



EASTERN ONTARIO
MODEL FOREST

FORÊT MODÈLE
DE L'EST DE L'ONTARIO



Species at Risk

Module 1

The Broader Picture

*Assistance for this project was provided by the
Ministry of Natural Resources.*



Table of Contents

- Natural Heritage Systems & their Importance
- Biodiversity & its Importance
- Sustainability & its Importance

Natural Heritage Systems

- A **natural heritage system** is a connected group of natural areas, and the native plants, animals, and related geological features and landforms.
- These connections and interactions ensure a living, breathing & natural wildlife system, that will benefit animals and humans alike.



Biodiversity

- **Biodiversity** is the variety and abundance of species, their genetic composition, and the natural communities, ecosystems, and landscapes in which they occur.



Importance of Biodiversity

- **Direct Use Values:** Species provide various goods or products to humans, many of which play important roles in human economies. Examples include food, medicine, timber, fiber, etc.
- **Indirect Use Values:** Species provide services to humans as well as to other species. These include pollination, nutrient cycling, regulation of atmosphere and climate.

Importance of Biodiversity

- **Ecological Values:** All species are supported by the interactions among other species and ecosystems, each providing an ecological value to one another. Loss of species makes ecosystems less resilient and often less productive.
- **Cultural & Spiritual Values:** The identity of human cultures around the world is attached in varying degrees to wild species. Outside of formal religion, many people feel connected to species for reasons that can be hard to explain. Some may be inspired by a species' intrinsic beauty, or revere it for its strength.

Sustainability & its Importance

- **Sustainability** is growth in harmony with our environment, preserving our resource base for our economic well-being, and planning for our children's future.
- The quality of future human activity and development is increasingly seen as being dependent on maintaining this balance.



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Species at Risk

Module 2

Species at Risk Introduction



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Natural Resources.*

Table of Contents

- What is a Species at Risk (SAR)
- Why are SAR Valuable
- SAR Program in Ontario
- Steps in the SAR Program
- SAR Designations
- How Designations are Determined

What is a Species at Risk?

- Any plant or animal threatened by, or vulnerable to extinction.
- Ontario has over 185 species that are at risk of disappearing from our province; 43 of which are found here in eastern Ontario.



Why are SAR Valuable?

- Species at risk are 'indicators' to the fact that something has changed within the natural environment. We need to pay attention to indicators because human health and well-being depend on having a healthy, diverse and properly functioning natural environment.



Why are SAR Valuable?



Monarch Butterfly

- Species provide services to humans as well as to other species. These include pollination, nutrient cycling, regulation of atmosphere and climate.
- Everything is connected to everything else. Loss of species makes ecosystems less resilient and often less productive.

Why are SAR Valuable?

- **Direct Use Values:** Species provide various goods or products to humans, many of which play important roles in human economies. Examples include food medicine, timber, fiber, etc.
- **Indirect Use Values:** Species provide services to humans as well as to other species. These include pollination, nutrient cycling, regulation of atmosphere and climate.

Why are SAR valuable?

- **Ecological Values:** All species are supported by the interactions among other species and ecosystems, each providing an ecological value to one another. Loss of species makes ecosystems less resilient and often less productive.
- **Cultural & Spiritual Values:** The identity of human cultures around the world is attached in varying degrees to wild species. Outside of formal religion, many people feel connected to species for reasons that can be hard to explain. Some may be inspired by a species' intrinsic beauty, or revere it for its strength.

Species at Risk Program in Ontario

- This program was initiated in the year 2000 by the Ontario government and led by the Fish & Wildlife section of MNR.
- It aims to recover & protect wild species that are at risk.
- The program includes: status designations, creation of recovery plans, recovery actions, & regulation of species under the Endangered Species Act.



Steps in SAR Program

- Species ranking
- Creation of species status reports
- Provincial status designation
- Regulation of endangered species under the Endangered Species Act
- Formation of recovery teams
- Creation of recovery plans
- Implementation of recovery actions
- Eventual recovery and de-listing of species

SAR Designations

- Species at risk include a number of species that are at some degree of risk of extinction in Ontario.
- All of these have a provincial status designation:
 - Extinct
 - Extirpated
 - Endangered
 - Threatened
 - Special Concern
- Federal and provincial status is often the same, but not always.

Extinct

- Any native species that no longer exists anywhere in the wild.



Passenger Pigeon

Photo: Brian Boyle / ROM

Extirpated

- Any native species that no longer exists in the wild in Ontario (or a particular area), but still exists elsewhere.



Endangered

- Any native species that is at immediate risk for extinction or extirpation throughout all or a significant portion of its Ontario range.



Bald Eagle
Photo: Simon Lunn

Threatened

- Any native species that is at risk of becoming endangered throughout all or a significant portion of its Ontario range.



Special Concern

- Any native species that is of special concern in Ontario but is not a threatened or endangered species.



How Designations are Determined

- A global provincial rank is given to each species by ABI (a global network of data centers).
- The ranks indicate conservation priority and are used to determine which category a species falls under at the provincial level.
- Criteria for ranking include
 - Number of sites
 - Number of protected populations
 - Size of populations
 - Ability of the species to persist

Recovery teams

- Teams may be formed for the recovery of individual species or for entire communities (eg. tallgrass prairie community recovery)
- Teams are put together by MNR staff, and are composed of species experts, researchers, biologists, consultants and other stakeholders.
- Teams usually meet a few times a year to plan and discuss items such as:
 - Recovery plans
 - Recovery actions
 - Funding sources

Recovery Plans

- Are written by species experts in conjunction with recovery teams
- Can be created at a national or provincial level
- Include biological information, recovery goals, objectives, approaches, challenges, strategies and action plans (although sometimes action plans are created separately)

Recovery Actions

- Are the actions taken to recover a species
- Are usually outlined in the recovery plan/strategy
- Are based on expert knowledge of the species' biology and needs

Examples of Recovery Objectives

- To increase the population size
- To maintain the population size
- To create new populations
- To reduce threats to the species

Recovery actions could include one or more of the following:

- Species monitoring
- Scientific research
- Species reintroduction or relocation
- Habitat creation/restoration or rehabilitation
- Education programs
- Private land stewardship
- Land securement or incentive programs



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Species at Risk

Module 3

Why Species are at Risk



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Table of Contents

- Why Species are at Risk
- Human-caused Factors
 - Habitat loss, collection, pollution, etc.
- Natural Factors
 - Large territory size, specialized life history, etc.

Why are species at risk?

- Many species are at risk due to human-caused and/or natural factors
- Some species are rare due to the rarity of their habitat (eg. wetland species)
- Each species is unique in its ability to adapt to change in its environment
 - Some species adapt well to change whereas others do not
 - Adaptability of a species depends on the type and diversity of prey used, how specific its habitat requirements are, its basic biology and many other factors

Why are Species at Risk?

■ Human-caused Factors:

- Habitat degradation
- Collection for the pet trade
- Over-harvesting
- Human persecution
- Pollution



Blandings Turtle

Habitat Loss

- *Habitat loss* has been a major factor in wildlife species loss, and is the number one contributor to most population declines of wild species.
- Most areas in eastern Ontario have lost more than half of their original wetlands, and as many as 600 species are supported by wetlands and their associated habitat

Habitat Fragmentation

- Road building and urbanization are major causes of habitat *fragmentation*
- More than 180,000 km of roads exist in Ontario
- Fragmentation can isolate populations, causing a loss in genetic diversity which leads to a point where individuals of a species can no longer breed with each other

Collection for the Pet Trade

- Turtles and snakes are often collected for individual use or for sale in the *pet trade* (legally and illegally)

For example...

- **Spotted turtle**
 - Spotted turtles are a favorite collectible

Over-harvesting

- Many species of plants and animals have been harvested by humans for medicinal, cultural and aesthetic purposes
- Some species are rare due to *over-harvesting*

For example...

- **American ginseng**
- Ginseng is legally & illegally harvested for sale from public and private lands for medicinal use.

Human Persecution

For example... Black ratsnake

- Black ratsnakes are often killed by humans
- Some killing is intentional due to hatred and/or fear
- Some killing is accidental

Pollution

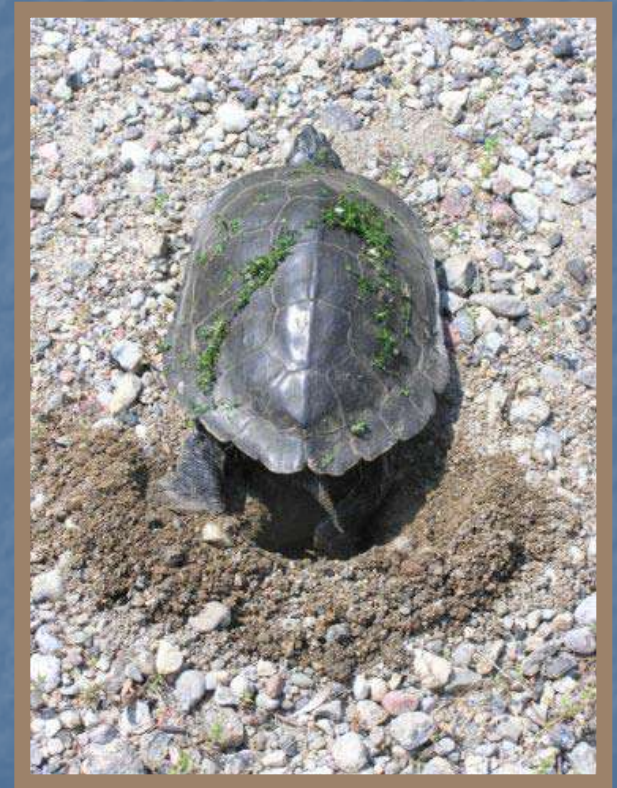
For example... Peregrine falcon

- Peregrine falcons were nearly wiped out by DDT in the 1960's
- DDT is an insecticide that was once commonly used to kill off insects such as mosquitoes
- Although DDT was banned in North America in the early 1970's, it is still used in some falcon wintering areas in South America

Why are Species at Risk?

■ Natural Factors:

- Specialized life history (Late reproduction, specific habitat requirements, limited prey species)
- Disease
- At the limit of its natural range
- Invasive species
- Large territory size
- Small geographic range



Map Turtle

Photo: Tobi Kieseewalter

Specialized Life History

For example... Stinkpot turtle

- Stinkpot turtles take a long time to mature and breed
- Like most turtles, they require specific conditions for breeding
- They lay only a few eggs
- Young turtles are often preyed upon before they can reach the safety of water

At the Limits of its Natural Range

For example... Deerberry

- Within Ontario, Deerberry is found only in the Niagara Falls and Thousand Island areas
- These populations mark the northernmost tip of Deerberry's range in North America

Small Geographic Range

For example... Juniper sedge

- The Ontario population in Lennox & Addington county is the only known population in Ontario
- It grows only in open alvar woodlands, therefore its range is very limited

Large Territory Size

For example... Eastern cougar

- The territory size for a male cougar is likely greater than 20 square kilometers
- Territories of males generally do not overlap
- They prefer to live under much forest or topographical cover



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Species at Risk

Module 4

Lists & Descriptions of Eastern Ontario Species at Risk



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Table of Contents

- List of Eastern Ontario Birds at Risk
- List of Eastern Ontario Reptiles at Risk
- List of Eastern Ontario Plants at Risk
- List of Eastern Ontario Fish, Mammals & Insects at Risk
- Map of Kemptville District
- Descriptions of SAR in Kemptville District

Eastern Ontario Birds at Risk

- **Loggerhead shrike** – Provincial END, Federal END *
- **Piping Plover** – Provincial END, Federal END
- **King Rail** – Provincial END, Federal END
- **Henslow's sparrow** – Provincial END, Federal END
- **Bald eagle** – Provincial END, Federal SC *
- **Least bittern** – Provincial THR, Federal THR *
- **Peregrine falcon** – Provincial THR, Federal SC *
- **Red-headed woodpecker** – Provincial SC, Federal THR *
- **Short-eared owl** – Provincial SC, Federal SC *
- **Black tern** – Provincial SC, Federal NAR *
- **Cerulean warbler** – Provincial SC, Federal SC *
- **Yellow Rail** – Provincial SC, Federal SC
- **Louisiana Waterthrush** – Provincial SC, Federal SC

Eastern Ontario Reptiles at Risk

- **Spotted turtle** – Provincial END, Federal END *
- **Wood turtle** – Provincial END, Federal SC
- **Eastern ratsnake** – Provincial THR, Federal THR *
- **Eastern spiny softshell turtle** – Provincial THR, Federal THR
- **Stinkpot turtle** – Provincial THR, Federal THR *
- **Blanding's turtle** – Provincial THR, Federal THR *
- **Eastern milk snake** – Provincial SC, Federal SC *
- **Eastern ribbon snake** – Provincial SC, Federal SC *
- **Five-lined skink** – Provincial SC, Federal SC *
- **Northern map turtle** – Provincial SC, Federal SC *

Eastern Ontario Plants & Lichens at Risk

- **American ginseng** — Provincial END, Federal END *
- **Blunt-lobed woodsia** — Provincial END, Federal THR *
- **Butternut** — Provincial END, Federal END *
- **Eastern prairie fringed-orchid** — Provincial END, Federal END *
- **Flooded Jellyskin** — Provincial THR, Federal THR *
- **American Water-willow** — Provincial THR, Federal THR *
- **Deerberry** — Provincial THR, Federal THR *
- **Broad beech fern** — Provincial SC, Federal SC *

Eastern Ontario Fish & Mammals at Risk

Mammals

- **Grey fox** – Provincial THR, Federal THR *
- **Cougar** - Provincial END
- **Eastern Canadian Wolf** - Provincial SC, Federal SC *

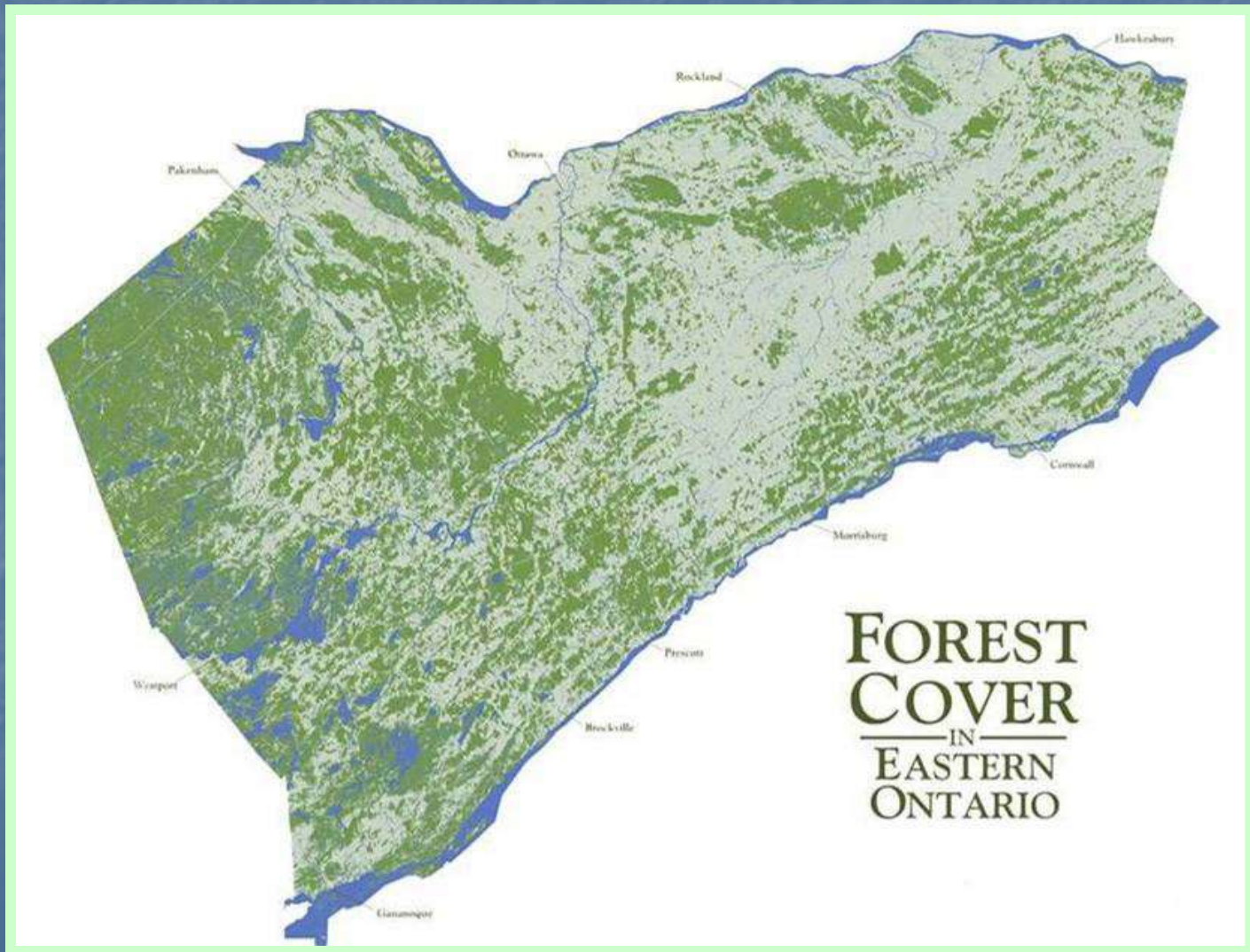
Insects

- **Monarch Butterfly** – Provincial SC, Federal SC *

Fish

- **Pugnose shiner** – Provincial END, Federal END *
- **American Eel** – Provincial END, Federal SC *
- **Channel darter** – Provincial THR, Federal THR *
- **Cutlip minnow** – Provincial THR, Federal NAR *
- **River Redhorse** – Provincial SC, Federal SC
- **Grass pickerel** – Provincial SC, Federal SC *
- **Northern brook lamprey** – Provincial SC, Federal SC *
- **Lake Sturgeon** – Provincial SC, Federal END

Eastern Ontario Model Forest Region



Bald Eagle

Haliaeetus leucocephalus

- Designation:
Endangered
Provincially, Not at Risk
Federally
- Description: raptor that
feeds mostly on fish,
nests in trees on or
near open water.
- ID tips: large bird,
black, with white head
and tail



- Habitat: lives on or near
open water.
- Threats: pesticides such
as DDT, habitat loss,
nest disturbance.

Loggerhead Shrike

Lanius ludovicianus

- Designation: Endangered Provincially & Federally.
- Description: slightly smaller than a robin, feeds mostly on insects, which it impales on twigs or thorns.
- ID tips: 'Zorro' mask on face, distinct grey, black and white patterns.
- Habitat: inhabits pastures or other grasslands with scattered shrubs or trees, nests in Hawthorn or Red cedar trees.

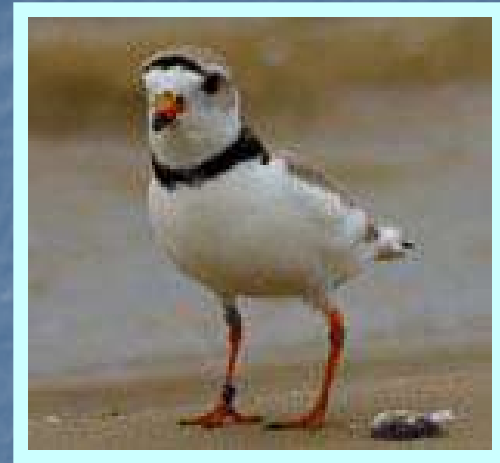


Threats: loss, alteration or succession of habitat, intensive farming and fire suppression in grasslands, collisions with vehicles.

Piping Plover

Charadrius melodus

- **Designation:** Endangered Provincially and Nationally.
- **Description:** A small stubby-billed shorebird with a thin, sometimes incomplete, black neck band.
- **ID tips:** Its plumage is the same colour as dry sand



- **Threats:** Habitat loss, nest disturbance, predation.
- **Habitat:** Lives and nests on beaches and outwash plains that has dispersed shells and pebbles.

Henslow's Sparrow

Ammodramus henslowii

- **Designation:** Endangered Provincially and Nationally.
- **Description:** A pale olive green head and hind neck, chestnut wings, and brown and black streaked back sparrow.
- **ID tips:** Most often detected by its song, an insect like "tsi-lik".



- **Threats:** Habitat loss.
- **Habitat:** Old fields, pastures and wet meadows that have not been extensively invaded by shrubs.

King Rail

Rallus elegans

- **Designation:** Endangered Provincially and Nationally.
- **Description:** Large, chicken-sized marsh bird with a long bill. Brown streaked back, rich brown breast and bold barring on the flanks.
- **ID tips:** The largest Norther American rail.



- **Threats:** Habitat loss, invasive species, pesticide poisoning.
- **Habitat:** Shallow, densely vegetated freshwater marshes

Peregrine Falcon

Falco peregrinus anatum

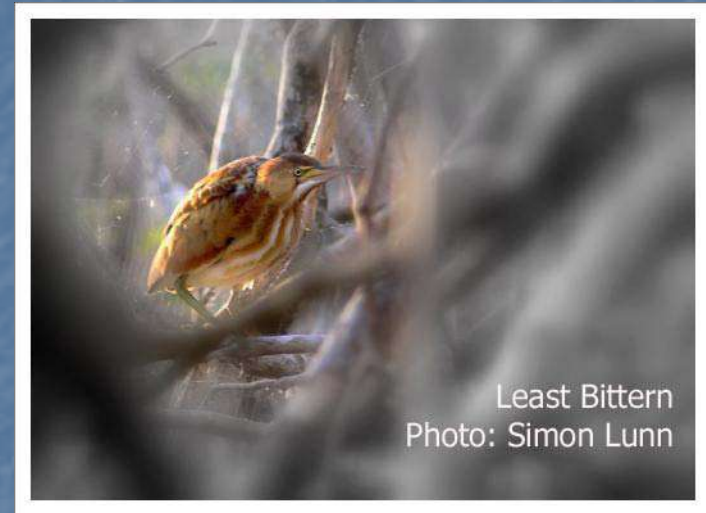
- **Designation:** Threatened Provincially, Special Concern Nationally.
- **Description:** Crow-sized falcon, feeds on other birds, dive-bombing them in the air, fastest animal on earth.
- **ID tips:** Black facial mask that looks like a helmet, all-black eyes.
- **Threats:** Pesticides such as DDT, disturbance of nest sites.
- **Habitat:** Nests on high cliff faces usually near water, sometimes nests on tall buildings.



Least Bittern

Ixobrychus exilis

- Designation: Threatened Provincially & Federally.
- Description: small, heron-like wetland bird, blends in well with surrounding reeds, feeds on frogs, leeches, small fish, insects, etc.
- ID tips: holds still with beak in the air when disturbed, large chestnut patches on its wings, smaller than American bittern



- Habitat: inhabits marshes, nests in tall aquatic vegetation.
- Threats: habitat loss and disturbance.

Black Tern

Chlidonia niger

- Designation: Special Concern Provincially, Not at Risk Federally.
- Description: small tern with bold markings, back and wings are generally grey, feeds mostly on insects over water.
- ID tips: black cap on white head, male has dark head and underside during the mating season.



- Habitat: builds floating nests in shallow marshes or ponds.
- Threats: habitat loss and disturbance, water pollution.

Red-headed Woodpecker

Melanerpes erythrocephalus

- Designation: Special Concern Provincially, Threatened Federally.
- Description: males and females look similar, feeds on bird eggs, nuts, sap, berries, and fruit.
- ID tips: only woodpecker with an all-red head, thick white stripe on wings.
- Threats: competition for nesting trees, loss of nesting habitat, collisions with vehicles.



- Habitat: inhabits woodlands, fields or wetlands where the habitat is open with scattered trees, hollows out a nest in a dead or dying tree

Short-eared Owl

Asio flammeus

- Designation: Special Concern Provincially & Federally.
- Description: medium-sized owl with long wings, brown and white in colour, feeds mostly on small rodents and birds.
- ID tips: ear tufts are very small or completely hidden, black around eyes, pale facial disk with both white and brown border, dark "wrist" on underwing can be seen in flight.



- Habitat: open habitats with scattered trees or shrubs, nests in a depression in the ground under grass or shrub shelter.
- Threats: possibly low reproductive success, egg predation, collisions with vehicles and aircraft.

Cerulean Warbler

Dendroica cerulea

- Designation: Special Concern Provincially & Federally.
- Description: blue interior-forest bird, average body length is near 11cm, feeds on insects
- ID tips: males have bright blue cheeks and upper parts with black streaks on the back and two bold white wing bars, females lack the black streaks and have blue-green upper parts, with a pale stripe above the eye
- Habitat: inhabits mature forests, nests high in deciduous trees.
- Threats: forest clearing and fragmentation.



Yellow Rail

Coturnicops noveboracensis

- **Designation:** Special Concern Provincially and Nationally.
- **Description:** Adults have have brown upper parts streaked with black, a yellowish-brown breast, a light belly and barred flanks.
- **ID tips:** During breeding season, the males can be heard giving their distinct clicking sounds which sound like two stones being banged together..



- **Threats:** Habitat loss due to development.
- **Habitat:** Lives in deep in the reeds and marshes of shallow wetlands.

Louisiana Waterthrush

Seiurus motacilla

- **Designation:** Special Concern Provincially and Nationally.
- **Description:** Has a plain brown back and white underparts streaked with black. The flanks and undertail are buff. The legs are bright pink.
- **ID tips:** Has prominent eye stripes and when it walks it flicks its tail in a bobbing motion.



- **Threats:** Range limit, Habitat loss due to forest clearing .
- **Habitat:** Southern species usually found in steep, forested ravines with fast-flowing streams.

Spotted Turtle

Celmmys guttata

- Designation: Endangered Provincially & Federally.
- Description: small turtle with a black shell and yellow spots, feeds on aquatic vegetation.
- ID tips: bright yellow, round spots on shell, legs and head, usually less than 12 cm long
- Threats: vehicles, pollution, habitat loss, egg predation, collection for the pet trade.



- Habitat: inhabits ponds, marshes, bogs, and slow-moving streams, prefers a soft bottom of sand or mud.

Wood Turtle

Glyptemys insculpta

- **Designation:** Endangered Provincially; Threatened Federally.
- **Description:** A medium-sized turtle, with a broad carapace which is brown, grey or tan with a pattern of black and yellow lines radiating from the posterior corners of the shell.
- **ID tips:** shell looks like wood and its legs are typically orange or brick-red.
- **Threats:** predation, habitat loss and degradation, collection for the pet trade, vehicles.



- **Habitat:** Prefers open habitat such as wet meadows, swamps and fields but may be found in wooded areas.

Spiny Softshell Turtle

Apalone spinifera

- **Designation:** Threatened Provincially & Federally
- **Description:** The flat, almost circular shaped carapace of this turtle resembles a pancake and is covered by leathery skin.
- **ID tips:** Leathery carapace, long neck and elongated tubular snout.



- **Threats:** Habitat loss and shoreline degradation, predation of nests, environmental contaminants, fishery nets.
- **Habitat:** A highly aquatic turtle associated with lakes and large rivers. May be seen basking on beaches, sandbars, logs and rocks.

Black Ratsnake

Elaphe obsoleta obsoleta

- Designation: Threatened Provincially & Federally.
- Description: largest snake in Canada, adult is dark in colour, juvenile is patterned, feeds on small mammals, birds and bird's eggs, is a great climber.
- ID tips: white chin and throat, faint and irregular checkerboard belly, can be over 5 feet long, juvenile is pale with irregular blotches.



- Habitat: inhabits upland deciduous forests, especially where forest meets field, nests in rotting logs or vegetation, hibernates underground via rock fissures or root systems.
- Threats: persecution by humans, habitat loss, vehicles.

Blandings Turtle

Emydoidea blandingii

- Designation: Threatened Provincially & Federally.
- Description: medium-sized turtle with yellow flecks on shell, shell is highly domed, eats crayfish, frogs, snails, fish, vegetation, etc., will often eat while on land, very cold-tolerant, and usually emerges from hibernation before other turtles, tends to wander fairly far from the water.
- ID tips: adult has a bright yellow chin, appears to be a smile on its face, flecks on shell are small and tear-shaped, adult is 5-10 inches long.



- Habitat: inhabits wetlands, usually marshes, with muddy bottoms and much vegetation, prefers shallow and slow-moving water.
- Threats: vehicles, egg predation, possibly habitat loss or shoreline destruction.

Stinkpot Turtle

Sternotherus odoratus

- Designation: Threatened Provincially & Federally.
- Description: small turtle with a pointed snout and highly domed shell, called stinkpot due to its smell, eats carrion, aquatic vegetation, etc., good climber.
- ID tips: pale stripes on each side of its head, barbells under its chin.

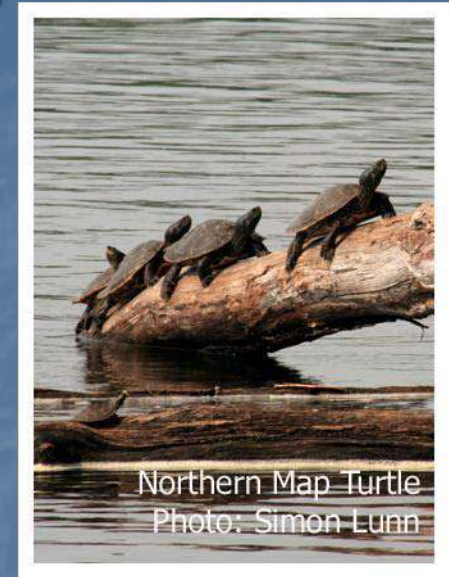


- Habitat: inhabits slow-moving streams or standing water, deep or shallow.
- Threats: vehicles, egg predation, likely habitat loss and shoreline disturbance, power boats.

Northern Map Turtle

Graptemys geographica

- Designation: Special Concern Provincially & Federally.
- Description: medium-sized turtle, female is much larger than the male, rarely roams far from the water, very shy, eats mostly clams and snails.
- ID tips: pale spot behind each eye and yellow stripes on its head, shell with a slight keel down the middle, serrated edges, and yellow lines resembling mazes, yellow belly with some pattern.
- Habitat: inhabits lakes and large, slow-moving rivers; prefers large rivers where it can bask on logs or rocks far from shore.
- Threats: vehicles, habitat loss, egg predation, late sexual maturity.



Northern Ribbon Snake

Thamnophis sauritus

- Designation: Special Concern Provincially & Federally.
- Description: species of garter snake, dark in colour with a bright yellow stripe down the back and both sides, feeds on insects, frogs and small fish, gives birth to live young, good climber and even better swimmer, spending much of its time in shallow water.
- ID tips: quite slender with a very long tail, white lips, normally brighter in colour than other species of garter snake, smaller and shyer than other garter snakes, has a white crescent shape in front of its eye.
- Habitat: inhabits fringes of aquatic habitats such as shallow ponds, streams and bogs, requires grass, shrubs or other dense vegetation to hide in.
- Threats: persecution by humans, habitat destruction, habitat loss, vehicles.



Eastern Milk Snake

Lampropeltis triangulum

- Designation: Special Concern Provincially & Federally.
- Description: pale with red or brown blotches on its back and sides, blotches have black borders, juvenile is especially bright in colour, feeds on small rodents, up to 36 inches long, more active at night than during the day.
- ID tips: black and white checkerboard belly, slow-moving and easy to capture, blotches on the back are larger than those on the sides.



- Habitat: inhabits a wide variety of habitats such as grasslands, woodlands, abandoned buildings, rock outcrops, and river edges.
- Threats: vehicles, persecution by humans, possibly habitat destruction or alteration.

Five-lined Skink

Eumeces fasciatus

- Designation: Special Concern Provincially & Federally.
- Description: only lizard in Ontario, small with smooth skin, eats mostly insects.
- ID tips: fast-moving, juvenile has pale stripes and a blue tail, adult has faded stripes or is completely brown, male may have an orange head during the breeding season.



- Habitat: inhabits fields or deciduous forest, almost always near water, needs rocks, leaf litter or woody debris to hide and lay eggs under.
- Threats: collection for the pet trade, destruction of habitat.

Grey Fox

Urocyon cinereoargenteus

- Designation: Threatened Provincially & Federally.
- Description: medium-sized fox, back in greyish and underside is reddish, usually white on throat and red on ears, adept at climbing trees, feeds on plants and small animals.
- ID tips: distinct black markings on muzzle and lower jaw, black stripe and tip on tail.



- Habitat: inhabits woodlands or brushy habitat dens in rock crevices, underground burrows, or hollow trees and logs
- Threats: hunting and trapping by humans, possibly parasites and disease.

Eastern Cougar

Puma concolor

- Designation: endangered
- Description: large, tawny or greyish brown carnivores with long tails and rounded ears, feeds on deer and smaller mammals.
- ID Tips: tail is almost as long as the body, brown to grey on top of body, whitish below, young is born with spots that fade during the first year.



- Habitat: inhabits large forested areas that are relatively undisturbed by humans.
- Threats: human disturbance combined with land clearing for settlement and agriculture.

Eastern Canadian Wolf

Canis lycaon

- **Designation:** Special Concern Provincially & Nationally.
- **Description:** Fawn-coloured wolf with long black guard hairs on the back and sides, and the back of the ears are reddish.
- **ID tips:** May be found in packs of 3 to 6 adults.



- **Threats:** Habitat loss, hunting.
- **Habitat:** Large areas of forested habitat is required, packs may cover up to 500 square kilometres.

American Ginseng

Panax quinquefolius

- Designation: Endangered Provincially & Federally.
- Description: slow-growing, perennial herb, can reach a height of 60 cm.
- ID tips: bright red seeds in autumn, three leaves composed of 3-7 large leaflets



- Habitat: prefers rich, moist, well-drained soils in mature deciduous forests.
- Threats: habitat alteration and destruction, collection for medicinal use.



Butternut

Juglans cinerea



- Designation: Endangered Provincially & Federally.
- Description: medium-sized tree that belongs to the walnut family, produces nuts in the fall.
- ID tips: similar in appearance to the Black walnut with pinnately compound leaves, bark light grey and ridged.
- Habitat: found scattered in low density forests
- Threats: a serious fungal disease called Butternut Canker that quickly kills infected trees within a few years of infection.

Blunt-lobed Woodsia

Woodsia obtusa

- Designation: Endangered Provincially, Threatened Federally.
- Description: medium-sized small fern, good competitor.
- ID tips: lobes are blunt and rounded, leaves grow up to 60 cm long, stays green later into autumn than most other plants.
- Habitat: inhabits steep escarpments and rock outcrops, Ontario populations grow mainly on south-facing slopes.
- Threats: possibly habitat rarity (specific microhabitat requirements).



Eastern Prairie-fringed Orchid

Platanthera leucophaea

- Designations:
Endangered Provincially
& Federally.
- Descriptions: tall orchid
with white angel-shaped
flowers, flowers for only
a short period in June or
July, populations
fluctuate from year to
year.
- ID tips: usually 0.5 to 1
m tall, large flowers.



- Habitat: inhabits a variety of
habitats including old fields,
wet prairies, fens, bogs and
limestone shorelines.
- Threats: habitat loss, natural
succession, harvesting by
collectors, competition from
invasive species.

Deerberry

Vaccinium stamineum

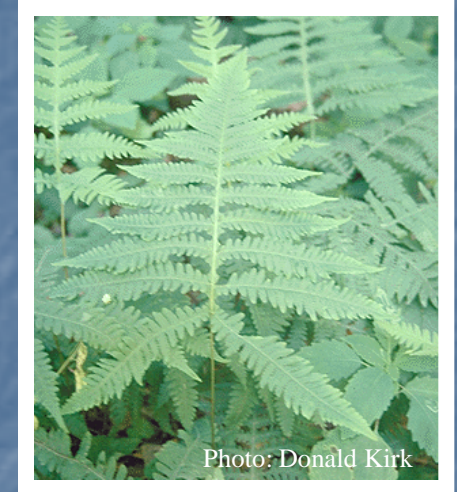
- Designation: Threatened Provincially & Federally.
- Description: deciduous shrub that grows low to the ground, produces white flowers in early summer, produces a greenish berry in late summer.
- ID tips: leaves are smooth, oval, dark on top and whitish on bottom, flowers are clustered.
- Habitat: prefers sandy soils in dry open woodlands, often grows on islands and where fire has occurred.
- Threats: probably habitat loss and fire suppression.



Broad Beech Fern

Phegopteris hexagonoptera

- Designation: Special Concern Provincially & Federally.
- Description: delicate-looking fern, leaves can be 40 cm long.
- ID tips: distinct triangular shape.



- Habitat: inhabits deciduous forests, prefers rich soils.
- Threats: habitat loss due to forest clearing.

Flooded Jellyskin

Leptogium rivulare

- **Designation:** Threatened Provincially & Nationally.
- **Description:** A leaf-like lichen that is bluish-grey with dry will swell up and become translucent when they are submerged.
- **ID tips:** Lichens grow slowly – perhaps one millimetre per year. Individual lichens grow to about 6 cm, but lichens cluster and can form larger encrustations half a meter across trees.



- **Threats:** Restricted range, habitat threats.
- **Habitat:** Grows at the base of trees growing around vernal ponds that fill up with melting water in the spring, then dry up in summer.

American Eel

Anguilla rostrata

- Designation: Special concern Federally
- Description: brownish, elongated fish normally growing up to 1 metre in length and weighing up to 1.5 kg, with a single continuous dorsal fin that joins the caudal and anal fins.
- ID Tips: a snake-like body with a small sharp pointed head, brown on top and a tan-yellow color on the bottom, sharp pointed teeth but no pelvic fins.



- Habitat: adult eels are found in freshwater rivers and lakes.
- Threats: over fishing, mortality by hydroelectric turbines during downstream migration, hydro dams that inhibit upstream migration, and habitat loss/degradation.

Pugnose Shiner

Notropis anogenus

- Designation: Endangered Provincially & Federally.
- Description: delicate, slender minnow, small upturned mouth.
- ID tips: length is 5 cm, overall colouration is silvery, with a dark stripe running laterally down the body from the snout.
- Habitat: marshy bays of lakes, ponds and in slow-moving streams where the water is clear.
- Threats: water pollution and siltation, and the removal of littoral vegetation.



Photo: Erling Holm

Channel Darter

Percina copelandi

- Designation: Threatened Provincially & Federally.
- Description: a small elongated fish with sandy colours.
- ID tips: length is 5 cm; light sand or olive coloured with brown speckles on its back.
- Habitat: streams and lakes over wave-washed sand and gravel bottoms and beaches with slow current.
- Threats: sedimentation and deteriorating water quality due to agriculture and development



Cutlips Minnow

Exoglossom maxillingua

- Designation: Threatened Provincially, Not at Risk Federally.
- Description: grey, chubby minnow about 4 inches long, s-3 lobes on lower jaw, rounded snout and inferior mouth, feeds mainly on molluscs, larvae and aquatic insects.
- ID tips: dorsal fin base even with or further back than its pelvic fin base, pale paired fins and reddish-brown dorsal fin.



- Habitat: inhabits clear streams and rivers with gravel or rock bottoms, nests in slow-moving water under banks, rocks or logs.
- Threats: habitat destruction due to eutrophication and siltation, possibly collection for bait.

Grass Pickerel

Esox americanus vermiculatus

- Designation: Special Concern Provincially & Federally.
- Description: member of the pike family, often confused with other members of this family because of its long cylindrical body, hunts by sight, eats other fish.
- ID tips: dorsal and anal fins located well back towards a forked tail, long snout, large mouth with well-armed teeth, adult uniform pale to dark green upper surface with a rusty brown stripe down the back, usually less than 30 cm long.



- Habitat: wetlands with warm, shallow water and an abundance of aquatic plants.
- Threats: loss of habitat and decline in habitat quality.

River Redhorse

Moxostoma carinatum

- Designation: Special Concern Provincially & Federally.
- Description: a thick-bodied sucker fish with a large, flat-topped head and prominent snout.
- ID tips: the red tail fin helps distinguish it from other redhorses, but it is a notoriously difficult species to identify in the field.



- Habitat: prefers fast-flowing, clear rivers where it feeds on a wide variety of foods, including molluscs, using specially adapted teeth to crush the shell.
- Threats: siltation and turbidity in rivers caused by development and agriculture; building of dams.

Lake Sturgeon

Acipenser fulvescens

- Designation: Special Concern Provincially & Threatened Federally.
- Description: it has five rows of bony plates arranged along the back and sides; the skin is covered with tiny toothlike projections that give it the feel of fine sandpaper; and the dorsal fin is fairly large and located just forward of the tail, which is unequally lobed like that of a shark.
- ID tips: this fish looks very prehistoric.

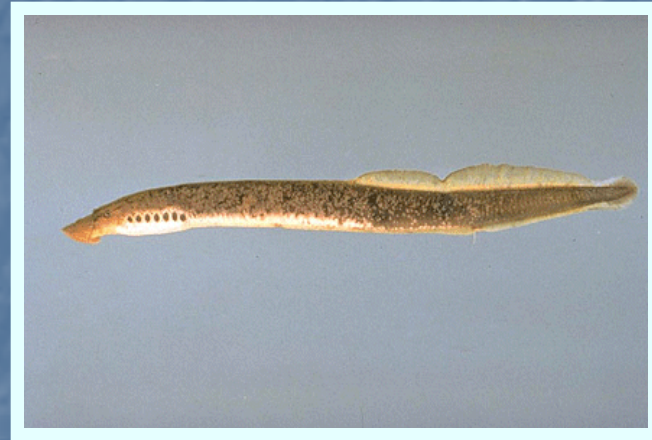


- Habitat: the bottoms of shallow areas of large freshwater lakes and rivers, but migrates each year from early May to late June to swift-flowing water to spawn.
- Threats: overharvesting, dam construction, habitat destruction and contamination, and introduction of non-native species .

Northern Brook Lamprey

Ichthyomyzon fossor

- Designation: Special Concern Provincially & Federally.
- Description: : *typical characteristics of a lamprey, has a round mouth and teeth arranged in a circle.*
- ID tips: : small species (9 – 16 cm) but is easily confused with other native lampreys.



- Habitat: lives in small rivers.
- Threats: chemicals in water

Monarch Butterfly

Danaus plexippus

- Designation: Special Concern Provincially & Federally.
- Description: a brightly patterned black and orange butterfly, larva feeds on common milkweed leaves, adult feeds on wildflower nectar.
- ID Tips: bright orange wings that have a thick black border containing two rows of white spots.
- Habitat: often found on abandoned farmland and roadsides, but also in city gardens and parks.
- Threats: The main causes of decline are logging and disturbance of the overwintering sites in Mexico, and the widespread use of pesticides and herbicides in Ontario.





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Species at Risk

Module 6

Protection



Assistance for this project was provided by the Ministry of Natural Resources.

Table of Contents

- Overview of SAR protection
- Legislation & policies that protect SAR (direct & indirect)
- Effect of SAR protection on private landowners
- Where to get information

Overview of SAR Protection

- Some SAR are legally protected through government laws or guidelines
- Legislation includes acts, regulations, and policies
- Legal protection for SAR can be at the municipal, provincial, federal, or international level

Legislation & Policies Protecting SAR (Directly)

Provincially

- Endangered Species Act
- Fish & Wildlife Conservation Act
- Crown Forest Sustainability Act
- Aggregate Resources Act
- Planning Act

Internationally

- CITES (WAPPRIITA)

Federally

- Migratory Birds Convention Act
- Species at Risk Act
- National Parks Act

Endangered Species Act 2007

- May 17, 2007 new Endangered Species Act was passed, making Ontario a North American leader in species protection and recovery
- Compared to old legislation, new Act:
 - takes a stewardship-first approach and includes broader provisions for protecting SAR and their habitats
 - a stronger commitment to species recovery
 - more support for groups and individuals who voluntarily participate in stewardship activities to protect essential habitat

Fish & Wildlife Conservation Act

- Applies to game and specially protected amphibians, birds, invertebrates, mammals, and reptiles; some of which are SAR
- Prohibits hunting and trapping of specially protected species
- Allows the possession of only one individual of most specially protected species (mainly reptiles and amphibians). The exception is for specially protected raptors which cannot be kept without a license.
- Prevents the destruction or collection of nests or eggs belonging to wild bird species (except those subject to the Migratory Birds Convention Act)
- Gives MNR the authority to place limits and seasons on hunting and trapping furbearers, some of which are SAR

Crown Forest Sustainability Act

- Provides protection for featured species and their habitats amidst forestry operations on provincial land
- Featured species are determined by a provincial committee and district biologists, and are listed in the forest management plan
- Featured species may be species at risk, locally rare or provincially rare plant and animal species

Aggregate Resources Act

- Protects endangered (E) and threatened (T) species and their habitats from impacts of aggregates operations on crown land and designated private lands
- Aggregate operators must apply to MNR for a license or permit to operate pits and quarries on private land designated under the Act and on all crown land
- A natural heritage report must accompany the license application, which determines the location of significant habitat of E and T species within 120m of the site
 - Recommendations from the report are incorporated into the legally binding site plan
- Upon the approval of the application, MNR determines where the company cannot be active within the site due to the presence of E and T species and their habitat

Planning Act

- Applies to endangered (E) and threatened (T) species
- Prohibits development and site alteration in known significant portions of E & T species' habitat
- Zoning for development is done through municipal planning, while E & T species' significant habitat is mapped by MNR
- The municipality has no obligation to obtain such information from MNR, therefore developers are often unaware of the presence of E & T species

Migratory Birds Convention Act

- Protects migratory birds and their nests
- Generally prohibits the killing of migratory game birds (waterfowl, cranes, rails, shorebirds, & pigeons) outside of the hunting season, although permits can be issued to do so in some cases
- Prohibits the killing of migratory insectivorous birds and other non-game migratory birds all year round
- Prohibits, without a permit, the taking of nests or eggs belonging to migratory birds
- Prohibits, without a permit, the selling of killed migratory birds

National Parks Act

- Prevents the hunting, disturbance or confinement of certain species within a National Park
- Prevents the possession of these species originating from a National Park

Species at Risk Act (SARA)

- Protects species at risk that have a Federal designation
- Prohibits the killing of species at risk on Federal lands as well as aquatic species at risk and migratory birds at risk
- Encourages habitat stewardship for nationally designated species at risk

WAPPRIIT Act (CITES)

- CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) falls under the WAPPRIIT Act (Wild Animal and Plant Protection and Regulation on International and Interprovincial Trade Act)
- Protects some species by restricting their trade and the trade of their parts
- Ensures that species are not exported from a jurisdiction contrary to any laws of that jurisdiction
- Requires permits for the import and export of these species or their parts

Legislation & Policies Indirectly Protecting SAR

Provincially

- Lakes and Rivers Improvement Act
- St. Lawrence Parks Commission Act
- Conservation Authorities Act
- Provincial Parks Act
- Public Lands Act
- Wetland Policy

Municipally

- Zoning
- By-laws

Federally

- Fisheries Act
- Environmental Assessment Act

Lakes & Rivers Improvement Act

- Prevents the construction of dams without the approval of MNR
- Considers fish and near-shore habitat

St. Lawrence Parks Commission Act

- Allows for the protection of natural areas (as Parks), which may contain SAR
- Allows the St. Lawrence Parks Commission to control activities on its land

Conservation Authorities Act

- Allows a Conservation Authority to control development in its watershed, indirectly protecting SAR from unauthorized destruction of waterways
- Allows for the protection of natural areas (as Conservation Areas), which may contain SAR

Provincial Parks Act

- Prevents the damage or removal of all wildlife within a Provincial Park
- SAR and their habitats are considered during park planning

Public Lands Act

- Could allow MNR to deny public access to a portion of public land if the access might have a negative environmental impact (which could include impact on rare species)

Wetland Policy

- Not an Act, but a policy that can be applied through various Acts
- Protects most wetlands categorized as provincially significant (PSW), as determined by a scoring system through MNR
- Indirectly protects any rare species found within a PSW

Fisheries Act

- Serves to protect waterways (therefore fish habitat) from pollution, obstruction, and destruction
- Would indirectly protect SAR species such as Cutlips minnow, River redhorse, Spotted turtle, Eastern spiny softshell turtle, Map turtle, Blandings turtle, and Stinkpot turtle

Environmental Assessment Act

- Ensures that activities, plans, proposals, and programs carried out by public bodies or municipalities are subject to an environmental assessment
- An environmental assessment generally considers rare species

Effect of SAR Protection on the Private Landowner

- Acts applying on private land include:
 - Endangered Species Act
 - Fish and wildlife Conservation Act
 - Planning Act
 - Migratory Birds Convention Act
 - CITES
- It is MNR's responsibility to ensure that private landowners are aware of protected species on their land (although municipalities also share some of this responsibility)

If you have SAR species on your property...

- If you think you have SAR species on your property, contact MNR for confirmation
- MNR or other organizations may be able to help you (even financially) to protect and improve SAR species habitat
- If you have endangered or threatened species on your property, make sure that you contact MNR before you rezone, alter, or build on your land
 - This will ensure that no legal action can be taken against you under the Endangered Species Act or Planning Act
 - MNR staff will help you undertake your activity in a way that will not contravene the Acts mentioned above

Where to Get Information

- Provincial Acts – www.e-laws.gov.on.ca
- Federal Acts – <http://laws.justice.gc.ca>
- Information on Ontario's SAR – www.mnr.gov.on.ca/en/Business/Species/index.html



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Species at Risk

Module 5

Landowner Options and Incentives for Protecting SAR

*Assistance for this project was provided by the Ministry of
Natural Resources.*



Table of Contents

- Why private landowners are crucial to the survival of SAR
- How you can help
- CLTIP and MFTIP
- Stewardship fund
- Ecological gifts (conservation easements, land donations)
- Examples of help for specific SAR

Why Private Landowners are Crucial to the Survival of SAR

- Eastern Ontario consists of over 93% private land
- Private landowners can control what does and does not occur on their land
- The actions of private landowners are critical to whether these species continue to exist

How to Preserve SAR on your Land

General ways to help

- Look for and report rare species to MNR
- Leave portions of your property in a wild state
- Request that wetlands be evaluated by MNR, so that they may receive some degree of protection from development pressures
- If you have endangered species on your property, request to be part of the Conservation Land Tax Incentive Program (CLTIP), or look into rezoning your land or creating a conservation easement
- Manage your forest for rare species

SAR Stewardship Fund

- March 2007, Ontario government announced \$18-million, 4-year SAR Stewardship Fund to encourage and support public stewardship activities.
- Open to individuals & groups across the province including any who undertake eligible protection and recovery activities (landowners, farmers, Aboriginal peoples, education or research institutions, conservation organizations, industries, municipalities, stewardship councils).

Conservation Land Tax Incentive Program (CLTIP)

- You may be eligible for the CLTIP if you have endangered species on your property
- The CLTIP ensures a property tax reduction for the portion of your land containing endangered species' habitat
- To remain eligible, you must maintain the species' habitat on your property
- Talk to MNR staff if you think you are eligible for CLTIP

Managed Forest Tax Incentive Program (MFTIP)

- You are eligible for the MFTIP if you have forest land on your property, and you prepare (or have prepared for you) an approved forest management plan
 - The plan must follow MFTIP guidelines
- The MFTIP program qualifies you for a tax reduction on eligible forest land
- You can help SAR indirectly through an appropriately managed forest

Ecological gifts

Conservation easement

- Is a process by which you can permanently preserve your land in its current state, even after you move
- Is a binding agreement with an organization such as the Nature Conservancy Canada, Ontario Heritage Foundation, or a local Land Trust to preserve the environmental value of a piece of land
- The landowner receives a tax receipt for the difference between the appraised fair market value and the newly assessed value of the land

Land Donation

- The landowner can donate land to the Nature Conservancy of Canada, a local Land trust such as the Rideau Waterway Land Trust, or another qualified organization.
- The landowner receives a tax receipt for the appraised fair market value of the land.

How to help Black Ratsnakes

You may have Black ratsnakes on your land if...

- you or your neighbours have seen the snakes in the area
- your property is suitable habitat
 - It is rocky with a mix of forest and field habitat
 - It contains dead trees and piles of woody debris

How to help Black Ratsnakes

- report sightings to MNR
- Reduce driving speed, especially in spring and fall
 - Snakes are often run over as they bask on the warm road
- Support an 'adopt a snake' program
 - Donations help local parks with snake conservation projects
- Create piles of woody debris
 - Snakes use these for protection and to find prey

- Create a compost pile, but don't turn it over in July and August
 - Female snakes may use the pile as an egg-laying site
- Leave potential habitat alone
 - They use rocky areas to hibernate
 - They use hollow trees and logs to lay eggs, bask and shed
- Avoid using garden fencing that the snakes could get stuck in
- Educate friends and neighbours to eliminate their fear of snakes

How to help other SAR

Deerberry

- Leave it alone
- Manage land for Deerberry (eg. Burning)
 - Ask MNR for an appropriate management plan

American ginseng

- Do not harvest wild ginseng
- Do not tell others about ginseng locations
- Watch for trespassers who may be harvesting ginseng on your land
- Manage your forest to protect ginseng
 - Ginseng prefers rich, mature, deciduous forests with a high percentage of canopy closure



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Species at Risk

Module 7

Recovery Projects



Assistance for this project was provided by the Ministry of Natural Resources.

Black Ratsnake Recovery



Black Ratsnake Nest Boxes



Black ratsnake nest boxes
by Leeds County
Stewardship Council -
Contact: Martin Streit,
martin.streit@ontario.ca,
613-342-8526

Butternut Surveys



Butternut surveys by
Rideau Valley
Conservation Authority –
Contact: Rose Fleguel,
rose.fleguel@rideauvalley.on.ca, 613-258-3678

Bald Eagle Nesting Platforms



Bald eagle nesting
platforms by Leeds
County Stewardship
Council - Contact: Martin
Streit,
martin.streit@ontario.ca,
613-342-8526

Deerberry Recovery



Photo: Parks Canada/SLINP

Deerberry reintroduction
program by St. Lawrence
Islands National Park –
contact: Chris Bellemore,
chris.bellemore@pc.gc.ca,
613-923-5261

Loggerhead Shrike Recovery



Loggerhead shrike recovery projects
by Wildlife Preservation Canada –
Contact: Ellen Reinhart,
admin@wildlifepreservation.ca, 1-
800-956-6608

Thank you!



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