



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

2014 Botanical Inventory in Cape Breton Highlands National Park



Clayton D'Orsay at seepy cliff, upper North Aspy River



Hybrid Baneberry (*Actaea x ludovici*, 1st NS record)

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A report to Cape Breton Highlands National Park
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Introduction

This report summarizes the results of three days of botanical fieldwork undertaken for Cape Breton Highlands National Park in August 2014. Fieldwork was focused on documenting provincially rare vascular plants, but full vascular plant diversity data was also recorded on two of three days. Those two days involved helicopter transport to remote sites the upper Cheticamp and North Aspy River watersheds, with the work documented here being supplementary to long-term vegetation monitoring done by other park staff in the same general areas. The third day of fieldwork was in the Corney Brook valley, with the site selected because numerous rare plants had previously been documented in the valley by Hal Hinds in 1981 and Rene Belland in 1991, but precise locations of some records were not known.

Methods

Atlantic Canada Conservation Data Centre (AC CDC) botanist Sean Blaney (herein 'I' or, with park staff assisting in the field, 'we') conducted fieldwork on the upper Cheticamp River on August 25, 2015 with Cape Breton Highlands National Park Resource Technician Rosie Smith, on the upper North Aspy River on August 26 with Cape Breton Highlands National Park Resource Technician Clayton D'Orsay, and on Corney Brook Gorge in August 27 with Cape Breton Highlands National Park Ecologist Matthew Smith. All fieldwork was on foot. I kept a GPS unit on in the field to precisely record area covered, and my tracks are mapped in Figures 1 to 3. Time was limited at all three sites, but we covered 3.7 km on foot at the Cheticamp River, 4.0 km on the North Aspy River and 7.4 km at Corney Brook.

We compiled a full vascular plant species list for the Cheticamp and North Aspy River sites, with locations documented for first sightings of non-rare species. At the Corney Brook site, I only recorded the most significant species. For provincially rare species (those species with provincial status ranks [S-ranks], of S1 to S3S4 and/or provincial General Status Ranks assigned by Nova Scotia Department of Natural Resources of At Risk, May Be At Risk or Sensitive)¹, I recorded locations by GPS (accurate to 10 m or less), along with information on population size and extent, habitat and associated species. I collected specimens of most provincially rare species and these will be deposited at the E.C. Smith Herbarium at Acadia University, Wolfville (ACAD), with duplicates sent to the Nova Scotia Museum of Natural History herbarium in Halifax (NSPM) and the Agriculture and Agrifoods Canada (DAO) herbarium in Ottawa. All data is attached with this report in the file "SB_CBHNPfieldnotes2014.xls, and has been entered into the Atlantic Canada Conservation Data Centre database, where it will be available for response to any future conservation-related data requests in the vicinity of the study areas. All AC CDC data are also made available to the Nova Scotia Departments of Natural Resources and Environment and Local Government.

¹ S-ranks are defined in detail at www.natureserve.org/explorer/ranking.htm#globalstatus, with S1 = critically imperiled, S2 = imperiled, S3 = vulnerable, S4 = Secure with some cause for long term concern, and S5 = Demonstrably secure. General Status Ranks are defined in detail at <http://www.gov.ns.ca/natr/wildlife/genstatus/background.asp>, with ranks of At Risk, May Be At Risk, Sensitive, Secure, Undetermined, Not Assessed, Exotic, Extirpated, Extinct, Accidental, Occurrence Not Verified.

Results and Discussion

Vascular plant species diversity

We recorded 246 vascular plant species (244 native, 2 exotic; Table 1) at the three sites. Site specific species totals were 186 at Cheticamp River, 181 at North Aspy River, and 19 at Corney Brook, where only the more significant species were recorded.

Rare plant species

We documented 51 records of 19 provincially rare vascular plant species, of which two records of two species were ranked S1 and May Be At Risk, 20 records of six species were ranked S2 to S3 and Sensitive, and 29 records of 11 species were ranked S3 or higher and Secure. Rare species richness was highest on the Cheticamp River with 11 species, followed by the North Aspy River with seven species and Corney Brook with five species. Details of geographic affinity, Nova Scotia status and observed records for each provincially rare species are outlined in Table 2 below. Figures 4 and 5 illustrate two rare species observed: Appalachian Polypody (*Polypodium appalachianum*, S3? – Undetermined) and Squashberry (*Viburnum edule*, S3 – Sensitive).

Other significant plants

We documented the first Nova Scotia record of the hybrid baneberry *Actaea x ludovici* (*A. pachypoda x rubra*, Figure 6) along the Corney Brook trail (specimen: Blaney 8693, deposited at the E.C. Smith Herbarium, Acadia University). The single plant was in hardwood forest at the base of a steep, forested talus slope and both parental species were nearby.

We also found a dandelion (*Taraxacum* sp.) on a rock outcrop along the Cheticamp River that might have been a native species given its habitat and location (potentially *T. officinale* ssp. *ceratophorum*, or *T. latilobum*). No native dandelions are presently known for Nova Scotia. The plant was infertile and therefore not identifiable to species, and it is quite possible that it was the introduced Common Dandelion given that that species is frequently able to colonize quite remote and undisturbed sites.

Observations on moose impacts

Although the most obvious landscape-level changes caused by the park's high moose populations are obviously on the highland plateau, moose are clearly having a significant impact on the vegetation of the hardwood river valleys as well. Among the sites visited in 2014, this was most evident on the upper North Aspy River, where shrub understory and tree regeneration were clearly severely reduced by long-term heavy moose browsing, and moose trampling was extensive in the moist seepy floodplain terraces, and some larger open areas had developed where mature trees had fallen over but are not replaced by regeneration. Effects of this level of suppression of woody regeneration likely accumulate over time and it seems conceivable that much more open communities will develop over larger areas where closed canopy hardwood forest occurs today.

Conclusions

The 2014 fieldwork documented here illustrates how much can be learned about the distribution of provincially rare flora within Cape Breton Highlands National Park, in even a relatively short period of intensive fieldwork. Our work covered only a very small portion of the unsurveyed or undersurveyed high potential rare plant habitat in the park. More extensive work, especially in situations allowing longer field periods per day, would certainly result in even greater return in rare species occurrences.

Our work points to the Cheticamp River and Corney Brook both being high priorities for further fieldwork, with both supporting exposed cliff and plateau barrens and some rich floodplain forest. Other potential priorities for disjunct northern species include Ingonish Barrens and unnamed barrens at Canadian Brook, Mackenzies River and Five Islands Lake. High potential undersurveyed rich floodplain forest sites include MacIntosh Brook and the Grande Anse River.

Acknowledgements

This project was fully funded by Cape Breton Highlands National Park. The Atlantic Canada Conservation Data Centre greatly appreciates the opportunity to have seen the spectacular sites visited and to have completed this report.



Figure 1. Track taken at the Cheticamp River survey site, with significant plant locations. Map is displayed “tilted” to enhance topography. 2 = Wiegand's Sedge (*Carex wiegandii*, S3 - Sensitive); 6 = Appalachian Polypody (*Polypodium appalachianum*, S3? - Undetermined); 11 to 13, 15, 28, 29 to 30, 33, 34, 41 = Dwarf Bilberry (*Vaccinium caespitosum*, S3 - Secure); 13, 16, 26, 35, 36, 37, 40 = Squashberry (*Viburnum edule*, S3 - Sensitive); 20 = Northern Meadowsweet (*Spiraea* poss. *septentrionalis*, S1 - May Be At Risk); 27 = Thyme-Leaved Speedwell (*Veronica serpyllifolia* ssp. *humifusa*, S2S3 - Sensitive); 27 = Hornemann's Willowherb (*Epilobium hornemannii*, S3 - Secure); 30 = dandelion sp. (*Taraxacum* sp., possibly native; would be new for NS; 31 = Narrow False Oats (*Trisetum spicatum*, S3S4 - Secure); 32 = Alpine Timothy (*Phleum alpinum*, S1 - May Be At Risk); 41 = Robinson's Hawkweed (*Hieracium robinsonii*, S2 - Sensitive)

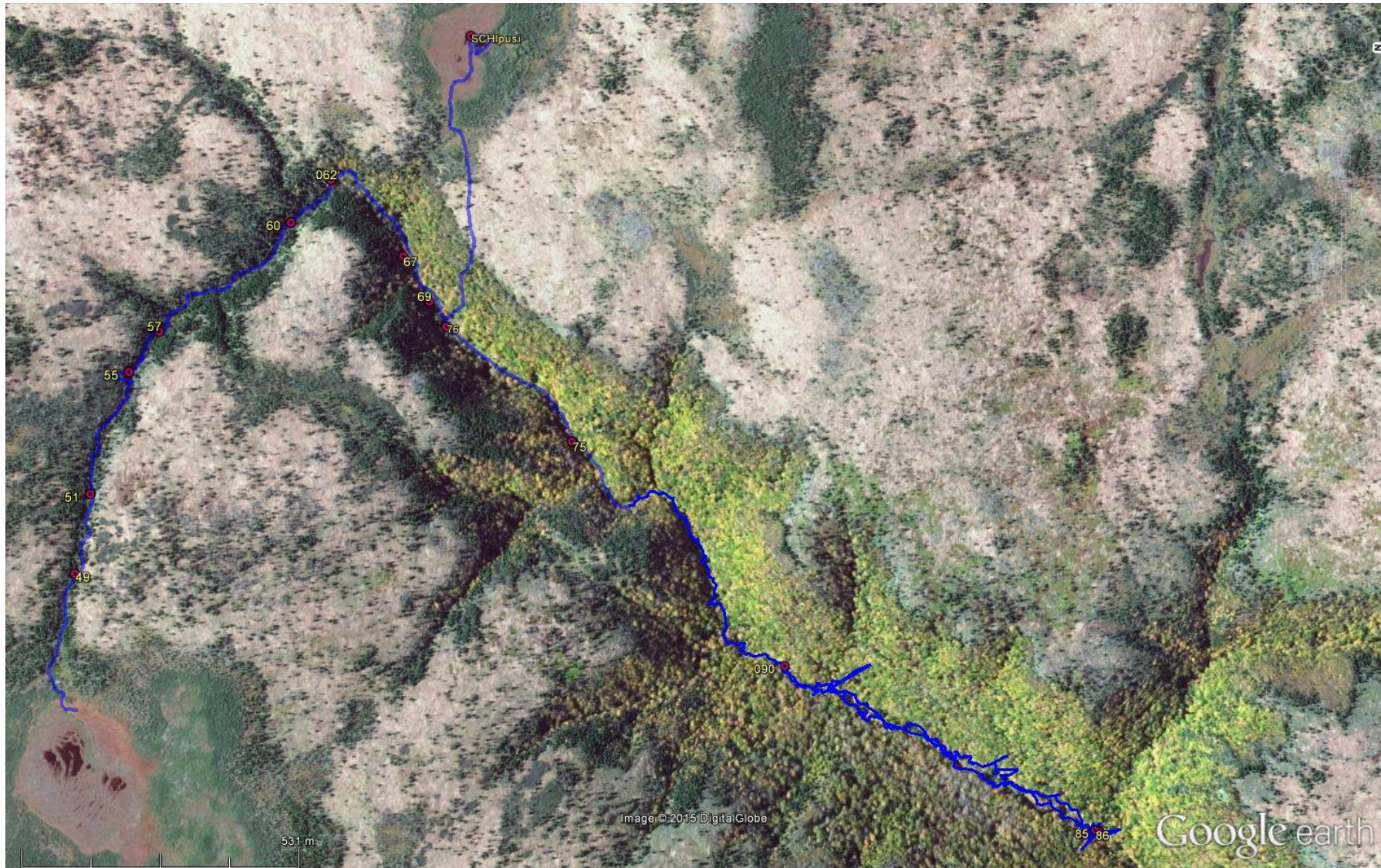


Figure 2. Track taken at the North Aspy River survey site, with significant plant locations. 49, 57, 60, 75, 86 = Squashberry (*Viburnum edule*, S3 - Sensitive); 51 = Wiegand's Sedge (*Carex wiegandii*, S3 - Sensitive); 55, [other pt] = Northern Wild Licorice (*Galium kamtschaticum*, S3 - Secure); 67, 69 = Hornemann's Willowherb (*Epilobium hornemannii*, S3 - Secure); 67 = Thyme-Leaved Speedwell (*Veronica serpyllifolia* ssp. *humifusa*, S3 - Secure); 85 = Spotted Coralroot (*Corallorhiza maculata*, S4 - Secure); SCHlpusi = Little Curlygrass Fern (*Schizaea pusilla*, S3 - Secure)

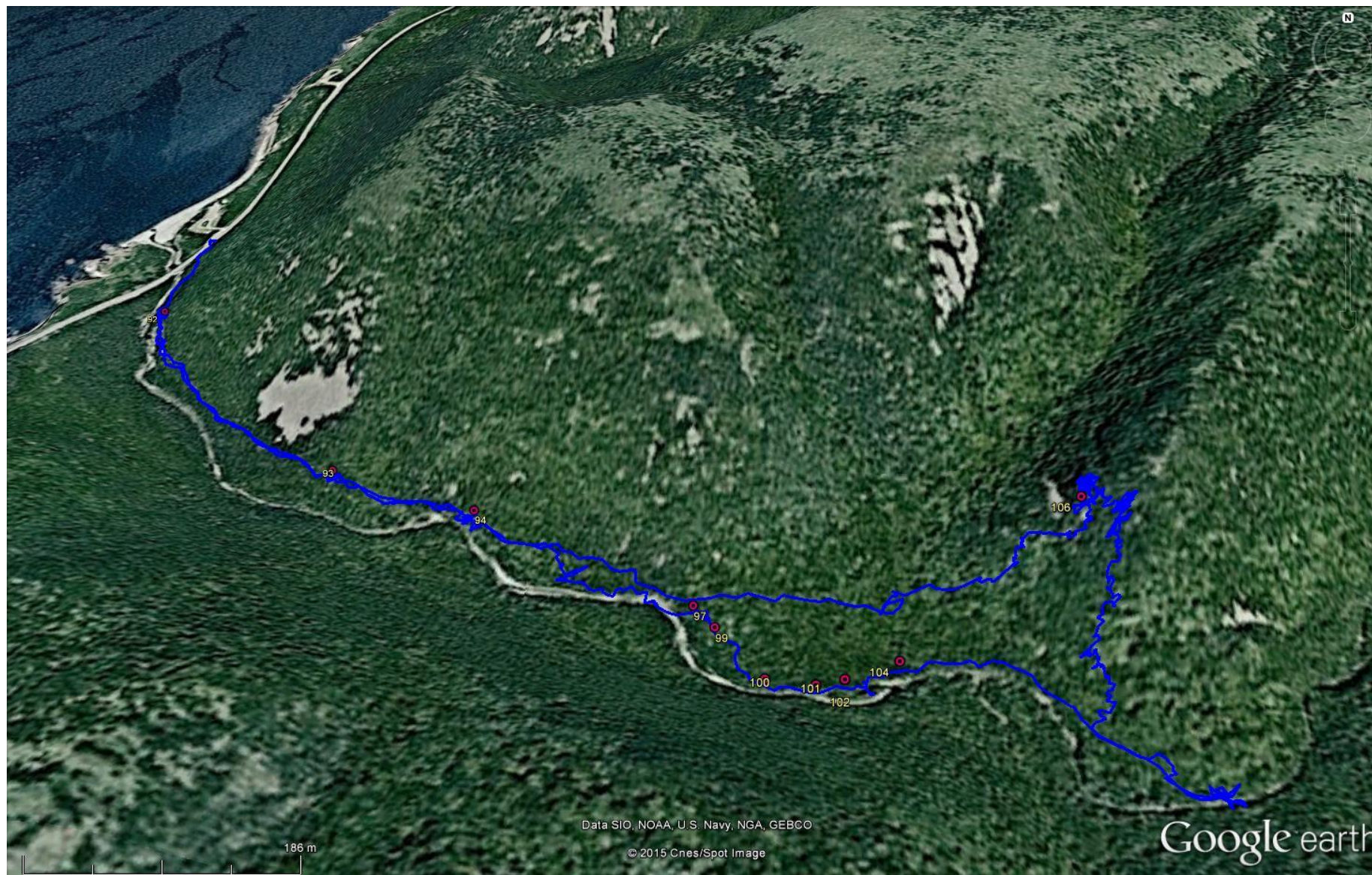


Figure 3. Track taken at the Corney Brook survey site, with significant plant locations. 92 = Soapberry (*Shepherdia canadensis*, S2S3 - Sensitive); 93 = Hybrid Baneberry (*Actaea x ludovici*, SNA - Not Assessed); 94, 97 = Chinese Hemlock-parsley (*Conioselinum chinense*, S2 - Sensitive); 97, 99, 100, 101, 102, 104 = Pink Pyrola (*Pyrola asarifolia*, S3 - Secure); 106 = Glaucous Blue Grass (*Poa glauca*, S2S3 - Sensitive).



Figure 4. Appalachian Polypody (*Polypodium appalachianum*, S3? – Undetermined), from a stream ravine flowing into the Cheticamp River.



Figure 5. Squashberry (*Viburnum edule*, S3 – Sensitive), heavily defoliated, presumably by the introduced Viburnum Leaf Beetle (*Pyrrhalta viburni*), from the upper North Aspy River. Heavy repeated defoliation by this introduced species could endanger this species in Nova Scotia.



Figure 6. Hybrid White x Red Baneberry (*Actaea x ludovici*, = *A. pachypoda* x *rubra*) on the Corney Brook Trail. This is the first record for this hybrid in Nova Scotia. The inset photo bottom right is the red-berried form of White Baneberry (*A. pachypoda*) for comparison, also from Corney Brook. Note the thicker pedicels (fruit stalks). Red Baneberry would have more slender pedicels than the hybrid.

Table 1. Vascular plants recorded during 2014 fieldwork in Cape Breton Highlands National Park, by site. Links to provincial S-rank and General Status rank definitions are given in Methods.

Species	Common Name	S-rank	General Status	Cheticamp R	N Aspy R	Corney Bk
<i>Actaea rubra</i>	Red Baneberry	S5	Secure	x	x	x
Lycopodiaceae		Clubmoss Family				
<i>Huperzia lucidula</i>	Shining Firmoss	S5	Secure	x	x	
<i>Lycopodium annotinum</i> [var. <i>pungens</i>]	Stiff Clubmoss [northern variety]	S5	Secure		x	
<i>Lycopodium hickeyi</i>	Hickey's Tree-clubmoss	S4?	Secure	x		
Equisetaceae		Horsetail Family				
<i>Equisetum arvense</i>	Field Horsetail	S5	Secure		x	
<i>Equisetum sylvaticum</i>	Woodland Horsetail	S5	Secure	x	x	
Osmundaceae		Flowering Fern Family				
<i>Osmunda cinnamomea</i>	Cinnamon Fern	S5	Secure	x	x	
<i>Osmunda claytoniana</i>	Interrupted Fern	S5	Secure	x	x	
Schizaeaceae		Curlygrass Fern Family				
<i>Schizaea pusilla</i>	Little Curlygrass Fern	S3	Secure		x	
Polypodiaceae		Polypody Family				
<i>Polypodium appalachianum</i>	Appalachian Polypody	S3?	Undetermined	x		
<i>Polypodium virginianum</i>	Rock Polypody	S5	Secure	x		
Dennstaedtiaceae		Hay-scented Fern Family				
<i>Dennstaedtia punctilobula</i>	Eastern Hay-Scented Fern	S5	Secure	x	x	
<i>Pteridium aquilinum</i> var. <i>latiusculum</i>	Bracken Fern	S5	Secure	x	x	
Thelypteridaceae		Marsh Fern Family				
<i>Phegopteris connectilis</i>	Northern Beech Fern	S5	Secure	x	x	
<i>Thelypteris noveboracensis</i>	New York Fern	S5	Secure	x	x	
Dryopteridaceae		Wood Fern Family				
<i>Athyrium filix-femina</i> ssp. <i>angustum</i>	Common Lady Fern	S5	Secure	x	x	
<i>Deparia acrostichoides</i>	Silvery Glade Fern	S4	Secure		x	
<i>Dryopteris campyloptera</i>	Mountain Wood Fern	S5	Secure	x	x	
<i>Dryopteris filix-mas</i>	Male Fern	S4	Secure		x	x
<i>Dryopteris intermedia</i>	Evergreen Wood Fern	S5	Secure	x	x	
<i>Dryopteris marginalis</i>	Marginal Wood Fern	S5	Secure			x
<i>Gymnocarpium dryopteris</i>	Common Oak Fern	S5	Secure	x	x	
<i>Matteuccia struthiopteris</i>	Ostrich Fern	S5	Secure		x	
<i>Onoclea sensibilis</i>	Sensitive Fern	S5	Secure		x	
<i>Polystichum acrostichoides</i>	Christmas Fern	S5	Secure	x		
<i>Polystichum braunii</i>	Braun's Holly Fern	S4	Secure	x	x	
<i>Woodsia ilvensis</i>	Rusty Cliff Fern	S4	Secure	x		
Taxaceae		Yew Family				
<i>Taxus canadensis</i>	Canada Yew	S5	Secure	x	x	
Pinaceae		Pine Family				
<i>Abies balsamea</i>	Balsam Fir	S5	Secure	x	x	
<i>Larix laricina</i>	Tamarack	S5	Secure		x	
<i>Picea glauca</i>	White Spruce	S5	Secure	x		
<i>Picea mariana</i>	Black Spruce	S5	Secure	x	x	
<i>Pinus strobus</i>	Eastern White Pine	S5	Secure	x		
Nymphaeaceae		Water Lily Family				
<i>Nuphar lutea</i> ssp. <i>variegata</i>	Variiegated Pond-lily	S5	Secure		x	
Ranunculaceae		Buttercup Family				
<i>Actaea pachypoda</i>	White Baneberry	S4	Secure			x
<i>Actaea x ludovici</i>	Hybrid Baneberry	SNA	Not Assessed			x
<i>Clematis virginiana</i>	Virginia Clematis	S5	Secure	x		
<i>Coptis trifolia</i>	Goldthread	S5	Secure	x	x	

Species	Common Name	S-rank	General Status	Cheticamp R	N Aspy R	Corney Bk
<i>Ranunculus recurvatus</i>	Hooked Buttercup	S4	Secure		x	
<i>Thalictrum pubescens</i>	Tall Meadow-Rue	S5	Secure	x	x	
Urticaceae	Nettle Family					
<i>Urtica dioica ssp. gracilis</i>	Stinging Nettle	S4	Secure		x	
Myricaceae	Bayberry Family					
<i>Myrica gale</i>	Sweet Gale	S5	Secure		x	
Betulaceae	Birch Family					
<i>Alnus incana ssp. rugosa</i>	Speckled Alder	S5	Secure	x	x	
<i>Alnus viridis ssp. crispa</i>	Green Alder	S5	Secure	x		
<i>Betula alleghaniensis</i>	Yellow Birch	S5	Secure	x	x	
<i>Betula papyrifera var. cordifolia</i>	Heart-leaved Birch	S5	Secure	x	x	
<i>Corylus cornuta</i>	Beaked Hazel	S5	Secure	x	x	
Caryophyllaceae	Pink Family					
<i>Sagina procumbens</i>	Procumbent Pearlwort	S5	Exotic	x	x	
<i>Stellaria borealis</i>	Boreal Stitchwort	S4	Secure		x	
Sarraceniaceae	Pitcher Plant Family					
<i>Sarracenia purpurea</i>	Northern Pitcher Plant	S5	Secure	x	x	
Droseraceae	Sundew Family					
<i>Drosera intermedia</i>	Spoon-Leaved Sundew	S5	Secure		x	
<i>Drosera rotundifolia</i>	Round-leaved Sundew	S5	Secure	x	x	
Violaceae	Violet Family					
<i>Viola cucullata</i>	Marsh Blue Violet	S5	Secure	x	x	
<i>Viola labradorica</i>	Labrador Violet	S5	Secure			x
<i>Viola macloskeyi ssp. pallens</i>	Small White Violet	S5	Secure	x	x	
<i>Viola sororia</i>	Woolly Blue Violet	S5	Secure	x		
Brassicaceae	Mustard Family					
<i>Cardamine pensylvanica</i>	Pennsylvania Bittercress	S5	Secure		x	
Empetraceae	Crowberry Family					
<i>Empetrum nigrum</i>	Black Crowberry	S5	Secure	x		
Ericaceae	Heath Family					
<i>Andromeda polifolia var. glaucophylla</i>	Bog Rosemary	S5	Secure	x	x	
<i>Chamaedaphne calyculata</i>	Leatherleaf	S5	Secure	x	x	
<i>Epigaea repens</i>	Trailing Arbutus	S5	Secure	x	x	
<i>Gaultheria hispidula</i>	Creeping Snowberry	S5	Secure	x	x	
<i>Kalmia angustifolia</i>	Sheep Laurel	S5	Secure	x	x	
<i>Kalmia polifolia</i>	Pale Bog Laurel	S5	Secure	x	x	
<i>Ledum groenlandicum</i>	Common Labrador Tea	S5	Secure	x	x	
<i>Rhododendron canadense</i>	Rhodora	S5	Secure	x	x	
<i>Vaccinium angustifolium</i>	Late Lowbush Blueberry	S5	Secure	x	x	
<i>Vaccinium caespitosum</i>	Dwarf Bilberry	S3	Secure	x		
<i>Vaccinium myrtilloides</i>	Velvet-leaved Blueberry	S5	Secure	x	x	
<i>Vaccinium oxycoccos</i>	Small Cranberry	S5	Secure	x	x	
<i>Vaccinium vitis-idaea ssp. minus</i>	Mountain Cranberry	S5	Secure	x		
Pyrolaceae	Pyrola Family					
<i>Moneses uniflora</i>	One-flowered Wintergreen	S5	Secure		x	
<i>Orthilia secunda</i>	One-sided Wintergreen	S5	Secure	x	x	
<i>Pyrola asarifolia</i>	Pink Pyrola	S3	Secure			x
<i>Pyrola elliptica</i>	Shinleaf	S5	Secure	x	x	
<i>Pyrola minor</i>	Lesser Pyrola	S3	Sensitive	x		
Monotropaceae	Indian Pipe Family					
<i>Monotropa uniflora</i>	Indian Pipe	S5	Secure	x	x	
Primulaceae	Primrose Family					
<i>Trientalis borealis</i>	Northern Starflower	S5	Secure	x	x	
Grossulariaceae	Gooseberry Family					
<i>Ribes glandulosum</i>	Skunk Currant	S5	Secure	x	x	

Species	Common Name	S-rank	General Status	Cheticamp R	N Aspy R	Corney Bk
<i>Ribes lacustre</i>	Bristly Black Currant	S5	Secure	x	x	
<i>Ribes triste</i>	Swamp Red Currant	S4	Secure		x	
Crassulaceae	Stonecrop Family					
<i>Rhodiola rosea</i>	Roseroot	S4	Secure	x		
Saxifragaceae	Saxifrage Family					
<i>Chrysothamnium americanum</i>	American Golden Saxifrage	S5	Secure	x	x	
<i>Mitella nuda</i>	Naked Bishop's-Cap	S5	Secure	x	x	
Rosaceae	Rose Family					
<i>Agrimonia gryposepala</i>	Hooked Agrimony	S3	Secure			x
<i>Amelanchier bartramiana</i>	Bartram's Serviceberry	S5	Secure	x	x	
<i>Amelanchier sp.</i>	serviceberry sp.			x	x	
<i>Fragaria virginiana</i>	Wild Strawberry	S5	Secure	x	x	
<i>Geum macrophyllum</i>	Large-Leaved Avens	S5	Secure	x	x	
<i>Geum rivale</i>	Water Avens	S5	Secure		x	
<i>Photinia melanocarpa</i>	Black Chokeberry	S5	Secure	x	x	
<i>Prunus pensylvanica</i>	Pin Cherry	S5	Secure	x	x	
<i>Prunus virginiana</i>	Chokecherry	S5	Secure	x	x	
<i>Rubus canadensis</i>	Smooth Blackberry	S5	Secure	x		
<i>Rubus chamaemorus</i>	Cloudberry	S4	Secure	x	x	
<i>Rubus idaeus ssp. strigosus</i>	Red Raspberry	S5	Secure	x	x	
<i>Rubus pubescens</i>	Dwarf Red Raspberry	S5	Secure	x	x	
<i>Sanguisorba canadensis</i>	Canada Burnet	S3S4	Secure	x		
<i>Sanguisorba canadensis</i>	Canada Burnet	S4	Secure		x	
<i>Sorbus americana</i>	American Mountain Ash	S5	Secure	x	x	
<i>Sorbus decora</i>	Showy Mountain Ash	S4	Secure	x	x	
<i>Spiraea poss. septentrionalis</i>	meadowsweet sp. - poss. Northern Meadowsweet	[S1]	[May Be At Risk]	x		
Elaeagnaceae	Oleaster Family					
<i>Shepherdia canadensis</i>	Soapberry	S2S3	Sensitive			x
Onagraceae	Evening-Primrose Family					
<i>Chamerion angustifolium</i>	Fireweed	S5	Secure	x	x	
<i>Circaea alpina</i>	Small Enchanter's Nightshade	S5	Secure	x	x	
<i>Epilobium ciliatum</i>	Northern Willowherb	S5	Secure	x	x	
<i>Epilobium hornemannii</i>	Hornemann's Willowherb	S3	Secure	x	x	
Cornaceae	Dogwood Family					
<i>Cornus alternifolia</i>	Alternate-leaved Dogwood	S5	Secure	x		
<i>Cornus canadensis</i>	Bunchberry	S5	Secure	x	x	
<i>Cornus sericea</i>	Red Osier Dogwood	S5	Secure	x		
<i>Cornus x intermedia</i>	a hybrid Dogwood	SNA	Not Assessed	x		
Aquifoliaceae	Holly Family					
<i>Nemopanthus mucronatus</i>	Mountain Holly	S5	Secure	x	x	
Aceraceae	Maple Family					
<i>Acer pensylvanicum</i>	Striped Maple	S5	Secure	x	x	
<i>Acer rubrum</i>	Red Maple	S5	Secure	x	x	
<i>Acer saccharum</i>	Sugar Maple	S5	Secure	x	x	
<i>Acer spicatum</i>	Mountain Maple	S5	Secure	x	x	
Oxalidaceae	Wood Sorrel Family					
<i>Oxalis montana</i>	Common Wood Sorrel	S5	Secure	x	x	
Balsaminaceae	Touch-Me-Not Family					
<i>Impatiens capensis</i>	Spotted Jewelweed	S5	Secure	x	x	
Araliaceae	Sarsaparilla Family					
<i>Aralia nudicaulis</i>	Wild Sarsaparilla	S5	Secure	x	x	
Apiaceae	Carrot Family					
<i>Conioselinum chinense</i>	Chinese Hemlock-parsley	S2	Sensitive			x
<i>Heracleum maximum</i>	Common Cow Parsnip	S5	Secure	x	x	
<i>Osmorhiza berteroi</i>	Mountain Sweet Cicely	S4	Secure		x	

Species	Common Name	S-rank	General Status	Cheticamp R	N Aspy R	Corney Bk
<i>Sanicula marilandica</i>	Maryland Sanicle	S4	Secure	x		x
Gentianaceae	Gentian Family					
<i>Bartonia paniculata</i> ssp. <i>iodandra</i>	Branched Bartonia	S4S5	Secure	x	x	
Menyanthaceae	Bog Bean Family					
<i>Menyanthes trifoliata</i>	Bog Buckbean	S5	Secure		x	
Lamiaceae	Mint Family					
<i>Clinopodium vulgare</i>	Wild Basil	S5	Secure	x	x	
<i>Mentha arvensis</i>	Wild Mint	S5	Secure		x	
<i>Prunella vulgaris</i>	Common Self-heal	S5	Secure	x		
Oleaceae	Olive Family					
<i>Fraxinus americana</i>	White Ash	S5	Secure	x		
Scrophulariaceae	Snapdragon Family					
<i>Melampyrum lineare</i>	American Cow Wheat	S5	Secure	x	x	
<i>Veronica serpyllifolia</i> ssp. <i>humifusa</i>	Thyme-Leaved Speedwell	S2S3	Sensitive	x	x	
Lentibulariaceae	Bladderwort Family					
<i>Utricularia cornuta</i>	Horned Bladderwort	S5	Secure		x	
<i>Utricularia geminiscapa</i>	Twin-stemmed Bladderwort	S4	Secure		x	
Campanulaceae	Bellflower Family					
<i>Campanula rotundifolia</i>	Common Harebell	S5	Secure	x		
Rubiaceae	Bedstraw Family					
<i>Galium asprellum</i>	Rough Bedstraw	S5	Secure	x	x	
<i>Galium kamtschaticum</i>	Northern Wild Licorice	S3	Secure		x	
<i>Galium triflorum</i>	Three-flowered Bedstraw	S5	Secure	x	x	
<i>Mitchella repens</i>	Partridgeberry	S5	Secure	x		
Caprifoliaceae	Honeysuckle Family					
<i>Diervilla lonicera</i>	Northern Bush Honeysuckle	S5	Secure	x	x	
<i>Linnaea borealis</i> ssp. <i>americana</i>	Twinflower	S5	Secure	x	x	
<i>Lonicera canadensis</i>	Canada Fly Honeysuckle	S5	Secure	x	x	
<i>Lonicera villosa</i>	Mountain Fly Honeysuckle	S4S5	Secure	x		
<i>Sambucus racemosa</i>	Red Elderberry	S5	Secure	x	x	
<i>Viburnum edule</i>	Squashberry	S3	Sensitive	x	x	
<i>Viburnum nudum</i> var. <i>cassinoides</i>	Northern Wild Raisin	S5	Secure	x	x	
Asteraceae	Aster Family					
<i>Achillea millefolium</i>	Common Yarrow	S5	Secure	x		
<i>Anaphalis margaritacea</i>	Pearly Everlasting	S5	Secure	x	x	
<i>Cirsium muticum</i>	Swamp Thistle	S5	Secure	x	x	
<i>Doellingeria umbellata</i>	Hairy Flat-top White Aster	S5	Secure	x	x	
<i>Eupatorium maculatum</i>	Spotted Joe-pye-weed	S5	Secure	x	x	
<i>Eurybia radula</i>	Low Rough Aster	S5	Secure	x	x	
<i>Euthamia graminifolia</i>	Grass-leaved Goldenrod	S5	Secure	x		
<i>Hieracium canadense</i>	Canada Hawkweed	S4S5	Secure	x	x	
<i>Hieracium lachenalii</i>	Common Hawkweed	SNA	Exotic			x
<i>Hieracium robinsonii</i>	Robinson's Hawkweed	S2	Sensitive	x		
<i>Oclemena acuminata</i>	Whorled Wood Aster	S5	Secure	x	x	
<i>Oclemena nemoralis</i>	Bog Aster	S5	Secure	x	x	
<i>Oclemena x blakei</i>	a hybrid White Panicked American-Aster	S5	Secure	x	x	
<i>Packera aurea</i>	Golden Groundsel	S4	Secure			x
<i>Prenanthes altissima</i>	Tall Rattlesnakeroot	S5	Secure	x	x	
<i>Prenanthes trifoliolata</i>	Three-leaved Rattlesnakeroot	S5	Secure	x	x	
<i>Solidago bicolor</i>	White Goldenrod	S5	Secure	x		
<i>Solidago flexicaulis</i>	Zigzag Goldenrod	S5	Secure	x	x	
<i>Solidago macrophylla</i>	Large-leaved Goldenrod	S4	Secure	x	x	
<i>Solidago rugosa</i>	Rough-stemmed Goldenrod	S5	Secure	x	x	

Species	Common Name	S-rank	General Status	Cheticamp R	N Aspy R	Corney Bk
<i>Solidago uliginosa</i>	Northern Bog Goldenrod	S5	Secure	x	x	
<i>Symphyotrichum lateriflorum</i>	Calico Aster	S5	Secure	x		
<i>Symphyotrichum puniceum</i>	Purple-stemmed Aster	S5	Secure	x	x	
<i>Taraxacum</i> sp.	dandelion sp. - poss. Native (which would be new for NS)			x		
<i>Tussilago farfara</i>	Coltsfoot	SNA	Exotic	x	x	
Juncaceae		Rush Family				
<i>Juncus brevicaudatus</i>	Narrow-Panicled Rush	S5	Secure	x	x	
<i>Juncus effusus</i>	Soft Rush	S5	Secure		x	
<i>Juncus pelocarpus</i>	Brown-Fruited Rush	S5	Secure		x	
<i>Luzula parviflora</i>	Small-flowered Woodrush	S3S4	Secure		x	
Cyperaceae		Sedge Family				
<i>Carex aquatilis</i>	Water Sedge	S5	Secure		x	
<i>Carex arctata</i>	Black Sedge	S5	Secure	x	x	
<i>Carex atlantica</i> ssp. <i>atlantica</i>	Atlantic Sedge	S4	Secure		x	
<i>Carex brunnescens</i> ssp. <i>sphaerostachya</i>	Brownish Sedge	S5	Secure	x	x	
<i>Carex canescens</i>	Silvery Sedge	S5	Secure		x	
<i>Carex communis</i>	Fibrous-Root Sedge	S5	Secure	x		
<i>Carex crinita</i>	Fringed Sedge	S5	Secure		x	
<i>Carex debilis</i> var. <i>rudgei</i>	White-edged Sedge	S5	Secure		x	
<i>Carex deweyana</i>	Dewey's Sedge	S5	Secure		x	
<i>Carex echinata</i>	Star Sedge	S5	Secure	x	x	
<i>Carex exilis</i>	Coastal Sedge	S4	Secure	x	x	
<i>Carex flava</i>	Yellow Sedge	S5	Secure		x	
<i>Carex gracillima</i>	Graceful Sedge	S4S5	Secure			x
<i>Carex gynandra</i>	Nodding Sedge	S5	Secure	x	x	
<i>Carex interior</i>	Inland Sedge	S4S5	Secure	x	x	
<i>Carex intumescens</i>	Bladder Sedge	S5	Secure	x		
<i>Carex leptalea</i>	Bristly-stalked Sedge	S5	Secure	x	x	
<i>Carex leptoneuria</i>	Finely-Nerved Sedge	S5	Secure	x		
<i>Carex limosa</i>	Mud Sedge	S4	Secure		x	
<i>Carex magellanica</i> ssp. <i>irrigua</i>	Boreal Bog Sedge	S5	Secure	x	x	
<i>Carex michauxiana</i>	Michaux's Sedge	S4	Secure	x		
<i>Carex oligosperma</i>	Few-Seeded Sedge	S5	Secure		x	
<i>Carex pauciflora</i>	Few-Flowered Sedge	S4S5	Secure	x	x	
<i>Carex pedunculata</i>	Long-stalked Sedge	S4	Secure	x		x
<i>Carex projecta</i>	Necklace Sedge	S5	Secure		x	
<i>Carex scabrata</i>	Rough Sedge	S5	Secure	x	x	
<i>Carex stipata</i>	Awl-fruited Sedge	S5	Secure	x	x	
<i>Carex torta</i>	Twisted Sedge	S5	Secure	x	x	
<i>Carex trisperma</i> var. <i>trisperma</i>	Three-seeded Sedge	S5	Secure	x	x	
<i>Carex wiegandii</i>	Wiegand's Sedge	S3	Sensitive	x	x	
<i>Eriophorum angustifolium</i>	Narrow-leaved Cottongrass	S5	Secure	x	x	
<i>Eriophorum virginicum</i>	Tawny Cottongrass	S5	Secure	x	x	
<i>Rhynchospora alba</i>	White Beakrush	S5	Secure	x	x	
<i>Scirpus atrocinctus</i>	Black-girdled Bulrush	S5	Secure	x		
<i>Scirpus microcarpus</i>	Small-fruited Bulrush	S5	Secure	x	x	
<i>Trichophorum alpinum</i>	Alpine Clubrush	S4	Secure	x		
<i>Trichophorum caespitosum</i>	Tufted Clubrush	S5	Secure	x	x	
Poaceae		Grass Family				
<i>Agrostis perennans</i>	Upland Bent Grass	S4S5	Secure	x	x	
<i>Agrostis scabra</i>	Rough Bent Grass	S5	Secure	x		
<i>Brachyelytrum septentrionale</i>	Northern Shorthusk	S5	Secure	x		
<i>Bromus ciliatus</i>	Fringed Brome	S5	Secure	x	x	
<i>Calamagrostis canadensis</i>	Bluejoint Reed Grass	S5	Secure	x	x	

Species	Common Name	S-rank	General Status	Cheticamp R	N Aspy R	Corney Bk
<i>Calamagrostis pickeringii</i>	Pickering's Reed Grass	S4S5	Secure	x	x	
<i>Cinna latifolia</i>	Drooping Wood Reed Grass	S5	Secure		x	
<i>Danthonia spicata</i>	Poverty Oat Grass	S5	Secure	x		
<i>Deschampsia caespitosa</i>	Tufted Hair Grass	S4	Secure	x		
<i>Festuca rubra</i>	Red Fescue	S5	Secure			x
<i>Glyceria canadensis</i>	Canada Manna Grass	S5	Secure	x	x	
<i>Glyceria laxa</i>	Northern Mannagrass	S4?	Secure	x		
<i>Glyceria striata</i>	Fowl Manna Grass	S5	Secure	x	x	
<i>Milium effusum var. cisatlanticum</i>	Tall Millet Grass	S4	Secure		x	
<i>Muhlenbergia uniflora</i>	Bog Muhly	S5	Secure	x		
<i>Oryzopsis asperifolia</i>	White-grained Mountain Rice	S5	Secure	x		
<i>Phleum alpinum</i>	Alpine Timothy	S1	May Be At Risk	x		
<i>Poa alsodes</i>	Grove Blue Grass	S4	Secure			x
<i>Poa glauca</i>	Glaucous Blue Grass	S2S3	Sensitive			x
<i>Poa saltuensis</i>	Weak Blue Grass	S5	Secure	x	x	
<i>Schizachne purpurascens</i>	Purple Oat Grass	S4	Secure			x
<i>Trisetum spicatum</i>	Narrow False Oats	S3S4	Secure	x		
Liliaceae		Lily Family				
<i>Clintonia borealis</i>	Yellow Bluebead Lily	S5	Secure	x	x	
<i>Maianthemum canadense</i>	Wild Lily-of-The-Valley	S5	Secure	x	x	
<i>Maianthemum racemosum</i>	Large False Solomon's Seal	S4S5	Secure	x	x	
<i>Maianthemum trifolium</i>	Three-leaved False Solomon's Seal	S5	Secure	x	x	
<i>Streptopus amplexifolius</i>	Clasping-leaved Twisted-stalk	S4S5	Secure	x	x	
<i>Streptopus lanceolatus</i>	Rose Twisted-stalk	S5	Secure	x	x	
<i>Trillium cernuum</i>	Nodding Trillium	S4	Secure	x	x	
Iridaceae		Iris Family				
<i>Iris versicolor</i>	Harlequin Blue Flag	S5	Secure		x	
Orchidaceae		Orchid Family				
<i>Corallorhiza maculata</i>	Spotted Coralroot	S4	Secure		x	
<i>Platanthera blephariglottis</i>	White Fringed Orchid	S4	Secure		x	
<i>Platanthera clavellata</i>	Club Spur Orchid	S5	Secure	x		
<i>Platanthera dilatata</i> [ID uncertain, plants infertile]	White Bog Orchid	S4S5	Secure		x	

Table 2. Rare species documented during 2014 Cape Breton Highlands National Park fieldwork, with provincial status ranks (see Methods for definitions) and number of records documented at the Cheticamp River, North Aspy River and Corney Brook sites, along with summary of species' geographic affinity, provincial distribution and observed status.

Species	Common Name	S-rank	General Status	# records		
				Cheticamp	Aspy	Corney
<i>Spiraea septentrionalis</i> A globally rare northeastern taxon, questionably distinct from the abundant <i>Spiraea alba</i> var. <i>latifolia</i> (=S. <i>latifolia</i> , within which it will be included in the upcoming Flora of North America volume, fide VASCAN website). Single site found on open outcrop along Cheticamp R. Identification vs. <i>S. alba</i> var. <i>latifolia</i> is not certain.	Northern Meadowsweet	S1	May Be At Risk	1		
<i>Phleum alpinum</i> An Arctic species known in NS only from the Cheticamp & Northeast Margaree Rivers. Single site found on open outcrop along Cheticamp R.	Alpine Timothy	S1	May Be At Risk	1		
<i>Hieracium robinsonii</i> Globally rare endemic known from NH to NL. Fairly widely present in Cape Breton Highlands ravines & rare elsewhere in province.	Robinson's Hawkweed	S2	Sensitive	1		
<i>Conioselinum chinense</i> A species of richer soils known in NS primarily from the Bay of Fundy drainages and St. Paul Island. Records at two sites along Corney Brook appear to represent the first park occurrences.	Chinese Hemlock-parsley	S2	Sensitive			2
<i>Veronica serpyllifolia</i> ssp. <i>humifusa</i> A northern species fairly dependably present in seepy river shore habitats in Cape Breton Highlands ravines. Seen in that habitat at single sites on the Cheticamp & North Aspy Rivers.	Thyme-Leaved Speedwell	S2S3	Sensitive	1	1	
<i>Shepherdia canadensis</i> A widespread boreal & north temperate species found in Nova Scotia primarily in association with gypsum outcrops, but also in barrens in northern Cape Breton. Single site on steep shrubby outcrop along the margins of the Corney Brook trail near the start. This site had been previously documented by AC CDC fieldwork in 2003.	Soapberry	S2S3	Sensitive			1
<i>Poa glauca</i> An Arctic species fairly widespread on calcareous cliff sites in northern Cape Breton. Single record from a small open outcrop well upslope on north side of the Corney Brook valley.	Glaucous Blue Grass	S2S3	Sensitive			1
<i>Epilobium hornemannii</i> A northern species fairly dependably present in seepy river shore habitats in Cape Breton Highlands ravines. Seen in that habitat at single sites on the Cheticamp & North Aspy Rivers.	Hornemann's Willowherb	S3	Secure	1	2	
<i>Viburnum edule</i> A northern species fairly common in the Cape Breton Highlands (especially along rivers) but very rare elsewhere in Nova Scotia. Widely scattered on the Cheticamp & North Aspy Rivers. Potentially threatened because of severe defoliation by the introduced Viburnum Leaf Beetle (<i>Pyrrhalta viburni</i>). Plants at one location on the North Aspy River were defoliated (Figure 5), presumably by this beetle, indicating that there are likely no Squashberry sites too remote for the beetle to reach.	Squashberry	S3	Sensitive	8	5	
<i>Carex wiegandii</i> A northeastern North American endemic documented in the last decade as being fairly widespread in Nova Scotia, mostly in relatively nutrient-poor swampy peatland margins, and especially common on the margins of Cape Breton Highlands peatlands. Single sites found on plateau peatlands near helicopter landing sites above the Cheticamp & North Aspy Rivers.	Wiegand's Sedge	S3	Sensitive	1	1	
<i>Vaccinium caespitosum</i> A northern species fairly widely present on rock outcrops and river terraces within the flood scour zone of central and northern NS rivers. Also locally common in open conifer forest on shallow soil over bedrock in the Cape Breton Highlands plateau. Fairly common on rock outcrops along the margins of the Cheticamp River.	Dwarf Bilberry	S3	Secure	8		
<i>Pyrola minor</i> A northern species that is fairly widespread in richer forest in the Cape Breton Highlands, but is very rare elsewhere in NS. Single record from hardwood valley slope along the Cheticamp River.	Lesser Pyrola	S3	Sensitive	1		
<i>Pyrola asarifolia</i> A species of calcareous soils, most frequent in Nova Scotia in the forested upper floodplains of northern rivers. Locally common in floodplain terrace forest along Corney Brook.	Pink Pyrola	S3	Secure			7

Species	Common Name	S-rank	General Status	# records		
				Cheticamp	Aspy	Corney
<i>Agrimonia gryposepala</i> A species of richer forests and forest edges, primarily occurring along rivers in northern Nova Scotia. The single record from rich floodplain terrace forest along Corney Brook represents the first confirmed record for CBHNP.	Hooked Agrimony	S3	Secure			1
<i>Schizaea pusilla</i> A globally uncommon species with much of its world population in open peatlands on the Atlantic side of Nova Scotia and on peaty shores of southern Nova Scotia lakes. Widespread in CBHNP peatlands. One site found at helicopter pick-up site above the North Aspy River.	Little Curlygrass Fern	S3	Secure		1	
<i>Galium kamtschaticum</i> A northwestern species with local disjunct populations eastward to NF. Fairly widespread in rich moist hardwood and mixed forest in the Cape Breton Highlands but completely absent from the rest of Nova Scotia. Three sites along the upper North Aspy River.	Northern Wild Licorice	S3	Secure		3	
<i>Polypodium appalachianum</i> Relatively recently separated from the abundant Common Polypody (<i>P. virginianum</i>) and still incompletely understood in NS, though clearly less common. Single site on steep, forested outcrop on tributary stream ravine flowing into Cheticamp River.	Appalachian Polypody	S3?	Undetermined	1		
<i>Trisetum spicatum</i> A northern species of circumneutral to basic rock outcrops in the northern half of Nova Scotia, with most record from the Cape Breton Highlands. Single record from an open shoreline rock outcrop along the Cheticamp River.	Narrow False Oats	S3S4	Secure	1		
<i>Luzula parviflora</i> A northern species fairly frequent on moist river shore rock outcrops in the Cape Breton Highlands but very rare elsewhere in NS. Single site recorded on the North Aspy River.	Small-flowered Woodrush	S3S4	Secure		1	