

Fox River Watershed Endangered and Threatened Species

By Jeffrey Mengler,
PWS
Senior Project Scientist
Hey and Associates, Inc.



Why am I giving this presentation??

And who's responsible for what?

- ▶ U.S. Fish and Wildlife Service is responsible for all things related to federally endangered and threatened species.
- ▶ USFWS declined our invitation
- ▶ USFWS part of government shutdown now anyway
- ▶ Illinois Department of Natural Resources is responsible for all things related to state-listed species.
- ▶ IDNR is budget constrained and with minimal local staff



What does
Endangered mean?

Endangered versus
Threatened?

- ▶ **Endangered means in danger of going extinct.**
- ▶ **Threatened means in danger of becoming endangered.**

State Versus Federal Listed



- ▶ Federally endangered means in danger of extinction throughout its range (worldwide)
- ▶ State-endangered means in danger of extirpation in Illinois, at a minimum.
- ▶ All federally listed species are automatically state-listed under Illinois law.
- ▶ Every state has their own lists and their own law.

Federally
Listed
Species in
Fox River
Watershed

Northern
Long-eared
Bat

Eastern Prairie
Fringed Orchid

Rusty Patched
Bumblebee

Indiana Bat

Prairie Bush
Clover

Hine's
emerald
dragonfly

Northern Long-Eared Bat

- ▶ *Myotis septentrionalis*
- ▶ Federally threatened, with a “4d rule”
- ▶ Illinois threatened
- ▶ Primary threat is white-nose syndrome - not habitat loss or other usual factors
- ▶ Hibernates in caves and mines - swarming in surrounding wooded areas in autumn. During late spring and summer roosts and forages in upland forests.
- ▶ During the summer, northern long-eared bats roost singly or in colonies underneath bark, in cavities or in crevices of both live trees and snags (dead trees).
- ▶ The northern long-eared bat is a medium-sized bat with a body length of 3 to 3.7 inches but a wingspan of 9 to 10 inches. Their fur color can be medium to dark brown on the back and tawny to pale-brown on the underside. As its name suggests, this bat is distinguished by its long ears, particularly as compared to other bats in its genus, *Myotis*.

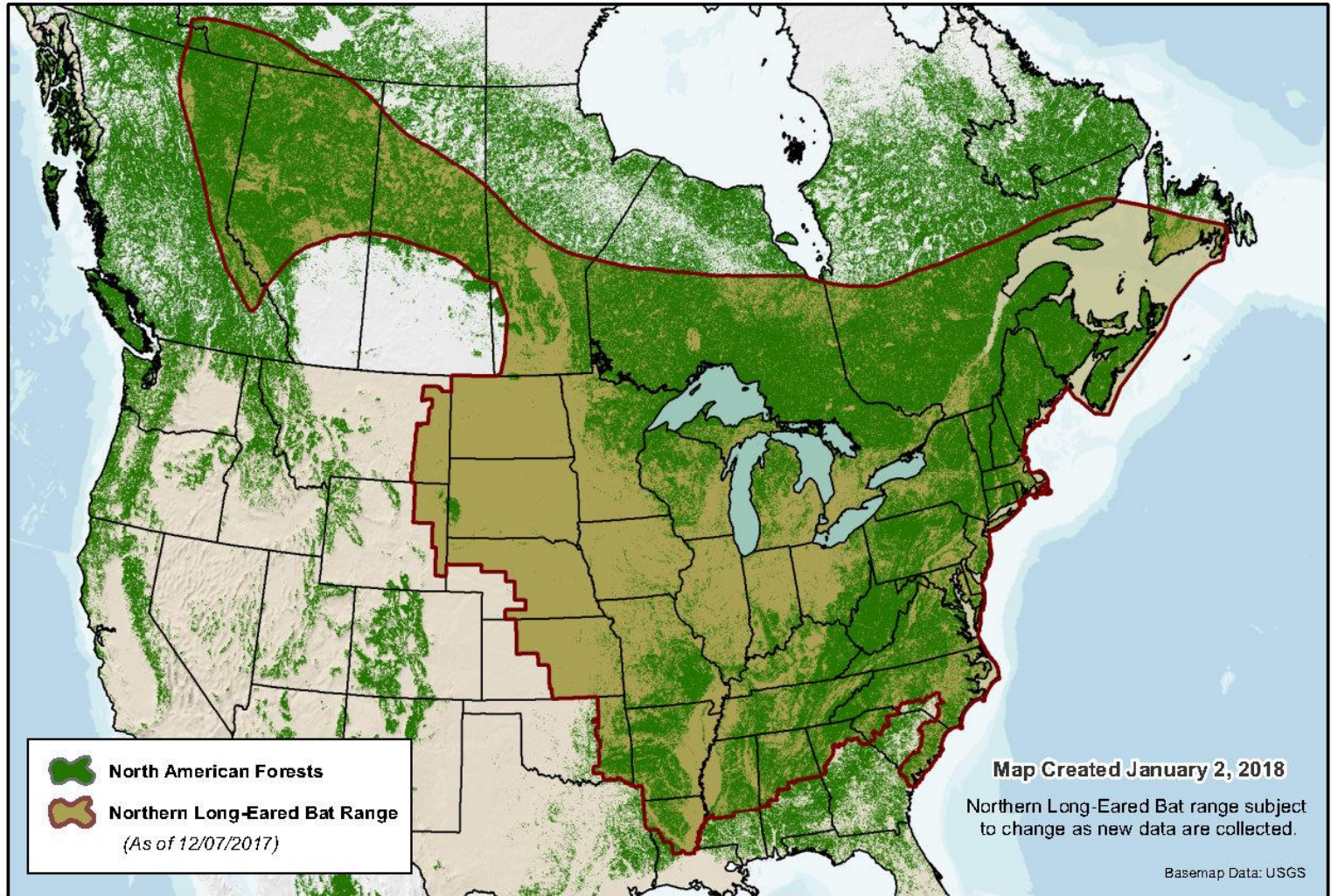


USFWS Photo



U.S. Fish & Wildlife Service

Northern Long-Eared Bat Range



-  North American Forests
-  Northern Long-Eared Bat Range
(As of 12/07/2017)

Map Created January 2, 2018

Northern Long-Eared Bat range subject to change as new data are collected.

Basemap Data: USGS

What is a 4(d) Rule and how does it apply to the NLEB?

- ▶ Section 4(d) of Endangered Species Act allows USFWS to define protections for species listed as “threatened” that focus on those protections necessary or advisable to conserve that particular species.
- ▶ One of the bat species most affected by white-nose syndrome (WNS) and this is the primary threat - not habitat loss.
- ▶ Inside WNS Zone all “take” within known hibernacula is prohibited
- ▶ Incidental take caused by tree removal is prohibited (without a permit) if:
 - ▶ Tree removal occurs within 1/4 mile of a known hibernaculum
 - ▶ Tree removal cuts or destroys a known occupied maternity roost tree or any other trees within a 150-foot radius of the maternity roost tree during the pup season (**June 1 through July 31**)

Bottomline: Don't cut any potential roost trees between June 1 and July 31. IDNR uses different dates - much more restrictive.

Indiana Bat (*Myotis sodalis*)

- ▶ Federal and state endangered
- ▶ Indiana bat was listed as endangered in 1967 due to episodes of people disturbing hibernating bats in caves during winter
- ▶ Indiana bats are vulnerable to disturbance because they hibernate in large numbers in only a few caves
- ▶ Other threats that have contributed to the Indiana bat's decline include commercialization of caves, loss of summer habitat, pesticides and other contaminants, and most recently, the disease white-nose syndrome.
- ▶ Indiana bats are quite small, weighing only one-quarter of an ounce (about the weight of three pennies) although in flight they have a wingspan of 9 to 11 inches. Their fur is dark-brown to black.
- ▶ They hibernate during winter in caves or, occasionally, in abandoned mines.
- ▶ During summer they roost under the peeling bark of dead and dying trees. Indiana bats eat a variety of flying insects found along rivers or lakes and in uplands.



Indiana Bat

- ▶ A large wintering population of this species is located in LaSalle County, Illinois.
- ▶ Non-breeding Indiana bats have been found in northeast Illinois, and known maternity colonies have been located in adjacent northeast Indiana and east-central Illinois.
- ▶ Summer habitat is focused on trees with loose/exfoliating bark along streams - essentially more picky than NLEB.
- ▶ Did a “blue-ribbon” study a few years ago to determine if surveys were needed for every project that was along streams with wooded habitat.
 - ▶ Selected best sites in every county in Chicago region and did multiple nights of mist-netting at each.
 - ▶ Did not detect lbats
 - ▶ So USFWS and USACE no longer require surveys or consultation for this species unless in areas where their annual surveys have detected the species.



04/27/2018

Eastern Prairie Fringed Orchid (*Platanthera leucophaea*)

- ▶ Federally threatened, State endangered
- ▶ The eastern prairie fringed orchid (EPFO) occurs in a wide variety of habitats, from wet to mesic prairie or wetland communities, including, but not limited to sedge meadow, fen, marsh, or marsh edge.
- ▶ It can occupy a very wide moisture gradient of prairie and wetland vegetation.
- ▶ It requires full sun for optimal growth and flowering, which ideally would restrict it to grass and sedge dominated plant communities.
- ▶ USFWS has compiled a list of “associated species”
- ▶ Most of the research done on this species was done in the Chicago region
- ▶ Pollinated by a hawkmoth or humans





USFWS Photo by Cathy Pollack



USFWS Photo

Orchid Pollinators



07.05.2012

Prairie Bush Clover

(*Lespedeza leptostachya*)

- ▶ Federally Threatened, Illinois Endangered
- ▶ It is a plant in the pea family and is native only to tallgrass prairies of four Midwestern states: Iowa, Illinois, Minnesota and Wisconsin.
- ▶ Habitat specifically is dry to mesic prairies with gravelly soil.
- ▶ Occurs in the HUM Prairie in McHenry County



USFWS Photo

Hine's emerald dragonfly (*Somatochlora hineana*)

- ▶ Federally and Illinois endangered
- ▶ Previously thought to occur only in Lower Des Plaines watershed in Illinois
- ▶ World distribution is limited to Illinois, Wisconsin, Missouri, Michigan, and Ontario
- ▶ Distribution seems related to geologic distribution of Silurian dolomite - except new sites in Fox River watershed
- ▶ Lives 3-5 years as an aquatic larva or nymph
- ▶ Adult only lives a few weeks
- ▶ Relies on groundwater fed wetlands with minimal competition from other surface water species
- ▶ Researchers working on captive rearing program to augment Illinois populations
- ▶ Somehow lives with a crayfish species that will eat it



Dan Soluk Photo



Dan Soluk Photo



Rusty Patched Bumblebee

(Bombus affinis)

- ▶ The rusty patched bumble bee has declined by 87 percent in the last 20 years.
- ▶ The species is likely to be present in only 0.1% of its historical range.
- ▶ There are many potential reasons for the rusty patched bumble bee decline including habitat loss, intensive farming, disease, pesticide use and climate change.
- ▶ Just 20 years ago, the rusty patched bumble bee was a common sight, so ordinary that it went almost unnoticed as it moved from flower to flower, collecting nectar and pollen. But it's now balancing precariously on the brink of extinction and has become the first-ever bumble bee in the United States to be listed as endangered.
- ▶ Occasionally nests of the rusty patched bumble bee have been observed above ground. However, nests are usually one to four feet below ground in abandoned rodent nests or other cavities. This species has been observed or collected from woodlands, marshes, agricultural landscapes, and, more recently from residential parks and gardens.





Rusty Patched Bumblebee Interactive Range Map

- ▶ <https://www.fws.gov/midwest/Endangered/insects/rpbb/rpbbmap.html>

Rusty Patched Bumble Bee Midwest Plant Guide



Photo by Susan Day, UW-Madison Arboretum

Midwest includes IA, IL, IN, MI, MN, MO, OH, and WI
 * = superfood plants with nectar rich in amino acids
 ! = known immune building plants for bumble bees
 ☉ = Full sun ☼ = Part shade/sun ● = Shade
 For more information: <https://go.usa.gov/xNNWn>



Bloom Period	Common Name	Scientific Name	Shade	Habitat type
Forbs/Wildflowers				
EARLY (March-April)	Anemones	<i>Anemone</i> spp.	☉ ●	Species dependent
	Ground plum	<i>Astragalus crassicaarpus</i>	☉	Dry prairies
	Virginia bluebells	<i>Mertensia virginica</i>	☉ ●	Moist woods, wooded edges
	Shooting star	<i>Primula</i> spp.	☉ ☼	Savanna, open woods
	Wild geranium	<i>Geranium maculatum</i>	☉ ●	Woodlands, open woods
	Virginia waterleaf	<i>Hydrophyllum virginianum</i>	☉ ●	Moist woodlands
	Wild lupine	<i>Lupinus perennis</i>	☉ ☼	Savanna, open woods
	Wood betony	<i>Pedicularis canadensis</i>	☉ ☼	Prairies, open woods
MID (May-August)	Native giant hyssop* 1	<i>Agastache</i> spp.	☉ ☼	Fields to deciduous woods
	Milkweed 2	<i>Asclepias</i> spp.	☉ ☼	Species dependent
	Wild white indigo or cream indigo	<i>Baptisia</i> spp.	☉ ☼	Prairie, open woodland
	White and purple prairie clover *	<i>Dalea candida</i> and <i>purpurea</i>	☉	Prairies, dry fields
	Coneflower* 3	<i>Echinacea</i> spp.	☉	Dry prairies
	Joe pye weed* 4	<i>Eutrochium</i> spp.	☉	Wet meadows, open woods
	Jewelweed	<i>Impatiens capensis</i>	☉ ☼	Moist thickets, forested edges
	Blazing-star	<i>Liatris</i> spp.	☉ ☼	Prairies
	Bee balm/wild bergamot*! 5	<i>Monarda fistulosa</i>	☉ ☼	Dry fields, prairies
	Penstemon spp.	<i>Penstemon</i> spp.	☉ ☼	Prairie, fields, wooded edges
	Mountain mint	<i>Pycnanthemum virginianum</i>	☉ ☼	Fields, prairies, fens
Culver's root 6	<i>Veronicastrum virginicum</i>	☉ ☼	Fields, prairie, wooded edges	
LATE (Sept.-October)	Native field thistle	<i>Cirsium discolor</i>	☉	Fields, open woods
	Native swamp thistle	<i>Cirsium muticum</i>	☉ ☼	Swamps, wet meadows
	Gentian	<i>Gentiana</i> spp.	☉ ☼	Moist fields, wooded edges
	Showy goldenrod* (also MID in IA, MN, MO) 7	<i>Solidago speciosa</i>	☉	Fields, prairies, savannas
	Goldenrod* (also MID in IA, MN, MO)	<i>Solidago</i> spp.	☉ ☼ ●	Species dependent
	New England aster* (also MID in IA, MN, MO) 8	<i>Symphotrichum novae-angliae</i>	☉ ☼	Moist fields, wooded edges
White turtlehead!	<i>Chelone glabra</i>	☉ ☼	Wet meadows, wetlands	
Trees and Shrubs				
EARLY (March-April)	Serviceberry	<i>Amelanchier</i> spp.	☉ ☼	Forest understory, woods edge
	Plums and cherries	<i>Prunus</i> spp.	☉ ☼	Species dependent
	Gooseberry and currants	<i>Ribes</i> spp.	☉ ☼	Species dependent
	Willows	<i>Salix</i> spp.	☉ ☼	Meadows, wetlands
MID (May-August)	Leadplant *	<i>Amarpha canescens</i>	☉	Dry prairie, open woods
	New Jersey tea	<i>Ceanothus americanus</i>	☉ ☼	Fields, prairies, open woods
	Buttonbush	<i>Cephalanthus occidentalis</i>	☉ ☼	Riverbanks, marshes, shores
	Dwarf bush honeysuckle	<i>Diervilla lonicera</i>	☉	Woodland edges, thickets
	Wild roses	<i>Rosa</i> spp.	☉ ☼	Prairies, wooded edges
	American basswood	<i>Tilia americana</i>	☉ ☼	Deciduous forest
Large cranberry!	<i>Vaccinium macrocarpon</i>	☉	Wetlands	

State-Listed Species - Illinois

- ▶ Over 100 listed
- ▶ Lists by County available
- ▶ Online EcoCAT mapper, but now charge a fee
- ▶ IDNR will not disclose any location information
- ▶ So I distilled from County lists what's possible in our watershed



Tom Anton Photo

Scientific Name	Common Name	State Status
<i>Aflexia rubranura</i>	Redveined Prairie Leafhopper	LT
<i>Alasmidonta viridis</i>	Slippershell	LT
<i>Alnus incana ssp. rugosa</i>	Speckled Alder	LE
<i>Amelanchier interior</i>	Shadbush	LT
<i>Amelanchier sanguinea</i>	Shadbush	LE
<i>Asclepias lanuginosa</i>	Woolly Milkweed	LE
<i>Asio flammeus</i>	Short-eared Owl	LE
<i>Aster furcatus</i>	Forked Aster	LT
<i>Astragalus tennesseensis</i>	Tennessee Milk Vetch	LE
<i>Bartramia longicauda</i>	Upland Sandpiper	LE
<i>Besseyia bullii</i>	Kittentails	LT
<i>Bombus affinis</i>	Rusty Patched Bumble Bee	LE
<i>Botaurus lentiginosus</i>	American Bittern	LE
<i>Botrychium campestre</i>	Prairie moonwort	LE
<i>Buteo swainsoni</i>	Swainson's Hawk	LE
<i>Calephelis muticum</i>	Swamp Metalmark	LE
<i>Calla palustris</i>	Water Arum	LE
<i>Calopogon tuberosus</i>	Grass Pink Orchid	LE
<i>Canis lupus</i>	Gray/timber Wolf	LT
<i>Cardamine pratensis var. palustris</i>	Cuckoo Flower	LE
<i>Carex aurea</i>	Golden Sedge	LT
<i>Carex bromoides</i>	Sedge	LT
<i>Carex brunnescens</i>	Brownish Sedge	LE
<i>Carex communis</i>	Fibrous-rooted Sedge	LT
<i>Carex cryptolepis</i>	Sedge	LT
<i>Carex echinata</i>	Sedge	LE
<i>Carex oligosperma</i>	Few-seeded Sedge	LE
<i>Carex plantaginea</i>	Plantain-leaved Sedge	LE
<i>Carex tuckermanii</i>	Tuckerman's Sedge	LE
<i>Carex viridula</i>	Little Green Sedge	LT

<i>Catostomus catostomus</i>	Longnose Sucker	LT
<i>Chamaedaphne calyculata</i>	Leatherleaf	LT
<i>Chlidonias niger</i>	Black Tern	LE
<i>Cimicifuga racemosa</i>	False Bugbane	LE
<i>Circus cyaneus</i>	Northern Harrier	LE
<i>Clonophis kirtlandi</i>	Kirtland's Snake	LT
<i>Coccyzus erythrophthalmus</i>	Black-billed Cuckoo	LT
<i>Corallorhiza maculata</i>	Spotted Coral-root Orchid	LE
<i>Cornus canadensis</i>	Bunchberry	LE
<i>Corydalis aurea</i>	Golden Corydalis	LE
<i>Corydalis sempervirens</i>	Pink Corydalis	LE
<i>Cyclonaias tuberculata</i>	Purple Wartybark	LT
<i>Cypripedium parviflorum</i>	Small Yellow Lady's Slipper	LE
<i>Cypripedium reginae</i>	Showy Lady's Slipper	LE
<i>Dendroica cerulea</i>	Cerulean Warbler	LT
<i>Deschampsia flexuosa</i>	Hairgrass	LE
<i>Dichanthelium boreale</i>	Northern Panic Grass	LE
<i>Dichanthelium portoricense</i>	Hemlock Panic Grass	LE
<i>Drosera intermedia</i>	Narrow-leaved Sundew	LT
<i>Drosera rotundifolia</i>	Round-leaved Sundew	LE
<i>Egretta caerulea</i>	Little Blue Heron	LE
<i>Egretta thula</i>	Snowy Egret	LE
<i>Eleocharis rostellata</i>	Beaked Spike Rush	LT
<i>Elliptio dilatata</i>	Spike	LT
<i>Elymus trachycaulus</i>	Bearded Wheat Grass	LE
<i>Emydoidea blandingii</i>	Blanding's Turtle	LE
<i>Epilobium strictum</i>	Downy Willow Herb	LT
<i>Erimystax x-punctatus</i>	Gravel Chub	LT
<i>Etheostoma exile</i>	Iowa Darter	LT
<i>Filipendula rubra</i>	Queen-of-the-prairie	LT
<i>Fundulus diaphanus</i>	Banded Killifish	LT

<i>Fundulus dispar</i>	Starhead Topminnow	LT
<i>Gallinula galeata</i>	Common Gallinule	LE
<i>Geranium bicknellii</i>	Northern Cranesbill	LE
<i>Helianthus giganteus</i>	Tall Sunflower	LE
<i>Hemidactylium scutatum</i>	Four-toed Salamander	LT
<i>Hybognathus hankinsoni</i>	Brassy Minnow	LT
<i>Isoetes butleri</i>	Quillwort	LE
<i>Ixobrychus exilis</i>	Least Bittern	LT
<i>Juncus alpinoarticulatus</i>	Richardson's Rush	LT
<i>Lanius ludovicianus</i>	Loggerhead Shrike	LE
<i>Laterallus jamaicensis</i>	Black Rail	LE
<i>Lathyrus ochroleucus</i>	Pale Vetchling	LT
<i>Lechea intermedia</i>	Pinweed	LE
<i>Lespedeza leptostachya</i>	Prairie Bush Clover	LE
<i>Lethenteron appendix</i>	American Brook Lamprey	LT
<i>Ligumia recta</i>	Black Sandshell	LT
<i>Lonicera dioica var. glaucescens</i>	Red Honeysuckle	LE
<i>Luzula acuminata</i>	Hairy Woodrush	LE
<i>Melanthium virginicum</i>	Bunchflower	LT
<i>Menyanthes trifoliata</i>	Buckbean	LT
<i>Mimulus glabratus</i>	Yellow Monkey Flower	LE
<i>Minuartia patula</i>	Slender Sandwort	LT
<i>Moxostoma carinatum</i>	River Redhorse	LT
<i>Moxostoma valenciennesi</i>	Greater Redhorse	LE
<i>Myotis grisescens</i>	Gray Bat	LE
<i>Myotis septentrionalis</i>	Northern Long-eared Myotis	LT
<i>Myotis sodalis</i>	Indiana Bat	LE
<i>Nannothemis bella</i>	Elfin Skimmer	LT
<i>Necturus maculosus</i>	Mudpuppy	LT
<i>Notropis anogenus</i>	Pugnose Shiner	LE
<i>Notropis boops</i>	Bigeye Shiner	LE
<i>Notropis heterodon</i>	Blackchin Shiner	LT

<i>Notropis heterolepis</i>	Blacknose Shiner	LE
<i>Notropis texanus</i>	Weed Shiner	LE
<i>Nyctanassa violacea</i>	Yellow-crowned Night-Heron	LE
<i>Nycticorax nycticorax</i>	Black-crowned Night-Heron	LE
<i>Pandion haliaetus</i>	Osprey	LE
<i>Penstemon tubaeflorus</i>	Tube Beard Tongue	LE
<i>Phalaropus tricolor</i>	Wilson's Phalarope	LE
<i>Phegopteris connectilis</i>	Long Beech Fern	LE
<i>Pinus resinosa</i>	Red Pine	LE
<i>Plantago cordata</i>	Heart-leaved Plantain	LE
<i>Platanthera leucophaea</i>	Eastern Prairie Fringed Orchid	LE
<i>Platanthera psycodes</i>	Purple Fringed Orchid	LE
<i>Poa languida</i>	Weak Bluegrass	LE
<i>Poa wolfii</i>	Wolf's Bluegrass	LE
<i>Pogonia ophioglossoides</i>	Snake-mouth	LE
<i>Poliocitellus franklinii</i>	Franklin's Ground Squirrel	LT
<i>Polygonatum pubescens</i>	Downy Solomon's Seal	LT
<i>Polygonum careyi</i>	Carey's Heartsease	LE
<i>Populus balsamifera</i>	Balsam Poplar	LE
<i>Potamogeton gramineus</i>	Grass-leaved Pondweed	LT
<i>Potamogeton praelongus</i>	White-stemmed Pondweed	LE
<i>Potamogeton pulcher</i>	Spotted Pondweed	LE
<i>Potamogeton robbinsii</i>	Fern Pondweed	LE
<i>Potamogeton strictifolius</i>	Stiff Pondweed	LE
<i>Rallus elegans</i>	King Rail	LE
<i>Ranunculus rhomboideus</i>	Prairie Buttercup	LT
<i>Rhamnus alnifolia</i>	Alder Buckthorn	LE
<i>Rhynchospora alba</i>	Beaked Rush	LE
<i>Rubus odoratus</i>	Purple-flowering Raspberry	LT
<i>Rubus pubescens</i>	Dwarf Raspberry	LT
<i>Salix serissima</i>	Autumn Willow	LE
<i>Sambucus racemosa ssp. pubens</i>	Red-berried Elder	LE

<i>Sarracenia purpurea</i>	Pitcher Plant	LE
<i>Schoenoplectus smithii</i>	Smith's Bulrush	LE
<i>Scirpus hattorianus</i>	Bulrush	LE
<i>Shepherdia canadensis</i>	Buffaloberry	LE
<i>Silene regia</i>	Royal Catchfly	LE
<i>Sistrurus catenatus</i>	Eastern Massasauga	LE
<i>Sisyrinchium montanum</i>	Mountain Blue-eyed Grass	LE
<i>Solidago sciaphila</i>	Cliff Goldenrod	LT
<i>Somatochlora hineana</i>	Hine's Emerald Dragonfly	LE
<i>Sparganium americanum</i>	American Bur-reed	LE
<i>Sparganium emersum</i>	Green-fruited Bur-reed	LE
<i>Speyeria idalia</i>	Regal Fritillary	LT
<i>Spiranthes lucida</i>	Yellow-lipped Ladies' Tresses	LE
<i>Stellaria pubera</i>	Great Chickweed	LE
<i>Sterna forsteri</i>	Forster's Tern	LE
<i>Sterna hirundo</i>	Common Tern	LE
<i>Symphoricarpos albus var. albus</i>	Snowberry	LE
<i>Tofieldia glutinosa</i>	False Asphodel	LT
<i>Trichophorum cespitosum</i>	Tufted Bulrush	LE
<i>Trientalis borealis</i>	Star-flower	LE
<i>Trifolium reflexum</i>	Buffalo Clover	LT
<i>Triglochin maritima</i>	Common Bog Arrow Grass	LT
<i>Triglochin palustris</i>	Slender Bog Arrow Grass	LT
<i>Trillium cernuum</i>	Nodding Trillium	LE
<i>Trillium erectum</i>	Ill-scented Trillium	LE
<i>Tyto alba</i>	Barn Owl	LT
<i>Ulmus thomasii</i>	Rock Elm	LE
<i>Utricularia intermedia</i>	Flat-leaved Bladderwort	LT
<i>Vaccinium corymbosum</i>	Highbush Blueberry	LE
<i>Veronica americana</i>	American Brooklime	LE
<i>Veronica scutellata</i>	Marsh Speedwell	LT
<i>Viola blanda</i>	Hairy White Violet	LE
<i>Viola canadensis</i>	Canada Violet	LE
<i>Xanthocephalus xanthocephalus</i>	Yellow-headed Blackbird	LE
<i>Zigadenus elegans</i>	White Camass	LE

