; **8:** Aboujagane River; **9:** Kinnear River; **10:** Cormier Village; **11:** Kouchibouguac River; **12:** Upper Memramcook Bogs; **13:** Shemougue; **14:** Square Lake; **15:** Anderson Settlement; **16:** Gaspereau River; **17:** Missiguash; **18:** Tidnish Bridge; **19:** Nappan River; **20:** Shinimicas River

SCIENTIFIC NAME	COMMON NAME	FAMILY	NS S-Rank	NS GS Rank	SITES
Agalinis paupercula var. *borealis*	Small-flowered Agalinis	Scrophulariaceae	S1	Undetermined	18
Carex chordorrhiza	Creeping Sedge	Cyperaceae	S1	May Be At Risk	17
Carex livida var. *radicaulis*	Livid Sedge	Cyperaceae	S1	May Be At Risk	17
Carex tenuiflora	Sparse-Flowered Sedge	Cyperaceae	S1	May Be At Risk	17
Rudbeckia laciniata	Cut-Leaved Coneflower	Asteraceae	S1S2	May Be At Risk	20
Fraxinus nigra	Black Ash	Oleaceae	S1S2	At Risk	17, 19, 20
Polygonum arifolium	Halberd-leaved Tearthumb	Polygonaceae	S2	Sensitive	20
Carex tuckermanii	Tuckerman's Sedge	Cyperaceae	S2	Sensitive	19
Juncus stygius ssp. *americanus*	Moor Rush	Juncaceae	S2	Sensitive	17
Eriophorum gracile	Slender Cottongrass	Cyperaceae	S2	Sensitive	17
Samolus valerandi ssp. *parviflorus*	Seaside Brookweed	Primulaceae	S3	Sensitive	20
Ranunculus gmelinii	Gmelin's Water Buttercup	Ranunculaceae	S3	Secure	18
Rhamnus alnifolia	Alder-leaved Buckthorn	Rhamnaceae	S3	Secure	17
Equisetum variegatum	Variegated Horsetail	Equisetaceae	S3	Secure	17, 18
Symplocarpus foetidus	Eastern Skunk Cabbage	Araceae	S3S4	Secure	17
Eriophorum russeolum	Russet Cottongrass	Cyperaceae	S3S4	Secure	17

Table 4. New county records documented during the project, with provincial status ranks and sites of observation. Shaded species are non-native. Sites are: **1**: Batemans Brook; **2:** Melanson Settlement; **3:** Scoudouc River North; **4:** Scoudouc River Center; **5:** Scoudouc River South; **6:** Memramcook River; **7:** Basse-Aboujagane; **8:** Aboujagane River; **9:** Kinnear River; **10:** Cormier Village; **11:** Kouchibouguac River; **12:** Upper Memramcook Bogs; **13:** Shemougue; **14:** Square Lake; **15:** Anderson Settlement; **16:** Gaspereau River; **17:** Missiguash; **18:** Tidnish Bridge; **19:** Nappan River; **20:** Shinimicas River.

Species	Common Name	New to:	NB rank	NS rank	Sites
Agrimonia gryposepala	Hooked Agrimony	Westmorland	S3	S3	1
Arceuthobium pusillum	Eastern Dwarf Mistletoe	Westmorland	S5	S5	7,16
Carex atlantica ssp. atlantica	Atlantic Sedge	Westmorland	S1	S4	15,18
Carex haydenii	Hayden's Sedge	Westmorland	S3	S1	5
Carex tenuiflora	Sparse-Flowered Sedge	Cumberland	S2	S1	17
Carex tribuloides	Blunt Broom Sedge	Chignecto Isthmus (both counties)	S4S5	S3?	7,8
Circaea lutetiana ssp. canadensis	Broad-leaved Enchanter's Nightshade	Westmorland	S4	S5	3,20
Circaea x intermedia	Intermediate Enchanter's Nightshade	Cumberland	SNA	SNA	19
Clinopodium vulgare	Wild Basil	Westmorland	S4S5	S5	8
Dryopteris campyloptera x intermedia	a hybrid Wood-fern	Chignecto Isthmus (both counties)	no rank	no rank	6
Epilobium palustre	Marsh Willowherb	Westmorland	S5	S5	16
Epipactis helleborine	Helleborine	Westmorland	SNA	SNA	1
Equisetum scirpoides	Dwarf Scouring-Rush	Westmorland	S4	S3S4	1
Hypericum mutilum	Dwarf St John's-wort	Westmorland	S5	S4S5	1
Lathyrus pratensis	Meadow Vetchling	Chignecto Isthmus (both counties; also found in Cumberland in 2015)	SNA	SNA	4
Pontederia cordata	Pickerelweed	Westmorland	S5	S5	11,14
Ranunculus hispidus var. caricetorum	Bristly Buttercup	Chignecto Isthmus (both counties)	S4S5		9
Toxicodendron radicans	Poison Ivy	Cumberland	S2?	S4	20
Utricularia purpurea	Eastern Purple Bladderwort	Chignecto Isthmus (both counties)	S4	S5	4,14
Vicia sepium	Bush Vetch	Chignecto Isthmus (both counties)	SNA	SNA	5,10
Woodwardia virginica	Virginia Chain Fern	Chignecto Isthmus (both counties)	S2	S4	17

Table 6. Provincially rare bird species documented incidentally during site surveys, with New Brunswick status ranks and sites where occurrences were detected. See appendices 1 and 2 for status rank definitions and http://www.cosewic.gc.ca for special national status definitions.

SITE # 1: Batemans Brook; **2:** Melanson Settlement; **3:** Scoudouc River North; **4:** Scoudouc River Center; **5:** Scoudouc River South; **6:** Memramcook River; **7:** Basse-Aboujagane; **8:** Aboujagane River; **9:** Kinnear River; **10:** Cormier Village; **11:** Kouchibouguac River; **12:** Upper Memramcook Bogs; **13:** Shemougue; **14:** Square Lake; **15:** Anderson Settlement; **16:** Gaspereau River; **17:** Missiguash; **18:** Tidnish Bridge; **19:** Nappan River; **20:** Shinimicas River

SCIENTIFIC NAME	COMMON NAME	NB S-Rank	NB GS Rank	FEDERAL STATUS	SITES
Chordeiles minor	Common Nighthawk	S3B	At Risk	T	2, 6
Charadrius vociferus	Killdeer	S3B	Sensitive		9, 13
Contopus cooperi	Olive-sided Flycatcher	S3S4B	At Risk	T	5, 16
Wilsonia canadensis	Canada Warbler	S3S4B	At Risk	T	6, 9, 10, 14, 16
Tyrannus tyrannus	Eastern Kingbird	S3S4B	Sensitive		2
Dolichonyx oryzivorus	Bobolink	S3S4B	Sensitive	T	3
Contopus virens	Eastern Wood-Pewee	S4B	Secure	SC	8, 16
Perisoreus canadensis	Gray Jay	S4B	Secure		5, 10, 15

Table 6. Provincially rare bird species documented incidentally during site surveys, with Nova Scotia status ranks and sites where occurrences were detected. See appendices 1 and 2 for status rank definitions and http://www.cosewic.gc.ca for special national status definitions.

SITE # 1: Batemans Brook; **2:** Melanson Settlement; **3:** Scoudouc River North; **4:** Scoudouc River Center; **5:** Scoudouc River South; **6:** Memramcook River; **7:** Basse-Aboujagane; **8:** Aboujagane River; **9:** Kinnear River; **10:** Cormier Village; **11:** Kouchibouguac River; **12:** Upper Memramcook Bogs; **13:** Shemougue; **14:** Square Lake; **15:** Anderson Settlement; **16:** Gaspereau River; **17:** Missiguash; **18:** Tidnish Bridge; **19:** Nappan River; **20:** Shinimicas River

SCIENTIFIC NAME	COMMON NAME	NS S-Rank	NS GS Rank	FEDERAL STATUS	SITES
Dolichonyx oryzivorus	Bobolink	S3S4B	Sensitive	T	20
Perisoreus canadensis	Gray Jay	S3S4	Sensitive		18

Survey Site Descriptions

#1. Batemans Brook
Observer(s): Mazerolle, D.M.
Survey date: October 8th, 2015

Rare Species

Scientific Name	Common Name	S-Rank	GS Rank	Records
Agrimonia gryposepala	Tall Hairy Groovebur	S3	Secure	1

Site Summary
Despite extensive historic and recent wood harvesting, the 10 km section of Batemans Brook extending from Shediac River to Moncton Road still holds a significant amount of mature forest. Most of this forested land consists of mid-seral stands of Red Maple (*Acer rubrum*), Paper Birch (*Betula papyrifera* var. *papyrifera*), Trembling Aspen (*Populus tremuloides*) and Large-toothed Aspen (*Populus grandidentata*). White Spruce (*Picea glauca*) forest was also observed on old pasture land near Batemans Mills. Downstream of the Batemans Mills Road bridge, the brackish to saline shores of Batemans Brook support various tidal shore communities and bands of well-developed salt marsh. The surveyed area also holds a diversity of freshwater wetland communities, including sizeable occurrences of mature acidic Black Spruce (*Picea mariana*) swamp, riparian Bluejoint Reedgrass (*Calamagrostis canadensis*) and Speckled Alder (*Alnus incana* ssp. *rugosa*) swales and meadows, and Mature Red Maple seepage swamp with Speckled Alder, Sensitive Fern (*Onoclea sensibilis*) and Cinnamon Fern (*Osmunda cinnamomea*) understories. The south end of the site is heavily influenced by beaver dams and includes numerous shrubby beaver meadows and ponds.

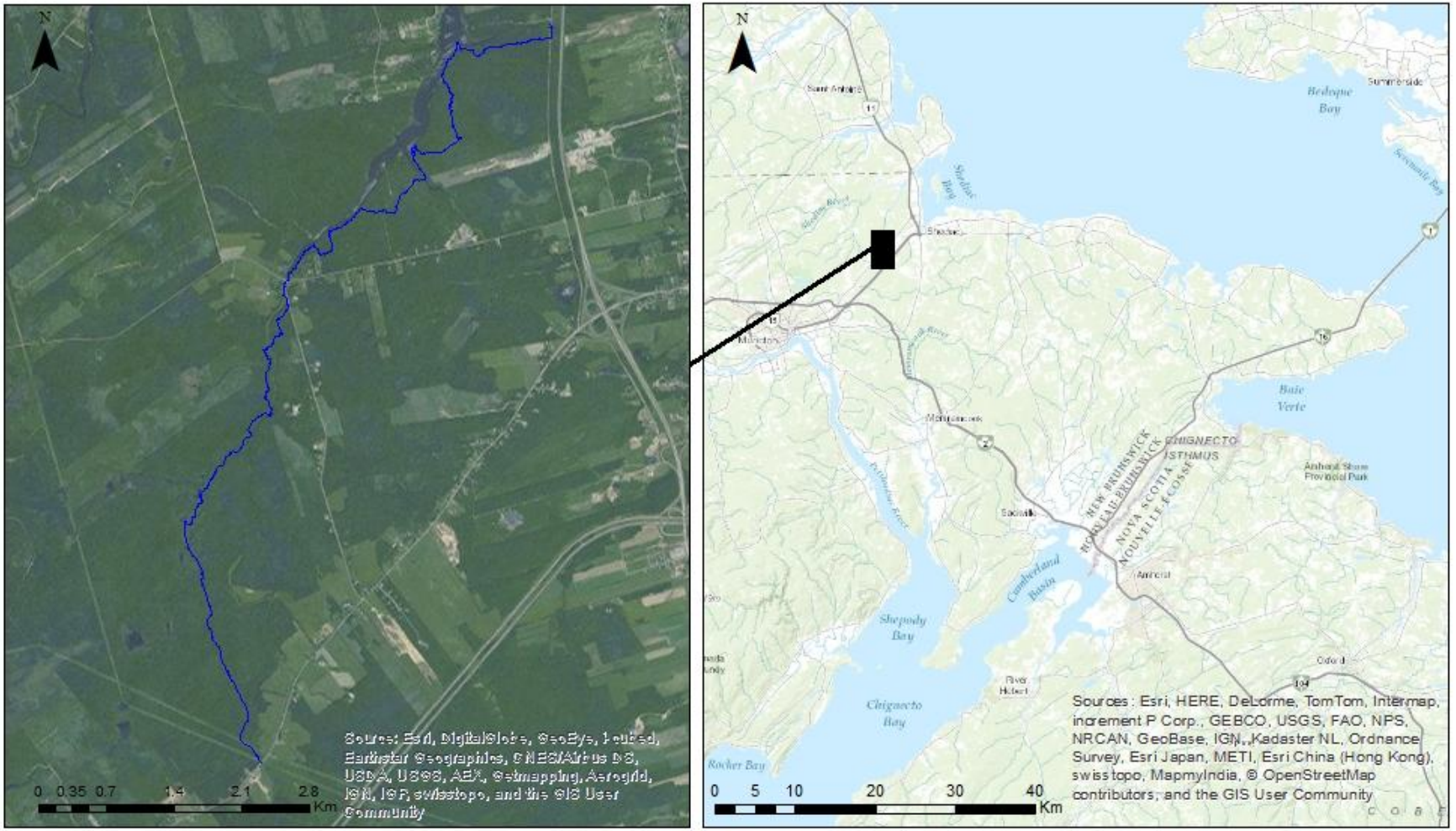


Figure 2. Survey coverage on the Batemans Brook (site #1), Westmorland County, NB. Blue line represents track file logged by GPS unit. Survey carried out on October 8th, 2015. Aerial imagery from Bing Maps (accessed in winter 2015).

#1. Batemans Brook (clockwise from top left). 1 - Wide band of salt marsh and brackish marsh along the lower section of Batemans Brook. 2 - Beaver pond and pondshore meadow along the upper section of Batemans Brook. 3 - Mature mesic Red Maple (*Acer rubrum*) forest near Batemans Mills. 4 - Bluejoint Reedgrass (*Calamagrostis canadensis*) and Reed Canary Grass (*Phalaris arundinacea*) riparian meadow along Batemans Brook.

#2. Melanson Settlement
Observer(s): Mazerolle, D.M.
Survey date: June 23rd, 2015

Rare Species

Scientific Name	Common Name	S-Rank	GS Rank	Records
Geocaulon lividum	Northern Comandra	S3	Secure	1
Platanthera blephariglottis	White-Fringe Orchis	S3	Secure	1

Site Summary

Bordered by recently constructed subdivisions, a power line right of way, agricultural land and gravel pits, this area has a high likelihood of being further encroached upon by future residential and commercial development. Survey coverage at this site was strongly focused on open and forested wetlands associated with Melanson Settlement Lake. The area east of the lake is mainly characterized by wet to mesic heathy Black Spruce (*Picea mariana*) forest and by Black Spruce/Tamarack (*Larix laricina*) swamps. These seepage wetlands are interrupted by bands of intermediate-aged to mature upland Red Maple (*Acer rubrum*)/Black Spruce/Balsam Fir (*Abies balsamifera*) and Red Maple/Trembling Aspen (*Populus tremuloides*)/Paper Birch (*Betula papyrifera* var. *papyrifera*) forest. Similar communities were also observed west of Melanson Settlement Lake, along with an area of mature upland Black Spruce and Stairstep Moss (*Hylocomium splendens*) forest. Non-riparian open wetlands at this site chiefly consist of relatively species-rich neutral to acidic graminoid, shrub and forb fens. The two provincially rare vascular plant species were found within these habitats. The small brook flowing from the lake westward into Fox Creek supports extensive riparian Bluejoint Reedgrass (*Calamagrostis canadensis*) meadows and Speckled Alder (*Alnus incana* ssp. *rugosa*) swamp. Eastern Kingbird (*Tyrannus tyrannus*, S3S4B, Sensitive) was heard and observed along the eastern shore of Melanson Settlement Lake.

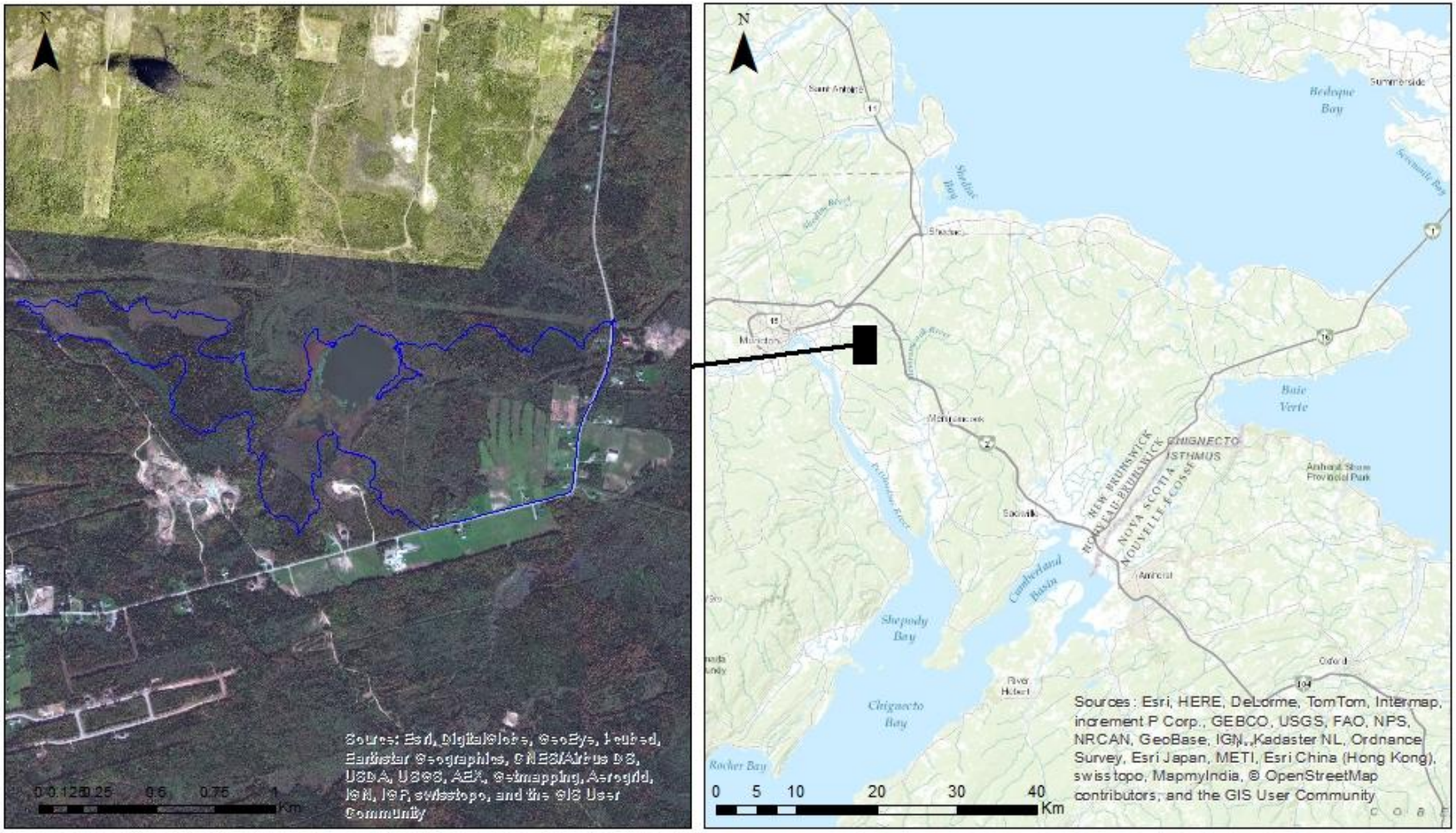


Figure 3. Survey coverage on the Melanson Settlement (site #2), Westmorland County, NB. Blue line represents track file logged by GPS unit. Survey carried out on June 23rd, 2015. Aerial imagery from Bing Maps (accessed in winter 2015).

#2. Melanson Settlement (clockwise from top left). 1 - Northern Comandra (*Geocaulon lividum*, S3, Secure) in heathy Black Spruce (*Picea mariana*) swamp, growing with Reindeer Lichen (*Cladonia sp*.). 2 - Dense Black Spruce swamp east of Melanson Settlement Lake. 3- Mature upland Black Spruce and Balsam Fir (*Abies balsamea*) forest west of Melanson Settlement Lake. 4 - Circumneutral graminoid, forb and shrub fen at edge of Melanson Settlement Lake.

#3. Scoudouc River North
Observer(s): Mazerolle, D.M.
Survey date: June 16th, 2015

Rare Species

Scientific Name	Common Name	S-Rank	GS Rank	Records
Samolus valerandi ssp. *parviflorus*	Water Pimpernel	S3	Secure	3

Site Summary

Although most of this area's standing forest is early-seral and young to intermediate-aged, small remnant stands of mature to fairly old hardwood and mixedwood forest were found at several locations. The southeastern portion of the site contains small stands of mature Red Maple (*Acer rubrum*)/Black Spruce (*Picea mariana*)/Balsam Fir (*Abies balsamea*), Red Maple/Red Spruce (*Picea rubens*)/Balsam Fir/Paper Birch (*Betula papyrifera* var. *papyrifera*) and Yellow Birch (*Betula alleghaniensis*)/Red Maple forest. Most occurrences of mature late-seral forest were observed in the site's northern section, where slopes along the Scoudouc River hold remnant bands of very mature Red Maple/Balsam Fir, Red Maple/Yellow Birch, and Eastern Hemlock (*Tsuga canadensis*)/Eastern White Pine (*Pinus strobus*) forest. The large majority of wetland communities observed at the site were found along the Scoudouc River, with the exception of a few areas of wet coniferous forest, nutrient-poor fens and Speckled Alder (*Alnus incana* ssp. *rugosa*)/Red Maple (*Acer rubrum*)/Black Spruce (*Picea mariana*) seepage swamp. The river's floodplain contains several rich terraces dominated by Red Maple and Speckled Alder with understories of Brome-like Sedge (*Carex bromoides*). Glossy Buckthorn (*Frangula alnus*), a highly invasive exotic shrub, is common throughout and has become dominant in several areas. A single Bobolink (*Dolichonyx oryzivorus*, S3S4B, SARA Threatened) was heard calling from agricultural fields along Red Bridge Road.

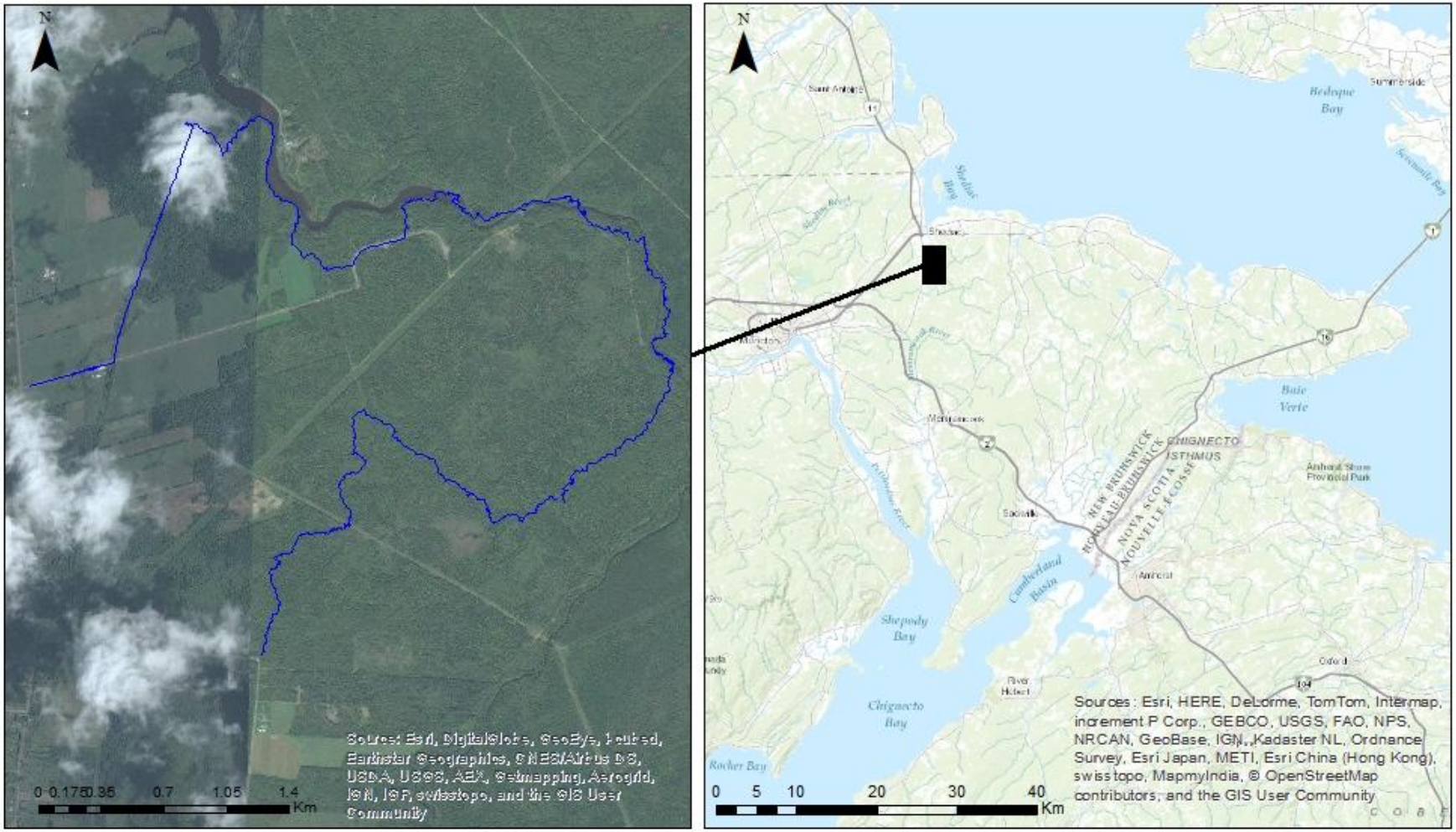


Figure 4. Survey coverage on the Scoudouc River North (site #3), Westmorland County, NB. Blue line represents track file logged by GPS unit. Survey carried out on June 16th, 2015. Aerial imagery from Bing Maps (accessed in winter 2015).

#3. Scoudouc River North (clockwise from top left). 1 - Mature Yellow Birch (*Betula alleghaniensis*) and Red Maple (*Acer rubrum*) forest, with abundant Sugar Maple (*Acer saccharum*) seedlings and saplings in the understory. 2 - Fairly rich Speckled Alder (*Alnus incana* ssp. *rugosa*) and Red Maple floodplain terraces along the Scoudouc River. 3 - Brackish tidal shores at the upper limit of the Scoudouc River estuary. 4 – Small, species-rich seepage fen at the headwaters of a small brook at the southeastern end of the survey site.

#4. Scoudouc River Center
Observer(s): Robinson, S.L.
Survey date: June 16th, 2015

Rare Species

Scientific Name	Common Name	S-Rank	GS Rank	Records
Epilobium strictum	Downy Willowherb	S3	4 Secure	1
Salix pedicellaris	Bog Willow	S3	4 Secure	4
Polygonum arifolium	Halberd-leaved Tearthumb	S3	4 Secure	4

Site Summary

The northern portions of the surveyed area consist mainly of young to intermediate-aged second growth mixedwood forest, extensive tracts of recently cut forest, a cleared powerline right-of-way. Mature stands of Yellow Birch (*Betula alleghaniensis*) / Red Maple (*Acer rubrum*), Red Maple / Yellow Birch / Red Spruce (*Picea rubens*) and Yellow Birch / Sugar Maple (*Acer saccharum*) / Eastern Hemlock (*Tsuga canadensis*) / White Ash (*Fraxinus americana*) are common along the Scoudouc River. Small stands of mature Red Maple (*Acer rubrum*)/Black Spruce (*Picea mariana*)/Balsam Fir (Abies balsamea), Red Maple/Red Spruce (*Picea rubens*)/Balsam Fir/Paper Birch (*Betula papyrifera* var. *papyrifera*) and Yellow Birch (*Betula alleghaniensis*)/Red Maple forest occur throughout the surveyed area, especially in areas along the river and in the southern portion near the large open wetland. Remnant old Eastern Hemlock (*Tsuga canadensis*) and Eastern White Pine (*Pinus strobus*) trees were observed along the Scoudouc River amongst very mature Red Maple/Balsam Fir/Yellow Birch forest. The river's floodplain contains several rich terraces dominated by Red Maple with understories of Ostrich Fern (*Matteuccia struthiopteris*).

Throughout the site a few areas of wet coniferous forest and Speckled Alder (Alnus incana ssp. rugosa)/Red Maple (Acer rubrum)/Black Spruce (Picea mariana) seepage swamp occurred, the majority of which were subject to recent forest harvesting or other disturbances. In one such wet seepage swamp a few occurrences of Halberd-leaved Tearthumb (*Polygonum arifolium*, S3, Secure) were present. In the south a fairly large occurrence of neutral to slightly alkaline rich graminoid riverine fen was found, in which a fairly large population of Bog Willow (*Salix pedicellaris*, S3, Secure) and one occurrence of Downy Willowherb (*Epilobium strictum*, S3, Secure) were found.

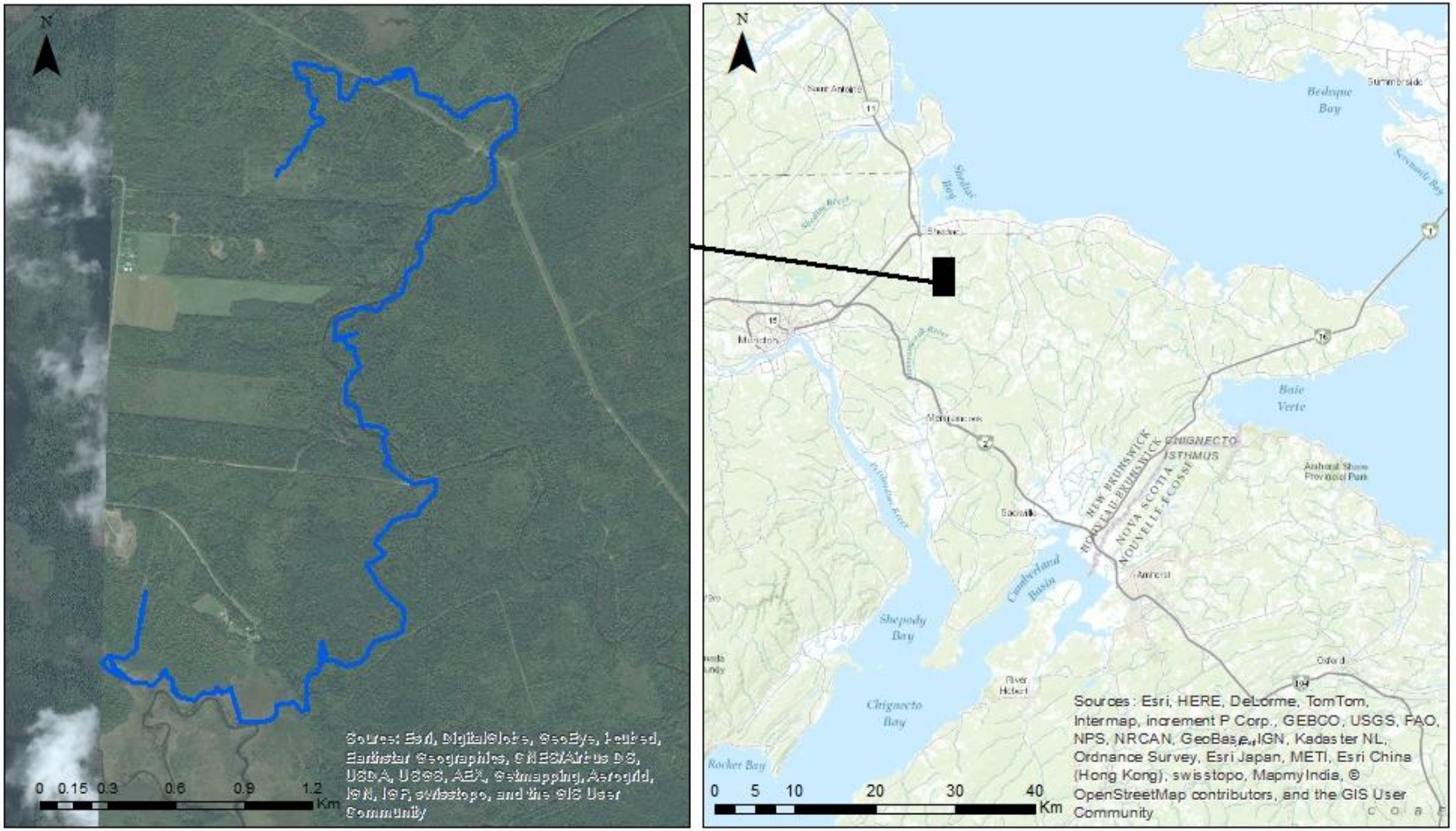


Figure 4. Survey coverage on the Scoudouc River Center (site #4), Westmorland County, NB. Blue line represents track file logged by GPS unit. Survey carried out on June 16th, 2015. Aerial imagery from Bing Maps (accessed in winter 2015).

#4. Scoudouc River South (clockwise from top) 1 - Mature Yellow Birch / Red Maple Red Spruce along the rivershore. 2 – Muddy riverbank dominated by Sensitive Fern. 3 - Bog Willow (*Salix pedicellaris*, S3, Secure) in large graminoid riverine fen.

#4. Scoudouc River South
Observer(s): Belliveau, A.G.
Survey date: June 16th, 2015

Rare Species

Scientific Name	Common Name	S-Rank	GS Rank	Records
Polygonum arifolium	Halberd-leaved Tearthumb	S3	Secure	14
Carex haydenii	Hayden's Sedge	S3	Secure	1

Site Summary

Most of the surveyed area is wetland, with communities ranging from a very dry, slightly domed ~75 hectare bog, to large expanses of graminoid-dominated riverine fen, to scattered moderately nutrient-rich mixedwood swamps. No rare vascular plant species were found in the bog, but a singing Olive-sided Flycatcher (*Contopus cooperi*, S3S4B, At Risk, COSEWIC Threatened) was at the bog's southern end along a taller black spruce edge. At the upper end of a large river fen wetland complex was surveyed, two clumps of Hayden's Sedge (*Carex haydenii*, S3, Secure) were found along with a foraging flock of at least 50 Tree Swallows (*Tachycineta bicolor*, S4B, Secure) and several active beaver dams. Some of the adjacent alder-dominated wetlands were heavily invaded by the invasive exotic shrub Glossy Buckthorn (*Frangula alnus*). The mixedwood swamps supported locally uncommon tree species such as Black Ash (*Fraxinus nigra*, S5, Secure) and Eastern White Cedar (*Thuja occidentalis*, S5, Secure), both of which become scarce in southeastern-most New Brunswick and are species at risk in nearby Nova Scotia. Halberd-leaved Tearthumb (*Polygonum arifolium*, S3, Secure) was present in these swamp wetlands, including some that were significantly degraded by forest harvesting, and especially in or near lagg zones. Near one such mixedwood swamp, an occurrence of Bushy Beard Lichen (*Usnea strigosa*, S3, Undetermined) was noted. This species is common along coasts and other high moisture areas of eastern North America, and is likely fairly common in the Chignecto Isthmus. The relatively small areas of upland all showed signs of older or recent wood harvesting.

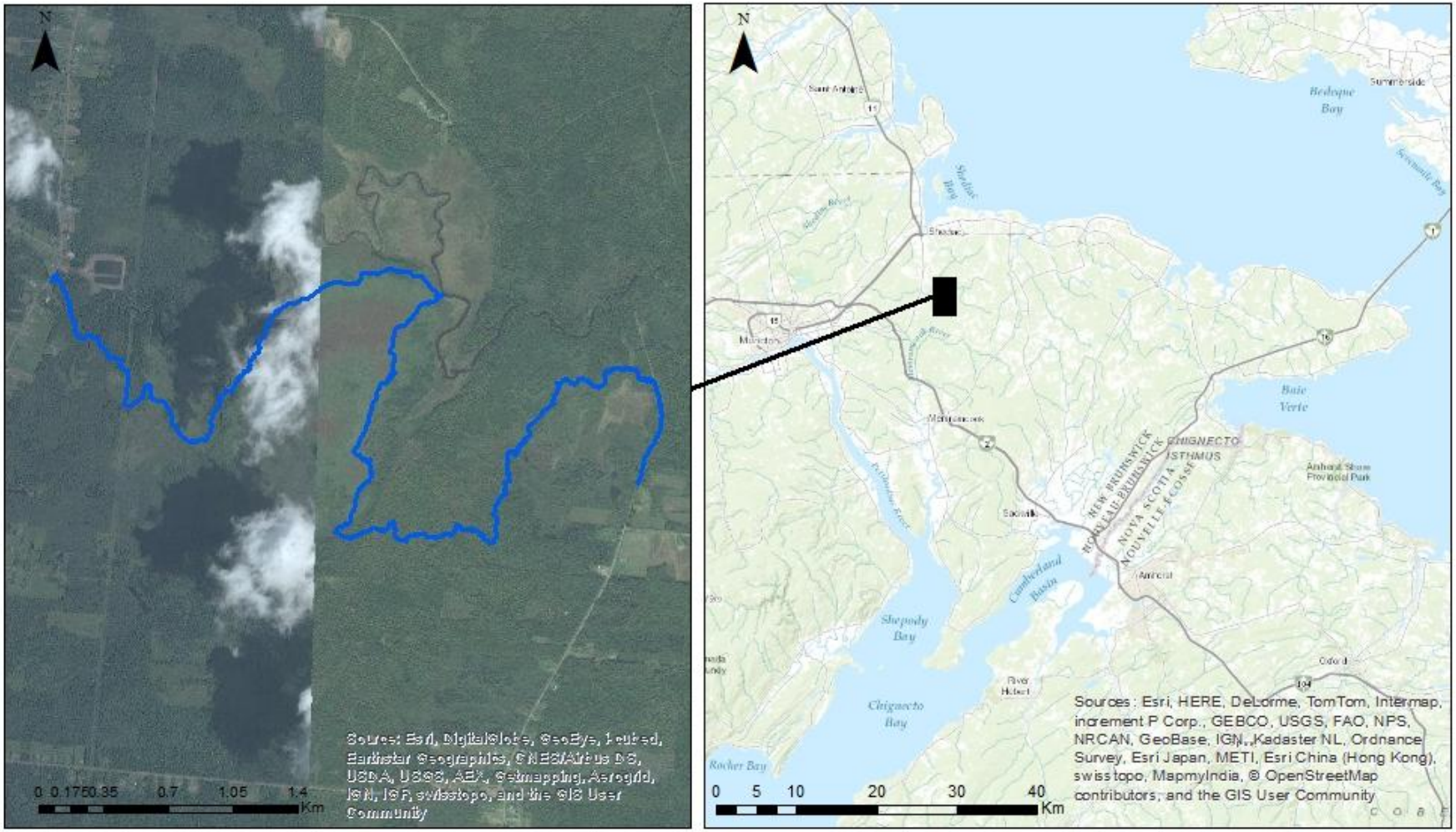


Figure 5. Survey coverage on the Scoudouc River South (site #4), Westmorland County, NB. Blue line represents track file logged by GPS unit. Survey carried out on June 16th, 2015. Aerial imagery from Bing Maps (accessed in winter 2015).

#4. Scoudouc River South (clockwise from top left) 1 – Graminoid fen where Hayden's Sedge (*Carex haydenii*, S3 – Secure) was found. 2 – Halberd-leaved Tearthumb (*Polygonum arifolium*, S3 – Sensitive) in an Eastern White Cedar and Black Ash swamp. 3 – Tall shrub wetland along river, dominated by the invasive exotic Glossy Buckthorn (*Frangula alnus*). 4 – Black Ash in a forested mixedwood swamp.

#6. Memramcook River
Observer(s): Belliveau, A.G.; Mazerolle, D.M.
Survey date: June 15th, 2015

Scientific Name	Common Name	S-Rank	GS Rank	Records
Carex wiegandii	Wiegand's Sedge	S3	Secure	1

Site Summary
The landscape around Memramcook River is characterized by a network of linear roads and recently harvested and young forests. Some Black Spruce dominated large bog and fen wetland complexes are also present and remain mostly intact. One bog's lagg swamp section was home to a ~15m linear patch of Russet Cottongrass (*Eriophorum russeolum*, S3S4, Secure). Relatively intact forest is limited to a zone 20 m to 200 m wide along the river and to larger open wetlands. These forests were predominantly Red Maple – Red Spruce mesic forest, drier White Pine dominated forests, and wetter Red Maple and other hardwood-dominated floodplain forest. Three singing male Canada Warblers *Wilsonia canadensis*, S3S4, At Risk, COSEWIC Threatened), presumably on nesting territories, were found in riparian or wetland forests.

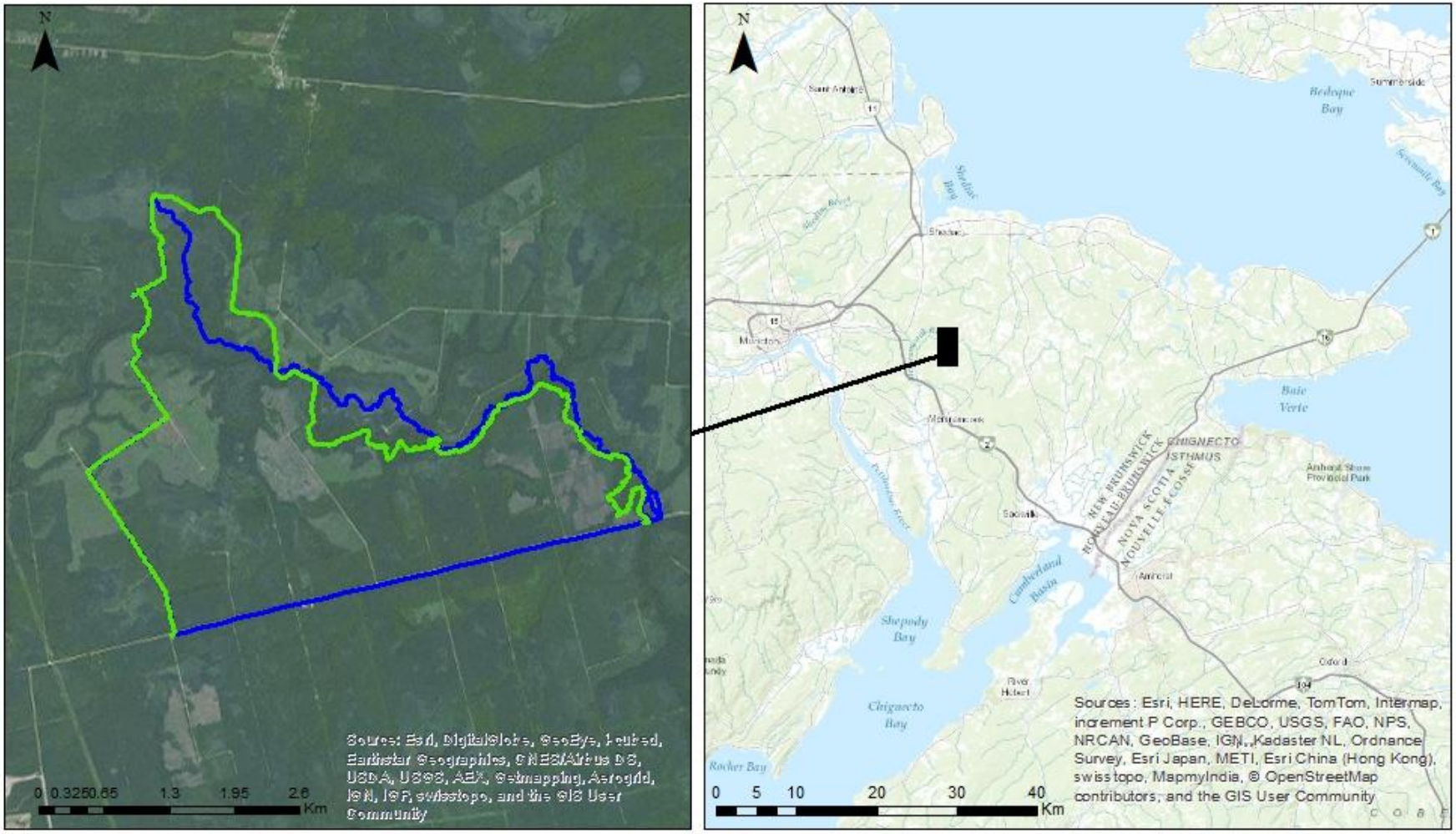


Figure 7. Survey coverage on the Memramcook River (site #6), Westmorland County, NB. Blue line represents track file logged by D.M. Mazerolle's GPS unit; green line represents track file logged by A.G. Belliveau's GPS unit. Survey carried out on June 15th, 2015. Aerial imagery from Bing Maps (accessed in winter 2015).

#6. Memramcook River (clockwise from top) 1 – Acidic fen and bog north of river. 2 – Typical graminoid shoreline of the river. 3 – Mature Hardwood floodplain.

#7. Basse-Aboujagane
Observer(s): Mazerolle, D.M.
Survey date: June 17th, 2015

Rare Species

Scientific Name	Common Name	S-Rank	GS Rank	Records
Eriophorum gracile	Slender Cotton-Grass	S2	May Be At Risk	2
Xyris montana	Northern Yellow-Eyed-Grass	S3	Secure	4
Carex wiegandii	Wiegand's Sedge	S3	Secure	3
Salix pedicellaris	Bog Willow	S3	Secure	6

Site Summary

Survey coverage at this site was focused on the southern section of a large open wetland and seepage swamp complex just west of Basse-Aboujagane in the headwaters of a small westward-flowing tributary of the upper Scoudouc River. The oldest upland forest within the surveyed area was largely early-successional Red Maple (*Acer rubrum*), Balsam Fir (*Abies balsamea*), Paper Birch (*Betula papyrifera* var. *papyrifera*) and Trembling Aspen (*Populus tremuloides*) with some older stands of heathy upland Black Spruce (*Picea mariana*) forest. The large area of open wetland clearly visible on aerial images consists of both ericaceous shrub/Tufted Clubrush (*Trichophorum cespitosum*)/Reindeer Lichen (*Cladonia sp*.) bog and oligotrophic to mesotrophic graminoid fen which supports large occurrences of Russet Cotton-grass (*Eriophorum russeolum*, S3S4, Secure) and Northern Yellow-eyed-grass (*Xyris montana*, S3, Secure). This open wetland is bordered by wide shrubby lag zones of Speckled Alder (*Alnus incana* ssp. *rugosa*)/Tamarack (*Larix laricina*)/Mountain Holly (*Nemopanthus mucronatus*)/Winterberry (*Ilex verticillata*) swamp and Black Spruce swamp. The southwestern portion of the surveyed area contains stands of mature mesic Red Maple floodplain forest and shrubby Red Maple seepage swamp. Most interestingly, this section of the site includes a fairly large occurrence of neutral to slightly alkaline rich graminoid fen, which supports populations of the provincially rare Slender Cotton-grass (*Eriophorum gracile*, S2, May Be At Risk) and Bog Willow (*Salix pedicellaris*, S3, Secure). Signs of Moose (*Alces americanus*, S5 and Secure in NB but S1 and At Risk in NS) activity, including tracks and scat, were observed at a few locations.

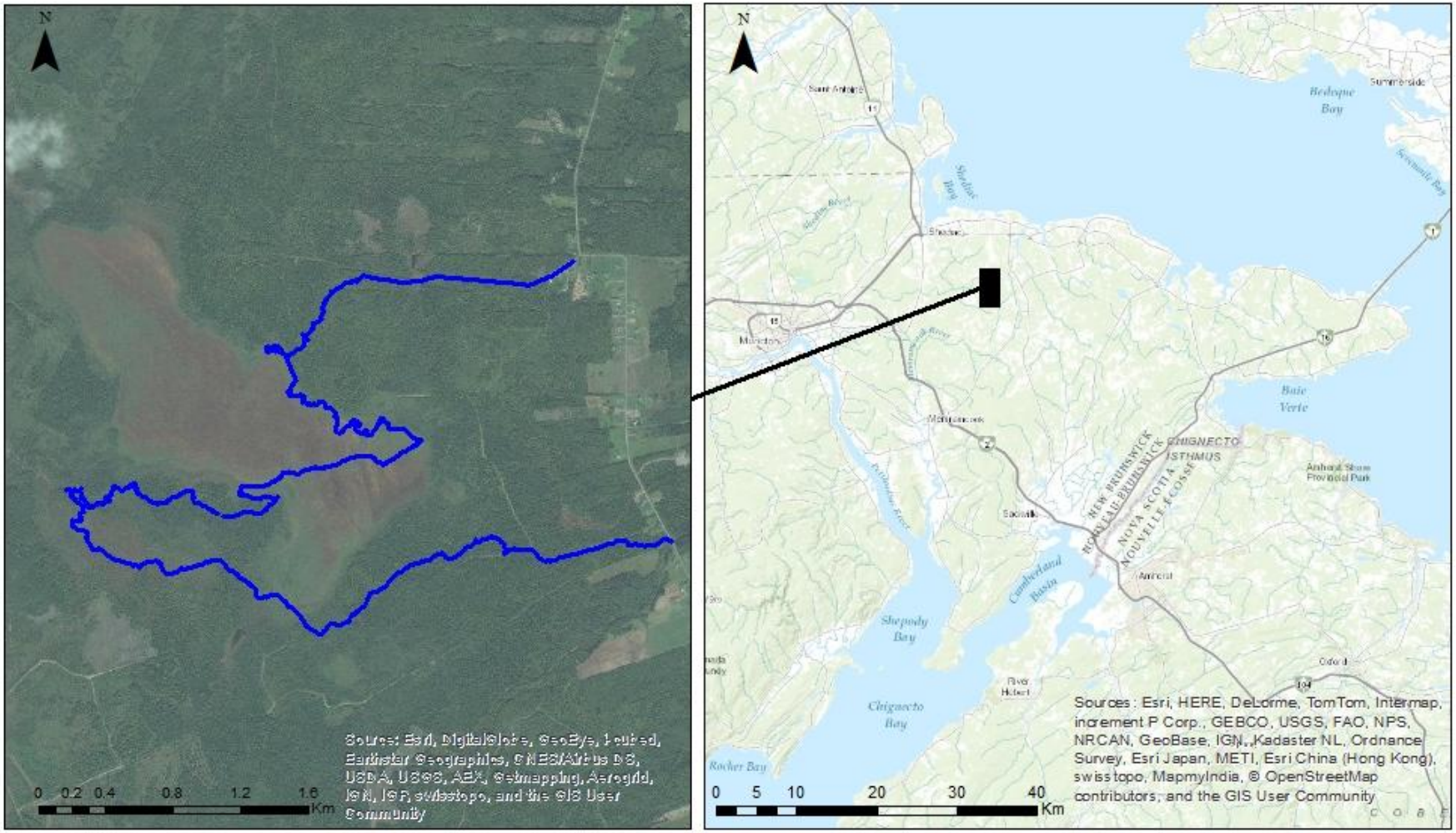


Figure 8. Survey coverage on the Basse-Aboujagane (site #7), Westmorland County, NB. Blue line represents track file logged by GPS unit. Survey carried out on June 17th, 2015. Aerial imagery from Bing Maps (accessed in winter 2015).

#7. Basse-Aboujagane (clockwise from top left). 1 - Very wet nutrient-poor graminoid fen in lag edge of extensive acidic bog, with abundant Russet Cotton-grass (*Eriophorum russeolum*, S3S4, Secure). 2 - Mature Red Maple (*Acer rubrum*) swamp and floodplain forest along small brook at western end of survey site. 3 - Nutrient-rich moderately calcareous seepage fen dominated by several species of cotton-grass (*Eriophorum sp.*). 4 - Slender Cotton-grass (*Eriophorum gracile*, S2, May Be At Risk) in rich fen at western end of site.

#8. Aboujagane River
Observer(s): Belliveau, A.G.
Survey date: June 17th, 2015

Rare Species

Scientific Name	Common Name	S-Rank	GS Rank	Records
Epilobium strictum	Downy Willowherb	S3	Secure	2

Site Summary

The survey for this site focused primarily on the river and its riparian forests. Much of the riparian forest consisted of a mix of mature, shade-tolerant species such as Red Spruce (*Picea rubens*), Yellow Birch (*Betula alleghaniensis*), Red Maple (*Acer rubrum*), and occasionally Sugar Maple (*Acer saccharum*), Eastern Hemlock (*Tsuga canadensis*), and Ashes (*Fraxinus americana* and *F. nigra*). Further downstream, floodplain forests were wider, and dominated by Speckled Alder (*Alnus incana* ssp. *rugosa*) and Choke Cherry (*Prunus virginiana*). Occasional areas of richer floodplain soils were indicated by vascular plants such as Kidney-Leaved Buttercup (*Ranunculus abortivus*), Sessile-leaved Bellwort (*Uvularia sessilifolia*) and large patches of Ostrich Fern (*Matteuccia struthiopteris*). Further upland and away from the riparian forests, the forest was generally much younger and more disturbed from older and more recent harvesting operations, and some large agricultural fields are present. Between the river and an agriculture field just north of the Aboujagane River bridge, a small calcareous fen dominated by Eastern White Cedar (*Thuja occidentalis*) was noted, with two occurrences of Downy Willowherb (*Epilobium strictum*, S3, Secure). Moose signs were widely present in the site.

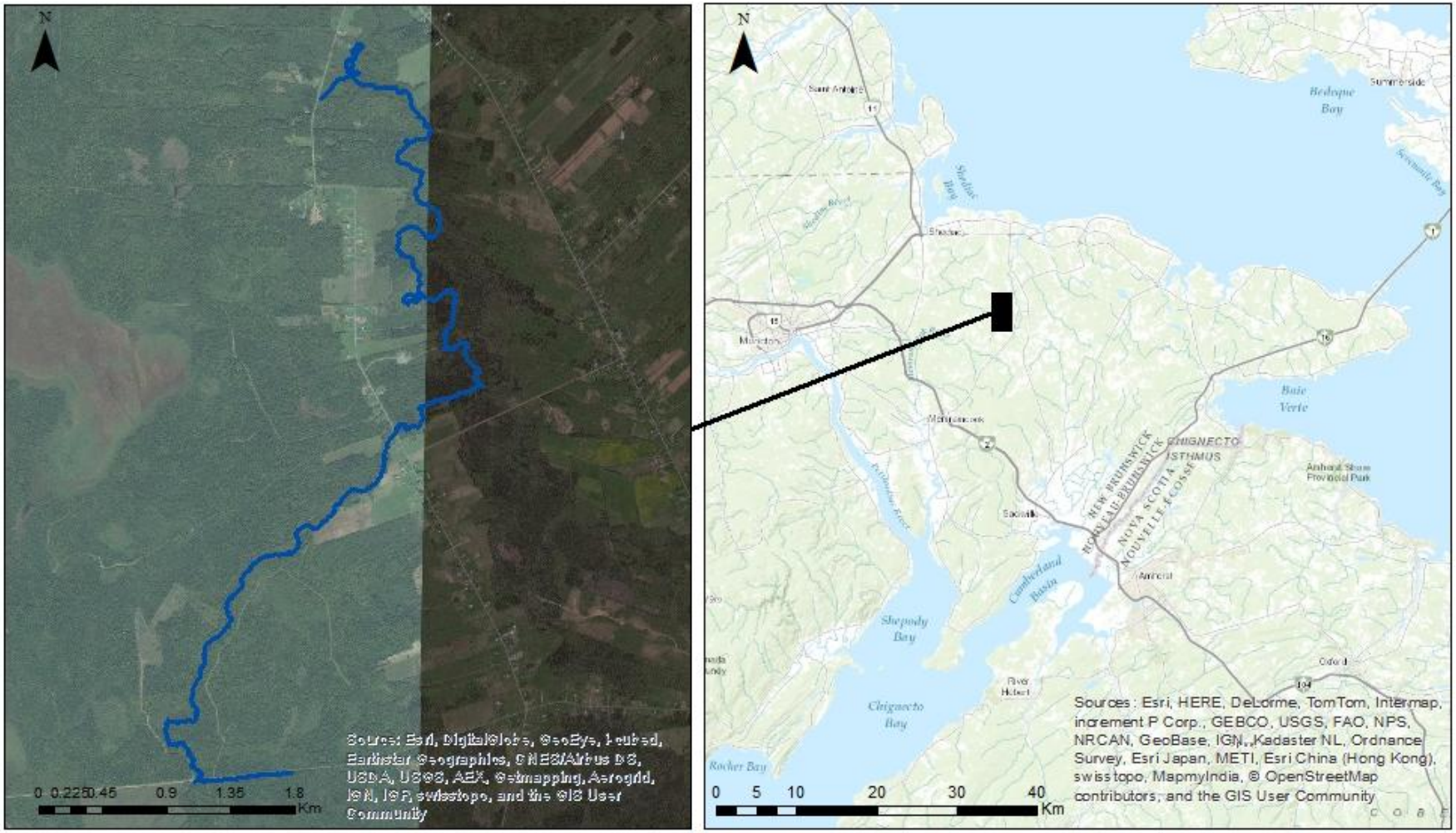


Figure 9. Survey coverage on the Aboujagane River (site #8), Westmorland County, NB. Blue line represents track file logged by GPS unit. Survey carried out on June 17th, 2015. Aerial imagery from Bing Maps (accessed in winter 2015).

#8. Aboujagane River (clockwise from top left) 1 –Mature tolerant hardwood forest with medium-rich soils. 2 – Higher pH graminoid fen where Downy Willowherb was found. 3 - Upper part of river with mature forest. 4 – Higher pH cedar-dominated fen and swamp.

#9. Kinnear River
Observer(s): Mazerolle, D.M.
Survey date: June 15th, 2015

Rare Species

Scientific Name	Common Name	S-Rank	GS Rank	Records
Zannichellia palustris	Horned Pondweed	S3	Secure	2

Site Summary

Survey coverage at this site spanned a 4 km section of the Kinnear River, with efforts mainly focused on open wetlands and mature hardwood forest. The southeastern end of the site contains an area of intact fairly calcareous Red Maple (*Acer rubrum*)/Black Spruce (*Picea mariana*) swamp with an understory dominated by Canada Yew (*Taxus canadensis*), Alder-leaved Buckthorn (*Rhamnus alnifolia*) and Purple Avens (*Geum rivale*). This same area also contains very wet Red Maple/Speckled Alder (*Alnus incana* ssp. *rugosa*)/Mountain Holly (*Nemopanthus mucronatus*) swamp, as well as open circumneutral graminoid-dominated fen. Occurrences of remnant mature hardwood and mixedwood forest were locally common in the southern half of the surveyed area and present but scarcer in the northern half. Most of these stands consist of Yellow Birch (*Betula alleghaniensis*)/Red Maple, Red Maple/Red Spruce (*Picea rubens*) and Red Maple/Eastern White Pine (*Pinus strobus*) forest, often with understories of Canada Yew and Balsam Fir (*Abies balsamea*). Throughout the site, stands of mature forest are situated within a matrix of younger and mainly early-seral forest. At the northern end of the surveyed area, the Kinnear River transitions abruptly to brackish estuary and supports brackish marsh and salt marsh communities. Two bird species of conservation concern were detected at this site: Canada Warbler (*Wilsonia canadensis*, S3S4B, SARA Threatened) and Killdeer (*Charadrius vociferous*, S3B, Sensitive).

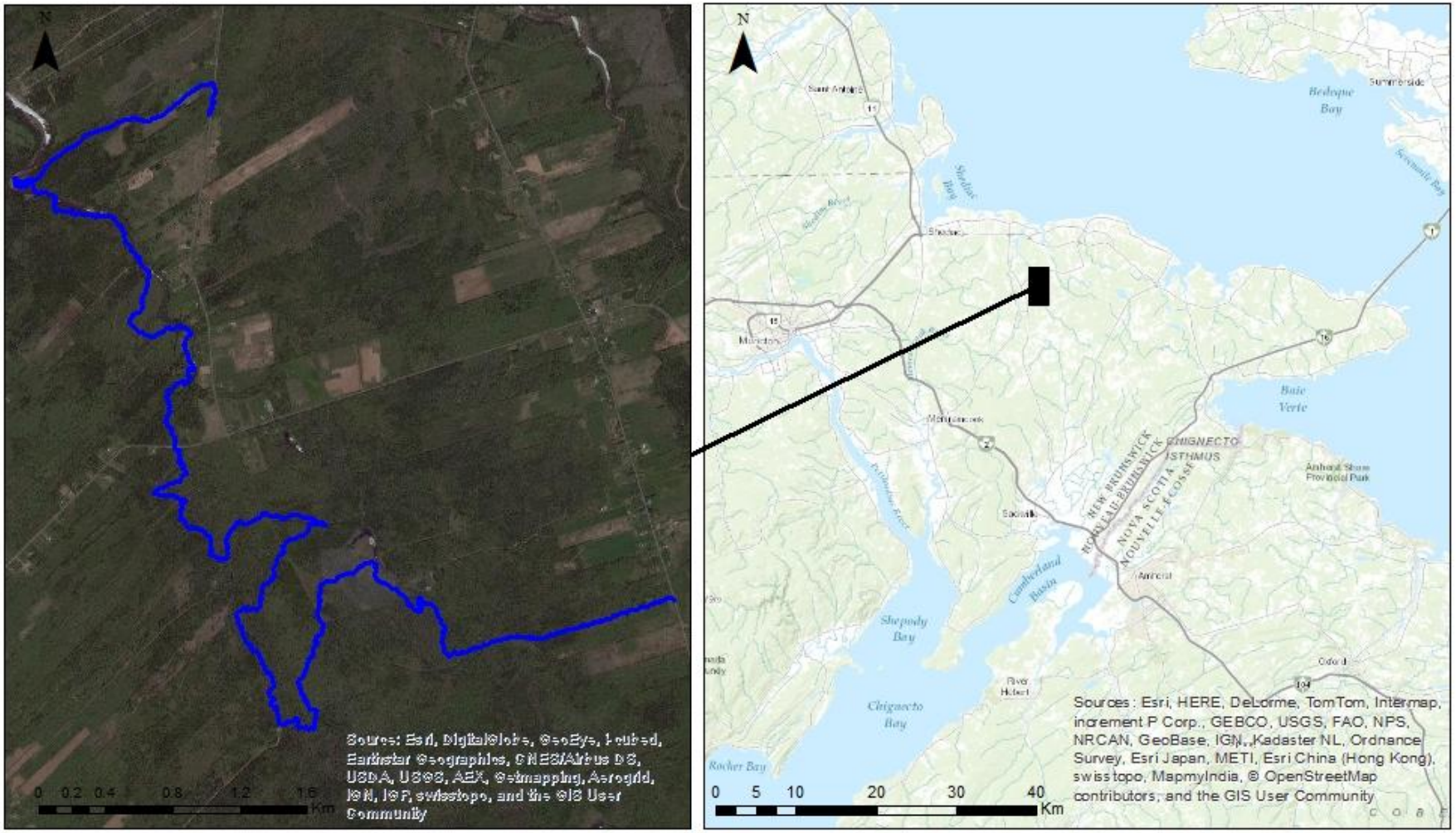


Figure 10. Survey coverage on the Kinnear River (site #9), Westmorland County, NB. Blue line represents track file logged by GPS unit. Survey carried out on June 15th, 2015. Aerial imagery from Bing Maps (accessed in winter 2015).

#9. Kinnear River (clockwise from top left). 1 - Rich moderately calcareous fen opening in Red Maple (*Acer rubrum*)/Black Spruce (*Picea mariana*) seepage swamp, in area dominated by Purple Avens (*Geum rivale*), Labrador Tea (*Ledum groenlandicum*) and Canada Yew (*Taxus canadensis*). 2 - Mature Red Maple upland forest with Canada Yew-dominated understory. 3 - Mature Yellow Birch (*Betula alleghaniensis*), Red Maple and Red Spruce (*Picea rubens*) forest. 4 - Salt marsh community along upper tidal section of the Kinnear River, with small areas of open water supporting Horned Pondweed (*Zannichellia palustris*, S3, Secure).

#10. Cormier Village
Observer(s): Belliveau, A.G.
Survey date: June 25th, 2015

Rare Species

Scientific Name	Common Name	S-Rank	GS Rank	Records
Platanthera blephariglottis	White Fringed Orchid	S3	Secure	1

Site Summary

Forest ages varied widely at this site, but it supported a few small pockets of locally uncommon old tolerant hardwood forests on seepy slopes near the Kinnear River. In several other areas around and west of the large unnamed marsh, mature Red Maple (*Acer rubrum*), Yellow Birch (*Betula alleghaniensis*), and Red Spruce (*Picea rubens*) was a common forest type. Swamp forsts were mostly dominated by Black Spruce (*Picea mariana*) and Red Maple (*Acer rubrum*). The larger, unnamed beaver-influenced marsh was dominated by Broad-leaved Cattail (*Typha latifolia*), Bluejoint Reed Grass (*Calamagrostis canadensis*), and Water-shield (*Brasenia schreberi*, S4, Secure). In one higher, less beaver-influenced portion of the wetland, a small community of acidic bog species, including about five White Fringed Orchids (*Platanthera blephariglottis*, S3, Secure) persisted. The marsh, supported numerous bird species, including a nesting American Bittern (*Botaurus lentiginosus*, S4B, Secure), and feeding Wood Ducks (*Aix sponsa*, S4B, Secure), a Great Blue Heron (*Ardea herodias*, S4B, Secure), Ring-necked Ducks (*Aythya collaris*, S5B, Secure), and a Common Loon (*Gavia immer*, S4B,S5M,S4N, Secure). In maple-dominated swamp, four singing male Canada Warblers (*Wilsonia canadensis*, S3S4, At Risk, COSEWIC Threatened) were recorded. Three Eastern Wood-Pewees (*Contopus virens*, S4B, Secure, COSEWIC Special Concern) were observed in mature maple-dominated or mixedwood forests. Moose signs were also observed.

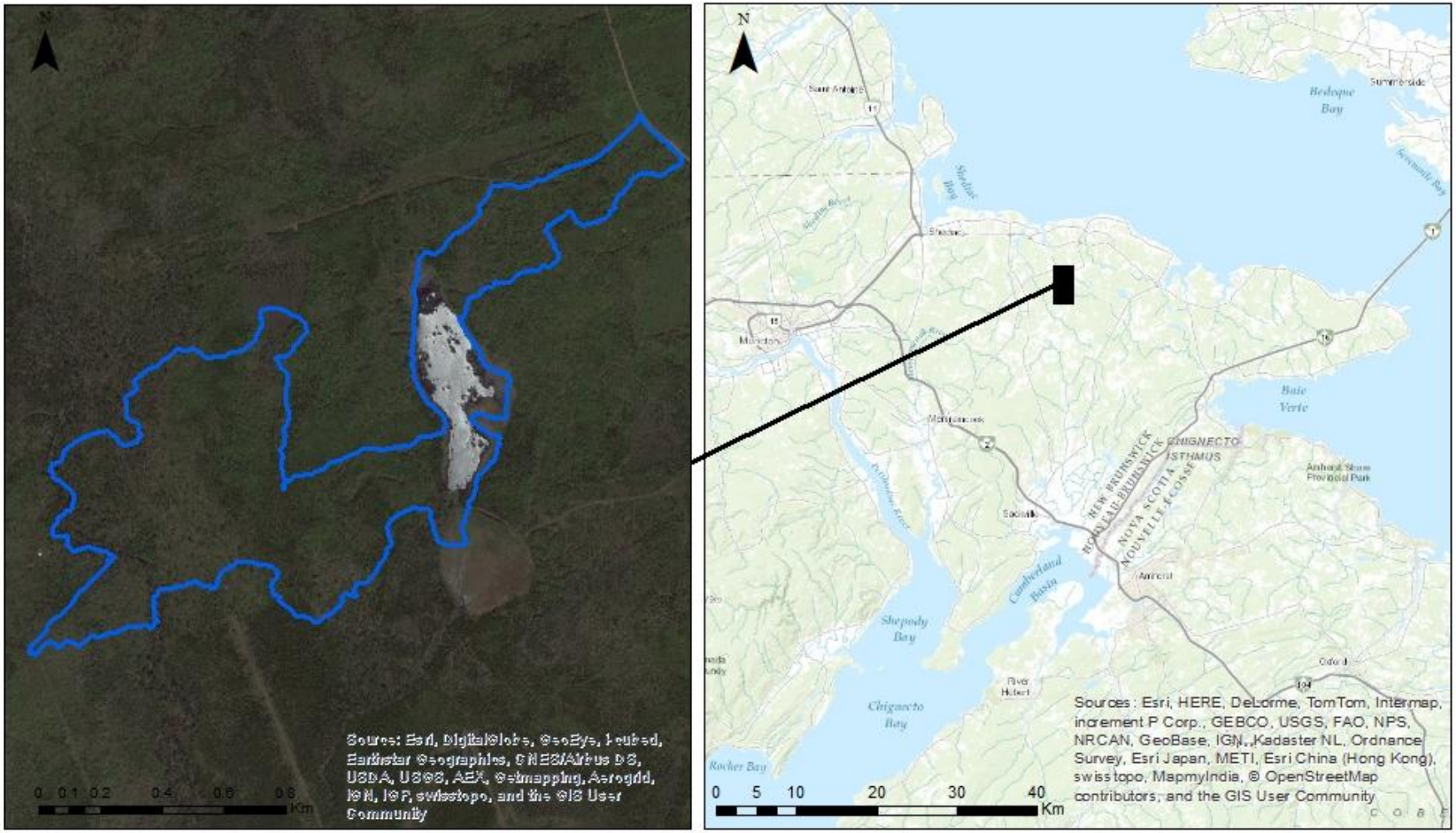
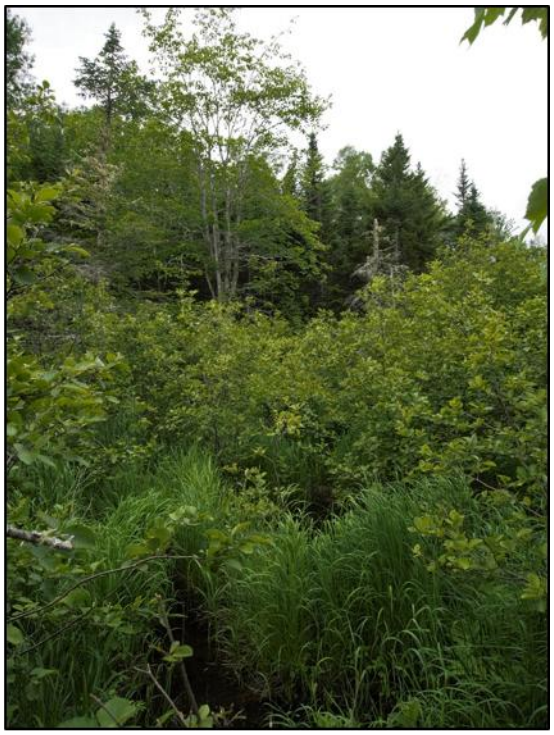


Figure 11. Survey coverage on the Cormier Village (site #10), Westmorland County, NB. Blue line represents track file logged by GPS unit. Survey carried out on June 25th, 2015. Aerial imagery from Bing Maps (accessed in winter 2015).


#10. Cormier Village (clockwise from top left) 1 – Mature mixedwood forest near Kinnear River. 2 – Alder and maple dominated wetland where several Canada Warblers were heard singing. 3 – Beaver influenced marsh dominated by cattail, Bluejoint Reedgrass and Water shield.

#11. Kouchibouguac River
Observer(s): Robinson, S.L.
Survey date: June 25th, 2015

No rare vascular plant species were found during the survey.

Site Summary
The majority of the 5 km survey area along the Kouchibouguac River consisted of agricultural land, recently reforested lots and other developed areas. The survey was focused along the river and in remnants of mature hardwood forest along the river banks. Most of these stands were Yellow Birch (*Betula alleghaniensis*)/Red Maple, and Red Maple/Red Spruce (*Picea rubens*) with scattered overtopping Eastern White Pine (*Pinus strobus*) trees. Some river bank sections in the central portion of the surveyed area were dominated by locally uncommon Eastern White Cedar (*Thuja occidentalis*) often with understories of Balsam Fir (*Abies balsamea*). Long sections of the river floodplain consists of Speckled Alder thickets and open meadows of Bluejoint Reedgrass (*Calamagrostis canadensis*) and Spotted Joe Pye Weed (*Eupatorium maculatum*). Patches of Trembling Aspen (*Populus tremuloides*) forest and weedy areas of heavy historical and recent anthropogenic disturbance are common where agricultural areas extend almost to the river banks.

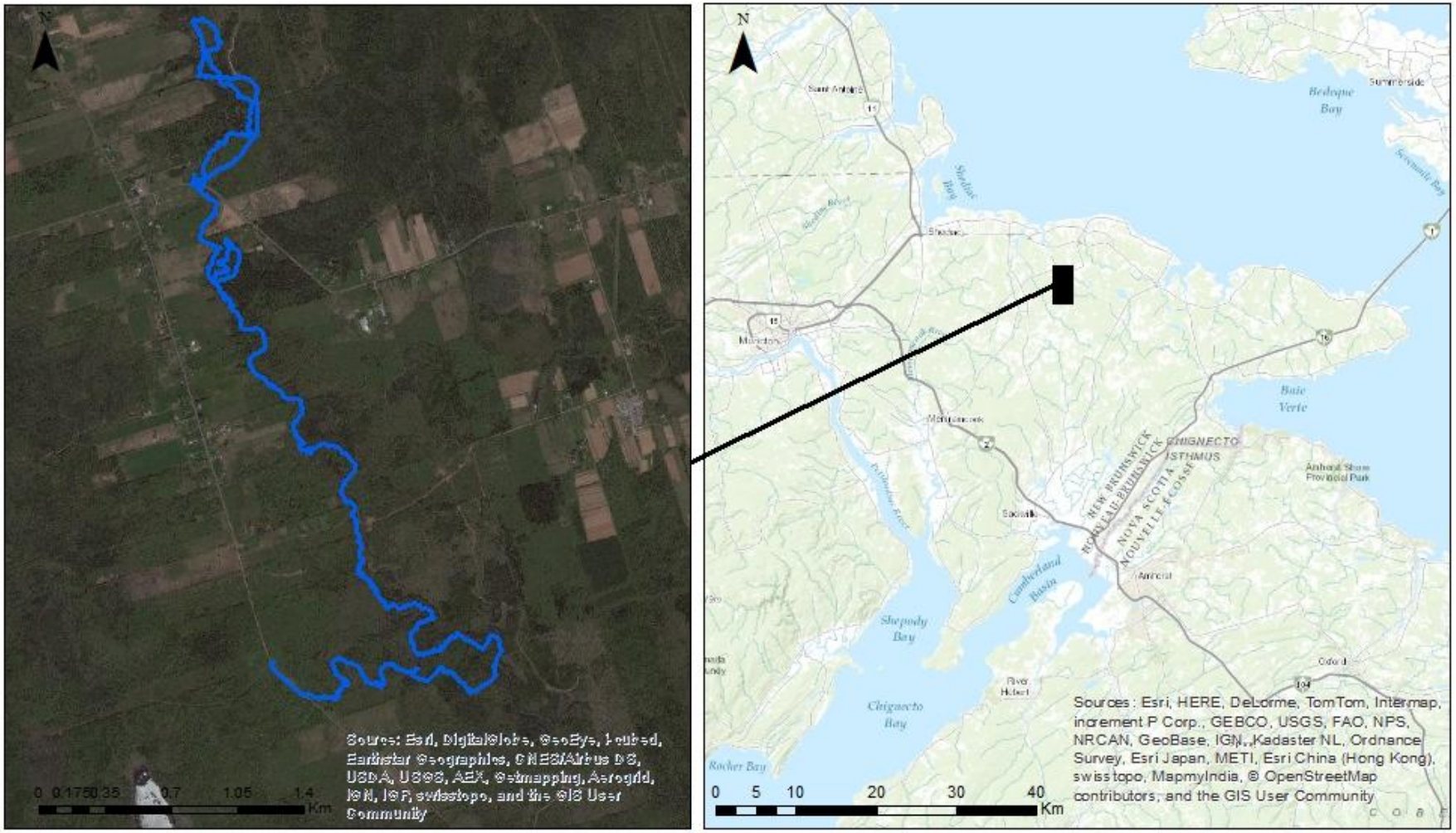


Figure 12. Survey coverage on the Kouchibouguac River (site #11), Westmorland County, NB. Blue line represents track file logged by GPS unit. Survey carried out on June 25th, 2015. Aerial imagery from Bing Maps (accessed in winter 2015).

#11. Kouchibouguac River (clockwise from top left) 1 - Mature White Birch, Red Maple, Red Spruce forest along Kouchibouguac River 2 – Species rich Balsam Fir/Speckled Alder swamp. 3 – Weed shrubby fallow agricultural field adjacent to the river.

#12. Upper Memramcook Bogs
Observer(s): Robinson, S.L.
Survey date: June 15th, 2015

Rare Species

Scientific Name	Common Name	S-Rank	GS Rank	Records
Carex wiegandii	Wiegand's Sedge	S3	Secure	2
Eriophorum russeolum	Russet Cotton-Grass	S3S4	Secure	6

Site Summary

The surveyed area consisted of 4km^2 of wetland with large expanses of recently logged forest interspersed with wide logging roads. The extensive wetland complex was highly acidic and generally dominated by Black Spruce (*Picea mariana*) and ericaceous shrubs. Lagg edges provided somewhat more mineral-richh conditions where Speckled Alder (*Alnus incana* ssp. *rugosa*) wetlands occasionally occurred in narrow bands. A particularly wet, neutral to alkaline lag in the northeast hosted several large patches of Russet Cottongrass (*Eriophorum russeolum*, S3S4, Secure) amongst Mud Sedge (*Carex limosa*) and Bog Buckbean (*Menyanthes trifoliata*). Forests between wetlands were mostly early-seral, young to intermediate in age, and mainly dominated by Red Maple (*Acer rubrum*), Black Spruce (*Picea mariana*), Balsam Fir (*Abies balsamea*). Patches of mature acidic Black Spruce (*Picea mariana*) swamp occur within the wetland matrix and two occurrences of Wiegand's Sedge (*Carex wiegandii*, S3, Secure) were found in one such swamp with a particularly open canopy. A stream flows from the west to the southern end of the site with a floodplain mostly dominated by Speckled Alder (*Alnus incana* ssp. *rugosa*) swamp with intermediate to mature Red Maple and Sensitive Fern (*Onoclea sensibilis*) and Cinnamon Fern (*Osmunda cinnamomea*) understory.

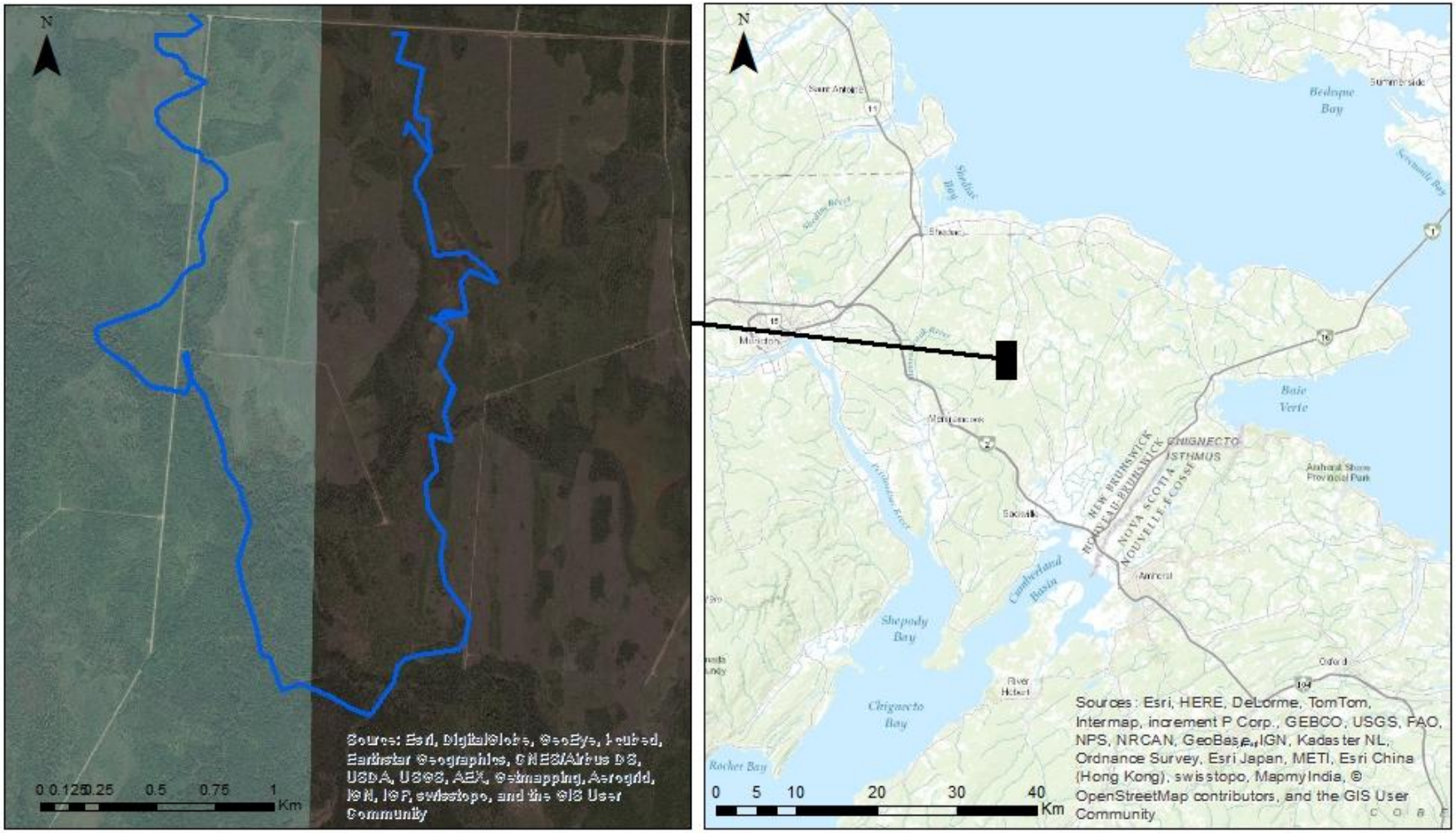


Figure 13. Survey coverage on the Upper Memramcook Bogs (site #12), Westmorland County, NB. Blue line represents track file logged by GPS unit. Survey carried out on June 15th, 2015. Aerial imagery from Bing Maps (accessed in winter 2015).

#12. Upper Memramcook Bogs (clockwise from left) 1 - Wet, neutral to alkaline lagg in the northeast of the site with Three-leaved False Soloman's Seal (*Maianthemum trifolium*), Mud Sedge (*Carex limosa*) and Bog Buckbean (*Menyanthes trifoliata*). 2 – Large population of Russet Cottongrass (*Eriophorum russeolum*, S3S4, Secure) was found in the wet lagg. Stream shore with mature mixed forest.

#13. Shemougue
Observer(s): Belliveau, A.G.; Mazerolle, D.M.
Survey date: June 18th, 2015

Rare Species

Scientific Name	Common Name	S-Rank	GS Rank	Records
Zannichellia palustris	Horned Pondweed	S3	Secure	1

Site Summary

Situated within a landscape heavily impacted by forestry over recent decades, this survey site contains numerous open wetlands and shrubby swamps, as well as several remnant patches of mature hardwood, mixedwood and coniferous forest. The majority of mature forest in the area consists of hardwood stands dominated by Red Maple (*Acer rubrum*), with minor components of Trembling Aspen (*Populus tremuloides*), Black Spruce (*Picea mariana*), Red Spruce (*Picea rubens*), Balsam Fir (*Abies balsamea*) and Paper Birch (*Betula papyrifera* var. *papyrifera*). Wet to mesic stands of Black Spruce/Balsam Fir forest are also quite common. Acidic, ericaceous shrub-dominated bogs with Black Spruce swamp lagg edges were observed at several locations and most of the survey effort in the western half of the site was focused on these habitats. The headwaters of Simpson Brook (in the eastern half of the surveyed area), a tributary of the Gaspereau River, include a fairly extensive dense tall shrub swamp of Speckled Alder (*Alnus incana* ssp. *rugosa*), Red Maple, Mountain Holly (*Nemopanthus mucronatus*) and Winterberry (*Ilex verticillata*), as well as graminoid riparian meadows and small circumneutral graminoid and shrub fens. Two bird species of conservation concern were detected during the survey: Olive-sided Flycatcher (*Contopus cooperi*, S3S4B, SARA Threatened) and Killdeer (*Charadrius vociferus*, S3B, Sensitive). Signs of Moose (*Alces americanus*, S5 and Secure in NB but S1 and At Risk in NS) activity were also observed at several locations.

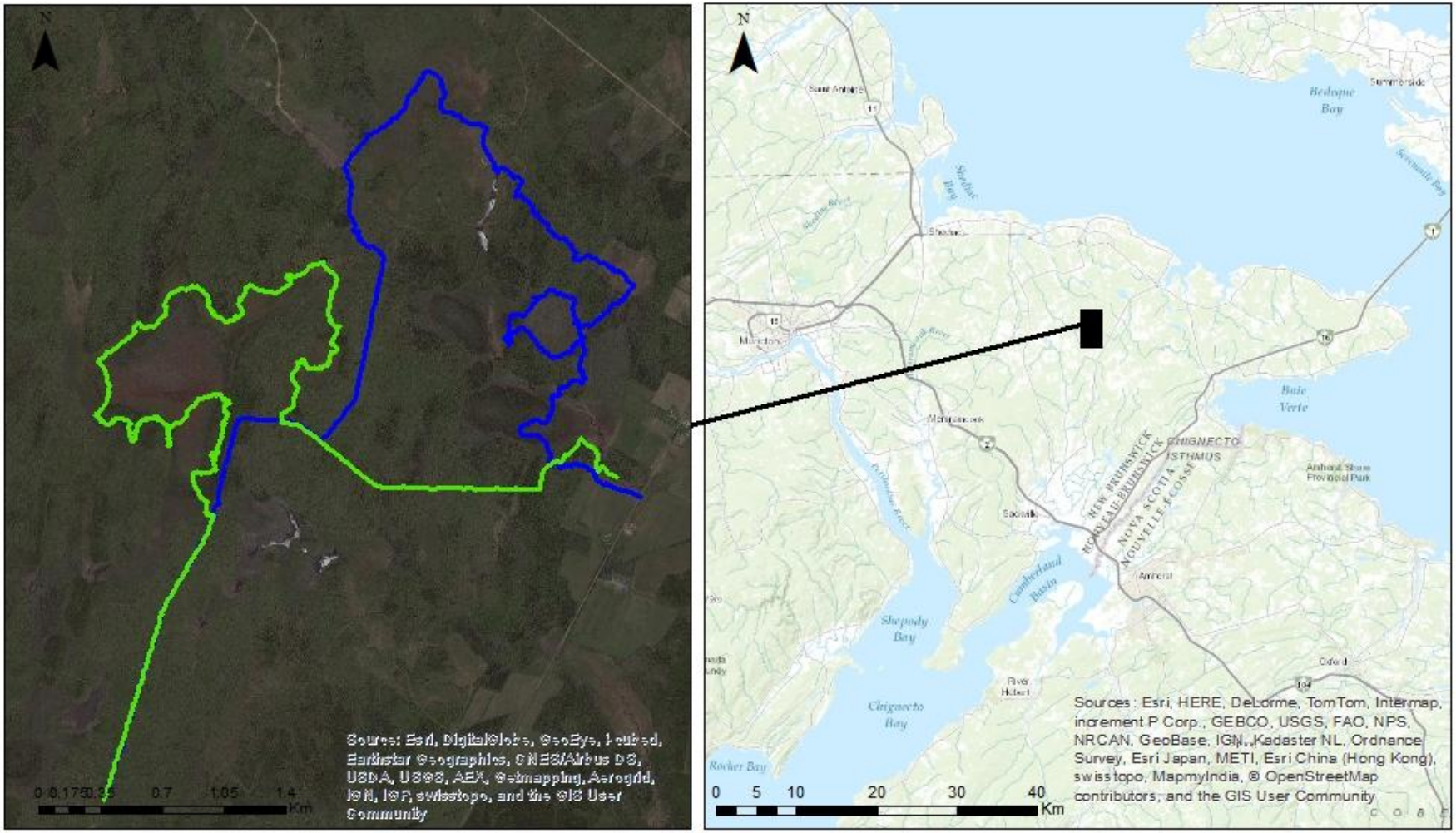


Figure 14. Survey coverage on the Shemougue (site #13), Westmorland County, NB. Blue line represents track file logged by D.M. Mazerolle's GPS unit; green line represents track file logged by A.G. Belliveau's GPS unit. Survey carried out on June 18th, 2015. Aerial imagery from Bing Maps (accessed in winter 2015).

#13. Shemogue (clockwise from top left). 1 - Acidic low ericaceous shrub ombrotrophic bog in the western section of the surveyed area. 2 - Mature Red Maple (*Acer rubrum*) and Trembling Aspen (Populus tremuloides) forest with Evergreen Wood Fern (*Dryopteris intermedia*) understory. 3 - Very wet neutral-pH seepage fen in headwaters of Simpson Brook. 4 - Shrub swamp and fen dominated by Speckled Alder (*Alnus incana* ssp. *rugosa*), Broad-leaved Cattail (*Typha latifolia*), Northern Meadowsweet (*Spiraea alba* var. *latifolia*) and ericaceous shrubs.

#14. Square Lake
Observer(s): Robinson, S.L.
Survey date: June 18th, 2015

No rare vascular plant species were found during the survey.

Site Summary
Highly disturbed by recent and historical logging as well as road and residential development, the surveyed area around Square Lake yielded no rare species records. Fairly extensive tracts of forest have been affected by recent wood harvesting thus the majority of the upland forest on the site is early-seral, young to intermediate in age, and mainly dominated by Red Maple (*Acer rubrum*), Black Spruce (*Picea mariana*), Balsam Fir (*Abies balsamea*) and White Spruce (*Picea alba*). A large forested wetland to the northwest however has not been severely affected by forestry and hosts relatively older forest stands. The area contains several occurrences of mature Black Spruce / Tamarack (*Larix laricina*) / Red Maple swamp amongst large swaths of shrub dominated swamp comprised mainly of Speckled Alder (*Alnus incana* ssp. *rugosa*), Northern Meadowsweet (*Spiraea alba* var. *latifolia*) and Leatherleaf (*Chamaedaphne calyculata*). No photos are available for this site due to camera issues.

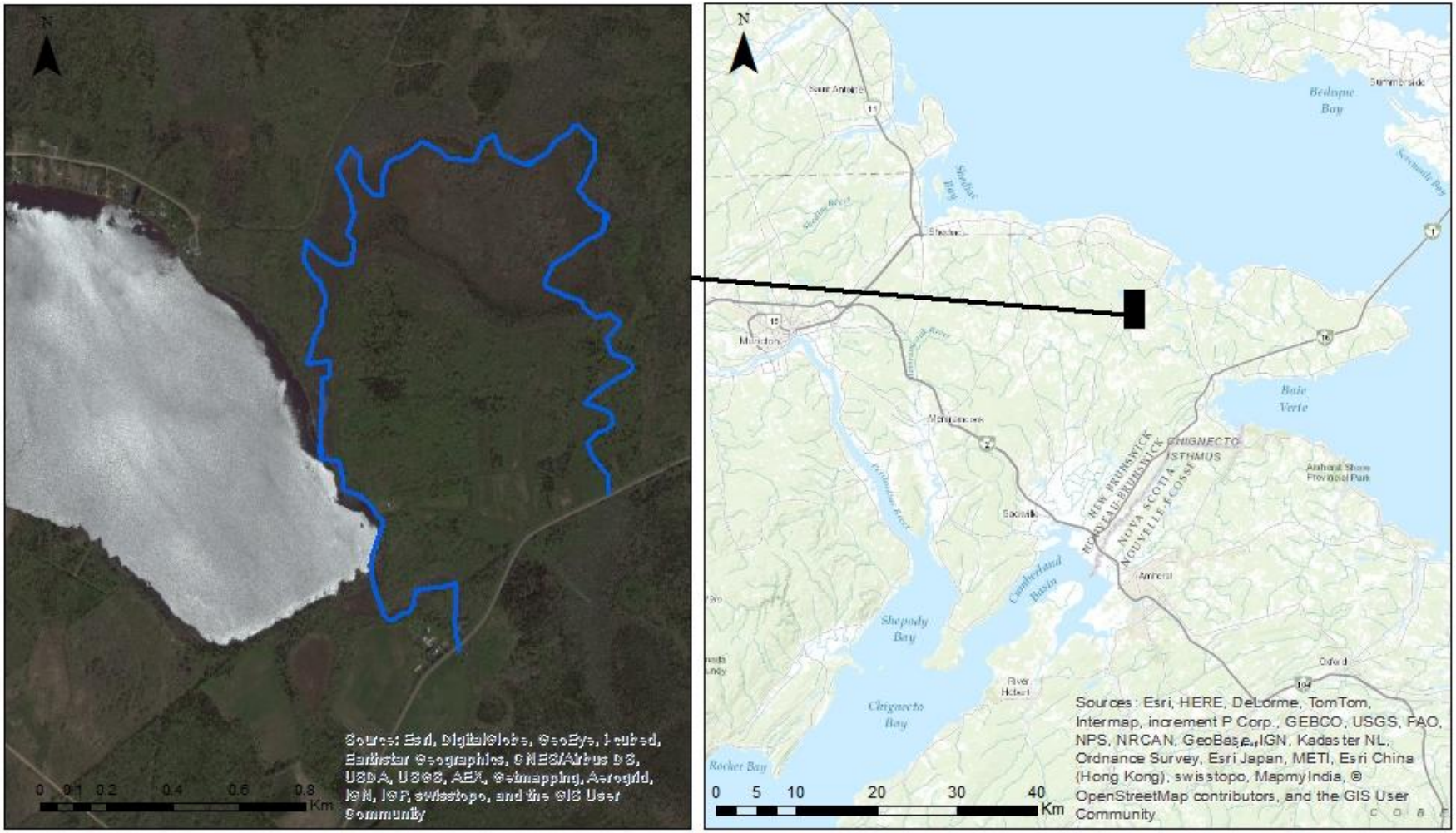


Figure 15. Survey coverage on the Square Lake (site #14), Westmorland County, NB. Blue line represents track file logged by GPS unit. Survey carried out on June 18th, 2015. Aerial imagery from Bing Maps (accessed in winter 2015).

#15. Anderson Settlement
Observer(s): Belliveau, A.G.
Survey date: October 8th, 2015

Rare Species

Scientific Name	Common Name	S-Rank	GS Rank	Records
Carex atlantica ssp. *atlantica*	Atlantic Sedge	S1	May Be At Risk	1
Spiranthes cernua	Nodding Ladies'-Tresses	S2	Sensitive	1

Site Summary

This site included mature mixedwood forests along the Gaspereau River, managed, usually young to immature upland forest, and large, fairly acidic bogs and fens with adjacent lagg swamp. Riparian forests ranged from 40m to 150m in width were primarily composed of Red Maple (*Acer rubrum*), Red Spruce (*Picea rubens*), Yellow Birch (*Betula alleghaniensis*), and Sugar Maple (*Acer saccharum*). Managed forests were generally young and mostly dominated by spruce and other coniferous species. Bog and fens were dominated by Black Spruce (*Picea mariana*), and by Red Maple (*Acer rubrum*) in and around lagg swamps. Between one such lagg edge and a dry bog, Atlantic Sedge (*Carex atlantica* ssp. *atlantica*, S1, May Be At Risk) was observed. Nodding Ladies'-Tresses was also observed in moist, acidic gravelly roadside habitat. Both these species are much more common in nearby Nova Scotia, and are likely present in more, as-of-yet discovered areas of southeastern New Brunswick. A pair of Gray Jays (*Perisoreus canadensis*, S4B, Secure), and signs of Moose were also observed.

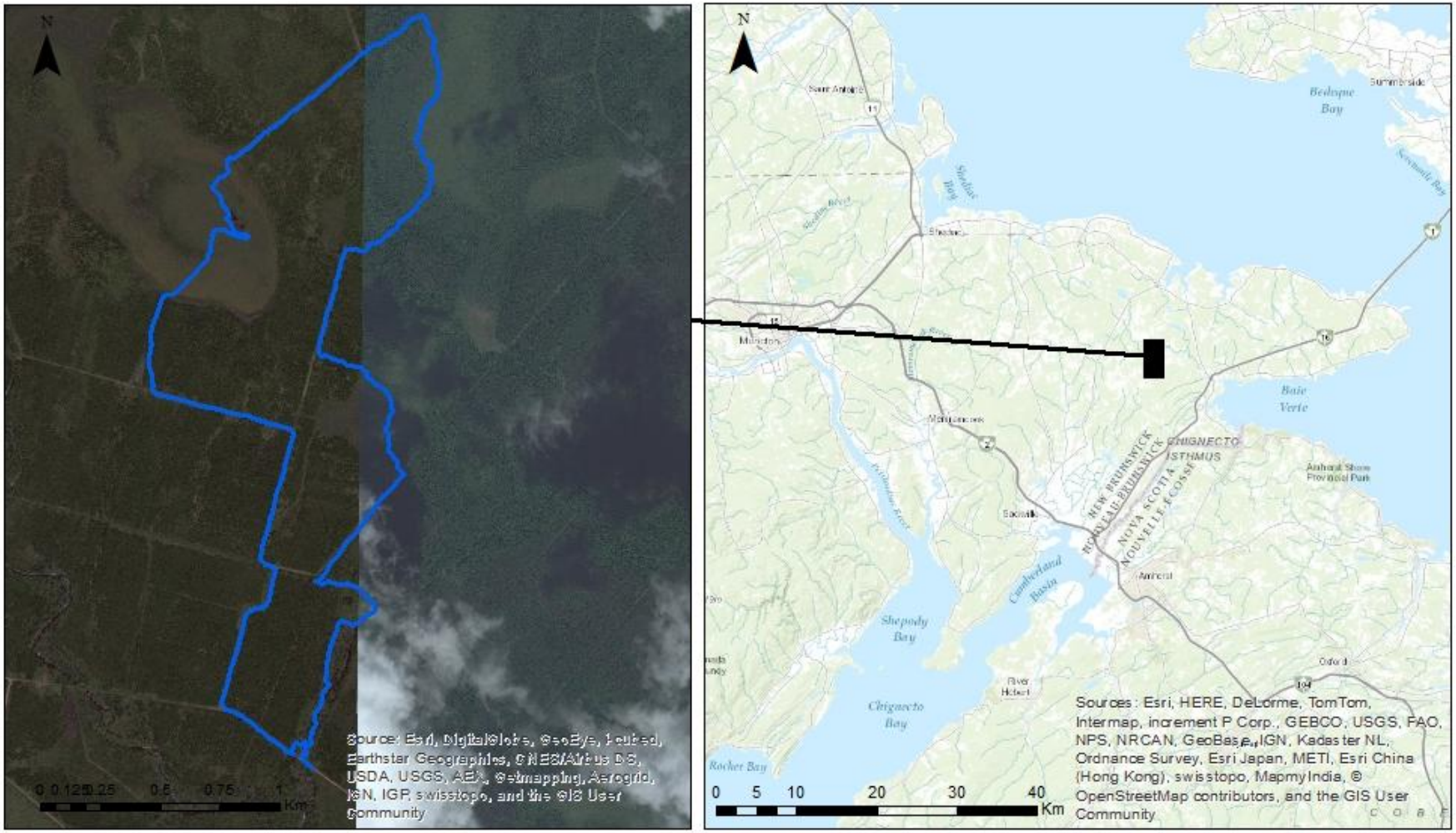


Figure 16. Survey coverage on the Anderson Settlement (site #15), Westmorland County, NB. Blue line represents track file logged by GPS unit. Survey carried out on October 8th, 2015. Aerial imagery from Bing Maps (accessed in winter 2015).

#15. Anderson Settlement (clockwise from top left) 1 – Acidic bog. 2 – Bog ponds. 3 – Nodding Ladies' Tresses (*Spiranthes cernua,* S2, Sensitive).

#16. Gaspereau River
Observer(s): Blaney, C.S.
Survey date: June 16th, 2015

Rare Species

Scientific Name	Common Name	S-Rank	GS Rank	Records
Polygonum arifolium	Halberd-leaved Tearthumb	S3	Secure	3

Site Summary

This site contained remnant mature and rather rich Red Maple and mixed forest floodplain, terrace and river slope in the south end along with a large open peatland and associated wetlands in the north. In between, there is very limited natural upland forest remaining on the site as most has been converted to conifer plantation.

The floodplain forest of the Gaspereau is mostly a narrow to very narrow remnant of mature forest with harvesting and forest conversion to plantation having extended to the crest of the river slope or to the edge of the floodplain. In the southernmost part of the surveyed area, however, the river's 180 degree turn protects a more extensive area of forest. Floodplain and river slope forests are dominated by Red Maple and Red Spruce, with some Yellow Birch, and more local Eastern Hemlock, Sugar Maple and White Ash. Some rich floodplain terraces under Red Maple with Ostrich Fern (*Matteuccia struthiopteris*) understory and a few other indicator plants of richer forests are present. One notable feature of the floodplain forest along the downstream portion of the Gaspereau River is the abundant occurrence of Wood Anemone (*Anemone quinquefolia*). This species is common in New Brunswick as a whole (S4 – Secure) but is rare in Nova Scotia (S2 – Sensitive) and is not otherwise known in the Chignecto Isthmus. The next nearest known occurrences are 66 km southeast on the West Branch Wallace River in Nova Scotia and 78 km northwest on the upper Petitcodiac River system.

The large, open peatland in the north end is mostly dominated by dense ericaceous shrubs, but in its east end a wetter, more open community supporting a greater diversity of peatland-associated herbaceous species is present around some small ponds. Lagg zone swamps of Black Spruce, Tamarack, Mountain Holly (*Nemopanthus mucronatus*), Winterberry Holly (*Ilex verticillata*) and Speckled Alder (*Alnus incana* ssp. *rugosa*) around the peatland margin are extensive, and singing male Canada Warbler and Olive-sided Flycatcher (both S3 – Sensitive in New Brunswick and Threatened nationally under the Species at Risk Act) were present in these habitats.

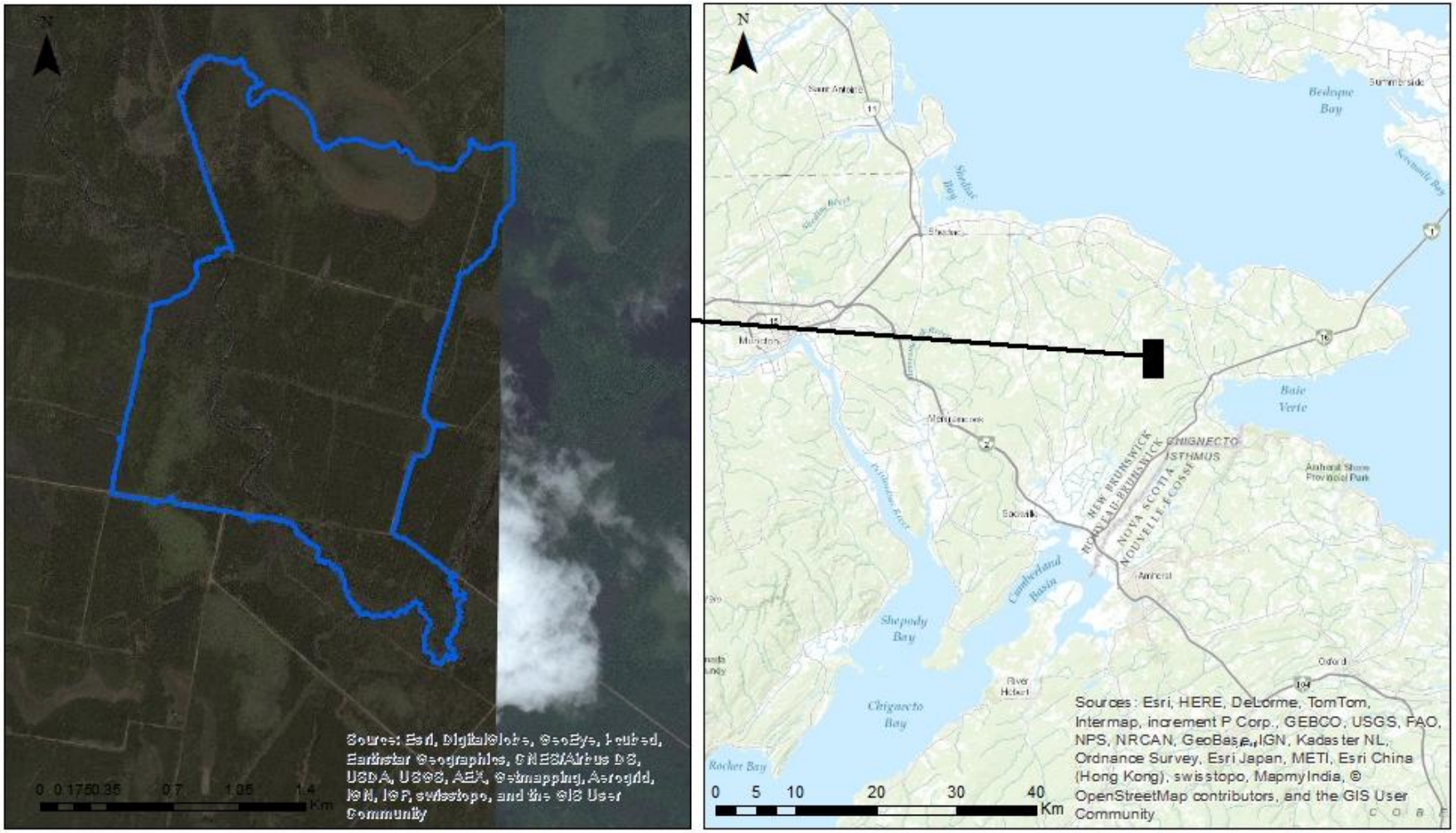


Figure 17. Survey coverage on the Gaspereau River (site #16), Westmorland County, NB. Blue line represents track file logged by GPS unit. Survey carried out on June 16th, 2015. Aerial imagery from Bing Maps (accessed in winter 2015).

#16. Gaspereau River (Clockwise from top left): **1** - Mature mixed forest along Gaspereau River; **2** – Potential Wood Turtle (S3 – At Risk; Threatened) nesting habitat on recently deposited sand bar in Gaspereau River floodplain; **3** – Peaty lagg swamp near bog margin, dominated by Bog False Solomon's-Seal (*Maianthemum trifolium*, S5 – Secure); **4** – Low biomass, high diversity area of wet peatland around small bog ponds; **5** – Black Spruce and Tussock Cottongrass (*Eriophorum vaginatum* var. *spissum*) at bog margin; **6** – Wood Anemone (*Anemone quinquefolia*, S4 – Secure), for which the Gaspereau River supports the only known Chignecto Isthmus occurrence.

#17. Missiguash
Observer(s): Mazerolle, D.M.
Survey date: October 7th, 2015

Rare Species

Scientific Name	Common Name	S-Rank	GS Rank	Records
Carex chordorrhiza	Creeping Sedge	S1	May Be At Risk	1
Carex livida var. *radicaulis*	Livid Sedge	S1	May Be At Risk	1
Carex tenuiflora	Sparse-Flowered Sedge	S1	May Be At Risk	2
Fraxinus nigra	Black Ash	S1S2	At Risk	4
Eriophorum gracile	Slender Cotton-Grass	S2	Sensitive	1
Juncus stygius ssp. *americanus*	Moor Rush	S2	Sensitive	1
Equisetum variegatum	Variegated Horsetail	S3	Secure	4
Rhamnus alnifolia	Alderleaf Buckthorn	S3	Secure	11
Symplocarpus foetidus	Skunk Cabbage	S3S4	Secure	15
Eriophorum russeolum	Russet Cotton-Grass	S3S4	Secure	3

Site Summary

The extensive wetlands found along Nova Scotia's Missiguash River system have been extensively investigated by previous AC CDC fieldwork that has documented widespread provincially rare calcareous fen and swamp forest assemblages. Survey at this site covered a portion of the system that had not previously been visited. Coverage spanned an area 3.5 km by 1 km, including areas in the vicinity of properties recently acquired by the Nature Conservancy of Canada. The southern half of the surveyed area mainly consists of neutral to calcareous mature seepage swamps of Red Maple (*Acer rubrum*), Black Spruce (*Picea mariana*) and Speckled Alder (*Alnus incana* ssp. *rugosa*), which support sparsely scattered individuals of the provincially listed Black Ash (*Fraxinus nigra*, S1S2, At Risk) and large populations of Alder-leaved Buckthorn (*Rhamnus alnifolia*, S3, Secure) and Skunk Cabbage (*Symplocarpus foetidus*, S3S4, Secure). These seepage swamps are interrupted by upland islands of intact mature Black Spruce forest, Black Spruce forest partially degraded through pre-commercial thinning, and regenerating ~20 year old clear cuts. At the northwestern end of the site, survey coverage was focused on seepage swamp, fen and bog communities at the periphery of a very extensive open wetland. Rich alkaline seepage fen in this area supported very rare plants for Nova Scotia, including Creeping Sedge (*Carex chordorrhiza*, S1, May Be At Risk), Livid Sedge (*Carex livida* var. *radicaulis*, S1, May Be At Risk), Sparse-flowered Sedge (*Carex tenuiflora*, S1, May Be At Risk; not previously known from Cumberland County), Slender Cotton-grass (*Eriophorum gracile*, S2, Sensitive) and Moor Rush (*Juncus stygius*, S2, Sensitive). The Missiguash wetlands are important for the movement of Moose from the relatively healthy population in adjacent New Brunswick into mainland Nova Scotia, where Moose are threatened (S1, At Risk). Fresh Moose tracks were observed at two locations.

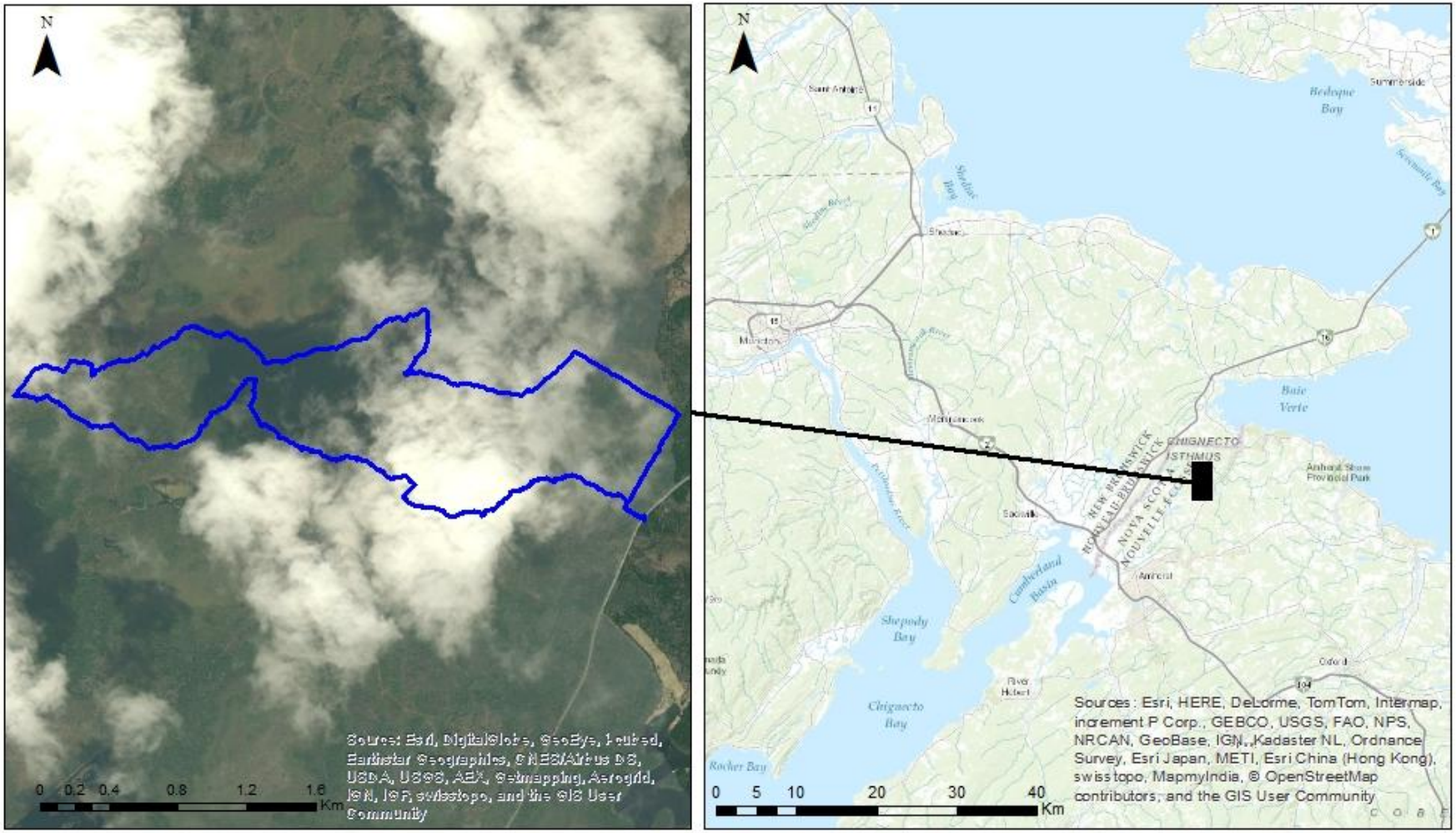


Figure 18. Survey coverage on the Missiguash (site #17), Cumberland County, NS. Blue line represents track file logged by GPS unit. Survey carried out on October 7th, 2015. Aerial imagery from Bing Maps (accessed in winter 2015).

#17. Missiguash (clockwise from top left). 1 - Mature Black Spruce (*Picea mariana*) swamp, in area supporting Alder-leaved Buckthorn (*Rhamnus alnifolia*, S3, Secure) and Skunk Cabbage (*Symplocarpus foetidus*, S3S4, Secure). 2 - Speckled Alder (*Alnus incana* ssp. *rugosa*), Red Maple (*Acer rubrum*) and Black Spruce swamp supporting a small population of the provincially rare Black Ash (*Fraxinus nigra*, S1S2, At Risk). 3 - Very wet circumneutral seepage fen area supporting Moor Rush (*Juncus stygius* var. *americanus*, S2, Sensitive), at edge of extensive acidic bog. 4 - Rich calcareous graminoid and forb fen supporting Creeping Sedge (*Carex chordorrhiza*, S1, May Be At Risk), Livid Sedge (*Carex livida* var. *radicaulis*, S1, May Be At Risk), Sparse-flowered Sedge (*Carex tenuiflora*, S1, May Be At Risk) and Slender Cotton-grass (*Eriophorum gracile*, S2, Sensitive).

#18. Tidnish Bridge
Observer(s): Belliveau, A.G.
Survey date: October 7th, 2015

Rare Species

Scientific Name	Common Name	S-Rank	GS Rank	Records
Agalinis paupercula var. *borealis*	Small-flowered Agalinis	S1	Undetermined	4
Equisetum variegatum	Variegated Horsetail	S3	Secure	3
Ranunculus gmelinii	Gmelin's Water Buttercup	S3	Secure	1

Site Summary

Although areas of the Missiguash wetlands just south of the surveyed area at Tidnish Bridge have significant calcareous plant communities, no such sites were observed. The large bog was relatively dry and strongly acidic, dominated by stunted Black Spruce (*Picea mariana*) and ericaceous shrubs, except for Red Maple (*Acer rubrum*) dominated lagg edges. Upland forests were mostly young and recently harvested to varying degrees. Along roadsides, Small-flowered Agalinis (*Agalinis paupercula* var*. borealis*, S1, Undetermined), Variegated Horsetail (*Equisetum variegatum*, S3, Secure), and Gmelin's Water Buttercup (*Ranunculus gmelinii,* S3, Secure) were observed in moist to wet habitat. The Gmelin's Water Buttercup was in wet ditches habitat, and had presumably established from nearby populations in calcareous streams and open water habitat. The site had an unusual abundance of Moose signs, indicating its significance for interchange between mainland Nova Scotia and New Brunswick Moose populations.

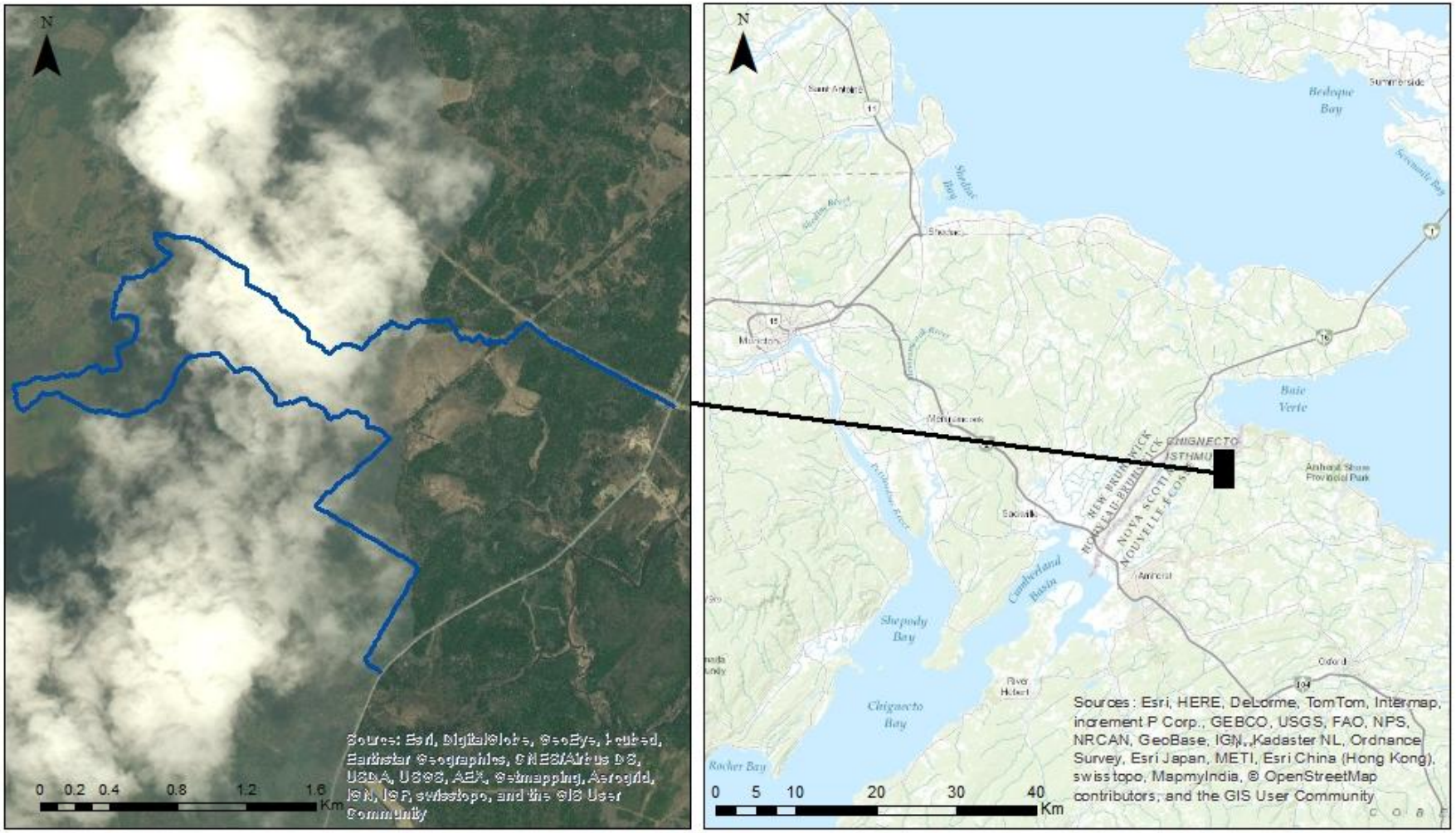


Figure 19. Survey coverage on the Tidnish Bridge (site #18), Cumberland County, NS. Blue line represents track file logged by GPS unit. Survey carried out on October 7th, 2015. Aerial imagery from Bing Maps (accessed in winter 2015).

#18. Tidnish Bridge Small-flowered Agalinis (*Agalinis paupercula*, S1, Undetermined) growing in moist roadside habitat.

#19. Nappan River
Observer(s): Belliveau, A.G.; Mazerolle, D.M.
Survey date: June 17th, 2015

Rare Species

Scientific Name	Common Name	S-Rank	GS Rank	Records
Fraxinus nigra	Black Ash	S1S2	At Risk	2
Carex tuckermanii	Tuckerman's Sedge	S2	Sensitive	2

Site Summary

In contrast to the surrounding area dominated by young coniferous forests subjected to heavy recent forestry, the river's riparian forests are fairly intact and often composed of shade-tolerant, mature to old forest. These included at least one small patch of old Red Maple (*Acer rubrum*), Yellow Birch (*Betula alleghaniensis*) and Red Spruce (*Picea rubens*), a patch of mature Red Spruce forest with a bryophyte-dominated understory, and an old patch of Eastern Hemlock (*Tsuga canadensis*), Red Spruce, and White Pine (*Pinus strobus*) forest which was measured at approximately 105 years of age. Floodplain habitat was mostly dominated by Twisted Sedge (*Carex torta*), Speckled Alder (*Alnus incana* ssp. *rugosa*), Bluejoint Reed Grass (*Calamagrostis canadensis*), Red Maple, and Ostrich Fern (*Matteuccia struthiopteris*). A few wider, hardwood-dominated floodplains included vernal pools and Tuckerman's Sedge (*Carex tuckermanii*, S2, Sensitive). Two smaller, adjoining streams had several Black Ash (*Fraxinus nigra*, S1S2, At Risk) trees. Breeding birds included Lincoln's Sparrow (*Melospiza lincolnii*, S4B, Secure) and Common Merganser (*Mergus merganser*, S5B,S4N, Secure; brood observed).

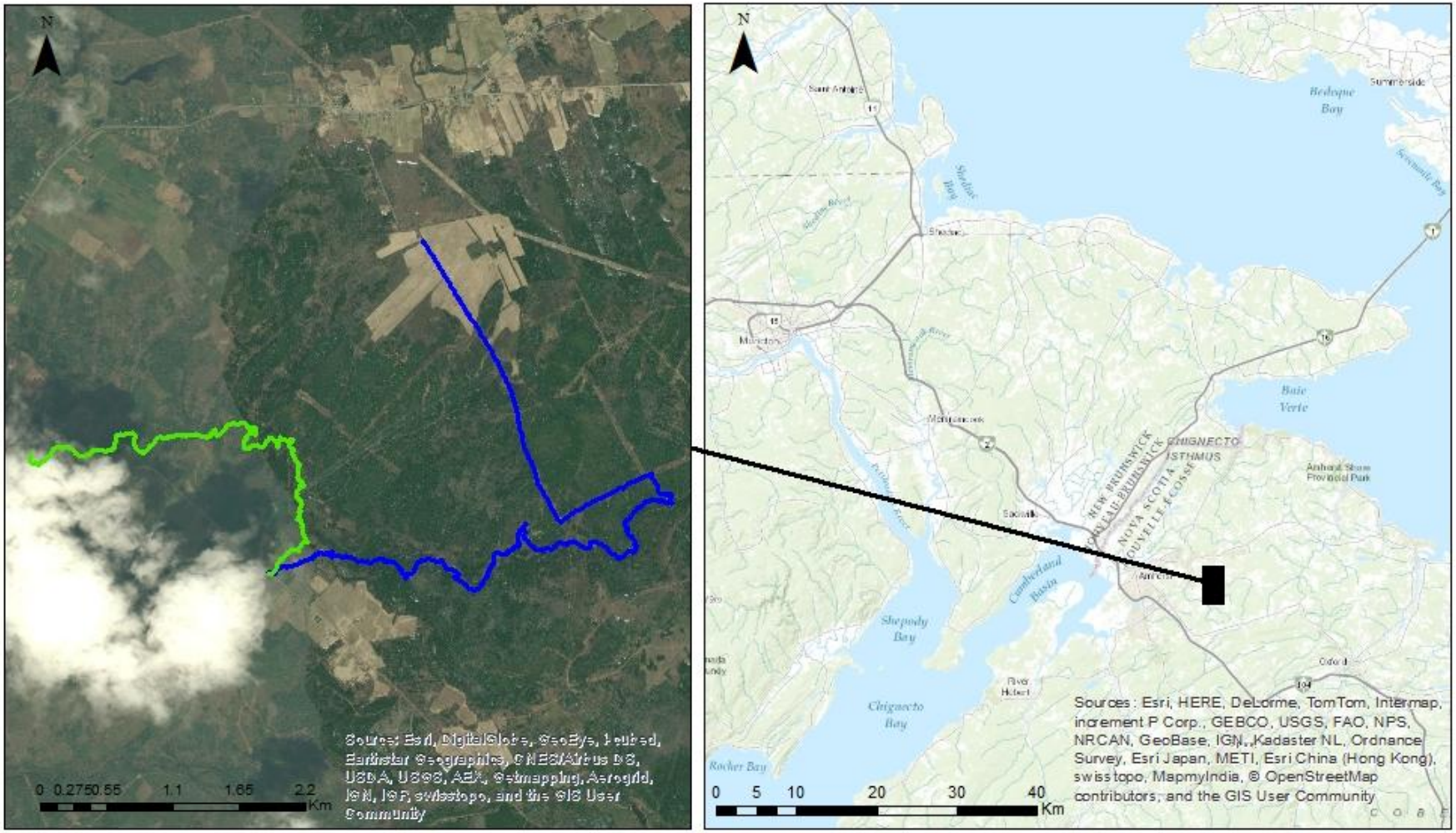


Figure 20. Survey coverage on the Nappan River (site #19), Cumberland County, NS. Blue line represents track file logged by D.M. Mazerolle's GPS unit; green line represents track file logged by A.G. Belliveau's GPS unit. Survey carried out on June 17th, 2015. Aerial imagery from Bing Maps (accessed in winter 2015).

#19. Nappan River (clockwise from top left) 1 – Vernal pool in larger, forested floodplain with Tuckerman's Sedge (*Carex tuckermanii*, S2 – Sensitive). 2 – Underlying sedimentary sandstone along the river. 3 – Old hardwood forest along the slopes of the Nappan River. 4 – Typical floodplain vegetation.

#20. Shinimicas River
Observer(s): Robinson, S.L.
Survey date: June 17th, 2015

Rare Species

Scientific Name	Common Name	S-Rank	GS Rank	Records
Fraxinus nigra	Black Ash	S1S2	At Risk	1
Rudbeckia laciniata	Cut-Leaved Coneflower	S1S2	May Be At Risk	5
Polygonum arifolium	Halberd-leaved Tearthumb	S2	Sensitive	1
Samolus valerandi ssp. *parviflorus*	Seaside Brookweed	S3	Sensitive	3

Site Summary

The survey consisted of a 6 km stretch of the Shinimicas River from the Highway 6 bridge in the south to the Shinimicas Road bridge in the north. Though some surveyed sections of the river were bordered by active agricultural fields, the majority of the area has intact rich floodplain forest and terrace habitats. Wide swaths of the floodplain habitat were dominated by Speckled Alder (*Alnus incana* ssp. *rugosa*), Bluejoint Reed Grass (*Calamagrostis canadensis*), Red Maple, and Ostrich Fern (*Matteuccia struthiopteris*). Some intact floodplains and lower valley slopes along the river are exceptionally rich, supporting stands of mature Sugar Maple (*Acer saccharum*) and White Ash (*Fraxinus americana*). A small, mixedwood wetland in the southern portion had several Black Ash trees (*Fraxinus nigra*, S1S2, At Risk). Cut-Leaved Coneflower (*Rudbeckia laciniata*, S1S2, May Be At Risk) was found in several locations along a sand/gravel bar and graminoid-dominated floodplain. The northern portion of the river esturary is tidally influenced with wide tidal shore communities and bands of well-developed salt marsh. In brackish tidal muddy rivershores several patches of abundant Seaside Brookweed (*Samolus valerandi* ssp. *parviflorus*, S3, Sensitive) were found. A single Bobolink (*Dolichonyx oryzivorus*, S3S4B, SARA Threatened) was singing from agricultural fields along Shinimicas Road.

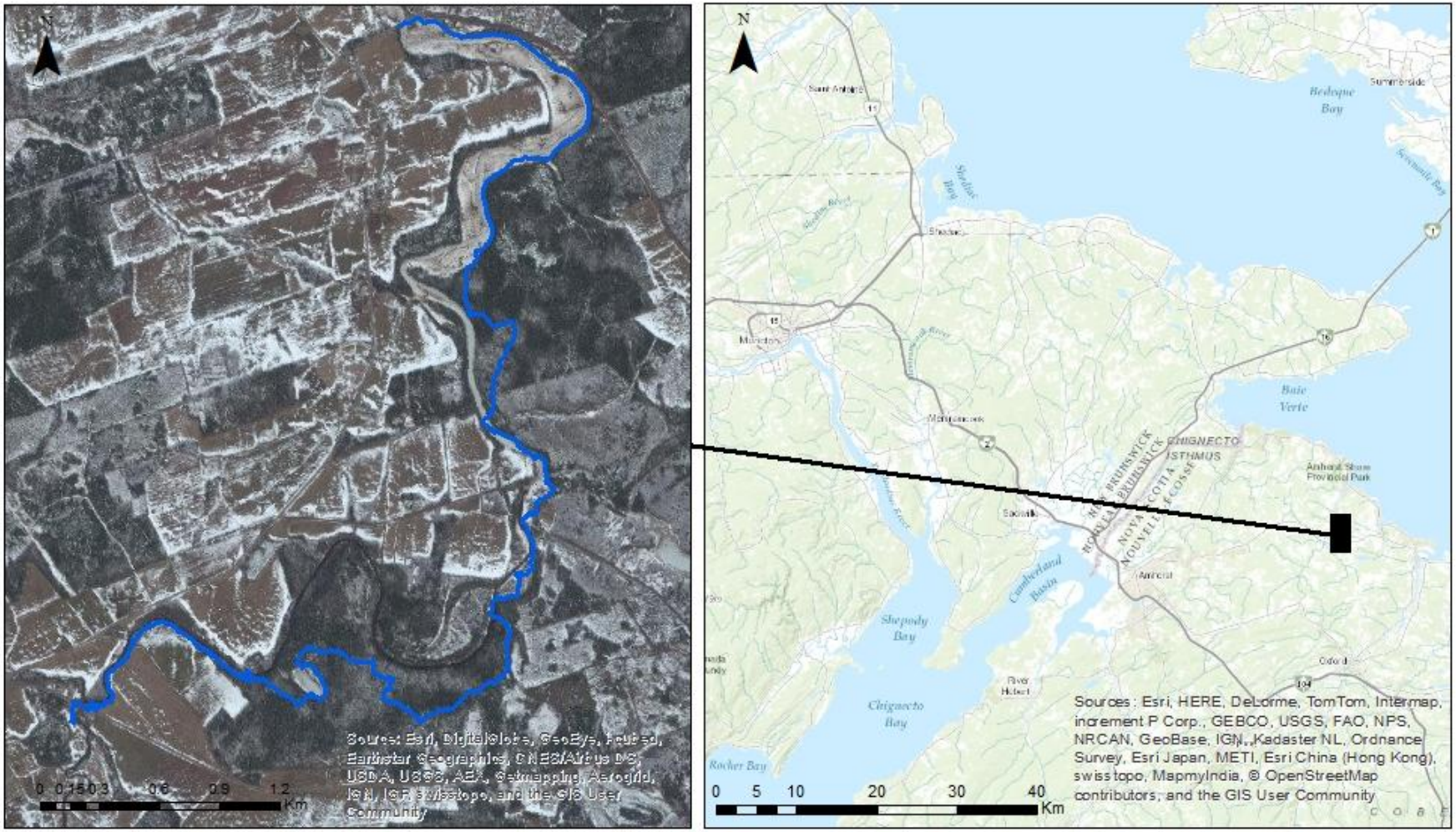


Figure 21. Survey coverage on the Shinimicas River (site #20), Cumberland County, NS. Blue line represents track file logged by GPS unit. Survey carried out on June 17th, 2015. Aerial imagery from Bing Maps (accessed in winter 2015).

#20. Shinimicas River (clockwise from top left) 1 – Mature floodplain terrace habitat. 2 Rich floodplain dominated by Red Maple and Ostrich Fern (*Matteuccia struthiopteris*). 3 - Cut-Leaved Coneflower (*Rudbeckia laciniata*, S1S2, May Be At Risk) on a sand/gravel bar along the Shinimicas River. 4 – Canadian Tiger Swallowtails (*Papilio canadensis,* S5 – Secure) 'nectaring' on wet mud along the sandy shore of the river.

APPENDIX 1. NatureServe Status Rank Definitions.
Source: http://www.natureserve.org/conservation-tools/conservation-status-assessment

Global Rank	National Rank	Provincial Rank	DEFINITION
GX	NX	SX	**Presumed Extinct** (G-rank) / **Extirpated** (N- and S-ranks) — Species or ecosystem not located despite intensive searches and virtually no likelihood of rediscovery.
GH	NH	SH	**Possibly Extinct** (G-rank) / **Extirpated** (N- and S-ranks) — Known from only historical occurrences but still some hope of rediscovery. There is evidence that the species may be extinct or the ecosystem may be eliminated throughout its range, but not enough to state this with certainty.
G1	N1	S1	**Critically Imperiled** — At very high risk of extinction (G-rank) / extirpation (N- and S-ranks) due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors.
G2	N2	S2	**Imperiled** — At high risk of extinction (G-rank) / extirpation (N- and S-ranks) due to very restricted range, very few populations, steep declines, or other factors.
G3	N3	S3	**Vulnerable** — At moderate risk of extinction (G-rank) / extirpation (N- and S-ranks) due to a restricted range, relatively few populations, recent and widespread declines, or other factors.
G4	N4	S4	**Apparently Secure** — Uncommon but not rare; some cause for long-term concern due to declines or other factors.
G5	N5	S5	**Secure** — Common; widespread and abundant.

APPENDIX 2. General Status Ranks Definitions
Source: http://www.wildspecies.ca

RANK	DEFINITION
Extinct	Species that are extirpated worldwide (*i.e.*, they no longer exist anywhere).
Extirpated	Species that are no longer present in a given geographic area, but occur in other areas.
At Risk	Species which have been determined to be at risk of extinction (*i.e.* Endangered or Threatened) by a formal, detailed risk assessment (COSEWIC status assessment or provincial or territorial equivalent).
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.
Exotic	Species that have been moved beyond their natural range as a result of human activity. In this report, Exotic species have been purposefully excluded from all other categories.
Accidental	Species occurring infrequently and unpredictably, outside their usual range.

APPENDIX 3. Vascular plant species documented at survey sites, with Nova Scotia status ranks (rank = S-rank) and general indication of on-site abundance (c – common, f – fairly common, l – locally common, r – rare, rl – rare but locally common, u – uncommon, x – abundance not recorded). "cf." = ID to species is probable only. See Appendices 1 and 2 for rank definitions.

		Batemans Brook	Melanson Settlement	Scoudouc River North	Scoudouc River Center	Scoudouc River South	Memramcook River	Basse-Aboujagane	Aboujagane River	Kinnear River	Cormier Village	Kouchibouguac River	Upper Millbank Bog	Shemougue	Square Lake	Anderson Settlement	Gaspereau River		Missiguash	Tidnish Bridge	Nappan River	Shinimicas River
Scientific Name	**rank NB**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**rank NS**	**17**	**18**	**19**	**20**
Lycopodiaceae																						
Huperzia lucidula	S5		r						u		u			x				S5				
Lycopodiella inundata	S4S5		r			r	x											S5		r		
Lycopodium annotinum	S5	c	c	c			u	l	u	c	u	r		u	u	u	x	S5	x	u	u	r
Lycopodium clavatum	S5	c					r				r	r	r	x				S5	r	r	x	
Lycopodium complanatum	S4S5	r																S3S4				
Lycopodium dendroideum	S5	c	f	c			u	u	u	c	u	r	r	u			x	S5	u	r	u	u
Lycopodium digitatum	S5	r					r					r		x	r			S5				
Lycopodium hickeyi	S4	r																S4?				r
Lycopodium lagopus	S4						x											S4				
Lycopodium obscurum	S5	f																S4S5				
Equisetaceae																						
Equisetum arvense	S5	c	u	c	u	l	l	u	l	c	u	u	f	l	f	l	x	S5	c	f	u	u
Equisetum fluviatile	S5				l	r	u	c	l				l		l		x	S5	c	u	r	
Equisetum scirpoides	S4	r																S3S4				
Equisetum sylvaticum	S5	c	r	c	u	f	u	f-c	f	c	f	u	f	f	u	u	x	S5	c	f	f	u

Scientific Name	rank NB	Batemans Brook 1	Melanson Settlement 2	Scoudouc River North 3	Scoudouc River Center 4	Scoudouc River South 5	Memramcook River 6	Basse-Aboujagane 7	Aboujagane River 8	Kinnear River 9	Cormier Village 10	Kouchibouguac River 11	Upper Mechanicook Bogs 12	Shemougue 13	Square Lake 14	Anderson Settlement 15	Gaspereau River 16	rank NS	Missiguash 17	Tidnish Bridge 18	Nappan River 19	Shinimicas River 20
Equisetum variegatum	S4		r															S3	r	l		
Ophioglossaceae																						
Botrychium multifidum	S4																	S4	r			
Osmundaceae																						
Osmunda cinnamomea	S5	c	c	c	c	c	f	c	f	c	c	c	c	c	c	f	x	S5	c	c	f	c
Osmunda claytoniana	S5	c	f	c	c	f	f	l	f	c	u	c	c	u		f	x	S5	l	u	u	f
Osmunda regalis var. *spectabilis*	S5				l		x	l			u		f		f		x	S5	c	u		
Dennstaedtiaceae																						
Dennstaedtia punctilobula	S5	f-c			l		u	r-u	f	c	f		l	x		x	x	S5		u	u	
Pteridium aquilinum var. *latiusculum*	S5	c	c	c	f	c	c	c	f	c	c	c	c	c	f		x	S5	c	c	x	c
Thelypteridaceae																						
Phegopteris connectilis	S5	f	f-c	c		u	u		f	c	u	l		x			x	S5	r-l	u	u	f
Thelypteris noveboracensis	S5	c	u	c	u	f	c		c	c	f	u	u	x	l	f	x	S5	l	u	u	f
Thelypteris palustris var. *pubescens*	S5		c	l		l		l	l	c	u	u	u	x		u	x	S5	c	u		f
Dryopteridaceae																						
Athyrium filix-femina ssp. *angustum*	S5	u		l		f	x		f	l		r		x		u	x	S5	l		x	
Dryopteris campyloptera	S5		f	f	c		x	f		c	u	f	f		u			S5			x	f

		Batemans Brook	Melanson Settlement	Scoudouc River North	Scoudouc River Center	Scoudouc River South	Memramcook River	Basse-Aboujagane	Aboujagane River	Kinnear River	Cormier Village	Kouchibouguac River	Upper Mechumcook Bogs	Shemougue	Square Lake	Anderson Settlement	Gaspereau River		Missiguash	Tidnish Bridge	Nappan River	Shinimicas River
Scientific Name	**rank NB**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**rank NS**	**17**	**18**	**19**	**20**
Dryopteris campyloptera x *intermedia*							r											No rank				
Dryopteris carthusiana	S5	c	c	c	f	u	u	l	u	c	u	f	u	u	f		x	S5	f		u	f
Dryopteris cf. *intermedia* x *carthusiana*									x									No rank				
Dryopteris cristata	S5	r	u	c	u	f	u	f-c	u	u	f	u	r	f	r	c	x	S5	c	f	x	u
Dryopteris intermedia	S5	c	c	c	f	c	c	c	c		c	u	f	c	f	c	x	S5	c	u	c	f
Dryopteris x *boottii*	SNA		r															SNA				
Gymnocarpium dryopteris	S5	f	l	c	l	u	u		u	c	u	l		u		f	x	S5		u	u	u
Matteuccia struthiopteris	S5	r-l		l	l		u		c	c	l	l				l	x	S5			l	l
Onoclea sensibilis	S5	c	c	c	f		c	c	c	c	c	f	c	u	f	f	x	S5	c	f	c	f
Polystichum acrostichoides	S5								u	c	f					u	x	S5			f	r
Blechnaceae																						
Woodwardia virginica	S2																	S4	r			
Taxaceae																						
Taxus canadensis	S5			f	r	u	u	r-u	u	c	u	r		x		u	x	S5			u	r
Pinaceae																						
Abies balsamea	S5	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	x	S5	c	c	c	c
Larix laricina	S5		c	r-l	f	c	f	c	f			f	c		c	c	x	S5	c	c	u	f
Picea glauca	S5	c		c		u	x			l	u	u	u		c	u	x	S5		u	u	u

Scientific Name	rank NB	Batemans Brook 1	Melanson Settlement 2	Scoudouc River North 3	Scoudouc River Center 4	Scoudouc River South 5	Memramcook River 6	Basse-Aboujagane 7	Aboujagane River 8	Kinnear River 9	Cormier Village 10	Kouchibouguac River 11	Upper Miramichi Bogs 12	Shemougue 13	Square Lake 14	Anderson Settlement 15	Gaspereau River 16	rank NS	Missiguash 17	Tidnish Bridge 18	Nappan River 19	Shinimicas River 20
Picea mariana	S5	c	c	c		c	c	c		c			c	c	c	c	x	S5	c	c	x	
Picea rubens	S5	l		l	c	u	c		c	c	f	c	c	f	f	c	x	S5		c	f	f
Pinus banksiana	S5		r				x									l	x	S4				
Pinus strobus	S5	c	u	c	r	u	f		u	c	f	u	c			r	x	S5	l	f	u	f
Pinus sylvestris	SNA						r											SNA				
Tsuga canadensis	S5			l	f		u		u	l	u	f						S4S5			u	c
Cupressaceae																						
Thuja occidentalis	S5			r		u		u				c						S1				
Nymphaeaceae																						
Nuphar lutea ssp. *variegata*	S5		l		r	l					l				r	r	x	S5		r		
Nymphaea odorata	S5				l		u											S5				
Cabombaceae																						
Brasenia schreberi	S4										l							S5		r		u
Ranunculaceae																						
Actaea rubra	S5	c			u		r		u	f-c	u	u		u		u		S5			u	u
Anemone quinquefolia	S4																x	S2				
Caltha palustris	S4S5					r												S2				
Clematis virginiana	S5	r-l		c	l	u	f		l	l		u	l			u	x	S5		u	u	l
Coptis trifolia	S5		c	c	u	c	f	c	f	c	f	u	f	f	f	f	x	S5	c	f		u
Ranunculus abortivus	S5		r	u					r		r					r	x	S4S5				
Ranunculus acris	SNA	u	l	f	r		r	r	l	l	u	r	r	u		u	x	SNA	r	u	u	r

		Batemans Brook	Melanson Settlement	Scoudouc River North	Scoudouc River Center	Scoudouc River South	Memramcook River	Basse-Aboujagane	Aboujagane River	Kinnear River	Cormier Village	Kouchibouguac River	Upper Mernamcook Bogs	Shemougue	Square Lake	Anderson Settlement	Gaspereau River		Missiguash	Tidnish Bridge	Nappan River	Shinimicas River
Scientific Name	**rank NB**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**rank NS**	**17**	**18**	**19**	**20**
Ranunculus aquatilis	SNA																x	SNA				
Ranunculus cymbalaria	S4	l		l	u					x								S5				
Ranunculus gmelinii	S3																	S3		r		
Ranunculus hispidus var. *caricetorum*	S4S5									r								---				
Ranunculus recurvatus	S4																	S4				r
Ranunculus repens	SNA	l	l	l	f	c	u	l	c	r-l	f	f	r		l	f	x	SNA		f	c	u
Thalictrum pubescens	S5	c	c	c	f	f	c	c	c	c	u	f	f	x	f	c	x	S5	c	f	c	
Hamamelidaceae																						
Hamamelis virginiana	S4		r															S5				
Ulmaceae																						
Ulmus americana	S4S5					u			u									S4			u	f
Urticaceae																						
Urtica dioica ssp. *gracilis*	S4																	S4			u	r
Myricaceae																						
Comptonia peregrina	S5			r			x			r			r	x				S5				
Morella pensylvanica	S5	c					u										x	S5				r
Myrica gale	S5	l			f		x	c		r-u		u		x	l	u		S5			x	
Fagaceae																						
Fagus grandifolia	S5	l							u		u							S5			u	
Quercus rubra	S5																	S5				f

Scientific Name	rank NB	1 Batemans Brook	2 Melanson Settlement	3 Scoudouc River North	4 Scoudouc River Center	5 Scoudouc River South	6 Memramcook River	7 Basse-Aboujagane	8 Aboujagane River	9 Kinnear River	10 Cormier Village	11 Kouchibouguac River	12 Upper Mechumcook Bogs	13 Shemougue	14 Square Lake	15 Anderson Settlement	16 Gaspereau River	rank NS	17 Missiguash	18 Tidnish Bridge	19 Nappan River	20 Shinimicas River
Betulaceae																						
Alnus incana ssp. *rugosa*	S5	c	c	c	c	c	c	c	c	c	c	c	c	c	f	c	x	S5	c	c	c	c
Alnus viridis ssp. *crispa*	S5	u-f		f	u		r	u-f		f		u				r	x	S5			x	
Betula alleghaniensis	S5			c	f	u	x	r	c	c	c	f			f	c	x	S5			c	f
Betula papyrifera var. *cordifolia*	S5																	S5		u		
Betula papyrifera var. *papyrifera*	S5	c	l	c	c		x	l	c	c	c	c	c	c	c	f	x	S5	l	c	f	c
Betula populifolia	S5	l	r-u	l	c	f	f	r-l	u	l	u	f	u	f	l	u	x	S5	r-l	u	u	c
Betula x *caerulea*	SNA			r														SNA				
Corylus cornuta	S5	f	f	c	f	u	c		f	c	u	f	u	u	f	f	x	S5		u	u	f
Ostrya virginiana	S4S5										u							S5				
Chenopodiaceae																						
Atriplex prostrata	S5	l																S5				
Atriplex sp.																						u
Salicornia maritima	S5	r																S5				r
Caryophyllaceae																						
Cerastium fontanum ssp. *vulgare*	SNA				r			r		r		r	r	x			x	SNA			x	r
Moehringia lateriflora	S5		r		c	r			u			u			f			S5			x	f
Sagina procumbens	S5																	S5				r
Spergularia canadensis	S4	u																S4				
Spergularia rubra	SNA													x				SNA		r		

		Batemans Brook	Melanson Settlement	Scoudouc River North	Scoudouc River Center	Scoudouc River South	Memramcook River	Basse-Aboujagane	Aboujagane River	Kinnear River	Cormier Village	Kouchibouguac River	Upper Memramcook Bogs	Shemougue	Square Lake	Anderson Settlement	Gaspereau River		Missiguash	Tidnish Bridge	Nappan River	Shinimicas River
Scientific Name	**rank NB**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**rank NS**	**17**	**18**	**19**	**20**
Stellaria borealis	S4S5																	S4	r			
Stellaria graminea	SNA		r		r	l		r	l			r	r	l				SNA			u	u
Polygonaceae																						
Polygonum arifolium	S3				r	u											x	S2				r
Polygonum aviculare	SNA													x		r	x	S5		r		
Polygonum cilinode	S5			f	l		u		l									S5			f	
Polygonum convolvulus	SNA																	SNA				r
Polygonum hydropiper	SNA	r	r									r					x	SNA	r	u	x	
Polygonum persicaria	SNA											r						SNA				r
Polygonum sagittatum	S5	f	f	r		l		f	l	f			r				x	S5	r	u	l	
Polygonum sp.																					x	
Rumex acetosella	SNA		r	r			l			r	u	r	r				x	SNA				
Rumex crispus	SNA			u							u							SNA		u	u	r
Rumex longifolius	SNA			r														SNA				
Rumex obtusifolius	SNA																x	SNA				
Rumex orbiculatus	S5	f	r	u	r				cf.	f		r	r	x	r			S5	f			
Rumex sp.									x													
Plumbaginaceae																						
Limonium carolinianum	S5	r-u																S5				
Clusiaceae																						
Hypericum boreale	S5													x				S5				

		Batemans Brook	Melanson Settlement	Scoudouc River North	Scoudouc River Center	Scoudouc River South	Memramcook River	Basse-Aboujagane	Aboujagane River	Kinnear River	Cormier Village	Kouchibouguac River	Upper Memramcook Bogs	Shemougue	Square Lake	Anderson Settlement	Gaspereau River		Missiguash	Tidnish Bridge	Nappan River	Shinimicas River
Scientific Name	**rank NB**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**rank NS**	**17**	**18**	**19**	**20**
Hypericum canadense	S5						x									l		S5		l		
Hypericum ellipticum	S5																x	S5			u	
Hypericum mutilum	S5	r																S4S5				
Hypericum perforatum	SNA				l		x		l	f		l	l					SNA		l	x	
Hypericum sp.							x									x						
Triadenum fraseri	S5	u	l			u		l	u	l	u	u	f	u	f	u	x	S5	c	f		u
Sarraceniaceae																						
Sarracenia purpurea	S5		l			f		c					l	l	l	u	x	S5	l	u		
Droseraceae																						
Drosera intermedia	S5					u							u	u	r			S5				
Drosera rotundifolia	S5		l			f	u	c		r-l	u		l	l	l	u		S5	r-u	u		l
Violaceae																						
Viola blanda var. *palustriformis*	S5	r-u		u			x											S5	r-u			
Viola cucullata	S5	u			f		c	f-c	u		f	f	c	f	f	u	x	S5	c	u	x	f
Viola lanceolata	S4																	S5		r		
Viola macloskeyi ssp. *pallens*	S5		f	f	f	u	x	f	u	c		f	c	x	f	u	x	S5	u-f	u	x	f
Viola renifolia	S4S5						r											S4				
Viola sororia	S5	u		u		u	x										x	S5				
Cucurbitaceae																						
Echinocystis lobata	S5	r		l		r												SNA			r	u
Salicaceae																						

Scientific Name	rank NB	Batemans Brook 1	Melanson Settlement 2	Scoudouc River North 3	Scoudouc River Center 4	Scoudouc River South 5	Memramcook River 6	Basse-Aboujagane 7	Aboujagane River 8	Kinnear River 9	Cormier Village 10	Kouchibouguac River 11	Upper Mellanticook Bogs 12	Shemougue 13	Square Lake 14	Anderson Settlement 15	Gaspereau River 16	rank NS	Missiguash 17	Tidnish Bridge 18	Nappan River 19	Shinimicas River 20
Populus balsamifera	S5	l			u		x				r		f					S4				
Populus grandidentata	S5	c	l	l					u	l		u	l		u			S5				
Populus tremuloides	S5	c	c	c	u	f	u	l	u	c	f	f	l	c	f		x	S5		c	f	f
Salix bebbiana	S5	f	f-c	c	f	u	u	r	u	c			u	u	f	u	x	S5		u	x	
Salix discolor	S5		r	f	u		x			f	u		f	x		u	x	S5	c	u		
Salix eriocephala	S5		f															S5			x	r
Salix humilis	S5	r	r	r	u			r		u		u			r		x	S5	r			
Salix lucida	S5		f-c														x	S5	u			
Salix pedicellaris	S3				r			x										S2				
Salix petiolaris	S5		r	f-c	u	l	x	r	l	r				x	r		x	S3				
Salix pyrifolia	S5	r	u		u		x	f		r-l	u			x	u		x	S5	f	r		
Brassicaceae																						
Barbarea vulgaris	SNA			r					l			r						SNA			f	r
Cardamine diphylla	S4S5											r						S4				
Cardamine pensylvanica	S5			r	r	r	u		u		u	r		x			x	S5	r	r		
Empetraceae																						
Empetrum nigrum	S5					l		c						l		u	x	S5		u		
Ericaceae																						
Andromeda polifolia var. *glaucophylla*	S5		l			u		c					u			u	x	S5	l			
Chamaedaphne calyculata	S5		c			c	f	c		r-l	f		c	c	c	c	x	S5	c	c		

		Batemans Brook	Melanson Settlement	Scoudouc River North	Scoudouc River Center	Scoudouc River South	Memramcook River	Basse-Aboujagane	Aboujagane River	Kinnear River	Cormier Village	Kouchibouguac River	Upper Memramcook Bogs	Shemougue	Square Lake	Anderson Settlement	Gaspereau River		Missiguash	Tidnish Bridge	Nappan River	Shinimicas River
Scientific Name	**rank NB**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**rank NS**	**17**	**18**	**19**	**20**
Epigaea repens	S5	f		f		u	u					r						S5				
Gaultheria hispidula	S5	l	c	c	u	c	f	c		c	f	u	f	f	u	u	x	S5	c	f	x	u
Gaultheria procumbens	S5	u	f	c	f	f	u		u			u	f	u	c		x	S5	l	u	x	
Gaylussacia baccata	S5	l	l	f	c			l		r			c	u	c	f	x	S5	l			
Gaylussacia bigeloviana	S4					r		c					l	l	l	l	x	S5		l		
Kalmia angustifolia	S5	c	c	c	f	c	c	c	f	c	c	u	c	c	f	c	x	S5	c	c	f	f
Kalmia polifolia	S5		r-u			f	u	c					l	u	l	u	x	S5	l	u		
Ledum groenlandicum	S5	l	c	l	f	f	f	c	u	l	f		c	f	c	f	x	S5	c	c	x	
Rhododendron canadense	S5	c	c	l	f	c	c	c	u	l	f		l	f	c	f	x	S5	c	f		u
Vaccinium angustifolium	S5	c	c	c		c	f	c		c		f	c	f			x	S5	u-f		x	f
Vaccinium macrocarpon	S5					u				r-l			l	x	c	c		S5	l	l		
Vaccinium myrtilloides	S5	c	f	c	c	f	f	c	f	c	f	u	c	f	c		x	S5	c	f	x	f
Vaccinium oxycoccos	S5		l			c	u	c			u		c	f	c	u	x	S5	l	l		
Pyrolaceae																						
Chimaphila umbellata ssp. *cisatlantica*	S5	u-f																S4				
Moneses uniflora	S5														r			S5				
Orthilia secunda	S5	c				u								x				S5				
Pyrola elliptica	S5					u	r	f	u	f	u	r				u	x	S5				r
Monotropaceae																						
Monotropa hypopithys	S4	u																S4	r			

		Batemans Brook	Melanson Settlement	Scoudouc River North	Scoudouc River Center	Scoudouc River South	Memramcook River	Basse-Aboujagane	Aboujagane River	Kinnear River	Cormier Village	Kouchibouguac River	Upper Mernamcook Bogs	Shemougue	Square Lake	Anderson Settlement	Gaspereau River		Missiguash	Tidnish Bridge	Nappan River	Shinimicas River
Scientific Name	**rank NB**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**rank NS**	**17**	**18**	**19**	**20**
Monotropa uniflora	S5	u	r	u	r	r	x	r		f	u	r					x	S5	u	r		
Primulaceae																						
Glaux maritima	S5	l																S5				l
Lysimachia ciliata	S5				l													S4				
Lysimachia nummularia	SNA	r																SNA			r	r
Lysimachia terrestris	S5		c	c	u	f	f	c	f	c	l	u	u	l	u	u	x	S5	c	f	u	u
Lysimachia thyrsiflora	S4		r			u		r						x				S4	c	r		
Samolus valerandi ssp. *parviflorus*	S3			r														S3				l
Trientalis borealis	S5	c	c	c	f	c	f	c	c	c	c	c	f	c	c	c	x	S5	c	c	c	f
Grossulariaceae																						
Ribes glandulosum	S5		u	r-u	r		u	r		f		u		x			x	S5		u	u	
Ribes hirtellum	S5	f	r				r	r		f				x				S5			u	u
Ribes lacustre	S5									r	u			u			x	S5		u	r	
Ribes nigrum	SNA																	SNA				r
Ribes triste	S5										r							S4		r	r	
Crassulaceae																						
Hylotelephium telephium	SNA	r-u		r		r												SNA			u	r
Saxifragaceae																						
Chrysosplenium americanum	S5	u		r-u		u	u		u				r			u		S5		u	x	
Mitella nuda	S5	u			r	r			u	c	u		r					S5	r	u		r

Scientific Name	rank NB	1 Batemans Brook	2 Melanson Settlement	3 Scoudouc River North	4 Scoudouc River Center	5 Scoudouc River South	6 Memramcook River	7 Basse-Aboujagane	8 Aboujagane River	9 Kinnear River	10 Cormier Village	11 Kouchibouguac River	12 Upper Mechumcook Bogs	13 Shemougue	14 Square Lake	15 Anderson Settlement	16 Gaspereau River	rank NS	17 Missiguash	18 Tidnish Bridge	19 Nappan River	20 Shinimicas River
Rosaceae																						
Agrimonia gryposepala	S3	r																S3				
Agrimonia striata	S5	r																S5			x	
Amelanchier bartramiana	S5		r	f		u	r	r	r					r				S5			x	u
Amelanchier sp.		c			u	x	x		x		x	u	x	x								u
Amelanchier x *neglecta*	SNA		x	x				r		f								SNA				
Argentina anserina	S5											u						S5				l
Argentina egedii	S4S5	l		l						l								S5				
Comarum palustre	S5		l									u		x	l			S5	c	l		u
Crataegus sp.								r-u	x	f												
Dalibarda repens	S5	u	c	c			r			u	u							S5				
Fragaria virginiana	S5	c	l	l	f	l	f	r	l	l	u	r	l	l	u	l	x	S5	l	l	u	f
Geum aleppicum	S5																	S5			u	
Geum canadense	S5																	S4S5			u	u
Geum laciniatum	S5		r	u		u		l	u				r				x	S5			u	
Geum macrophyllum	S5				r				f			u						S5		u	x	r
Geum rivale	S5	r	u	u			u			r-l	r		r					S5	f		x	r
Malus pumila	SNA	r		u						r		r						SNA			x	r
Photinia floribunda	S5		l					c						x				S5	c			
Photinia melanocarpa	S5			l	f	f	u	r-l					u	u	c	u	x	S5	l	c		

Scientific Name	rank NB	Batemans Brook	Melanson Settlement	Scoudouc River North	Scoudouc River Center	Scoudouc River South	Memramcook River	Basse-Aboujagane	Aboujagane River	Kinnear River	Cormier Village	Kouchibouguac River	Upper Memramcook Bogs	Shemougue	Square Lake	Anderson Settlement	Gaspereau River	rank NS	Missiguash	Tidnish Bridge	Nappan River	Shinimicas River
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		17	18	19	20
Potentilla norvegica ssp. *monspeliensis*	S5						x	r						x		l	x	S5	r	l	x	r
Potentilla recta	SNA	r		u								r						SNA				r
Potentilla simplex	S5	r-u	u	f-c	r	l	l	r-u	l	f	l	u		x	u		x	S5		l	u	u
Prunus pensylvanica	S5	r	r	u	f			l	c	l		f	u	x				S5		u		f
Prunus serotina	S5									r								S5			x	
Prunus virginiana	S5	l	u	c	u	f	f	l	c	c	f		f	f	f	f		S5		u	c	f
Rosa carolina	S4S5		r														x	S4S5				
Rosa nitida	S5		f		u	u	x	c		r-l	r	u	u	u	u	u	x	S4	c	r		u
Rosa rugosa	SNA																	SNA				r
Rosa virginiana	S5	c	r-u	l	f	u	r	c	u	c	u	f	u	x	f			S5		l		f
Rubus allegheniensis	S5			l		l	u	f	l	c		u	u	l	l			S5		u	l	u
Rubus canadensis	S5	f-c	u		u		x							x			x	S5			x	
Rubus chamaemorus	S3																	S4		l		
Rubus hispidus	S5	u	l	f	u		x			r-u	f		f		u		x	S5	c	u	x	
Rubus idaeus ssp. *strigosus*	S5	c	l	l	c	u	l	l	c	f-c	l	c	f	l	c	l	x	S5	r-l	l	l	c
Rubus pubescens	S5	c	c	c	c	f	f	l	f		c	c	c	x	c	f	x	S5	c	c	c	f
Rubus vermontanus	S4S5		r											x				SNR			x	
Sorbus americana	S5	f	f	c	r	u	u	r-u	u	c	u	u	r	u	r			S5	r	u	u	r
Spiraea alba var. *latifolia*	S5	c	c	c		c	f	c	f	c	f		f	f		c	x	S5	l	c	f	
Spiraea tomentosa	S5	u	c	u	r	u	u	l	u	l	u	r	u	u	r	u	x	S5	c	u		r
Fabaceae																						

		Batemans Brook	Melanson Settlement	Scoudouc River North	Scoudouc River Center	Scoudouc River South	Memramcook River	Basse-Aboujagane	Aboujagane River	Kinnear River	Cormier Village	Kouchibouguac River	Upper Mellanicook Bogs	Shemougue	Square Lake	Anderson Settlement	Gaspereau River		Missiguash	Tidnish Bridge	Nappan River	Shinimicas River
Scientific Name	**rank NB**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**rank NS**	**17**	**18**	**19**	**20**
Apios americana	S4S5															r	x	S5				
Lathyrus palustris	S5	r		r						r		u					x	S5				u
Lathyrus pratensis	SNA				r													SNA				
Lotus corniculatus	SNA		r		r													SNA		l	x	
Lupinus polyphyllus	SNA				r													SNA	r-l	r		
Medicago lupulina	SNA		r										r				x	SNA				r
Medicago sativa	SNA			r														SNA				
Melilotus albus	SNA	r	r	r-l		l	l	r	l	r		u	l	l	l	l	x	SNA	r	l		u
Trifolium arvense	SNA	r	l							r			r		x	l		SNA	r	l	x	
Trifolium aureum	SNA	r																SNA	r			
Trifolium campestre	SNA				l				l				l		l	l		SNA		l		
Trifolium hybridum	SNA				l													SNA				
Trifolium pratense	SNA		l	l	l	l	l	r	l	f	l	u	l	x	l			SNA	r	l	u	u
Trifolium repens	SNA	r	r	l		l	l		l	r	l	r	l	l	l	l	x	SNA		l	x	u
Vicia cracca	SNA	l	l	l	u	l	l	r-l	l	l	l	r	l	x	x	l	x	SNA		l	f	u
Vicia sepium	SNA					r					r							SNA				
Onagraceae																						
Chamerion angustifolium	S5		f	c	u		x			c		u	l	x			x	S5		u		
Circaea alpina	S5	u		l	r				f	l	u	r						S5		u	f	r
Circaea lutetiana ssp. *canadensis*	S4			r-u														S5				r
Circaea x *intermedia*	SNA																	SNA			r	

		Batemans Brook	Melanson Settlement	Scoudouc River North	Scoudouc River Center	Scoudouc River South	Memramcook River	Basse-Aboujagane	Aboujagane River	Kinnear River	Cormier Village	Kouchibouguac River	Upper Mem/Tidnish Bogs	Shemougue	Square Lake	Anderson Settlement	Gaspereau River		Missiguash	Tidnish Bridge	Nappan River	Shinimicas River
Scientific Name	**rank NB**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**rank NS**	**17**	**18**	**19**	**20**
Epilobium ciliatum	S5	f	f	c					u	r	u	r	r			u	x	S5		u	u	r
Epilobium leptophyllum	S5	u	r			u			u	u	u		r	u	r			S5	c			
Epilobium palustre	S5																x	S5				
Epilobium strictum	S3				r				r									S3				
Ludwigia palustris	S4																	S5			u	
Oenothera biennis	S5	c			r		x	r					r			l		S5				
Oenothera biennis/parviflora						x	x		x				x		r					l		
Oenothera parviflora	S5																	S4?		l		
Oenothera perennis	S5	r	r															S5				
Cornaceae																						
Cornus alternifolia	S5	f		r-u					u	c	u	u		x		r	x	S5			u	u
Cornus canadensis	S5	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	x	S5	c	c	c	f
Cornus sericea	S5			c	u	u		l	u	c		u	f	x	f			S5	c	u	u	f
Santalaceae																						
Geocaulon lividum	S3		r															S3				
Viscaceae																						
Arceuthobium pusillum	S5							r									x	S5				
Aquifoliaceae																						
Ilex verticillata	S5	l	c	l	c	c	x	c		c	f	c	c	f	f	f	x	S5	c	c	x	
Nemopanthus mucronatus	S5	c	c	c	f	c	f	c	f	l	u	c	c	u	c	f	x	S5	c	c		

		Batemans Brook	Melanson Settlement	Scoudouc River North	Scoudouc River Center	Scoudouc River South	Memramcook River	Basse-Aboujagane	Aboujagane River	Kinnear River	Cormier Village	Kouchibouguac River	Upper Mernamcook Bogs	Shemougue	Square Lake	Anderson Settlement	Gaspereau River		Missiguash	Tidnish Bridge	Nappan River	Shinimicas River
Scientific Name	**rank NB**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**rank NS**	**17**	**18**	**19**	**20**
Rhamnaceae																						
Frangula alnus	SNA	r-l	r	c	l	l	x	f	r		u			x	r	u	x	SNA	r	u	u	
Rhamnus alnifolia	S4S5			r				r		r				x				S3	x			
Vitaceae																						
Parthenocissus quinquefolia	SNA																	SNA				r
Aceraceae																						
Acer pensylvanicum	S5	f-c			f				u	c	f	f	c			u		S5			f	f
Acer platanoides	SNA		r	r				r										SNA				
Acer rubrum	S5	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	x	S5	c	c	c	c
Acer saccharum	S5	u		f-c	l		u		f	l	l	f				u	x	S5			x	c
Acer spicatum	S5	u		c	c		f		f	c	f	f				u	x	S5			f	f
Anacardiaceae																						
Toxicodendron radicans	S2?																	S4				l
Toxicodendron rydbergii	S5	u				u	x	r		r-l	r							S5				
Oxalidaceae																						
Oxalis montana	S5	c	f	c	u		u		f	c	f	u	u	u	u	f	x	S5	f	f	u	u
Oxalis stricta	S5		r	r		l	x		l	u		l	r			u	x	S5			u	u
Balsaminaceae																						
Impatiens capensis	S5		f-c	c		u	u	c	f	c	u	c	f	u	f	u	x	S5	c	u	f	f
Araliaceae																						
Aralia hispida	S5													l				S5				

		Batemans Brook	Melanson Settlement	Scoudouc River North	Scoudouc River Center	Scoudouc River South	Memramcook River	Basse-Aboujagane	Aboujagane River	Kinnear River	Cormier Village	Kouchibouguac River	Upper Miramichi Bogs	Shemougue	Square Lake	Anderson Settlement	Gaspereau River		Missiguash	Tidnish Bridge	Nappan River	Shinimicas River
Scientific Name	**rank NB**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**rank NS**	**17**	**18**	**19**	**20**
Aralia nudicaulis	S5	c	c	c	c	c	c	c	c	c	c	f	c	c	c	c	x	S5		c	c	f
Apiaceae																						
Aegopodium podagraria	SNA					l												SNA				
Angelica sylvestris	SNA								l		l							SNA				
Carum carvi	SNA		r											x				SNA				
Cicuta bulbifera	S5		r		u	u									u			S5	u	r		u
Cicuta maculata	S5							f		u							x	S5				
Daucus carota	SNA												r	x				SNA				f
Hydrocotyle americana	S5										u					u	x	S5	r			r
Pastinaca sativa	SNA																	SNA			x	
Sium suave	S5				u	u	f		u					x	u		x	S5				
Gentianaceae																						
Centaurium pulchellum	SNA															r		SNA				
Apocynaceae																						
Apocynum androsaemifolium	S5	f		r	l		u		u		u	l	l					S5				l
Solanaceae																						
Solanum dulcamara	SNA	l	r	c	r	u			r				r		r		x	SNA		r	u	u
Convolvulaceae																						
Calystegia sepium	S5	l				l				l		l		x				S5				f
Menyanthaceae																						

		Batemans Brook	Melanson Settlement	Scoudouc River North	Scoudouc River Center	Scoudouc River South	Memramcook River	Basse-Aboujagane	Aboujagane River	Kinnear River	Cormier Village	Kouchibouguac River	Upper Mernamcook Bogs	Shemougue	Square Lake	Anderson Settlement	Gaspereau River		Missiguash	Tidnish Bridge	Nappan River	Shinimicas River
Scientific Name	**rank NB**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**rank NS**	**17**	**18**	**19**	**20**
Menyanthes trifoliata	S5		l					c					l			r		S5	l	l		
Boraginaceae																						
Myosotis laxa	S5								u									S5				r
Lamiaceae																						
Clinopodium vulgare	S4S5								r									S5				
Galeopsis bifida	SNA								l									SNA			u	
Galeopsis tetrahit (s.l.)	SNA	u		u				r				r		x	r			SNA			x	r
Glechoma hederacea	SNA			r														SNA				
Lycopus americanus	S5											u	r		r		x	S5		r	u	u
Lycopus uniflorus	S5	c	c			u	u	r-l	f	c	f	u	u	f	r	u	x	S5	c	f		u
Mentha arvensis	S5				l		u		l			l						S5			l	l
Prunella vulgaris	S5	f	r	c	u		x	r		c			u		r		x	S5		l	x	u
Scutellaria galericulata	S5		f			u	u	r-u	u		u	u	u	x	u		x	S5				f
Scutellaria lateriflora	S5	f		c	u	u	u		u	r				x			x	S5			f	
Stachys palustris	SNA													x				SNA			x	
Thymus pulegioides	SNA																	SNA			x	
Callitrichaceae																						
Callitriche palustris	S5	r	x							r-u					r		x	S5	f	r		
Callitriche palustris/ heterophylla														x		r						
Plantaginaceae																						
Plantago major	SNA	r	r	r	r		l	r	l	r	l	r	l	l	r	l	x	SNA	r	l	f	u

		Batemans Brook	Melanson Settlement	Scoudouc River North	Scoudouc River Center	Scoudouc River South	Memramcook River	Basse-Aboujagane	Aboujagane River	Kinnear River	Cormier Village	Kouchibouguac River	Upper Mem/Tidnish Bogs	Shemougue	Square Lake	Anderson Settlement	Gaspereau River		Missiguash	Tidnish Bridge	Nappan River	Shinimicas River
Scientific Name	**rank NB**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**rank NS**	**17**	**18**	**19**	**20**
Plantago maritima var. *juncoides*	S5	l																S5				
Oleaceae																						
Fraxinus americana	S5	f-c		c	u	u			u	c	f	u	u	u		u	x	S5				f
Fraxinus nigra	S5			r-u		r			r		r				r			S1S2	x		r	r
Scrophulariaceae																						
Agalinis paupercula var. *borealis*	S1																	S1	r-l	l		
Chelone glabra	S5	f	f	f	r	u	u	f	f	c	u	r		u	r		x	S5		u	f	r
Euphrasia nemorosa	SNA															l		S5				
Euphrasia sp.													r						l	l		
Euphrasia stricta	SNA															l		SNA				
Odontites vernus ssp. *serotinus*	SNA																	SNA		l		
Rhinanthus minor	S5									r				x		l		S5		l		r
Veronica americana	S5			u			x											S5				
Veronica officinalis	S5	c	u	c	r				u	c		r	u		r			S5			u	r
Veronica peregrina	SNA									r								SNA				
Veronica scutellata	S5		r	r			r							x			x	S5		r		
Veronica serpyllifolia ssp. *serpyllifolia*	SNA										r							SNA			u	
Lentibulariaceae																						
Utricularia cornuta	S5					l									l		x	S5				
Utricularia gibba	S3S4													x				S4				

		Batemans Brook	Melanson Settlement	Scoudouc River North	Scoudouc River Center	Scoudouc River South	Memramcook River	Basse-Aboujagane	Aboujagane River	Kinnear River	Cormier Village	Kouchibouguac River	Upper Memramcook Bogs	Shemougue	Square Lake	Anderson Settlement	Gaspereau River		Missiguash	Tidnish Bridge	Nappan River	Shinimicas River
Scientific Name	**rank NB**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**rank NS**	**17**	**18**	**19**	**20**
Utricularia intermedia	S5													x				S5				
Utricularia macrorhiza	S5		r-l													r		S5	r			
Utricularia purpurea	S4				r										r			S5				
Rubiaceae																						
Galium asprellum	S5	f		c		u	f	r	f	f	u				u	u	x	S5	f	u	u	
Galium mollugo	SNA		r	l	u	l	l	r						l			x	SNA			u	
Galium palustre	S5					l	u		l	c	f			x			x	S5		u	f	
Galium tinctorium	S5			r										x				S5				
Galium trifidum	S5	u			c		cf.			u		f	f		f		x	S5	f-c			u
Galium triflorum	S5	c	u				x			c	u		u					S5	r	r		
Mitchella repens	S5	f	u	c	u		x		u	c	u	u					x	S5		u	u	u
Caprifoliaceae																						
Diervilla lonicera	S5	c	f	c	f		u	l	u	c		u	f	x	f			S5		u	x	f
Linnaea borealis ssp. *americana*	S5	c	c	c	l	c	u	f-c		c	f	u	u	x		f	x	S5	c	c	x	u
Lonicera canadensis	S5	f-c	l	f	u	f	u		f	c	f	u	r	x		f	x	S5	f	u	f	u
Lonicera x *bella* / x *xylosteoides*	SNA			r																		
Lonicera villosa	S5		c		r	u	x	u		u	r		r	f		u	x	S4S5	c	u	u	
Sambucus nigra ssp. *canadensis*	S5			u													x	S5		u		
Sambucus racemosa ssp. *pubens*	S5			c	u	u	u	c	u	c	u	u	u	u	r	u	x	S5			f	r
Viburnum lantanoides	S5	r		c	r		u		f	u	l	r				u	x	S5				u

		Batemans Brook	Melanson Settlement	Scoudouc River North	Scoudouc River Center	Scoudouc River South	Memramcook River	Basse-Aboujagane	Aboujagane River	Kinnear River	Cormier Village	Kouchibouguac River	Upper Mechumcook Bogs	Shemougue	Square Lake	Anderson Settlement	Gaspereau River		Missiguash	Tidnish Bridge	Nappan River	Shinimicas River
Scientific Name	**rank NB**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**rank NS**	**17**	**18**	**19**	**20**
Viburnum nudum var. *cassinoides*	S5	c	c	c	c	c	f	c	c	c	c	c	c	f	c	c	x	S5	c	c	f	f
Viburnum opulus var. *americanum*	S5	u				r	x				u	u					x	S4			u	u
Valerianaceae																						
Valeriana officinalis	SNA		r	r-l				r	l	r		r				l	x	SNA	r	l	u	r
Asteraceae																						
Achillea millefolium	S5	f		r		l	l		u	r			r	l		l	x	S5	r	l		u
Ambrosia artemisiifolia	S5	r	r	r	r	l				r								S5				r
Anaphalis margaritacea	S5		l				l					l	u	x		l	x	S5	r	l	x	
Antennaria howellii	S5									r								S4?				
Arctium minus	SNA	u						r										SNA				r
Artemisia vulgaris	SNA							r	l									SNA				
Bidens cernua	S5	r-u	r							u					r		x	S5	f	r		r
Bidens frondosa	S5		r		r	u		f	u					x	r		x	S5		u	x	
Centaurea nigra	SNA				l		x						r	l	r			SNA		l		
Cirsium arvense	SNA			r						r			r	x		r	x	SNA	r			
Cirsium vulgare	SNA																	SNA		r		
Conyza canadensis	S5	r						r						x	r			S5		l		
Doellingeria umbellata	S5	c	c	c	u	f	f	u-f	f	c	f	u	u	f	u	f	x	S5	c	f	f	f
Erechtites hieraciifolia	S5	r																S5				r
Erigeron strigosus	S5			r-l			u	r	l							l	x	S5	r	l		

		Batemans Brook	Melanson Settlement	Scoudouc River North	Scoudouc River Center	Scoudouc River South	Memramcook River	Basse-Aboujagane	Aboujagane River	Kinnear River	Cormier Village	Kouchibouguac River	Upper Mechumcook Bogs	Shemougue	Square Lake	Anderson Settlement	Gaspereau River		Missiguash	Tidnish Bridge	Nappan River	Shinimicas River
Scientific Name	**rank NB**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**rank NS**	**17**	**18**	**19**	**20**
Eupatorium maculatum	S5	c		c		u	f		f	c	u	u	l	u		u	x	S5	c	r	f	u
Eupatorium perfoliatum	S5	r-u	r				x			r	u		r	r	r	u	x	S5	r	u	x	r
Eurybia macrophylla	S5	u	r-u	r	r		u	r	u		u	u		x				S5	r	r	u	u
Eurybia radula	S5		r	f-c				r			u						x	S5	f-c	u		
Euthamia graminifolia	S5	u		f-c	u	l	l	l	l	r		u		l			x	S5	u	l	x	u
Gnaphalium uliginosum	SNA	r											r		r			SNA		l		
Helianthus tuberosus	SNA										r							SNA				
Hieracium aurantiacum	SNA		r		r					r			r					SNA				
Hieracium caespitosum	SNA	f-c		c				l		r-l	u	u						SNA			x	f
Hieracium canadense	S5				l								l		f			S4S5				
Hieracium lachenalii	SNA			u						f	u	u	l			u		SNA		u	f	
Hieracium pilosella	SNA		u									u	l	x		l		SNA		l		
Hieracium sp.									x						x			[SNA]				
Hieracium tridentatum	SNA						x	r									x	SNA			x	
Hieracium x *flagellare*	SNA		r-l				x										x	SNA				
Hieracium x *floribundum*	SNA	u	r	r			u			f				l			x	SNA			x	
Lactuca biennis	S5		r	r-u			x							x		u	x	S5				
Lactuca canadensis	S5				u							r						S5				u
Lactuca sp.							r		x													
Leontodon autumnalis	SNA		l				x		l	r			r			l	x	SNA	r	l		

		Batemans Brook	Melanson Settlement	Scoudouc River North	Scoudouc River Center	Scoudouc River South	Memramcook River	Basse-Aboujagane	Aboujagane River	Kinnear River	Cormier Village	Kouchibouguac River	Upper Miramichi Bogs	Shemougue	Square Lake	Anderson Settlement	Gaspereau River		Missiguash	Tidnish Bridge	Nappan River	Shinimicas River
Scientific Name	**rank NB**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**rank NS**	**17**	**18**	**19**	**20**
Leucanthemum vulgare	SNA		l	r-l	l	l	l	r	l	r-l	l	u	l	l	r	l	x	SNA	r	l	x	u
Matricaria discoidea	SNA		r	r-l		l	l	r					r	l			x	SNA		l		r
Oclemena acuminata	S5	c	l	c	f	f	f	l	c	c	f	u		c	f	f	x	S5	c	c	f	u
Oclemena nemoralis	S5		l					x			l		u	l	u	f	x	S5	c	f		
Oclemena x *blakei*	SNA																x	S5				
Omalotheca sylvatica	S4									r								S4S5				
Packera aurea	S4S5										r							S4				
Packera schweinitziana	S4																	S4			x	
Petasites frigidus var. *palmatus*	S4S5	r-u				u	x	r			r		r	u				S4	u			
Prenanthes altissima	S5						r		u	f				u		u	x	S5		r		
Prenanthes trifoliolata	S5	c	c	c		f	f	c	f	c	u	r	r	f	r	u	x	S5		f		r
Rudbeckia hirta var. *pulcherrima*	SNA								l									SNA				
Rudbeckia laciniata	SNA																	S1S2				r
Senecio jacobaea	SNA			r														SNA				
Solidago bicolor	S5	f										u						S5		l	x	
Solidago canadensis	S5	c	c	c	f	l	l	c	l	c	l	f	l	l	f		x	S5	c	l	f	f
Solidago flexicaulis	S5								r									S5			x	
Solidago gigantea	S5			f		u			f									S5		u	l	
Solidago juncea	S5				u								r					S5				
Solidago puberula	S5	f	r	f	u		x			r-u		u	r			l	x	S5		l	x	

Scientific Name	rank NB	Batemans Brook 1	Melanson Settlement 2	Scoudouc River North 3	Scoudouc River Center 4	Scoudouc River South 5	Memramcook River 6	Basse-Aboujagane 7	Aboujagane River 8	Kinnear River 9	Cormier Village 10	Kouchibouguac River 11	Upper Memramcook Bogs 12	Shemougue 13	Square Lake 14	Anderson Settlement 15	Gaspereau River 16	rank NS	Missiguash 17	Tidnish Bridge 18	Nappan River 19	Shinimicas River 20
Solidago rugosa	S5	c	f	c	u	l	f	l	c	c	u	f	l	f	l	l	x	S5	c	f	c	
Solidago sempervirens	S5	l								r								S5				l
Solidago uliginosa	S5		l	r			x	r-u		r-l	u		u	l	u	f	x	S5	c	c	x	
Sonchus arvensis	SNA	c	r	l									r	x			x	SNA		u		u
Sonchus oleraceus	SNA	r																SNA				
Symphyotrichum ciliatum	SNA																	SNA				u
Symphyotrichum cordifolium	S5					l			l	f			u					S4S5			u	
Symphyotrichum lanceolatum	S5			r														S4S5				
Symphyotrichum lateriflorum	S5	f-c	f	c			x	f-c		c				x		f	x	S5	f	f	x	r
Symphyotrichum novi-belgii	S5	c	r-l	l	c		x		u	l		c	c	l	f	l		S5	r-l	l		c
Symphyotrichum puniceum	S5		l	c	r	u	f	f-c	u	l	u	r	r	u	r	u	x	S5	f		f	r
Tanacetum vulgare	SNA	r	r-l		u		l											SNA		l	x	
Taraxacum officinale	SNA	r	l	u	l	l	l	r	l	r	l	r	r	l	r	l	x	SNA	r-l	l	u	u
Tragopogon pratensis	SNA			r										r				SNA				
Tussilago farfara	SNA	l	l				r						l	l		u	x	SNA	r-l	l		u
Alismataceae																						
Alisma triviale	S5	r			r							r		x	u	r	x	S5			x	
Sagittaria cuneata/latifolia														x								
Sagittaria latifolia	S5					u												S5				r

Scientific Name	rank NB	1 Batemans Brook	2 Melanson Settlement	3 Scoudouc River North	4 Scoudouc River Center	5 Scoudouc River South	6 Memramcook River	7 Basse-Aboujagane	8 Aboujagane River	9 Kinnear River	10 Cormier Village	11 Kouchibouguac River	12 Upper Mechanicook Bogs	13 Shemougue	14 Square Lake	15 Anderson Settlement	16 Gaspereau River	rank NS	17 Missiguash	18 Tidnish Bridge	19 Nappan River	20 Shinimicas River
Scheuchzeriaceae																						
Scheuchzeria palustris ssp. *americana*	S4		r-l					c										S5	l			
Potamogetonaceae																						
Triglochin maritima	S5									r								S5				l
Potamogeton alpinus	S5																x	S4				
Potamogeton epihydrus	S5	r												x				S5		r		
Potamogeton gramineus	S5			l			x											S5				
Potamogeton natans	S5	r	r-l															S5				
Potamogeton oakesianus	S3S4													x				S4S5				
Potamogeton perfoliatus	S4S5									r								S5				
Potamogeton pusillus	S5									r				x				S5		r		
Ruppiaceae																						
Ruppia maritima	S5	c																S5				
Zannichelliaceae																						
Zannichellia palustris	S3									r				r				S4				
Araceae																						
Arisaema triphyllum	S5		r	l	u	u	c	r	f	f		u	u	x	u		x	S4S5			c	u
Calla palustris	S5					u	r	c			u			l		l	x	S4		l		
Symplocarpus foetidus	S2																	S3S4	x			

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Lemnaceae																						
Lemna turionifera	S5	r			l										l			S5	r			
Spirodela polyrrhiza	S3S4																	S4?		r		
Xyridaceae																						
Xyris montana	S3							r										S4		r		
Juncaceae																						
Juncus articulatus	S5						x									u	x	S5	r	r		
Juncus balticus var. *littoralis*	S5	l		l					l	r-l								S5				l
Juncus brevicaudatus	S5																	S5	r-u			
Juncus bufonius	S5												r	x				S5				
Juncus canadensis	S5	r	r					r			l			l		u	x	S5	l			
Juncus effusus	S5	l	l	c	u	u	u	c		c	u	u	f	f	u	u	x	S5	c	u	u	f
Juncus filiformis	S5				r					r								S5				
Juncus gerardii	S5			l						r								S5				l
Juncus pelocarpus	S5	r													u	u	x	S5	r	u		
Juncus stygius ssp. *americanus*	S1																	S2	r			
Juncus tenuis	S5	u			u		u	r	l	l		u	r	u		l	x	S5	l	l	x	u
Luzula acuminata	S5			c			r	r	u	u							x	S5			u	r
Luzula multiflora	S5	c		c	r	r	x	u	u	c	u	r	r	x	r		x	S5			u	
Cyperaceae																						
Carex aquatilis	S4S5															r		S5		r		

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Carex arctata	S5			c			f		u	c	f			u	u		x	S5			u	
Carex atlantica ssp. *atlantica*	S1															r		S4		r		
Carex bromoides	S4			x					l	r							x	S4			l	
Carex brunnescens ssp. *sphaerostachya*	S5	f	c	c	f	u	u	c	u	c		f	f	x		u	x	S5			x	u
Carex canescens	S5	r-u	c	u	c	u	u	c		f	u	c	f	u	f	u	x	S5	c	u		u
Carex chordorrhiza	S3																	S1	r			
Carex communis	S5			u			x		u			r						S5	r		x	u
Carex crinita	S5	u		f	u	u	u		u	u-f	u		u		f			S5	f	u	f	u
Carex debilis var. *rudgei*	S5	f	f	c	u		x	f	u	c	u	r		u		u	x	S5			u	f
Carex deflexa	S5	u	u				r	r-u	u		u			u				S4			u	
Carex diandra	S4																	S4	r			
Carex disperma	S5			r	u	u					u	u	u	x				S5	l		u	
Carex echinata	S5	r	u			u		r		r-l	u			x			x	S5	r-u	r	x	
Carex folliculata	S4																x	S5				
Carex gracillima	S5	f	r				u		u	c							x	S4S5			u	
Carex gynandra	S5	c	f	c	f	l	x	c	f	c	f	f	l	u	f	f	x	S5	c	u	u	u
Carex haydenii	S3					r												S1				
Carex interior	S5			r		r		r		r-l								S4S5	c			
Carex intumescens	S5	f	u-f	c	u	f	u	f	c	c	f	u	u	u	f	f	x	S5		f	f	u
Carex lacustris	S4S5			r		l		r-l	l		u			x	r			S4	c	u		

		Batemans Brook	Melanson Settlement	Scoudouc River North	Scoudouc River Center	Scoudouc River South	Memramcook River	Basse-Aboujagane	Aboujagane River	Kinnear River	Cormier Village	Kouchibouguac River	Upper Mem/Tidnish Bogs	Shemougue	Square Lake	Anderson Settlement	Gaspereau River		Missiguash	Tidnish Bridge	Nappan River	Shinimicas River
Scientific Name	**rank NB**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**rank NS**	**17**	**18**	**19**	**20**
Carex lasiocarpa var. *americana*	S5		l					r-l						x				S5	l	l		
Carex leptalea	S5		c	r-l	u	u	u	r	u	r-l	u	u	l	u	l		x	S5			x	u
Carex leptonervia	S5			c		u	f		f	c				u			x	S5			u	
Carex limosa	S4		l					c					l					S4	l			
Carex livida var. *radicaulis*	S2																	S1	r			
Carex lucorum	S4			r					u									S4				
Carex lurida	S5	r																S5			r	
Carex mackenziei	S4									r								S4				
Carex magellanica ssp. *irrigua*	S5		l			f	x	c		r-l	l		f	c	c	f	x	S5	c	f		
Carex nigra	S4S5																	S5			u	l
Carex novae-angliae	S5		r	l				r		f-c							x	S5			x	
Carex oligosperma	S5				l										l			S5				
Carex paleacea	S5	l		l						r								S5				u
Carex pallescens	S5									r	u			x				S5			x	
Carex pauciflora	S5							f						l				S4S5		r		
Carex pedunculata	S5	f		r-l					u	r								S4			f	
Carex projecta	S5	f		f	u					r		u	r	l	u		x	S5			u	f
Carex pseudocyperus	S5	r	r		r							r			r			S4S5	c	u		
Carex scabrata	S5								u	r								S5				
Carex scoparia	S5		r	r			x	r		r				l				S5	r	u	x	
Carex stipata	S5	u	f	f	l	u	u	f	u	f	u	r	u	u	r		x	S5		u	u	r

		Batemans Brook	Melanson Settlement	Scoudouc River North	Scoudouc River Center	Scoudouc River South	Memramcook River	Basse-Aboujagane	Aboujagane River	Kinnear River	Cormier Village	Kouchibouguac River	Upper Mellanicook Bogs	Shemougue	Square Lake	Anderson Settlement	Gaspereau River		Missiguash	Tidnish Bridge	Nappan River	Shinimicas River
Scientific Name	**rank NB**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**rank NS**	**17**	**18**	**19**	**20**
Carex stricta	S5		l	c	u	c	x	l		c	l		f	f	u		x	S5				f
Carex tenuiflora	S2																	S1	x			
Carex torta	S5			l			c											S5			l	
Carex tribuloides	S4S5							r	r									S3?				
Carex trisperma var. *billingsii*	S4?		r-u			u		u					c	x	c			S4?	f			f
Carex trisperma var. *trisperma*	S5		c	l		c	f	c		c	c			c		c	x	S5	c	c	x	
Carex tuckermanii	S3																	S2			r	
Carex utriculata	S5		r-l					u						l				S5				
Carex vesicaria	S5		l								l						x	S4S5				
Carex viridula	S4				r										r			S4	r	r		
Carex wiegandii	S3							r					r					S3				
Dulichium arundinaceum	S5	l	r			l		l			l			l	l			S5	r-u			u
Eleocharis acicularis	S5						r					u				r	x	S5				
Eleocharis halophila	S4?			r						r								S4S5				
Eleocharis obtusa	S5															r		S5				
Eleocharis ovata	S5	r																S2?				
Eleocharis palustris	S5	l	l		u	l			u		l			u	l			S5				
Eleocharis parvula	S4			r														S4				l
Eleocharis tenuis	S4								u	r					l			S5			x	
Eriophorum angustifolium	S5		r-l			u	u	c	l	r-l	u		l	l	l	u	x	S5	l	c		

		Batemans Brook	Melanson Settlement	Scoudouc River North	Scoudouc River Center	Scoudouc River South	Memramcook River	Basse-Aboujagane	Aboujagane River	Kinnear River	Cormier Village	Kouchibouguac River	Upper Memramcook Bogs	Shemougue	Square Lake	Anderson Settlement	Gaspereau River		Missiguash	Tidnish Bridge	Nappan River	Shinimicas River
Scientific Name	**rank NB**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**rank NS**	**17**	**18**	**19**	**20**
Eriophorum gracile	S2							r										S2	r			
Eriophorum russeolum	S3S4		r				r	r-l		r-l			r-l	r			x	S2	x			
Eriophorum tenellum	S4S5	r						r			r			l		r	x	S4S5	r-l			
Eriophorum vaginatum var. *spissum*	S5		u			l	x	c					l	l	l	l	x	S5	r-l	l		
Eriophorum virginicum	S5		l				u	c					l	l	l	c	x	S5	c	c		r
Eriophorum viridicarinatum	S4							r	l	r								S4				
Rhynchospora alba	S5		l					c					c		l	l	x	S5	l	c		
Schoenoplectus pungens	S5	l		l						l								S5				
Schoenoplectus tabernaemontani	S5	l								r		l						S5				l
Scirpus atrocinctus	S5		f							r				x				S5	f-c		r	
Scirpus cyperinus	S5	f-c	f		l	f	f			c	f	l	x	f			x	S5	c	c	x	l
Scirpus hattorianus	S4	r														u	x	S5		u		
Scirpus microcarpus	S5		r	l		u	r	u	u	f	u		u	x		u	x	S5		u	u	
Trichophorum alpinum	S4															l		S4				
Trichophorum caespitosum	S4					l		c						l		l	x	S5		l		
Poaceae																						
Agrostis capillaris	SNA		r							l	u					l		SNA		u	u	
Agrostis gigantea	SNA											u				l		SNA		l		

		Batemans Brook	Melanson Settlement	Scoudouc River North	Scoudouc River Center	Scoudouc River South	Memramcook River	Basse-Aboujagane	Aboujagane River	Kinnear River	Cormier Village	Kouchibouguac River	Upper Mernamcook Bogs	Shemougue	Square Lake	Anderson Settlement	Gaspereau River		Missiguash	Tidnish Bridge	Nappan River	Shinimicas River
Scientific Name	**rank NB**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**rank NS**	**17**	**18**	**19**	**20**
Agrostis scabra	S5	r																S5		l		
Agrostis sp.									x													
Agrostis stolonifera	S5	c	l	l	f					l		f			f	l		S5	l	l		f
Alopecurus pratensis	SNA			r										x				SNA				
Anthoxanthum odoratum	SNA		l	u			x			r	l			x	r		x	SNA			x	
Brachyelytrum septentrionale	S5	c	r		l		f		f	c	u	l	l	f	l	f	x	S5	r-u	f	f	l
Bromus ciliatus	S5	f																S5	r-u	u		
Bromus inermis	SNA		r	r														SNA				
Calamagrostis canadensis	S5	c	c	c	c	c	f	c	c	c	f	c	c	c	c	c	x	S5	c	c	f	f
Cinna latifolia	S5															u	x	S5		u		
Dactylis glomerata	SNA			r								r						SNA				
Danthonia spicata	S5	c		l	l		x			r		u	l		l	l	x	S5	l	l		
Deschampsia flexuosa	S5									u					c			S5				
Dichanthelium acuminatum	S5						x			r								S5	c	r	x	
Dichanthelium boreale	S5			r			x										x	S5				
Elymus repens	SNA	f		f	u		x	r		l		u	l		r			SNA				
Festuca filiformis	SNA									r-u		u		u				SNA			x	
Festuca rubra	S5	l	r	l	l		x					l	f					S5		l	x	l
Glyceria borealis	S5		l		l	r			r		l	l	f	x	l			S5		r	u	
Glyceria canadensis	S5	c	f				x	c			u	r		u		f		S5	c	f		u

Scientific Name	rank NB	1 Batemans Brook	2 Melanson Settlement	3 Scoudouc River North	4 Scoudouc River Center	5 Scoudouc River South	6 Memramcook River	7 Basse-Aboujagane	8 Aboujagane River	9 Kinnear River	10 Cormier Village	11 Kouchibouguac River	12 Upper Miramichi Bogs	13 Shemougue	14 Square Lake	15 Anderson Settlement	16 Gaspereau River	rank NS	17 Missiguash	18 Tidnish Bridge	19 Nappan River	20 Shinimicas River
Glyceria grandis	S5																	S4S5	u	u	u	
Glyceria laxa	S4?																x	S4?				
Glyceria melicaria	S5	r-u	r	u	u							r					x	S4		u	x	
Glyceria sp.						x																
Glyceria striata	S5	c	f-c	c	f	f	x	l	c	c	c	f	l	x	u	c	x	S5	c	c	c	f
Hierochloe odorata	S5	u		r						r								S4S5				u
Leersia oryzoides	S5	u-f											r			u	x	S5				
Lolium arundinaceum	SNA											r						SNA		u		
Lolium pratense	SNA		r														x	SNA				
Muhlenbergia glomerata	S4																	S4	r			
Muhlenbergia uniflora	S5						x											S5		l		
Oryzopsis asperifolia	S5	r	r				u											S5				
Panicum capillare	S5																	SNA	r	l		
Phalaris arundinacea	S5	r-l		r					u			l		x			x	S5		l	f	l
Phleum pratense	SNA		l	r-l	r		x	r		l	l	r		l	r	l	x	SNA	r	l	x	
Poa alsodes	S4																	S4			x	
Poa annua	SNA				r		l	r			l					l	x	SNA			x	
Poa cf. *trivialis*																		[SNA]			x	
Poa compressa	SNA	r				l	f		l	r	u			l		u	x	SNA	r	u	f	
Poa nemoralis	SNA									r								SNA				r
Poa palustris	S5	u	u	f						c				x	f		x	S5	r-u		x	
Poa pratensis	S5		r-l	r-l	l		x	r		r		f	l	x	u		x	S5	r-l		x	f

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Poa saltuensis	S4S5			l														S5				
Puccinellia americana	S4S5	r																S4S5				
Schizachne purpurascens	S4S5																	S4			x	
Spartina alterniflora	S5	l		l														S5				l
Spartina patens	S5	l																S5				l
Spartina pectinata	S5	l		l						l		l						S5				f
Sparganiaceae																						
Sparganium americanum	S5	r-l									l							S5		l	u	
Sparganium angustifolium	S5													x				S5				
Sparganium emersum	S5				u												x	S5				
Sparganium sp.							f						r			x						
Typhaceae																						
Typha angustifolia	S5	u	r		l					r			r		l			S5				
Typha latifolia	S5	c	l	r-u			u		u	l	l	l		l		l	x	S5	c	l		l
Pontederiaceae																						
Pontederia cordata	S5											l			l			S5				
Liliaceae																						
Clintonia borealis	S5	c	c	c	f	c	c	f	c	c	f	f	c	c	r	f	x	S5	c	f	u	f
Erythronium americanum	S5																	S4S5			r	
Hemerocallis fulva	SNA			r														SNA				

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Scientific Name	**rank NB**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**rank NS**	**17**	**18**	**19**	**20**
Maianthemum canadense	S5	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	x	S5	l	c	c	c
Maianthemum racemosum	S5			f			f		r			u					x	S4S5				
Maianthemum stellatum	S4S5									r								S4				
Maianthemum trifolium	S5		c	l	l	f	f	c	l	l	f		f	c	l	f	x	S5	c	f		
Medeola virginiana	S5	c	r	u-f					u	c	u	r		x			x	S5				r
Streptopus amplexifolius	S5					r	u		r		u			x				S4S5	r			
Streptopus lanceolatus	S5			c			u		u		u	u	r					S5				u
Trillium cernuum	S5			l	r	r	f		u	x	u	r	r	x			x	S4			f	r
Trillium undulatum	S5		c		r	u	f	c	u	c	u	r	r	u			x	S5	f			r
Uvularia sessilifolia	S5			f			x		u	f								S4S5				
Iridaceae																						
Iris versicolor	S5	c	c	c	u	f	f	c	c	c	u	f	u	c	c	f	x	S5	c	f	u	f
Sisyrinchium montanum	S5						u	r	l			r	r		r			S5				u
Orchidaceae																						
Arethusa bulbosa	S4					l		c						l	l		x	S4				
Calopogon tuberosus	S4		r													u		S4	l	f		
Corallorhiza trifida	S4					r												S4				
Cypripedium acaule	S5	c	c	c	r	f	f	c	f	c	u	r	r	f	r	u	x	S5	c	f	x	r
Epipactis helleborine	SNA	c																SNA				

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Scientific Name	**rank NB**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**rank NS**	**17**	**18**	**19**	**20**
Platanthera blephariglottis	S3		r								r							S4		l		
Platanthera clavellata	S4										u			u	r			S5		r		
Platanthera hookeri	S4	r												x				S3				
Platanthera orbiculata	S4										r							S3				
Platanthera psycodes	S4						cf.				r							S4				
Platanthera psycodes/grandiflora						r	x							r								
Pogonia ophioglossoides	S4		r								r			u				S4	l	f		
Spiranthes cernua	S2															r		S5	r	r		