

31 Endangered Species in South Frontenac

Delight and Concern

Overview

- Ontario is home to an estimated 30,000 species of plants, animals, fish, birds and invertebrates
- The Endangered Species Act, 2007, came into force June 30, 2008.
- Funding made available to protect species, their habitat, and manage recovery programs.
- As of Sep. 2009 the expert panel identified 202 species “at risk”, up from the original 174.

Endangered Species Act, 2007

Prohibition on killing, etc.

9. (1) No person shall,

- (a) kill, harm, harass, capture or take a living member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species;
- (b) possess, transport, collect, buy, sell, lease, trade or offer to buy, sell, lease or trade,
 - (i) a living or dead member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species,
 - (ii) any part of a living or dead member of a species referred to in subclause (i),
 - (iii) anything derived from a living or dead member of a species referred to in subclause (i); or
- (c) sell, lease, trade or offer to sell, lease or trade anything that the person represents to be a thing described in subclause (b) (i), (ii) or (iii). 2007, c. 6, s. 9 (1).

Penalties

40. (1) A person convicted of an offence under this Act is liable,

- (a) in the case of a first offence under this Act,
 - (i) to a fine of not more than \$1,000,000, in the case of a corporation, or
 - (ii) to a **fine of not more than \$250,000 or to imprisonment** for a term of not more than one year, or to both, in the case of any other person;
and
 - (b) in the case of a second or subsequent offence under this Act,
 - (i) to a fine of not more than \$2,000,000, in the case of a corporation, or
 - (ii) to a fine of not more than \$500,000 or to imprisonment for a term of not more than one year, or to both, in the case of any other person.
- 2007, c. 6, s. 40 (1).

News Release

Toronto Man Sentenced To Jail Under Species At Risk Act

SARNIA, Ont. -- August 5, 2009 -- Pak Sun Chung of Toronto, Ontario, pleaded guilty yesterday in the Ontario Court of Justice – Sarnia/Lambton Court on two counts of unlawfully capturing Blanding's turtles and a spotted turtle contrary to the *Species at Risk Act*. *Mr. Chung was apprehended with 26 live Blanding's turtles and one spotted turtle. He was sentenced to **nine months in jail and given three years' probation. "Today's decision demonstrates that environmental enforcement works," said Environment Minister Jim Prentice. "Protecting and preserving Canada's natural treasures is a high priority for our Government." Mr. Chung was arrested on August 23, 2007 in a joint operation by Environment Canada and Ontario Ministry of Natural Resources officers. He was charged with the unlawful capture and unlawful possession of the turtles, which were taken from the waters of the Walpole Island First Nation.***

Kung Wing So of Toronto, who was arrested with Mr. Chung, **was fined \$10,000 and given three years' probation on September 10, 2008.**

Of the 202 Species Listed

South Frontenac has 31:

- 15 can fly (13 birds, the Monarch and the Virginia White butterflies)
- 4 are fish
- 2 mammals: Cougar/Puma/Mountain Lion and Grey Fox
- 2 plants: Butternut tree and American Ginseng
- Milksnake, Ribbonsnake and Ratsnake
- 4 turtles, and the Five-Lined Skink

Definitions in the Act

- Extirpated – no longer exists in the wild in Ontario, but still exists elsewhere.
- Endangered – facing imminent extinction or extirpation.
- Threatened – at risk of becoming endangered.
- Special Concern – may become endangered or threatened because of a combination of biological characteristics and identified threats.

Blanding's Turtle

1. Medium size (20cm/8inch). Recognizable by high-domed “helmet-shaped” shell with yellow flecks. Yellow under chin and neckline. Underside of shell mainly yellow.
2. Poor swimmers, live in shallow wetlands. Travel up to 1km. for mating and nesting.
3. Feed on aquatic insects, molluscs, snails, crayfish and vegetation.
4. 7-11 elongated eggs laid in June, hatch in August.
5. Don't begin to mate until age 15, adult at 20. Anticipated life-span of 80 years.

Status: Threatened

Verified in South Frontenac (e.g. Bedford Road near Salmon Lake Road) 2009



ROM



Tom Herman



J. McKinnon

Snapping Turtle

1. Largest turtle (45cm/18inch). Recognizable by dark, often mossy, shell with serrated rear edge. Has a long neck, powerful jaws, long tail.
2. Poor swimmers, prefer to walk on bottom of large water bodies.
3. Feeds primarily on carrion, will eat some slow-moving aquatic life, and some vegetation.
4. Only adults (at least 15 years old) leave the water for mates. Nest in May and June. **Often on the roads.**
5. Up to 40 round eggs are laid in gravel or sand. Eggs hatch in Aug./Sept. Young leave nest en masse.
6. May snap if disturbed on land. Do not drive over turtles, **they may snap at vehicle chassis and break their jaws.**

Status: Special Concern

Verified in South Frontenac (numerous)



Jim Harding



Northern Map Turtle

1. Females (27cm/11inch) , Males (13cm/5inch)
Dark green shell and skin. Head and neck covered with yellow stripes and spots.
Serrations on the rear 1/3 of the shell.
2. Good swimmers, prefer large water bodies.
Bask on logs or rocks near water's edge.
3. Females feed primarily on molluscs and have larger jaws. Males eat insects, crayfish, and vegetation.
4. 10-12 elongated eggs are laid in gravel or sand in June, hatch in Sept.

Status: Special Concern

Verified in South Frontenac (numerous)



ROM



Eastern Musk / Stinkpot Turtle

1. Smallest of our turtles (13cm/5inch). Brown shell with black flecks. Two light stripes on either side of the head.
2. Slow swimmers; lives in shallow, swampy areas, walks on bottom. Rarely leaves water. Sometimes nocturnal in summer.
3. Feeds on aquatic insects, molluscs, snails, crayfish and carrion.
4. Prefers to nest in muskrat holes, but will use leaf litter or under rotting logs. Lays 2-5 hard-shelled elongated eggs.
5. If handled, may produce musky smell.

Status: Threatened

Verified in South Frontenac (e.g. on Little Long Lake Road) 2009



James Kamstra



Jim Harding



ROM

Five-Lined Skink

1. Ontario's only lizard. (20cm/8inch) Black or grey with 5 white or yellow lines. Juveniles have bright blue tails. Colours fade with age.
2. Lives in woodlands or rocky areas. Needs sand or rocks to hide and hibernate.
3. Often seen basking in the sun.
4. Fast and agile; feed on insects, worms and other invertebrates, aggressively chases as needed.
5. Feeds on insects, frogs, small fish, worms.
6. Lays 6-10 small white eggs in June in rocks or by a log. **Female** guards them until they hatch in late summer.

Status: Special Concern

Verified in South Frontenac Bedford Road 2005



ROM



Milksnake

1. (90cm/35in.)
2. Sometimes found near human habitation. Slightly resembles rattlesnakes. Grey or brownish grey background with large and small reddish-brown splotches. V or Y shaped mark on top of head. Our only reddish snake.
3. Prefers meadows, forest edges, cultivated areas and farms. Will enter/overwinter in underground rock formations and may therefore enter basements.
4. Constrictor, feeding on rodents, frogs, birds and other snakes. Nocturnal.
5. May bite if handled, but are NOT venomous. May vibrate tail tip if agitated.
6. Lays 6-20 elongated eggs under logs on in stumps (and other humid areas). Hatchlings are 20cm.

Status: Special Concern

Verified in South Frontenac



Eastern Ratsnake

1. Canada's largest. (200 cm/72in.)
2. Prefers "edges" between fields and forests.
3. Found in hollow logs or rock crevices. Seen basking on roads or rocks.
4. Readily climbs trees to hunt or avoid predators.
5. Eats rodents, frogs, birds and snakes.
6. NOT venomous
7. Preyed upon by raccoons and hawks
8. Declining due to road death, habitat loss.

Status: Threatened

Verified in South Frontenac

Jason Poston



Eastern Ribbonsnake

1. (45-130cm/18-40in.)
2. Resembles a very slender Common Garter Snake but with much longer tails (making up 1/3 of their body). Stripes are very well defined, change colour with season and age. Light spot ahead of eye.
3. Semi-aquatic, almost always in wet areas. Basks in trees and bushes. Swims “on top” of water.
4. Eats insects, worms, frogs, salamanders, and small fish.
5. NOT venomous.
6. Give birth to 5-20 live young mid-summer.

Status: Special Concern

Verified in South Frontenac



ROM



How to Help the Turtles and Snakes

- Do not run them over.
- Don't let your pets or children harm them.
- Help them off the roads (in the direction they were going).
- New turtle nests can be protected by chicken wire. Use a large mesh size! Alternatively, remove after a month (predation less likely).
- Help the hatchlings to the water.

Channel Darter

1. (34-72mm/1.5-3in.) This fish is part of the Perch family.
2. Found in streams and rivers flowing into Lake Ontario with sand, gravel and rock bottoms.
3. Eats insect larvae, algae.
4. Threatened by sedimentation, new dam projects, the foreign Round Gobi.

Status: Threatened

Range includes South Frontenac



Bridle Shiner

1. (50mm/2in.) Only minnow with prominent body-length black stripe.
2. Prefers clear, still water with silt or silt/sand bottoms with abundant vegetation.
3. Eats mainly zooplankton and insect larvae. Fed on by larger game fish.
4. Largest threat is habitat destruction from heavy boating, clearing of shoreline vegetation, and high turbidity from fertilizer/septic system runoff.

Status: Special Concern

Range includes South Frontenac



Lake Sturgeon

1. Specimens caught have reached 3meters (10ft.), 180kg. (400lb), 150 years of age (Lake of the Woods).
2. Pre-historic fish, fossilized over 100 million years.
3. Found in large lakes and rivers, depths 5-10 meters.
4. Spawns in fast-flowing creeks with clay, sand, and gravel bottoms up to 5meters deep. Mature at 18-20 years.
5. Bottom-feeder. Eats crustaceans, larvae, small fish, roe.
6. No predators. Commercially fished over 100 years.
7. Largest threats are over-fishing, turbines, dams and contaminants (including nutrient overloading).

Status: Threatened

Range includes South Frontenac

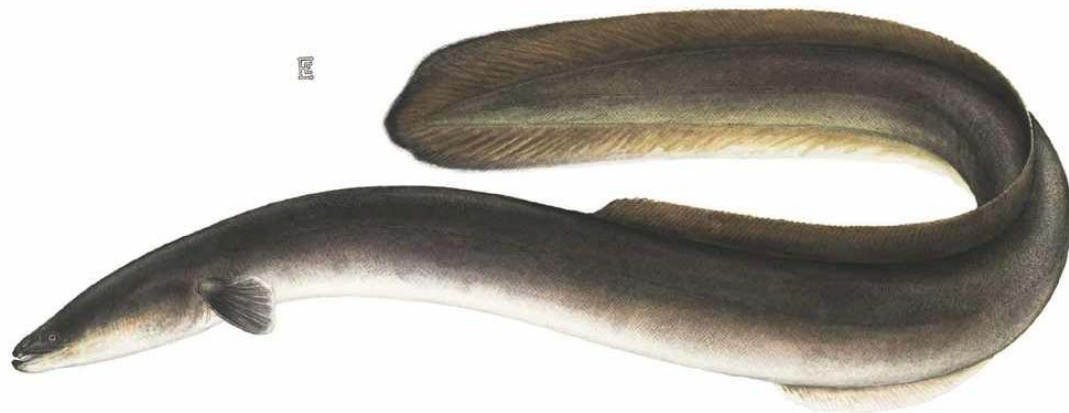


American Eel

1. (1m/3ft.), 1.5kg.
 - Not to be confused with invasive sea lamprey which attach to other fish.
2. Spawns in the Atlantic Ocean, drifts until it encounters fresh water streams, then enters them. Matures in fresh water for up to 25 years and then returns to Atlantic Ocean (east of Florida) to spawn and die.
3. Formerly commercially harvested, but yields dropped 95% (from 227 metric tons to 14) in just 25 years. Fishery closed 2003.
4. Nocturnal. Eats carrion, invertebrates, insects, smaller fish.
5. Hides in gravel or mud close to shore in 2 meter deep water.
6. Threats are over-fishing, turbines, dams, and increased predation due to the invasive zebra mussels.

Status: Endangered

Range includes South Frontenac



American Ginseng

1. Long-lived, slow-growing perennial herb found in rich, moist deciduous forests.
2. An important herb to the First Nations' culture.
3. Very popular supplement. Better aroma and taste; superior to Oriental Ginseng.
4. Several metric tons are cultivated in Ontario (near Simcoe) for export to Asia. Collected in the wild (by permit) in eastern USA states.
5. Endangered due to harvesting, forestry and competition from planted Oriental Ginseng.

Status: Endangered in the wild

Verified in South Frontenac



Donald Kirk

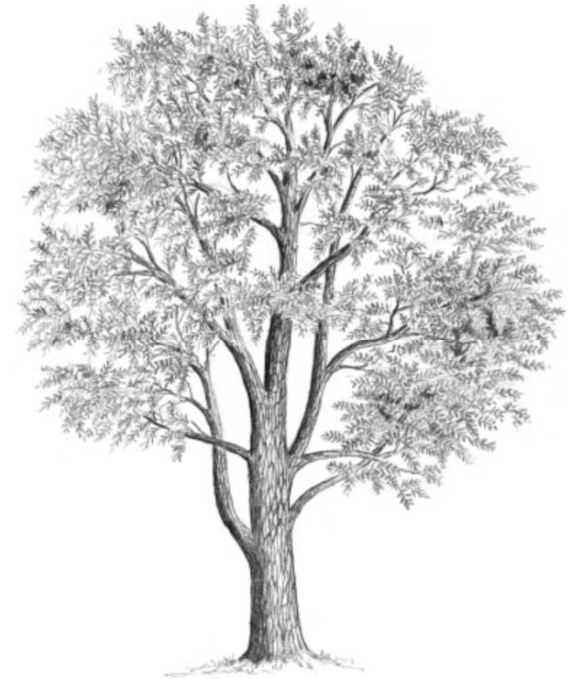


Special Alert – Butternut

1. Medium-sized tree, scattered individuals. Normally in mixed hardwood forests, does best in open areas.
2. Produces edible nuts in the fall. Only Butternuts over 20 years old produce seeds.
3. Roots produce juglone, inhibiting growth of other plants in the area.
4. A foreign fungus, the Butternut Canker, is infecting and killing Butternuts throughout North America. Black, sometimes oozing, white surround.
5. There is no cure.
6. Those few which are immune to the blight will be grafted on Black Walnut and cross-bred to attempt to re-establish the population over the next decades.
7. **The MNR has Butternut Assessors on call – please report.**

Status: Endangered

Verified in South Frontenac



West Virginia White

1. (32-40mm,1.5-2in.) Wings are translucent white.
2. Found in rich, moist, undisturbed deciduous woods.
3. Weak flyer. Erupts in May and early June.
4. Larvae feed exclusively on the leaves of toothwort, which is declining due to invasion of garlic mustard.
5. Adults feed on flower nectar especially from toothworts, spring beauty, and violets.
6. Eggs are laid singly on undersides of toothwort leaves.

Status: Special Concern

Likely in South Frontenac (verified in Sharbot Lake)



Brian Boyle, ROM



Monarch Butterfly

1. (9-10cm/4in.) Males have two black spots (androconium) to emit pheromones.
2. Found in fields, roadsides, parks and gardens.
3. Eggs are laid on undersides of milkweed leaves.
4. Larvae feed exclusively on milkweed leaves, eating for 2 weeks, in cocoon for 2 weeks.
5. Adults feed on nectar. Noxious to birds.
6. Early adults live two months, later ones up to seven months. Migrate en masse, taking several generations to overwinter as far south as Mexico.
7. In the spring the pregnant migrants fly north as far as necessary to find milkweeds, lay eggs and then die.
8. At risk due to milkweed eradication, severe weather in over-wintering areas (Texas, California, Mexico), and Mexican deforestation.

Status: Special Concern

Observed in South Frontenac



Viceroy, 2cm smaller, has black stripe

How to Help the Butterflies

- Don't mow, cut, or burn their food sources and breeding plants.
- Build a garden that produces nectar.
- Do not use pesticides.
- Keep your pets away from their food sources.
- Puddling - Drive carefully near shallow mud puddles in mid-summer.

Yellow-Breasted Chat

1. (18cm/7 ½ in.) Largest of the Cdn. wood warblers.
2. Found in hedgerows, forest edges, and dense thickets usually near water.
3. More heard than seen. Loud and distinctive whistles, clucks, chatters and squawks – sometimes at night.
4. Make large nests in small trees (e.g. trembling aspen) and thickets that are usually very difficult to observe due to thickness of brush and brambles.
5. Uniquely, it can be seen holding food (insects and berries) with its feet.
6. Arrives mid-May, leaves late Sep.
7. Endangered due to nest predation, esp. Brown-headed Cowbirds.

Status: Special Concern

Verified in South Frontenac (Gould Lake)



Arthur Morris



Royal BC Museum

Least Bittern

1. (28-35cm/11-14in.) Smallest of the herons.
2. Normally live in large marshes (5ha. or larger) with dense cattails and bulrushes beside open water.
3. Builds well-concealed platform nests, laying 4 or 5 eggs. Often two broods/season.
4. Eat fish and insects. Regurgitate for their young.
5. Night: listen for dove-like call late Apr. to early June. Leaves late-Aug. to mid-Sep.
6. Declining due to recreation (e.g. seadoos) and habitat loss.

Status: Threatened

Regularly observed in South Frontenac (Sydenham Lake)



Kevin T Carlson



Chimney Swift

1. (13cm/ 5in.) Dark bodies, lighter undersides.
2. Superb fliers, spend most of the day flying after insects. Mistaken for swallows. Hunt in groups, chirping as they go. Gregarious.
3. Distinctive flight: very fast and turn very sharply.
4. Incapable of perching; their legs are too short.
5. Prefer to nest on vertical surfaces, in shaded areas, chimneys are #1 choice. Also hollow trees. They use saliva to glue twigs together.
6. Lay 3-7 eggs. Can have two broods/season.
7. Arrives late April, leaves late Aug. to mid-Sep.
8. Declining due to loss of masonry chimneys, switch to natural gas, insecticide use.

Status: Threatened

Verified in South Frontenac



Red-headed Woodpecker

1. (19-23cm/9in.) Unmistakable. Juveniles have a brown head and brown on the white wing patches.
2. Nests in cavities (2.5m to 25m high) in dead trees and utility poles in open woods and field edges.
3. Eats bark, seeds, nuts, berries, insects, nestlings, eggs, and mice. Will eat from ground, on trees, and in flight. Mainly vegetarian.
4. Lays 4-7 eggs. Can have two broods/season.
5. Arrives early May, leaves by early Oct. Some over-winter.
6. Declining due to competition for nest holes (especially from European Starlings), reduction in oak trees, the introduction of creosote, forest regeneration, and car collisions.

Status: Special concern

Verified in South Frontenac



King Rail

1. (38-48cm/15in.) Only a **few dozen** breeding pairs.
2. Found in shallow, dense marshes with very particular variety of plants and topology. Secretive. Difficult to flush.
3. Mainly forages on water for aquatic insects and crustaceans. Will eat aquatic vegetation.
4. Builds nest on marsh grass just above the water line, hiding under canopy of bent stalks.
5. Can be heard calling late April to mid May in early morning and evening. Leaves late August
6. Declining due to water pollution, habitat loss (Both Ducks Unlimited and Bird Studies Canada assisting)

Status: Endangered

Verified in South Frontenac (Murton)



Short-eared Owl

1. (34-43cm/13-17in.)
2. Found in open areas – marshes, grasslands.
3. Roosts on the ground, often in groups. May lay up to a dozen eggs. 3-5 weeks incubation, 4 weeks until fledged. One brood per year.
4. Leads predators away by faking broken wing.
5. Mainly eats rodents (esp. voles), hunting in very low, bouncy, back-and-forth flights, often with others. Will also take insects and small birds.
6. Arrives early May, leaves Sep. Some over-winter.
7. Declining due to habitat loss and cats.

Status: Special Concern

Verified in South Frontenac



Mark Peck



Canada Warbler

1. (13cm/5 ¼ in.)
2. Prefers mature forests, esp. cool moist areas.
3. Feeds in on ground, understory, and on wing.
4. Eats insects, spiders, worms, snails, fruit.
5. **Females** build the nest on or near ground in very dense cover near water. Lays 2-6 eggs. **Female** incubates.
6. Arrives mid-May. Leaves mid-Aug.
7. Declining due to nest parasitism by Brown-headed Cowbirds.

Status: Special Concern

Verified in South Frontenac



David Speiser

Cerulean Warbler

1. (12cm/4 $\frac{3}{4}$ in.)
2. Prefers open canopies of mature, deciduous, continuous forests.
3. Feeds in understory, and on wing.
4. Eats insects mainly.
5. Cup-like nests built on hardwood limbs up high early June.
6. Arrives mid-May. Leaves mid-Aug.
7. Declining due to forest fragmentation and nest parasitism by Brown-headed Cowbirds.

Status: Special Concern

Verified in South Frontenac, e.g. Otter Lake



Brandon Holden



Golden-winged Warbler

1. (11-13cm/5 in.)
2. Found in **new** open areas: field edges, hydro right-of-ways, logged areas.
3. Nests on or near ground. Lays 3-6 eggs, whitish with brown streaks at large end.
4. Acrobatic flier.
5. Forages in top half of trees and shrubs. Eats insects and spiders.
6. Arrives early May, leaves late Aug.-Sep.
7. Declining due to hybridization with Blue-winged Warbler (Brewster's / Lawrence's), cats, and nest parasitism by Brown-headed Cowbirds.

Status: Special Concern

Verified in South Frontenac



Isidor Jeklin

Common Nighthawk

1. (22-27cm/9-10 in.)
2. High flier, catches insects in acrobatic flight. Nocturnal. Feeds at dawn and dusk, sometimes in bright moonlight.
3. Males make impressive mating flights ending with a “boom” at dive end.
4. Lays 2 eggs on ground in open areas, especially burned ground. Also on urban flat, gravel roofs. Doesn’t build a nest.
5. May sleep on tree limbs or on ground.
6. Arrives early May, leaves late Aug.-Sep.
7. Declining due to nest predation

Status: Special Concern

Verified in South Frontenac



Jim Scharff



Dr. Dan Sudia



Whip-poor-will

1. (22-27cm/9-10 in.) Whiskered.
2. Catches insects in flight and on the ground in leaf litter. Extremely quiet flier. Red eyes. Flight resembles a moth.
3. Nocturnal. Rarely seen. Unmistakable call.
4. A bird of deciduous and mixed forests with little underbrush (deer woods).
5. Nests on ground, but doesn't build one.
6. Lays 2 eggs, creamy white with dark and olive spots. Often 2 broods.
7. Very difficult to flush. Carries chicks.
8. Arrives mid-April, leaves late Sep.-Oct.
9. Declining severely due to predation by cats and dogs, habitat loss.

Status: Threatened

Verified in South Frontenac



Loggerhead Shrike

1. (22cm/9 in.)
2. Inhabits open grassland with scattered shrubs and trees. E.g. Abandoned fields.
3. Perches on posts, bushes, trees and wires scouting for food. Swoops in for the kill.
4. Eats voles, mice, crickets, dragonflies, snakes, grasshoppers, and small birds.
5. Uses natural and man-made spikes to kill, eat and store food.
6. Prefers to nest in hawthorns, red cedar, and spruce.
7. Arrives late March, leaves mid-Sep.
8. Declining due to habitat loss.

Status: Endangered

Verified in South Frontenac



Tom Hince



Louisiana Waterthrush

1. (15cm/6 in.)
2. Found in woodlands – prefers waterfalls and streams. Also found in swamps.
3. Hunts in water, preferably flowing. Wades, jumps for flying insects.
4. Nests near water in vertical banks, tree roots, rock crevices. Lays 4-6 eggs.
5. Arrives late April, early May. Leaves late Aug., early Sep.
6. Threatened due to forest loss.

Status: Special Concern
Verified in South Frontenac



Lloyd Spitalnik

How to Help the Birds

- Keep your cats indoors. Second best: on a leash or in a fenced enclosure.
- Do not allow your dogs to roam.
- Do not use pesticides.
- Check nests for Brown-headed Cowbird eggs and **remove them**.
- Avoid cutting down trees during the breeding season. Check shrubs before cutting.

Unwanted – the Brown-headed Cowbird

- Parasitic nester. Lays egg and abandons it.
- Eggs found in nests of 220 species in North America.
- Female lays one egg in each nest – for up to 40 days. Prefers nests with smaller eggs.
- Their hatchling is usually the first to hatch. It crowds out, and may kill the other chicks.



Grey Fox

1. Body 50-90cm/21-30in. Tail adds 30-40cm.
2. Prefers wooded and brushy areas, avoids farms and built-up areas.
3. Very strong climber. Only one of the dog family that climbs trees. Uses its jaw and claws. Leaps from branch to branch. Will hunt prey from trees.
4. Slow runner, maximum 50km/hour spurt.
5. Nocturnal. Solitary hunter. Omnivore.
6. 3-4 pups are born in spring, father provides food, but is not allowed in the den.
7. Family splits prior to winter.
8. Will cache food.

Status: Threatened

Range includes South Frontenac



Cougar/Puma/Mountain Lion

1. Body 1-2m./3-6 ft., tail adds 70-90cm.
2. Very elusive; sightings and encounters rare.
3. Dozens of reliable sightings across southern and near-northern Ontario, including scat, fur and trail signs.
4. Mainly feed on white-tailed deer, also take smaller mammals. Have attacked smaller humans (less than once annually in N.A.).
5. Lives in forests. Dens in crevices. Mates all year.
6. Males have 150-1000 sq. km. hunting range, females 65-500 sq km. Males have many mates, females one.

Status: Endangered

Probable sighting 2007 on Bedford Rd.



And Some Good News

Efforts by many organizations have stopped the declines, and even reversed them.

SF Natural Environment Committee

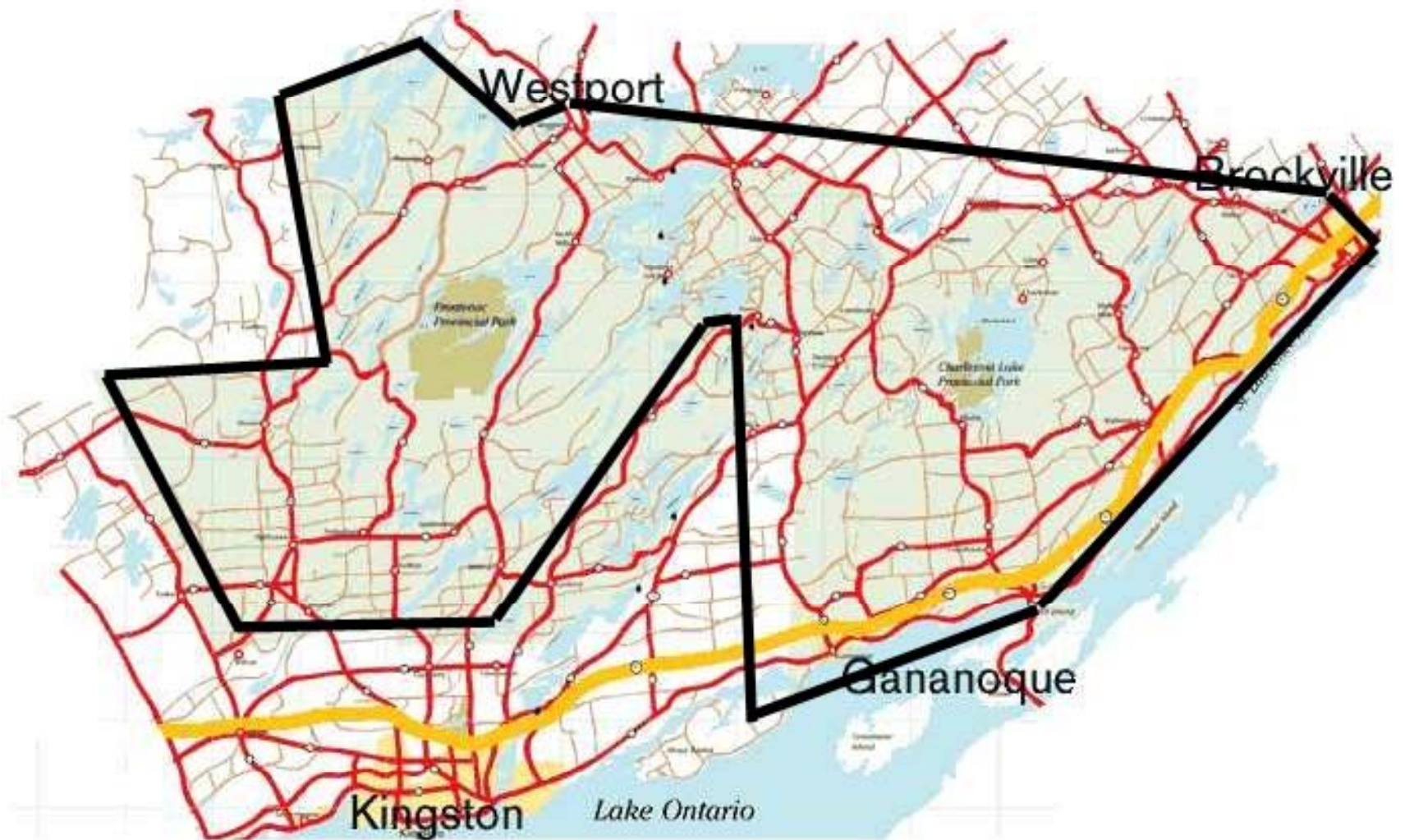
- 2500 Blue Bird boxes have been built, distributed and sold into the community. There is a significant increase in population.
- 10's of thousands of native species trees have been distributed and sold into the community.
- Road signs marking major turtle crossings have been purchased and erected.
- Support for **Pitch-In** road-side cleanup. (pitch-in.ca)
- Hosts continuing education public lectures.
- Lobbies for legislation and policy changes that strive to protect our environment.

Frontenac Arch Biosphere

- UNESCO designated, 2700 sq. km., connecting the Canadian Shield, Appalachians and the St. Lawrence. Wildlife corridor.
- Programmes (partners) for:
 - Education
 - Trails
 - Sustainable tourism
 - Species-at-risk study and protection
 - Sustainable agriculture
 - Shoreline protection
 - Recycling

Frontenac Arch Biosphere Reserve

(approximate boundaries)



Cataraqui Conservation Authority

- Gould Lake Conservation Area
- Purchased and manages Vandewal Forest in SF
 - Owns and manages 4000 hectares
- Reviews and approves development projects in regard to water source protection and significant habitats.
- Manages dams and flood control structures
- Developed and manages the Cataraqui Trail (former rail line)

Cataraquiregion.on.ca

Kingston and District Rod & Gun Club

- In co-operation with Ontario's Ministry of Natural Resources:
 - In 1992, on a cost-shared basis, trapped 18 Wild Turkeys in the USA and released them here. (Councilor Larry York worked with local farmers to overcome objections.) The population, which was wiped out locally by 1860, is once again thriving.
 - On a cost-shared basis, rears walleyes and releases them into local lakes.

Kingston Field Naturalists

- Purchased land near Frontenac Park, establishing the Quilliam Sanctuary.
- Manages hundreds of hectares of donated land in the Township and surrounding areas.
- Erects and maintains wood duck boxes.
- Leads field trips & rambles several times a month.
- Conducts species surveys several times a year.
- Educates the youth with projects and trips.

kingstonfieldnaturalists.org

Ontario Government

- Frontenac Provincial Park
- Many programs, legislation, education, assistance funds, and enforcement. E.g.:
 - Fishing & hunting limits and permits
 - Conservative officers
 - Fish rearing and restocking
 - Species re-establishment
 - Wildlife and plant research

mnr.gov.on.ca

Nature Conservancy of Canada

- Acquires ecologically significant land in southern Canada to maintain biodiversity.
- Owns and manages thousands of hectares in the Township.
- Surveys species in partnership with the MNR.
- Raises funds to purchase more lands.

NatureConservancy.ca

Government of Canada

- Many programs. Notable:
 - Water-way management
 - Funds for wetlands
 - Species at risk support
 - Invasive species prevention and mitigation

gc.ca

A Few Other Groups

- Ducks Unlimited Canada
 - Wetland purchase and restoration
 - Ducks.ca
- Animals In Peril Project
 - Education on animal conservation, with emphasis on amphibians and turtles
 - Herpitle101.weebly.com
- Scouts Canada
 - Otter Lake camp
 - Scouts.ca
- Queens University
 - Owns land, studies the biology

Archaeological Reality

- Species have been going extinct for millions of years through climate changes, atmospheric changes, plate tectonics, and meteor collisions.
- Our own species probably wiped out the Neanderthals at the end of the last ice age.
- North American natives exterminated the woolly mammoth.

Some species adapt to changed circumstances.

And, given time, new species emerge.

But the pace of change introduced by our numbers and technology can overwhelm nature's ability to change.

E.g. Nothing in nature digests plastic yet, and that waste is choking birds, turtles and other digestive systems throughout the food web.

Will our lives be richer or poorer?

Nature will survive, but not all

We can promote or destroy species

Our Choice