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Re: Plant Survey on Bicycle Trail

I completed the survey of the proposed bicycle trail on July 26 – 27 2006, including the three alternative routes (Figure 1):

- (i) North of the Rainy Lake Visitor's Center access road
- (ii) South of the Rainy Lake Visitor's Center access road
- (iii) On the Rainy Lake Visitor's Center access road right- of- way

I followed the flagged lines, searching for plants in a zone extending about 5 – 10 m on either side of the line.

The road passes mainly through upland trembling aspen – dominated forest on clay soil, alternating with dry rock ridges and moist depressions with black ash. A white cedar swamp is at the west end of the both the north and south routes.

Two hundred and forty plant species were observed on the proposed bike trail. I found no Endangered, Threatened and Special Concern plant species. A list of eleven Endangered, Threatened and Special Concern plants known to occur in Voyageurs National Park is included in Appendix 2. Although none of these species was observed, potential habitat for *Torreyochloa pallida* and *Sparganium glomeratum* exists at the west end of the trail in the white cedar swamp.

Two species apparently new for the park were discovered (see Harris and Foster 2003):

- (i) *Tanacetum vulgare*, a non- native invasive upland species at several locations,
- (ii) *Scirpus hattorensis*, a native sedge sometimes lumped with *Scirpus atrovirens*

Sincerely,

Allan Harris

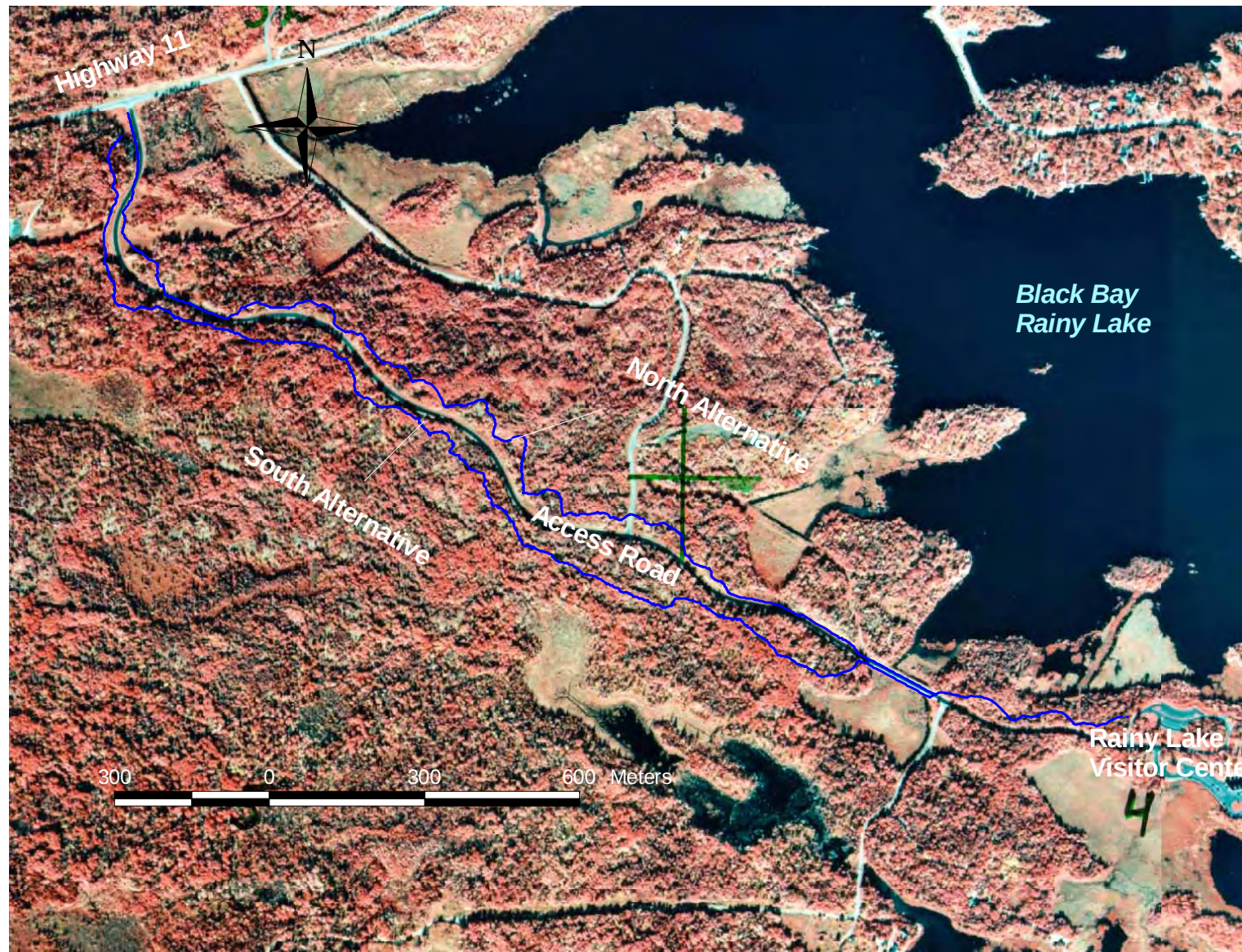


Figure 1. Map of bicycle trails. Blue lines represent the North and South alternatives. Background is colour infrared photography.

Appendix 1. Vascular plant species observed on proposed bicycle trail, Voyageurs National Park July 26 – 27 2006. “North”, “south” and “road” refer to the three alternative trail locations.

		North	South	Road
FAMILY EUISETACEAE	Horsetail Family			
<i>Equisetum arvense</i>	Field Horsetail	X	X	
<i>Equisetum fluviatile</i>	Water Horsetail	X		X
<i>Equisetum hyemale</i>	Rough Horsetail	X		X
<i>Equisetum pratense</i>	Meadow Horsetail	X		
<i>Equisetum sylvaticum</i>	Woodland Horsetail	X	X	X
FAMILY DENNSTAEDTIACEAE	Bracken Fern Family			
<i>Pteridium aquilinum</i>	Bracken Fern	X	X	X
FAMILY DRYOPTERIDACEAE	True Fern Family			
<i>Athyrium filix-femina</i>	Lady Fern	X	X	
<i>Dryopteris carthusiana</i>	Spinulose Shield-fern	X	X	
<i>Dryopteris cristata</i>	Crested Shield-fern	X	X	
<i>Gymnocarpium dryopteris</i>	Oak Fern	X	X	
<i>Matteuccia struthiopteris</i>	Ostrich Fern	X		
<i>Onoclea sensibilis</i>	Sensitive Fern	X		
FAMILY OPHIOGLOSSACEAE	Succulent Fern Family			
<i>Botrychium virginianum</i>	Rattlesnake Fern		X	
FAMILY POLYPODIACEAE	Polypody Family			
<i>Polypodium virginianum</i>	Rock Polypody	X	X	
FAMILY THELYPTERIDACEAE	Marsh Fern Family			
<i>Phegopteris connectilis</i>	Northern Beech Fern	X	X	
FAMILY LYCOPODIACEAE	Clubmoss Family			
<i>Lycopodium annotinum</i>	Stiff Clubmoss	X	X	
<i>Lycopodium clavatum</i>	Running Pine	X	X	
<i>Lycopodium dendroideum</i>	Treelike Clubmoss	X	X	
<i>Lycopodium obscurum</i>	Tree Clubmoss	X	X	
FAMILY CUPRESSACEAE	Juniper Family			
<i>Juniperus communis</i>	Ground Juniper		X	
<i>Thuja occidentalis</i>	Eastern White Cedar	X	X	X
FAMILY PINACEAE	Pine Family			
<i>Abies balsamea</i>	Balsam Fir	X	X	X
<i>Picea glauca</i>	White Spruce	X	X	
<i>Picea mariana</i>	Black Spruce	X	X	
<i>Pinus resinosa</i>	Red Pine	X	X	
<i>Pinus strobus</i>	Eastern White Pine	X	X	

FAMILY ALISMATACEAE

Alisma triviale
Sagittaria latifolia

FAMILY CYPERACEAE

Carex arctata
Carex bebbii
Carex brunnescens
Carex castanea
Carex deweyana
Carex disperma
Carex gracillima
Carex hystericina
Carex intumescens
Carex lacustris
Carex leptalea
Carex leptonervia
Carex pedunculata
Carex projecta
Carex retrorsa
Carex stipata
Carex tenera
Carex trisperma
Scirpus cyperinus
Scirpus hattorianus

FAMILY IRIDACEAE

Iris versicolor

FAMILY JUNCACEAE

Juncus filiformis
Luzula acuminata

FAMILY LILIACEAE

Clintonia borealis
Maianthemum canadense
Streptopus lanceolatus
Trillium cernuum
Uvularia grandiflora

FAMILY ORCHIDACEAE

Corallorhiza striata
Platanthera psycodes

FAMILY POACEAE

Agrostis gigantea
Agrostis scabra

Water Plantain Family

Northern Water-plantain x
 Broadleaf Arrowhead x

Sedge Family

Black Sedge x x
 Bebb's Sedge x x x
 Brownish Sedge x x
 Chestnut-colored Sedge x
 Short-scale Sedge x
 Softleaf Sedge x
 Graceful Sedge x
 Porcupine Sedge x
 Bladder Sedge x x
 Lake-bank Sedge x x
 Bristly-stalk Sedge x
 Finely-nerved Sedge x
 Longstalk Sedge x
 Necklace Sedge x
 Retorse Sedge x
 Stalk-grain Sedge x x
 Slender Sedge x x
 Threeseeded Sedge x x
 Cottongrass Bulrush x x x
 Mosquito Bulrush x x

Iris Family

Blueflag x x

Rush Family

Thread Rush x
 Hairy Woodrush x x

Lily Family

Blue Bead-lily x x
 Wild-lily-of-the-valley x x
 Rose Twisted-stalk x x
 Nodding Trillium x x
 Large-flowered Bellwort x

Orchid Family

Striped Coralroot x
 Small Purple-fringed Orchid x x

Grass Family

Black Bentgrass x x x
 Rough Bentgrass x x x

<i>Bromus ciliatus</i>	Fringed Brome	x	x	
<i>Bromus inermis ssp. inermis</i>	Awnless Brome	x	x	x
<i>Calamagrostis canadensis</i>	Blue-joint Reedgrass	x	x	x
<i>Cinna latifolia</i>	Slender Wood Reedgrass	x	x	
<i>Danthonia spicata</i>	Poverty Oatgrass	x	x	
<i>Elymus repens</i>	Creeping Wild-rye			x
<i>Elymus trachycaulus</i>	Wild-rye	x	x	x
<i>Elymus trachycaulus</i>	Slender Wheatgrass	x	x	x
<i>Elymus virginicus</i>	Wild-rye	x		
<i>Eragrostis pectinacea</i>	Western Love Grass		x	x
<i>Festuca arundinacea</i>	Tall Fescue	x		x
<i>Festuca rubra</i>	Red Fescue	x	x	x
<i>Glyceria canadensis</i>	Canada Mannagrass	x	x	x
<i>Glyceria striata</i>	Fowl Mannagrass	x	x	
<i>Hordeum jubatum</i>	Foxtail		x	x
<i>Milium effusum</i>	Tall Millet-grass		x	
<i>Oryzopsis asperifolia</i>	White-grained Mountain-ricegrass		x	
<i>Oryzopsis pungens</i>	Slender Mountain-ricegrass	x	x	
<i>Panicum acuminatum</i>	Panicgrass	x	x	
<i>Panicum capillare</i>	Old Witch Panicgrass		x	x
<i>Panicum xanthophysum</i>	Slender Dichanthelium	x	x	
<i>Phalaris arundinacea</i>	Reed Canary Grass	x	x	x
<i>Phleum pratense</i>	Meadow Timothy	x	x	x
<i>Phragmites australis</i>	Common Reed	x		x
<i>Poa palustris</i>	Fowl Bluegrass	x		
<i>Poa pratensis</i>	Kentucky Bluegrass	x	x	x
<i>Schizachne purpurascens</i>	Purple Oat	x	x	
<i>Setaria pumila</i>	White Foxtail		x	x
FAMILY TYPHACEAE				
<i>Typha angustifolia</i>	Narrow-leaved Cattail	x		x
<i>Typha latifolia</i>	Broad-leaf Cattail	x		
FAMILY ACERACEAE				
<i>Acer rubrum</i>	Red Maple	x	x	
<i>Acer saccharinum</i>	Silver Maple	x		
<i>Acer spicatum</i>	Mountain Maple	x	x	
FAMILY ANACARDIACEAE				
<i>Rhus glabra</i>	Smooth Sumac	x	x	x
FAMILY APIACEAE				
<i>Cicuta bulbifera</i>	Bulb-bearing Water-hemlock	x		
<i>Cicuta maculata</i>	Spotted Water-hemlock	x		
<i>Osmorhiza claytonii</i>	Hairy Sweet-cicely	x	x	
<i>Sanicula marilandica</i>	Black Snake-root	x		
Cat-tail Family				
Maple Family				
Sumac Family				
Parsley Family				

<i>Sium suave</i>	Hemlock Water-parsnip			X
<i>Zizia aurea</i>	Common Alexanders	X		X
FAMILY APOCYNACEAE	Dogbane Family			
<i>Apocynum androsaemifolium</i>	Spreading Dogbane	X	X	X
FAMILY ARALIACEAE	Ginseng Family			
<i>Aralia nudicaulis</i>	Wild Sarsaparilla	X	X	
<i>Aralia racemosa</i>	American Spikenard	X	X	
FAMILY ASCLEPIADACEAE	Milkweed Family			
<i>Asclepias syriaca</i>	Common Milkweed		X	
FAMILY ASTERACEAE	Sunflower Family			
<i>Achillea millefolium</i>	Seaside Yarrow	X	X	X
<i>Ambrosia artemisiifolia</i>	Annual Ragweed	X	X	X
<i>Anaphalis margaritacea</i>	Pearly Everlasting	X	X	X
<i>Chrysanthemum leucanthemum</i>	Oxeye Daisy	X	X	X
<i>Cirsium arvense</i>	Creeping Thistle	X	X	X
<i>Cirsium vulgare</i>	Bull Thistle	X		X
<i>Conyza canadensis</i>	Canadian Horseweed	X	X	X
<i>Doellingeria umbellata</i>	Parasol Whitetop			X
<i>Doellingeria umbellata.</i>	Flat-top White Aster			X
<i>Erigeron philadelphicus</i>	Philadelphia Fleabane	X	X	X
<i>Eupatorium maculatum</i>	Spotted Joepyeweed	X		X
<i>Eupatorium perfoliatum</i>	Common Boneset	X		X
<i>Eurybia macrophylla</i>	Large-leaf Wood-aster	X	X	X
<i>Euthamia graminifolia</i>	Flat-top Fragrant Goldenrod	X		
<i>Hieracium kalmii</i>	Kalm's Hawkweed	X	X	X
<i>Lactuca canadensis</i>	Canada Lettuce	X	X	
<i>Matricaria matricarioides</i>	Pineapple-weed Chamomile		X	X
<i>Petasites frigidus</i>	Sweet Coltsfoot	X	X	
<i>Solidago canadensis</i>	Canada Goldenrod	X	X	X
<i>Solidago nemoralis</i>	Gray-stemmed Goldenrod	X	X	X
<i>Sonchus arvensis</i>	Sowthistle	X	X	X
<i>Symphyotrichum ciliolatum</i>	Lindley's Aster	X		
<i>Symphyotrichum lanceolatum</i>	Western Panicked Aster	X	X	X
<i>Symphyotrichum lateriflorum</i>	Starved Aster	X	X	X
<i>Symphyotrichum puniceum</i>	Swamp Aster	X		
<i>Tanacetum vulgare</i>	Common Tansy	X		X
<i>Taraxacum officinale</i>	Brown-seed Dandelion	X		X
<i>Tragopogon dubius</i>	Meadow Goat's-beard	X	X	X
FAMILY BALSAMINACEAE	Touch-me-not Family			
<i>Impatiens capensis</i>	Spotted Jewel-weed	X	X	
FAMILY BETULACEAE	Birch Family			

<i>Alnus incana</i>	Speckled Alder	x	x	
<i>Betula papyrifera</i>	Paper Birch	x	x	x
<i>Corylus cornuta</i>	Beaked Hazelnut	x	x	
FAMILY BRASSICACEAE	Mustard Family			
<i>Barbarea vulgaris</i>	Yellow Rocket			x
FAMILY CAMPANULACEAE	Harebell Family			
<i>Campanula aparinoides</i>	Marsh Bellflower	x		
<i>Campanula rotundifolia</i>	American Harebell	x		
FAMILY CAPRIFOLIACEAE	Honeysuckle Family			
<i>Diervilla lonicera</i>	Northern Bush-honeysuckle	x	x	x
<i>Linnaea borealis</i>	Twinflower	x	x	
<i>Lonicera canadensis</i>	American Fly-honeysuckle	x	x	
<i>Lonicera hirsuta</i>	Hairy Honeysuckle	x		
<i>Viburnum rafinesquianum</i>	Downy Arrowwood	x	x	
FAMILY CARYOPHYLLACEAE	Pink Family			
<i>Cerastium fontanum</i>	Common Mouse-ear Chickweed	x		
<i>Silene antirrhina</i>	Sleepy Catchfly	x	x	x
<i>Silene latifolia</i>	Bladder Campion			x
<i>Stellaria longifolia</i>	Longleaf Stitchwort	x		
FAMILY CHENOPODIACEAE	Goosefoot Family			
<i>Chenopodium album</i>	Goosefoot			x
FAMILY CORNACEAE	Dogwood Family			
<i>Cornus canadensis</i>	Bunchberry	x	x	
<i>Cornus rugosa</i>	Roundleaf Dogwood	x	x	
<i>Cornus stolonifera</i>	Red-osier Dogwood		x	
FAMILY ERICACEAE	Heath Family			
<i>Arctostaphylos uva-ursi</i>	Bearberry	x	x	
<i>Ledum groenlandicum</i>	Common Labrador Tea	x		
<i>Vaccinium angustifolium</i>	Late Lowbush Blueberry	x	x	
<i>Vaccinium caespitosum</i>	Dwarf Huckleberry			x
<i>Vaccinium myrtilloides</i>	Velvetleaf Blueberry	x	x	
FAMILY FABACEAE	Pea Family			
<i>Amphicarpaea bracteata</i>	American Hog-peanut	x		
<i>Lathyrus venosus</i>	Smooth Veiny Peavine	x	x	
<i>Lotus corniculatus</i>	Birds-foot Trefoil	x		x
<i>Medicago lupulina</i>	Black Medic		x	x
<i>Melilotus alba</i>	White Sweetclover	x	x	x
<i>Melilotus officinalis</i>	Yellow Sweetclover			x
<i>Trifolium arvense</i>	Rabbit-foot Clover			x

<i>Trifolium campestre</i>	Low Hop Clover	x	x	x
<i>Trifolium hybridum</i>	Alsike Clover	x		
<i>Trifolium pratense</i>	Red Clover	x	x	x
<i>Vicia americana</i>	American Purple Vetch	x	x	
<i>Vicia cracca</i>	Tufted Vetch			x
FAMILY FAGACEAE	Beech Family			
<i>Quercus ellipsoidalis</i>	Northern Pin Oak	x	x	
<i>Quercus macrocarpa</i>	Mossy-cup Oak	x	x	
FAMILY GENTIANACEAE	Gentian Family			
<i>Halenia deflexa</i>	Spurred Gentian	x		
FAMILY GROSSULARIACEAE	Currant Family			
<i>Ribes hirtellum</i>	Smooth Gooseberry	x		x
<i>Ribes hudsonianum</i>	Northern Black Currant	x		
<i>Ribes triste</i>	Swamp Red Currant	x	x	
FAMILY LAMIACEAE	Mint Family			
<i>Galeopsis tetrahit</i>	Brittle-stem Hempnettle	x	x	
<i>Lycopus uniflorus</i>	Northern Bugleweed	x		
<i>Mentha arvensis</i>	Corn Mint	x	x	x
<i>Prunella vulgaris</i>	Self-heal	x	x	x
<i>Scutellaria lateriflora</i>	Mad Dog Skullcap	x		x
<i>Stachys palustris</i>	Marsh Hedge-nettle	x		x
FAMILY OLEACEAE	Olive Family			
<i>Fraxinus nigra</i>	Black Ash	x	x	x
FAMILY ONAGRACEAE	Evening-primrose Family			
<i>Epilobium angustifolium</i>	Fireweed	x	x	x
<i>Epilobium ciliatum</i>	Hairy Willow-herb		x	
<i>Epilobium leptophyllum</i>	Linear-leaved Willow-herb	x		x
FAMILY PLANTAGINACEAE	Plantain Family			
<i>Plantago major</i>	Nipple-seed Plantain		x	x
FAMILY POLYGONACEAE	Buckwheat Family			
<i>Polygonum achoreum</i>	Leathery Knotweed		x	x
<i>Polygonum amphibium</i>	Water Smartweed	x		
<i>Polygonum cilinode</i>	Fringed Black Bindweed		x	x
<i>Polygonum lapathifolium</i>	Dock-leaf Smartweed	x		
<i>Polygonum punctatum</i>	Dotted Smartweed			x
<i>Polygonum sagittatum</i>	Arrow-leaved Tearthumb	x		
<i>Rumex acetosella</i>	Dock	x		x
<i>Rumex crispus</i>	Curly Dock	x		x
<i>Rumex orbiculatus</i>	Water Dock	x		

FAMILY PRIMULACEAE

Lysimachia ciliata
Trientalis borealis

Primrose Family

Fringed Loosestrife X
 Northern Starflower X X

FAMILY PYROLACEAE

Chimaphila umbellata
Orthilia secunda
Pyrola asarifolia

Wintergreen Family

Common Wintergreen X
 One-side Wintergreen X X
 Pink Wintergreen X

FAMILY RANUNCULACEAE

Actaea rubra
Anemone canadensis
Aquilegia canadensis
Caltha palustris
Ranunculus acris
Ranunculus hispidus

Buttercup Family

Red Baneberry X X
 Canada Anemone X
 Wild Columbine X
 Marsh Marigold X X
 Tall Butter-cup X X X
 Bristly Buttercup X

FAMILY RHAMNACEAE

Rhamnus alnifolia

Buckthorn Family

Alderleaf Buckthorn X

FAMILY ROSACEAE

Fragaria vesca
Fragaria virginiana
Geum aleppicum
Potentilla norvegica
Potentilla recta
Prunus virginiana
Rosa acicularis
Rubus idaeus
Rubus pubescens
Spiraea alba

Rose Family

Woodland Strawberry X
 Virginia Strawberry X X X
 Yellow Avens X X X
 Norwegian Cinquefoil X X
 Sulphur Cinquefoil X X
 Choke Cherry X
 Prickly Rose X X
 Common Red Raspberry X X X
 Catherinettes Berry X X
 Narrow-leaved Meadow-sweet X

FAMILY RUBIACEAE

Galium asprellum
Galium boreale
Galium trifidum
Galium triflorum

Bedstraw Family

Rough Bedstraw X X
 Northern Bedstraw X
 Small Bedstraw X X
 Sweet-scent Bedstraw X X

FAMILY SALICACEAE

Populus balsamifera
Populus grandidentata
Populus tremuloides
Salix bebbiana
Salix discolor
Salix exigua
Salix humilis
Salix lucida

Willow Family

Balsam Poplar X X X
 Large-tooth Aspen X
 Trembling Aspen X X X
 Bebb's Willow X X X
 Pussy Willow X
 Sandbar Willow X
 Tall Prairie Willow X X
 Shining Willow X X

FAMILY SANTALACEAE*Comandra umbellata***FAMILY SAXIFRAGACEAE***Mitella nuda***FAMILY SCROPHULARIACEAE***Melampyrum lineare**Verbascum thapsus**Veronica scutellata***FAMILY TILIACEAE***Tilia americana***FAMILY ULMACEAE***Ulmus americana***FAMILY VITACEAE***Parthenocissus quinquefolia***Sandalwood Family**

Umbellate Bastard Toad-flax

x

Saxifrage Family

Naked Bishop's-cap

x

x

Figwort Family

American Cow-wheat

x

x

Great Mullein

x

x

Marsh-speedwell

x

Linden Family

American Basswood

x

Elm Family

American Elm

x

x

Grape Family

Virginia Creeper

x

Appendix 2. Endangered, Threatened, and Special Concern vascular plants known to occur in Voyageurs National Park. (Minnesota DNR; <http://www.dnr.state.mn.us/ets/index.html>).

Scientific Name	Common Name	Status	Habitat
<i>Caltha natans</i>	floating marsh-marigold	Endangered	Streams
<i>Crassula aquatica</i>	pigmyweed	Threatened	Aquatic
<i>Fimbristylis autumnalis</i>	autumn fimbristylis	SC	Beaches
<i>Juniperus horizontalis</i>	creeping juniper	SC	Mafic Bedrock Shores
<i>Littorella uniflora</i>	American shore-plantain	SC	Aquatic
<i>Minuartia dawsonensis</i>	rock sandwort	SC	Mafic Bedrock Shores
<i>Potamogeton vaseyi</i>	Vasey's pondweed	SC	Aquatic
<i>Ranunculus lapponicus</i>	Lapland buttercup	SC	Peatlands
<i>Sparganium glomeratum</i>	clustered bur-reed	SC	Black Ash swamps
<i>Subularia aquatica</i>	awlwort	Threatened	Aquatic
<i>Torreyochloa pallida</i>	Torrey's manna-grass	SC	Riparian areas, swamps