SAINT-ARMAND
SHORELINE OWNER'S HANDBOOK

GUIDE FOR THE VOLUNTARY CONSERVATION OF THE HABITATS AND BIODIVERSITY OF ROCK RIVER AND ITS TRIBUTARIES

Organisme de bassin versant de la baie Missisquoi

Amphibia -Nature

MARCH 2013

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Produced by

Organisme de bassin versant de la baie Missisquoi
and Amphibia-Nature

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Carte générale - Inventaires des espèces fauniques et floristiques. Secteur de la rivière de la Roche, Saint-Armand. 4

Upper reach of Ruisseau Brandy

Patrick Galois / Amphibia-Nature

THE PROJECT

The voluntary conservation project of the habitats and biodiversity of Rock River and its tributaries is part of a series of knowledge and data collection activities being carried out by the Organisme de bassin versant de la baie Missisquoi (OBVBM) and Amphibia-Nature. Its goal is to ensure the protection of the aquatic ecosystems and of biodiversity.

Inventories were carried out for the flora, herpetofauna (reptiles and amphibians) and avian fauna (birds), focusing on species that are threatened, vulnerable, or likely to be designated as threatened or vulnerable. Five intervention sectors are targeted by this project. The habitats were assessed using scientific protocols and the sites of interest for species with special status were recorded and mapped for each sector (see map on following page). Given the region's rich biodiversity, more inventories will be needed to complete the profile.

Flora inventories carried out by the Nature Conservancy at Étang Streit and by the Centre d'interprétation du milieu écologique du Haut-Richelieu on the hills of Saint-Armand were integrated into the document in order to provide a more complete portrait of the floristic diversity that can be found in the Rock River sector in Saint-Armand.

This document offers specific recommendations to ensure the protection of species with special status, and describes the voluntary conservation options available to owners who wish to ensure the long-term conservation of the biodiversity on their property.

Northern Two-lined Salamander (*Eurycea bislineata*)

© Patrick Galois / Amphibia-Nature

Intervention sectors:

Sector 1 - Chemin Pelletier Sud, from the U.S. border (wetland and forest surrounding Chemin des Chutes), Chemin Pelletier Sud up to the mouth of Ruisseau Brandy.

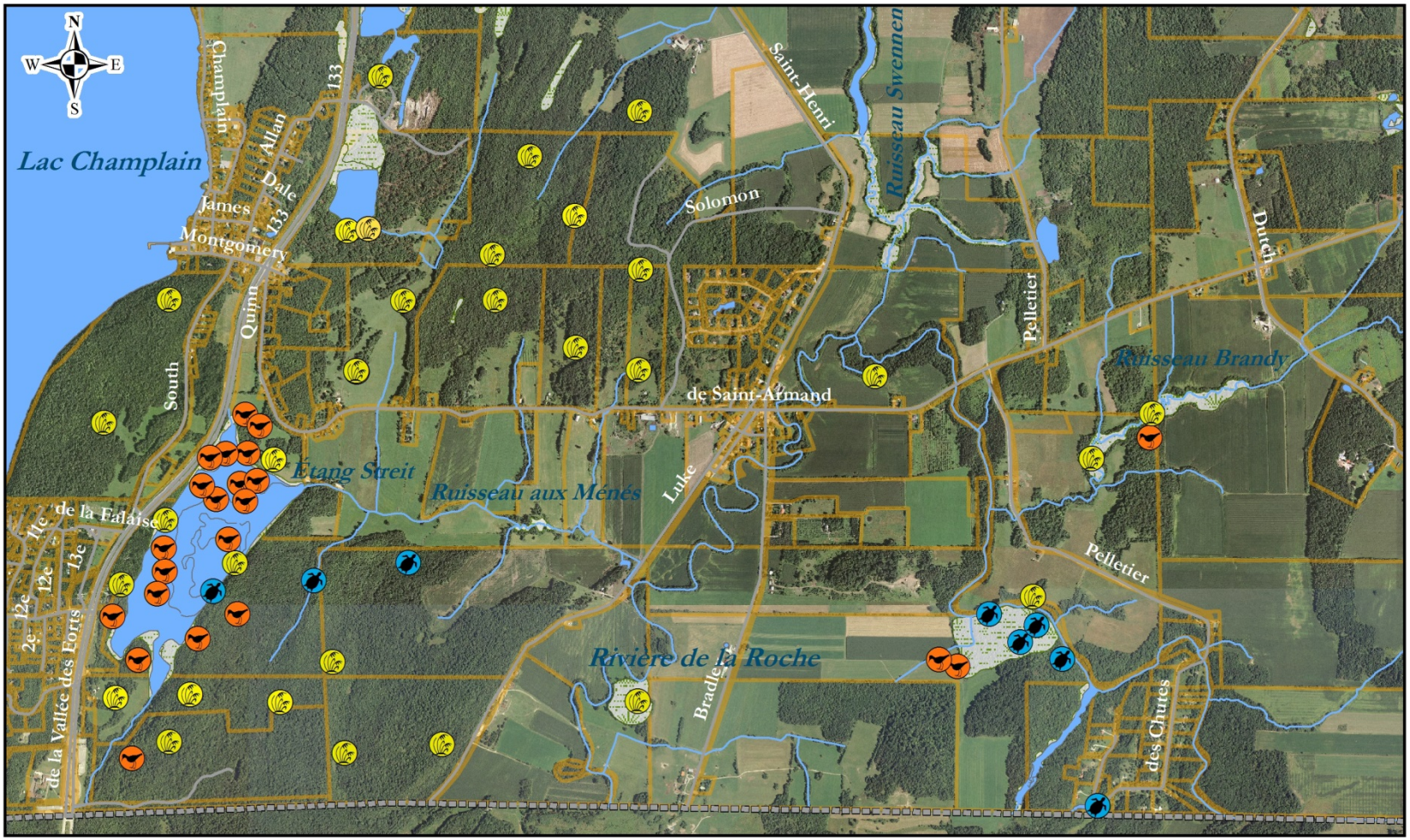
Sector 2 - Ruisseau Brandy, from the mouth of Ruisseau Brandy up to the junction with Chemin de Saint-Armand, and from Ruisseau Brandy (wetland) to the junction with Chemin Dutch.

Sector 3 - Ruisseau Swennen, up to 1 km upstream from Rock River, including the Ruisseau Swennen wetland.

Sector 4 - Chemin Luke, from Chemin de Saint-Armand up to the U.S. border, including the wetland between Chemin Luke and Chemin Bradley and a small section of Ruisseau aux Ménés.

Sector 5 - Étang Streit, from Ruisseau aux Ménés including the wooded section up to Étang Streit.

Carte générale - Inventaires des espèces fauniques et floristiques
Secteur de la rivière de la Roche, Saint-Armand



Légende

- Cours d'eau
- Milieu humide
- Route
- Limite de propriété
- Frontière

Espèces fauniques et floristiques

- Amphibiens - reptiles
- Oiseaux
- Flore

Projection : MTM8 NAD83

0 250 500 1 000 m

Source des données :
Amphibia-Nature, Conservation de la Nature,
J.-G. Papineau, A. Sabourin
BDTA (2002, 2003), BDTQ (2000),
MRC Brome-Missisquoi (2012),
Statistiques Canada (2008)

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ROCK RIVER

Rock River takes its source in Vermont, crosses the Canada–United States border, flows north and then turns back almost immediately to the United States to empty into Lake Champlain in the U.S. part of the Missisquoi Bay. In Quebec, it covers about nine kilometres and it drains a 55 km^2 watershed almost exclusively located on the territory of the municipality of Saint-Armand. Along its course, it collects the waters of Brandy, Swennen and Minnow (Ruisseau aux Ménés) brooks.

Rock River is known for frequently overflowing its banks, and is characterized by its numerous meanders, especially in the southeastern portion where it crosses the Canada–U.S. border. The transportation of sediments during flood periods causes significant damage and contributes to the water's poor quality.

A **meander** is a section of a very sinuous watercourse characterized by a concave bank (very steep slope) and a convex bank (gentle slope). By definition, a meander is conducive to bank erosion and eventually shifts the course of the water by force of lifting and depositing sediment.

Although agriculture plays a dominant role in this area, there are still many forests and wetlands in the southeastern section of the municipality which largely contribute in maintaining biodiversity.

Various proposals have been put forth to overcome these problems, including the concept of a river corridor, currently being considered for Rock River.

A meander in the southwestern portion of Rock River

A RIVER CORRIDOR FOR ROCK RIVER

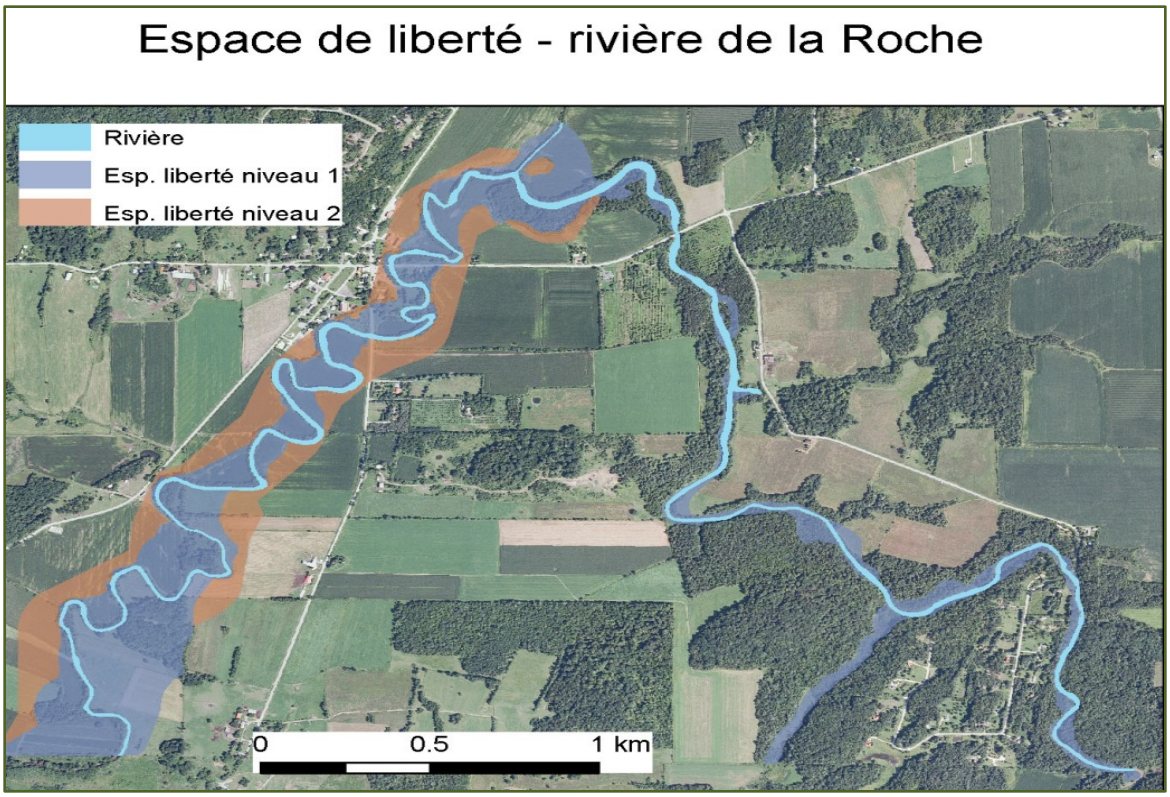
The notion of a river corridor is an integrated management concept for watercourse conservation in the context of climate change.

The river corridor identifies the watercourse's flood-prone and mobility areas, allowing the water to flow freely instead of confining it to a fluvial corridor shaped by anthropic interventions.

As part of a research project by Concordia University and the Ouranos consortium, the river corridor for Rock River was delimited according to the river's flood zones and natural movements.

The river corridor concept offers several benefits that merit consideration:

- Allows the river to migrate without causing damage to infrastructure
- Reduces problems of erosion and run-off to the watercourse
- Fosters biodiversity conservation
- Reinforces the resilience of the watercourse in the face of increased flow variations associated with climate change

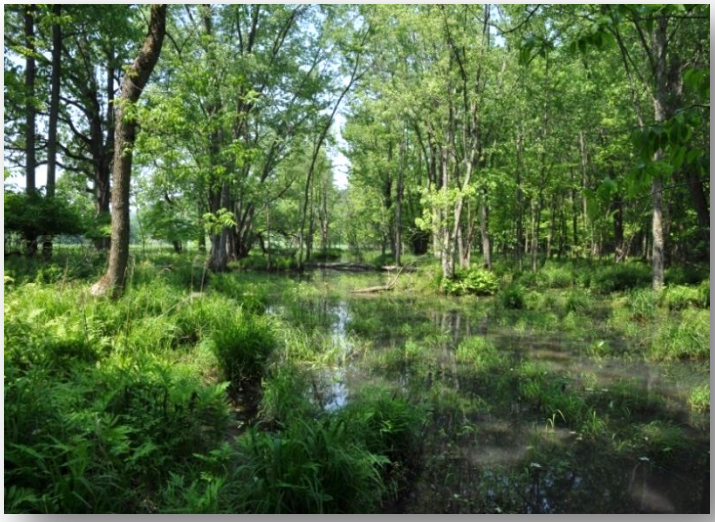


WETLANDS

Wetlands play a major role in regulating water levels, groundwater recharge and water filtration, as well as providing shelter and food for numerous species of fish, amphibians, reptiles, birds and mammals. According to Quebec legislation, wetlands include ponds, marshes, swamps and peat bogs.

Unfortunately, significant wetland loss has been observed in the Lower St. Lawrence region. These disturbances are tied in large part to land reclamation and agricultural practices as well as to urbanization. While it is true that wetland exploitation and conversion are contributing to the socio-economic development of Quebec, it is important to recognize that the deterioration of wetlands and cumulative wetland losses have disrupted the river and water systems and ecosystem functioning.

Wooded swamp near Chemin Luke



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In the last few years, the value of wetlands has been recognized and efforts are being made to protect these ecosystems. It is now acknowledged worldwide that wetlands, once perceived as unusable lands, play a crucial role in ensuring the perpetuity of a quality environment, owing to the many ecological functions they fulfil.

IDENTIFICATION OF WETLANDS IN THE ROCK RIVER SECTOR

There are still some wetlands along the tributaries of Rock River. Their importance, both for the protection of the species that live there and for the ecological goods and services they provide, is undeniable. As part of this project, inventories were carried out in the following wetlands:

- Wetland at the entrance of Rock River into Quebec
- Wetland near Ruisseau Brandy
- Wetland near Ruisseau Swennen
- Wetland between Luke and Bradley roads
- Étang Streit

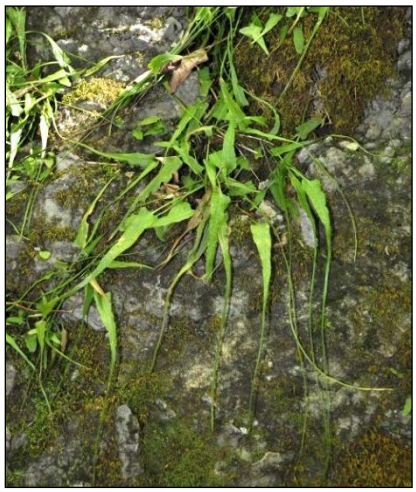
The plant inventories carried out for this project underscore the importance of preserving these wetlands in their natural state, in order to maintain their floristic diversity and to ensure the survival of the rare plants found there, in particular in the sites of Étang Streit and the Chemin Luke swamp.

Forest bog in the Pelletier Sud sector

© Patrick Galois / Amphibia-Nature

FLORA

Walking-fern spleenwort
(*Asplenium rhizophyllum*)



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Every plant or wildlife species has its own specific characteristics and is important, whether for its ecological, scientific, dietary, economic, medical, cultural or social value. With the *Act respecting threatened or vulnerable species*, the Ministère du Développement durable, de l'Environnement, de la Faune et des Parcs (MDDEFP) has committed to guaranteeing the preservation of all of Quebec's genetic diversity.

At the federal level, the Committee on the Status of Endangered Species in Canada (COSEWIC) is made up of specialists who assess the situation of wild species. The committee assigns species or certain populations a particular status: extinct, extirpated, endangered, threatened, of special concern, or not at risk.

A species is threatened when it is feared that it will become extinct. These species are identified in the *Regulation respecting threatened or vulnerable plant species and their habitats*. In Quebec, 78 plant species have been designated as threatened or vulnerable (57 species threatened, 12 vulnerable, and 9 vulnerable to harvesting). More than 500 species are considered likely to be designated as threatened or vulnerable.

For species designated as threatened or vulnerable, the general prohibitions referred to in section 16 of the *Act respecting threatened or vulnerable species* apply in their entirety. Their inventory is required for the analysis of any land use or property development project. With certain exceptions, the implementation of precautionary or mitigating measures is required.

In this project, three sectors stand out for their diversity and the presence of plants with special status:

The Chemin Luke swamp is the most interesting swamp characterized in the inventories. Its flora is the most diversified and untouched, while the forest, home to Silver Maple (*Acer saccharinum*) and Bur Oak (*Quercus macrocarpa*), is over 120 years old. Open water covers about 7% of the site.

Étang Streit is a vast grouping containing an area of open water surrounded by a marsh, including sedge meadows (associations of sedges, between the cattail marsh and the red ash woodland, at the western extremity). It is also characterized by the presence of numerous species of special status: for example, it is one of just three known Quebec occurrences of Awned Sedge. This site, rich in rare wetland plants, is therefore a very important sector to be preserved.

The Saint-Armand hills are characterized by the presence of many threatened and vulnerable plant species.

THREATENED, VULNERABLE AND LIKELY TO BE DESIGNATED AS THREATENED OR VULNERABLE

The Rock River sector in Saint-Armand contains several species that are threatened, vulnerable, or likely to be designated as threatened or vulnerable.

Official categories of COSEWIC and the MDDEFP

Endangered in Canada (E) : a wildlife species facing imminent extirpation or extinction.

Threatened (T) : a species that is likely to become endangered.

Vulnerable (V) : a species is considered vulnerable when its survival is at risk even though it is not likely to become endangered.

Vulnerable to commercial exploitation (VC) : plants vulnerable to commercial exploitation or harvesting are not rare plants, but plants that have commercial value on the market.

Likely to be designated as threatened or vulnerable (L) : a species is likely to be designated as threatened or vulnerable when the information available suggests that it is at risk and that it requires special attention.

Threatened species in Quebec

- American Ginseng (*Panax quinquefolius*) - Endangered in Canada
- Blunt-lobed Cliff Fern (*Woodsia obtusa*) - Endangered in Canada
- Putty-root (*Aplectrum hyemale*)
- Rock Elm (*Ulmus thomasii*)
- Round-leaf Ragwort (*Packera obovata*)
- Slender Muhly (*Muhlenbergia tenuiflora*)
- Wall Rue Spleenwart (*Asplenium ruta-muraria*)
- White Wood Aster (*Eurybia divaricata*) - Threatened in Canada.

Vulnerable species in Quebec

- Black Maple (*Acer nigrum*)
- Wild Leek (*Allium tricoccum*)

Species vulnerable to commercial exploitation in Quebec

- Maidenhair Fern (*Adianthum pedatum*)
- Ostrich Fern (*Matteuccia struthiopteris*)
- Wild Ginger (*Asarum canadenses*)

Species likely to be designated as threatened or vulnerable in Quebec

- American Hazel (*Corylus americana*)
- Appalachian Sedge (*Carex appalachica*)
- Awned Sedge (*Carex atherodes*)
- Bladdernut (*Staphylea trifolia*)
- Broad-leaved Hawthorn (*Crataegus dilatata*)
- Bulbous Bitter-cress (*Cardamine bulbosa*)
- Butternut (*Juglans cinerea*) - Endangered in Canada
- Bur-reed Sedge (*Carex sparganioides*)
- Clammy-weed (*Polanisia dodecandra*)
- Cream-colored Vetchling (*Latrhyus ochroleucus*)
- Cut-leaved Toothwort (*Cardamine concatenata*)
- Ebony Spleenwort (*Asplenium platyneuron*)
- Eastern Red-cedar (*Juniperus virginiana* var. *virginiana*)
- Great Plains Flatsedge (*Cyperus lupulinus* ssp. *macilentus*)
- Hanging Bulrush (*Scirpus pendula*)
- Hirsute Sedge (*Carex hirsutella*)
- Long-Spurred Violet (*Viola rostrata*)
- Michaux's Stichwort (*Minuartia michauxii*)
- Naked-flowered Tick-trefoil (*Desmodium nudiflorum*)
- Nodding Mouse-ear (*Cerastium nutans* var. *nutans*)
- Oval-headed Sedge (*Carex céphalophora*)
- Pokeweed (*Phytolacca americana*)
- Pringle's Aster (*Symphyotrichum pilosum* var. *pringlei*)
- River Bank Wildrye (*Elymus riparius*)
- Shagbark Hickory (*Carya ovata* var. *ovata*)
- Shield-Fern (*Dryopteris clintoniana*)
- Showy Orchis (*Galearis spectabilis*)
- Smooth rock Cress (*Boechera lævigata*)
- Swan's Sedge (*Carex swanii*)
- Shining Ladies' Tresses (*Spiranthes lucida*)
- Virginia Bugleweed (*Lycopus virginicus*)
- Walking-fern Spleenwort (*Asplenium rhizophyllum*)
- Wild Licorice (*Galium circæzans*)
- Wiry Witchgrass (*Panicum flexile*)
- Yellow Fruited Sedge (*Carex annectens*)
- Yellow Giant-hyssop (*Agastache nepetoides*)

A complete list of the species observed is provided in **Appendix 1** along with their status in Quebec and Canada.

DESCRIPTION OF THREATENED SPECIES

American Ginseng (*Panax quinquefolius*) : perennial herbaceous plant, growing from a spindly rhizome attached to a tuberous, often forked root. Initially designated a threatened species, its status was changed to endangered following a reassessment in 1999. American Ginseng is considered rare, threatened or heavily threatened in 21 of the 35 U.S. states where it is reported. In Quebec, the situation of American Ginseng is extremely precarious. **Endangered in Canada**.

American Ginseng (*Panax quinquefolius*)

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Blunt-lobed cliff fern (*Woodsia obtusa*)

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Blunt-lobed cliff fern (*Woodsia obtusa*) : perennial herbaceous plant, 10 to 30 cm high. Blade 2 to 10 cm wide, largely lanceolate, divided twice. Primary segments mostly distant; triangular at the bottom of the frond, oval-lanceolate or oblong at the middle and tip. Shade species tolerating light and needing limestone substrate to develop. In Quebec, only five occurrences of Blunt-lobed Cliff Fern have been recorded, including one historical mention where it has since disappeared.

Putty-root (*Aplectrum hyemale*) : perennial herbaceous plant, up to 50 cm high, stemming from a rounded tubercle (corm) 2 to 2.5 cm in diameter, in the orchid family. Climate, fragmentation and isolation of woodlands in agricultural areas as well as the species' complex biology are restricting its expansion in Quebec. Since 1998, as a threatened species, it has enjoyed legal protection in Quebec. Putty-root is also rare in Ontario, and is considered rare, threatened or heavily threatened in 12 of the 30 U.S. states where it is present. Since it is an orchid, its international trade is governed by the *Convention on International Trade in Endangered Species of Wild Fauna and Flora* (CITES).

Putty-root (*Aplectrum hyemale*)

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Rock Elm (*Ulmus thomasii*) (T) : also known as Cork Elm, this tree grows up to 25 m tall and 75 cm in diameter, and lives up to 175 years. To date, 79 occurrences of Rock Elm have been recorded in Quebec. Of this number, five no longer exist, and ten are historical (the last observations date from over 25 years ago). According to a recent inventory, there are a total of 4,000 Rock Elms in Quebec. The species is in decline, as is a significant part of its distribution area. Urban and agricultural development, quarrying, accidental cutting of individuals or forestry practices that are not conducive to the regeneration of the species are the main threats to this tree's survival. Two occurrences are found in protected areas and a third on a site recently acquired by a conservation organization.

Round-leaved Radwort (*Packera obovata*) (T) : perennial herbaceous plant, 20 to 50 cm high, with runners superficial or rhizomes; glabrous or slightly covered with hairs when young, occasionally a few hairs at the axil of lower leaves or in the inflorescence. In Quebec, there is only one known occurrence of Round-leaved Radwort. The species is threatened by the absence of sexual reproduction and by nearby logging. Located on private lands, its habitat is part of an exceptional forest ecosystem, which was recently exempted from mining. While it does not have a status, Round-leaved Radwort is considered a rare plant in Canada.

Slender Muhly (*Muhlenbergia tenuiflora*) : perennial herbaceous plant with creeping and scaly rhizomes. Upright stems (culms), generally without branches, 30 to 100 cm high, pubescent at the nodes. In Quebec, there are only two known occurrences of Slender Muhly, with only one current; the other, an historical occurrence, has not been seen in the last 25 years.

Wall Rue Spleenwort (*Asplenium ruta-mararia*) : perennial herbaceous plant belonging to the fern group, growing from a short rhizome. Fronds in clumps, 3 to 9 cm long. In Quebec, there are only three known occurrences of Wall Rue Spleenwart, all recorded near the U.S. border.

White Wood Aster (*Eurybia divaricata*) : perennial herbaceous plant, growing from a rhizome. Stem 20 to 80 cm high, flexuous, glabrous or almost at the bottom, and slightly to moderately pubescent at the inflorescence. Basal cordate leaves, deciduous at flowering. In Quebec, only 11 occurrences of White Wood Aster are currently on record, all located on private lands. **Threatened species in Canada**.

DESCRIPTION OF VULNERABLE SPECIES

Black Maple (*Acer nigrum*)

© André Sabourin

Black Maple (*Acer nigrum*) : the Black Maple is very similar to the Sugar Maple, with trilobate leaves measuring 15 to 25 cm in length (petiole included). The leaves are dark green on top, while the underside of the leaves and petiole is covered with tiny hairs. The Black Maple prefers shade and requires a moderately wet environment, often on a limestone substrate. About 70 populations of Black Maple have recently been confirmed. The main threat comes from urban expansion, primarily in the greater Montreal area, where nearly half of the recent occurrences are found.

Wild Leek (*Allium tricoccum*)

© Patrick Galois / Amphibia-Nature

Wild Leek (*Allium tricoccum*) : perennial herbaceous plant, growing from a tunicate bulb, conical-ovoid, 2 to 6 cm long. From 1 to 3 elliptic leaves, petiolate, basal, similar to those of lily of the valley, 10 to 30 cm long and 2 to 6 cm wide. Urban and agricultural development as well as the harvesting of bulbs in large quantities have caused a significant decrease in the number of Wild Leek in Quebec. On the Quebec territory, while there are more than 200 known occurrences, 60 of these are historical (last observations dating from more than 25 years ago) and 11 others are considered extinct. Most of the occurrences have less than 1,000 individuals, which is the estimated viable minimum.

DESCRIPTION OF SPECIES VULNERABLE TO COMMERCIAL EXPLOITATION

Maidenhair Fern *(Adiantum pedatum)*

© OBVBM

Maidenhair Fern (*Adianthum pedatum*) : perennial herbaceous plant, 40 to 75 cm high, growing from a thin horizontal rhizome. The conditions conducive to growth of the Maidenhair Fern are found only in the rich, damp maple groves of southern Quebec. Harvesting of whole specimens for horticultural trade is placing considerable pressure on the species' wild populations. Several factors are contributing to its increasing scarcity: grazing by White-tailed Deer, logging, inappropriate forest management practices, and the destruction of its habitat due to urban and agricultural development.

Ostrich Fern (*Matteuccia struthiopteris*)

© OBVBM

Ostrich Fern (*Matteuccia struthiopteris*) : this fern, also called Fiddlehead, is not a rare plant in Quebec and is not considered at risk for the moment. However, the picking of large quantities of heads to eat and the harvesting of whole specimens to be sold on the horticultural market are placing significant pressure on the species' wild populations.

Wild Ginger (*Asarum canadense*) : perennial herbaceous plant, densely pubescent, with a ramose and aromatic rhizome. The conditions conducive to growth of Wild Ginger are found only in the rich, damp maple groves of southern Quebec. Although at the moment it is not considered at risk, several factors are contributing to its increasing scarcity, such as logging, inappropriate forest management practices, and the destruction of its habitat due to urban and agricultural development. In addition, harvesting of whole specimens for the horticultural and food industries is placing significant pressure on the species' wild populations.

Wild Ginger (*Asarum canadense*)

© Photo Nature - www.quebecnature.biz

SPECIES LIKELY TO BE DESIGNATED AS THREATENED OR VULNERABLE

Awned Sedge (*Carex atherodes*)

© Photo Nature - www.quebecnature.biz

Awned Sedge (*Carex atherodes*) : this perennial plant forms dense colonies, and is distinguished by the base of its stems which is sometimes purple. This species is very rare in Quebec, with just three known occurrences, including the site of Étang Streit.

Broad-leaved Hawthorn (*Crataegus coccinioides*)

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Broad-leaved Hawthorn (*Crataegus coccinioides*) : the species is likely to be designated as threatened or vulnerable. It is very rare in Quebec, with just five current known occurrences and two historical ones. This shrub flowers at the end of May. Its largest concentration in Quebec is found in the Frelighsburg/Saint-Armand area.

Butternut (*Juglans cinerea*) : of the Juglandaceae family, this tree is distinguished by its leaves with many leaflets (11 to 17) and its sticky and highly pubescent oval nuts. Its bark is gray. **Designated endangered in Canada**.

Butternut (*Juglans cinerea*)

© OBVBM

Virginia Bugleweed (*Lycopus virginicus*)

© Patrick Galois / Amphibia-Nature

Virginia Bugleweed (*Lycopus virginicus*) : wetland plant, especially in marshes and along shorelines. Distinguished by flowers that grow in whorls along the stem. Plant with medicinal properties.

AMPHIBIANS AND REPTILES

Northern Two-lined Salamander (*Eurycea bislineata*)

© Patrick Galois / Amphibia-Nature

Amphibians and reptiles (herpetofauna) are an important component of ecosystems. They are an integral part of the food chain both as prey and as predators. The decline in their populations is of even greater concern in light of the impact on several other animal species.

A large number of amphibian and reptile species are affected by the loss, disturbance and fragmentation of habitats. Urbanization, industry and intensive agriculture are the primary threats. Because of their permeable skin and the fact that they live both in water and on land during their biological cycle, amphibians are considered strong indicators of the quality of their environment.

OBSERVATION OF SPECIES WITH SPECIAL STATUS

Southern Quebec is home to 11 species of anurans (toads and frogs), 10 species of salamanders, 8 species of freshwater turtles and 8 species of snakes. The Rock River watershed offers a large diversity of amphibians and reptiles. Thus, during this short inventory, we observed 15 species, including 4 species with special status: the Pickerel Frog (*Lithobates palustris*), the Four-toed Salamander (*Hemidactylium scutatum*) and the Northern Dusky Salamander (*Desmognathus fuscus*), all three likely to be designated as threatened or vulnerable in Quebec; and the Snapping Turtle (*Chelydra serpentina*), a species designated of special concern at the federal level. However, given the short duration of the inventories carried out, other species of special status which are very probably present in this sector of study, such as the Ringneck Snake (*Diadoophis punctatus*) and the Eastern Milksnake (*Lampropeltis triangulum triangulum*), were not observed.

The information presented in this document will help you better understand the importance of these species in the ecosystems and the reasons for this conservation project.

DESCRIPTION OF THE SPECIES OBSERVED – AMPHIBIANS

A complete list of the species observed is provided in **Appendix 2**. The species are presented according to the official categories of COSEWIC and the MDDEFP.

Order Anura (toads and frogs)

Anurans are amphibians that do not have tails, that is, toads, frogs and treefrogs. All Quebec species reproduce in aquatic environments. Only one toad species, the **American Toad**, is present in the study sector, as well as five frog species. Most are common except for the **Pickerel Frog**. Finally, two species of treefrogs — frogs with adhesive disks on the tips of their toes — can also be heard in the sector studied. Because of their skin's high degree of permeability, anurans are good indicators of the health and quality of the aquatic and terrestrial environment. They can develop multiple deformities when the water quality deteriorates, especially if they are exposed during their aquatic development (tadpole) stage.

American Bullfrog (*Lithobates catesbeianus*)

© Patrick Galois / Amphibia-Nature

American Bullfrog (*Lithobates catesbeianus*) : the biggest anuran in northeastern North America. The American Bullfrog can reach an impressive size of 20 cm long, but most individuals are between 12 and 16 cm. Green in colour, it can be distinguished from the Green Frog by the absence of dorsal ridges. The American Bullfrog is found in permanent aquatic environments of fairly large size and hibernates at the bottom of the water.

American Toad (*Anaxyrus americanus*) : the body of the American Toad is covered with warts (glands that produce toxins). Its colour ranges from tan to brown, but can also be yellow or very black. The toad is a terrestrial species found in forests and open areas, but it requires an aquatic environment to reproduce.

American Toad (*Anaxyrus americanus*)

© Martin Ouellet / Amphibia-Nature

Gray Treefrog (*Hyla versicolor*)

© Martin Ouellet / Amphibia-Nature

Gray Treefrog (*Hyla versicolor*) : the Gray Treefrog has grainy skin and adhesive toe pads. Its body varies from gray to green, but the groin and insides of the thighs are yellow. It is up to 6 cm long. In its juvenile phase, the Gray Treefrog is pale green and has smooth skin. It is arboreal and rather difficult to see, but it can be heard in May during the breeding season.

Green Frog (*Lithobates clamitans*)

© Martin Ouellet / Amphibia-Nature

Green Frog (*Lithobates clamitans*): the Green Frog is usually green or brown or both. It has two dorsal ridges extended from behind the eyes. This species is up to 11 cm long. The Green Frog lives mainly in aquatic environments. Some individuals are partially or totally blue because of a deficiency in yellow skin pigment.

Pickerel Frog
(*Lithobates palustris*)

© Martin Ouellet / Amphibia-Nature

Pickerel Frog (*Lithobates palustris*) : the Pickerel Frog has two rows of rectangular spots between two dorsolateral ridges. Its body may be brown or copper, but never green. The insides of its thighs and groin are orangish yellow. It lives near streams and hillside lakes even though during the summer it is mostly terrestrial. It breeds in aquatic environments. It is not very common in Quebec. This species is threatened by excessive logging and habitat fragmentation.

Spring Peeper (*Pseudacris crucifer*)

© Patrick Galois / Amphibia-Nature

Spring Peeper (*Pseudacris crucifer*) : the Spring Peeper has dark spots that form a cross on its back. Its colour can range from tan to brown. This treefrog is quite small, reaching a maximum 4 cm long. It is found in forests, ponds, swamps and bogs. Urbanization and intensive agriculture are serious threats to the species.

Wood Frog (*Lithobates sylvaticus*)

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Wood Frog (*Lithobates sylvaticus*) : This frog is distinguished by a dark mask around its eyes. Two dorsal ridges run along its back. The Wood Frog is not more than 8 cm long. It is a terrestrial frog that lives in forests or wet meadows and peat bogs. This species is affected by intensive deforestation and forestry drainage (drying up of breeding wetlands).

Forest pond used by various species of amphibians for breeding

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Order Urodela (salamanders)

Salamanders, or Urodela, look like lizards but have a smooth, permeable skin and no scales. Most Quebec species can be found in the study area. Salamanders are carnivorous and eat invertebrates (e.g. insects and worms), tadpoles and fish. Their ecological role is similar to that of fish in streams, and their biomass is greater than birds and forest rodents. They therefore hold an important place in the food chain.

Stream salamanders and aquatic salamanders are good indicators of water and shoreline quality. They require healthy wetlands to complete their biological cycle. Terrestrial salamanders are good indicators of the health and quality of their environment by their numbers. They are found in greater density in old-growth and undisturbed forests.

Blue-spotted Salamander (*Ambystoma laterale*) : distinguished by its black colour punctuated by little blue spots. This species of salamander has a rather squat body on stocky limbs, and can grow up to 13 cm long. The Blue-spotted Salamander is a terrestrial forest species that needs ponds or temporary pools to reproduce. It is associated with old-growth and undisturbed forests. In southern Quebec, hybrids with a related species, Jefferson Salamander (*Ambystoma jeffersonianum*), can be found. They are generally longer, with fewer blue spots, concentrated on the sides and tail.

Blue-spotted Salamander (*Ambystoma laterale*)

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Eastern Newt (*Notophthalmus viridescens*) : this species has a complex biological cycle. The adult, up to 14 cm long, is aquatic and lives in permanent forest ponds and streams. It is mostly greenish, with black-bordered red dots on its back, and black dots on its yellow belly. It has a laterally compressed tail that is used for propulsion. After an aquatic larvae stage lasting two to three months, the juvenile (eft) has a terrestrial phase, spending two to four years in the forest. At this time it is orangish red with bright red spots and a rough skin. When it reaches maturity, it returns to the water and takes on its adult appearance. This species is relatively common in Quebec.

Eastern Newt (*Notophthalmus viridescens*)

Adult © Martin Ouellet / Amphibia-Nature Eft © Patrick Galois / Amphibia-Nature

Eastern Red-backed Salamander (*Plethodon cinereus*) : its colour is dark gray to black and it has a wide brown or reddish stripe on its back (red phase). Sometimes it has no red pigment (lead phase). Little blue or white dots are often visible on its flanks. It is no more than 12.5 cm long. The Eastern Red-backed Salamander is a forest species and the only salamander in Quebec with an entirely terrestrial development.

Eastern Red-backed Salamander (*Plethodon cinereus*)

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Four-toed Salamander (*Hemidactylium scutatum*)

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Four-toed Salamander (*Hemidactylium scutatum*) : can be distinguished by its white belly dotted with black spots. Its hind feet each have four toes. It is only 10 cm long. This species lives in peat bogs and swamps where it lays its eggs in sphagnum moss. The small area of habitat left makes its situation precarious : urbanization, intensive agricultural development and the draining of peat bogs are the main causes of its low population density.

Northern Dusky Salamander (*Desmognathus fuscus*) : is rather stocky and can reach up to nearly 15 cm. Its back is mostly brown in the juvenile stage and then grows darker with age, becoming dark gray. The Northern Dusky Salamander is found in northeastern North America. It lives mainly in rocky woodland streams, seepage zones and springs, where it feeds on invertebrates. It does not stray far from the aquatic environment. Changes in water quality can cause local population declines. Limiting factors include deforestation resulting from agriculture and urban development, logging, groundwater exploitation and changes to the water regime.

Northern Dusky Salamander
(*Desmognathus fuscus*)

© Patrick Galois / Amphibia-Nature

Northern Two-lined Salamander (*Eurycea bislineata*)

© Patrick Galois / Amphibia-Nature

Northern Two-lined Salamander (*Eurycea bislineata*) : has a rather long body and a narrow head. Its back is tan to yellowish. Two black lines run along its flanks from the eye to the tail. It lives in streams and sometimes ventures into forests. It is relatively common in Quebec.

Spotted Salamander (*Ambystoma maculatum*) : black with big yellow spots. This species of salamander is rather squat with sturdy limbs. It can reach 25 cm long. The Spotted Salamander is a terrestrial species but needs ponds or temporary pools to breed. It is found in old-growth and undisturbed forests, where it can live for 30 years or more.

Spotted Salamander (*Ambystoma maculatum*)

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DESCRIPTION OF SPECIES OBSERVED – REPTILES

Order Testudines (turtles)

Turtles are reptiles in which the skeleton has evolved to form a shell. The dorsal (upper) part of the shell is called the carapace and the ventral (lower) part is called the plastron. Turtles are generally omnivores, eating plants, fruits and animals in varying proportions. They hibernate at the bottom of the water from October until the end of April. Basking in the sun is an essential activity which activates their metabolism, aiding digestion, and egg production in females. Nesting takes place in June. The females leave the water to dig a nest and bury their eggs. Hatching usually occurs 50 to 70 days later.

Midland Painted Turtle (*Chrysemys picta marginata*) : a small turtle with a smooth shell and dark colour. It has yellow and red lines on the neck and carapace margins. It is omnivorous and eats aquatic plants, insects and small fish.

Midland Painted Turtle (*Chrysemys picta marginata*)

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Snapping Turtle (*Chelydra serpentina*)

© Patrick Galois / Amphibia-Nature

Snapping Turtle (*Chelydra serpentina*) : this turtle is discreet, spending most of its time hidden in the water and aquatic vegetation. Its size is quite massive and imposing (carapace up to 50 cm), and it has a long tail. It is the biggest freshwater turtle in Quebec. It is essentially carnivorous, with a diet of tadpoles, fish and dead animals. In fact, as a carrion eater, it is considered an aquatic environment cleaner. **Species of special concern in Canada**.

BIRDS

Immature Bald Eagle (*Haliaeetus leucocephallus*)

© Jean-Guy Papineau

The municipality of Saint-Armand is home to one of the most beautiful bird observation sites in Quebec. The Philipsburg Bird Sanctuary is one of Canada's protected areas and one of 28 migratory bird sanctuaries in the province of Quebec.

Stretching over nearly 500 hectares, the bird sanctuary provides shelter to more than 200 species and is mostly located on private lands.

A part of the refuge (about 71 ha) was acquired by Bird Protection Quebec in 1955 and 1989 and is called the **George H. Montgomery Bird Sanctuary**.

Since 1990, ornithological inventories carried out in the Rock River sector have revealed more than 200 species, of which half live in the Étang Streit sanctuary. Although most of the species observed are common in southern Quebec, there are also several rare, threatened or noteworthy species. Moreover, crop changes and deforestation are threatening the forest species in this region.

South section of Étang Streit

© Patrick Galois / Amphibia-Nature

SPECIES WITH SPECIAL STATUS

Inventories carried out in the sectors of Saint-Armand and the Saint-Armand hills have confirmed the presence of many bird species with special status. The complete list of species observed is provided in **Appendix 3** along with their status in Quebec and in Canada.

Endangered species in Canada

- Cerulean Warbler (*Setophaga cerulea*)

Threatened species in Canada

- Barn Swallow (*Hirondo rustica*)
- Bobolink (*Dolichonyx oryzivorus*)
- Canada Warbler (*Wilsonia canadensis*)
- Chimney Swift (*Chaetura pelagica*)
- Golden-winged Warbler (*Vermivora chrysoptera*)
- Olive-sided Flycatcher (*Contopus cooperi*)
- Rusty Blackbird (*Euphagus carolinus*)
- Wood Thrush (*Hylocichla mustalina*)
- Whip-poor-will *(Caprimulgus vociferus*)

Threatened species in Quebec

- Cerulean Warbler (*Setophaga cerulea*)
- Red-headed Woodpecker (*Melanerpes erythrocephalus*)
- Wood Thrush (*Hylocichla mustalina*)

Vulnerable species in Quebec

- Bald Eagle (*Haliaeetus leucocephallus*)
- Barrow's Goldeneye (*Bucephala islandica*)
- Golden Eagle (*Aquila chrysaetos*)
- Least Bittern (*Ixobrychus exilis*)
- Peregrine Falcon (*Falco Peregrinus* ssp. *anatum*)

Species likely to be designated as threatened or vulnerable in Quebec

- Canada Warbler (*Wilsonia canadensis*)
- Chimney Swift (*Chaetura pelagica*)
- Common Nighthawk (*Chordeiles minor*)
- Golden-winged Warbler (*Vermivora chrysoptera*)
- Olive-sided Flycatcher (*Contopus cooperi*)
- Rusty Blackbird (*Euphagus carolinus*)
- Short-eared Owl (*Asion flammeus*)
- Whip-poor-will *(Caprimulgus vociferus*)

DESCRIPTION OF THREATENED SPECIES IN QUEBEC

Cerulean Warbler (*Setophaga cerulea*)

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Cerulean Warbler (*Setophaga cerulea*) : the Cerulean Warbler belongs to the Parulidae family. It is a small bird, about 12 cm long, with long wings and a short tail. The Cerulean Warbler is currently being monitored in Quebec. It is protected at the federal level under the *Species at Risk Act* and the *Migratory Birds Convention Act*. The birds, eggs and nests cannot be collected without an authorization for scientific purposes. **Endangered species in Canada**.

Red-headed Woodpecker (*Melanerpes erythrocephalus*) : the Red-headed Woodpecker is a bit smaller than the American Robin (*Turdius migratorius*), measuring about 20 cm long. As indicated by its name, the head of the adult is completely red. It is protected under the *Migratory Birds Convention Act, 1994*, which forbids the possession of a bird or nest, as well as by the federal *Species at Risk Act*. The Red-headed Woodpecker is currently being monitored in Quebec. **Threatened species in Canada.**

DESCRIPTION OF VULNERABLE SPECIES IN QUEBEC

Bald Eagle (*Haliaeetus leucocephallus*) : the Bald Eagle is a diurnal bird of prey. It is a large species, nearly 1 m long, with a wingspan of 2.3 m. It is generally found in littoral zones, near riverbanks, lakeshores, or along the coast. Its habitat must be able to supply good-size fish, not too far from the nesting site, and be relatively calm during the breeding season. The Bald Eagle tends to prefer bodies of water with a circumference greater than 11 km. The Bald Eagle is currently being monitored in Quebec. A recovery plan for this species was published in 2002 and is currently being implemented.

Bald Eagle (*Haliaeetus leucocephallus*)

© Photo Nature – www.quebecnature.biz

Barrow's Goldeneye (*Bucephala islandica*) : named after Sir John Barrow, Barrow's Goldeneye is a medium-sized diving duck. The eastern population is protected under Quebec's *Act respecting threatened or vulnerable species* as well as under the federal *Species at Risk Act*. A management plan for this population is currently being prepared under this law, in order to ensure its conservation and long-term viability.

Golden Eagle (*Aquila chrysaetos*) : the Golden Eagle is a diurnal bird of prey. It is a large species, up to 1 m long, with a wingspan of 2.24 m. The Golden Eagle is very sensitive to changes that directly affect its nesting habitat, and may lead it to abandon the nest. The main threats to the Golden Eagle population in Quebec are habitat loss, accidental entrapment, as well as disturbance and mortality caused by human activities. Under Quebec's *Act respecting the conservation and development of wildlife*, it is forbidden to hunt or trap the golden eagle. This law also protects the species' nest and eggs.

Golden Eagle (*Aquila chrysaetos*)

© Photo Nature - www.quebecnature.biz

Least Bittern (*Ixobrychus exilis*)

© Photo Nature - www.quebecnature.biz

Least Bittern (*Ixobrychus exilis*) : the Least Bittern is a small wading bird just like the Great Blue Heron (*Ardea herodias*). It is about 33 cm long. It has a very discreet behaviour, making it difficult to spot. For this reason, its presence is usually detected by its song, a soft, guttural "coo-coo-coo." The Least Bittern is protected under the *Migratory Birds Convention Act, 1994*, as well as the *Species at Risk Act*. To ensure the safeguarding of its populations, it is necessary to preserve and protect wetlands through protection and stewardship measures.

Peregrine Falcon (*Falco peregrinus* ssp. *anatum*)

© Photo Nature - www.quebecnature.biz

Peregrine Falcon (*Falco peregrinus* ssp. *anatum*) : the Peregrine Falcon is probably one of the species at risk that is best known by the Quebec public. Despite the success of the recovery program, the Peregrine Falcon's situation remains precarious, and measures need to be put in place to keep up its numbers. Under Quebec's *Act respecting the conservation and development of wildlife*, the Peregrine Falcon cannot be hunted or trapped. This law also protects its eggs and nest. At the international level, the species is protected by CITES.

DESCRIPTION OF SPECIES LIKELY TO BE DESIGNATED AS THREATENED OR VULNERABLE IN QUEBEC

Canada Warbler (*Wilsonia canadensis*) : the Canada Warbler is a small, brightly coloured passerine. Habitat loss and deterioration in its wintering area are most likely the biggest factors in its decline. In Canada, it is affected by habitat loss from the transformation of swamp forests in the east for agricultural activities, and in the west of the species' distribution area, by the building of roads in the boreal forest. The adults, nests and eggs of the Canada Warbler are protected under the *Migratory Birds Convention Act, 1994*. **Threatened species in Canada**.

Chimney Swift (*Chaetura pelagica*)

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Chimney Swift (*Chaetura pelagica*): sometimes confused with the Swallow, the Chimney Swift can be easily identified by its cigar-shaped body, its long, narrow pointed wings, its short, prickly-looking tail, and its rapid and jerky flight. The primary limiting factor for the Chimney Swift population seems to be the reduction in the number of nesting and resting sites, resulting from logging, the demolition of old abandoned buildings and, especially, the marked decline in the number of adequate and accessible classical chimneys, which are the species' chief nesting habitat. **Threatened species in Canada**.

Common Nighthawk (*Chordeiles minor*) : the Common Nighthawk is one of the only crepuscular insectivorous bird species in Canada that uses a large variety of habitats and is very widespread. Habitat loss and modification, notably the reforestation of abandoned agricultural lands and logged-over forests, fire fighting, intensive agriculture and the gradual reduction of the number of gravel-covered, flat roofs may have also contributed to the declines observed. **Threatened species in Canada**.

Golden-winged Warbler (*Vermivora chrysoptera*) : the Golden-winged Warbler is a small insectivorous bird that is only 12 cm long. It is distinguished from the many other Warblers by the presence of a highly visible yellow patch on its wing, from which it gets its name. The Golden-winged Warbler is currently being monitored in Quebec. **Threatened species in Canada**.

Louisiana Waterthrush (*Seiurus motacilla*) : a fairly large species of the Parulidae family, dull in colour, similar to a Thrush. The Louisiana Waterthrush has restrictive and specialized habitat needs, both for its breeding and wintering areas. Its population is sensitive to changes in habitat quality and quantity (decrease in food supply, water contamination and temperature). In both its breeding area and its wintering area, the Louisiana Waterthrush is probably an excellent bio-indicator of the health of upper stream reaches of average slope. **Species of special concern in Canada**.

Olive-sided Flycatcher (*Contopus cooperi*) : medium-sized songbird, 18 to 20 cm long. The Olive-sided Flycatcher is distinguished by its tendency to perch well in view at the top of tall trees or stumps to look for food. Its song, a powerful three-note whistle, seems to say "Quick, Three Beer!" Loss and modification of habitat in migration and wintering areas may be factors in the decline of its populations. **Threatened species in Canada**.

Rusty Blackbird (*Euphagus carolinus*) : the Rusty Blackbird is a medium-sized passerine. Both sexes of the bird have pale yellow eyes and a slightly curved black beak. This species has been designated of special concern in Canada as more than 70% of its breeding area is in Canada's boreal forest. The species experienced a major decline, which seems to be continuing, although not as quickly. Chief threats are habitat conversion and black bird control programs in the United States. **Species of special concern in Canada**.

Short-eared Owl (*Asion flammeus*) : with a wingspan slightly over one metre, the Short-eared Owl is a medium-sized owl. Unlike other species in its family (Strigidae), it often hunts during the day or at dusk, giving keen observers a chance to see it in action. The Short-eared Owl is currently being monitored in Quebec and is protected by the *Act respecting the conservation and development of wildlife*. In Quebec, it is forbidden to hunt or sell this species, to have it in one's possession, or to destroy its nest or eggs.

Short-eared Owl (*Asion flammeus*)

© Photo Nature - www.quebecnature.biz

Whip-poor-will *(Caprimulgus vociferus)* : crepuscular insectivorous and nocturnal bird, weighing 50 to 55 g, with cryptic plumage. Habitat loss and deterioration, collisions with automobiles, variations in food availability associated with pesticide use and climate change are some of the possible causes of its decline. This bird holds an important place in popular culture, given its countless mentions in songs, poems, books and movies. **Threatened species in Canada**.

OTHER SPECIES THREATENED IN CANADA

Barn Swallow (*Hirondo rustica*) : this species of Swallow is distinguished by a metallic blue-black back contrasting with its rusty-white belly. It has white spots at the tip of its tail. Its forehead and throat are rusty brown. Like many species of birds that feed on flying insects, this species has been in decline in Canada since the mid to late 1980s. Threats include a decrease in the quantity of artificial nesting sites (open barns) and in the quantity of feeding areas in the open agricultural zone in certain parts of Canada.

Wood Thrush (*Hylocichla mustalina*) : the Wood Thrush is a small migratory songbird that travels long distances. Since 1966, Wood Thrush populations have plummeted 50% in both Canada and the U.S. In fact, this songbird has the second fastest rate of decline in North America. Three major threats are responsible for this brutal decline : habitat loss, increasing rates of nest predation, and parasitism by Cowbirds (*Molothrus* sp.), fostered by forest fragmentation.

RECOMMENDATIONS FOR THE PROTECTION OF HABITATS AND BIODIVERSITY

RECOMMENDATIONS FOR THE PROTECTION OF FOREST ECOSYSTEMS AND FLORA

A forest's health depends on the biodiversity of its undergrowth. The undergrowth provides shelter and nourishment for all members of the food chain, from insects to mammals such as the Snowshoe Hare, the American Marten and the White-tailed Deer.

- Preserve the undergrowth's natural plants, as they are essential components of wildlife habitats in the forest ecosystem.
- Preserve wetlands.
- Foster selective cutting so as to keep the forest canopy as closed as possible.
- When clearing trees, favour small clearings to ensure forest continuity and avoid creating long edges; this will help reduce drying from wind as well as the risk of windfall (trees that have been blown down by the wind).
- Avoid forest draining because it can cause the ground and temporary forest wetlands to dry up and the water table level to drop.
- Use forest resources in a sustainable way, whether it be trees, mushrooms or medicinal plants.

Rock River in the Chemin Pelletier Sud sector

© Patrick Galois / Amphibia-Nature

RECOMMENDATIONS FOR THE PROTECTION OF AMPHIBIANS AND REPTILES

Riverbanks are environments that foster a rich biodiversity and may also serve as travel corridors for some species, helping to keep populations connected. It is therefore important to foster their preservation, restoration, and even expansion. Modifying the prevailing natural conditions can have minor to major impacts on the various species. Interventions such as removing dead trees, pruning or clearing the riverbank should therefore be avoided.

- Maintain a 30 to 60 m wide buffer zone on either side of streams or wetlands. Ideally, this should be part of a greater terrestrial habitat protection area that is 140 to 290 m wide, depending on the species present. Another 50 m terrestrial buffer zone should be added to take the edge effect into account. The protected area should therefore be at least 340 m wide.

- Leave wood debris (branches and dead trees) on the ground because it provides shelter for terrestrial and burrowing salamanders, helping them to stay moist and to avoid predators.

ADDITIONAL RECOMMENDATIONS FOR TURTLES

- When building or landscaping, it should be remembered that although turtles stay mostly at the edge of the water, they may also go on land, especially the females during nesting season

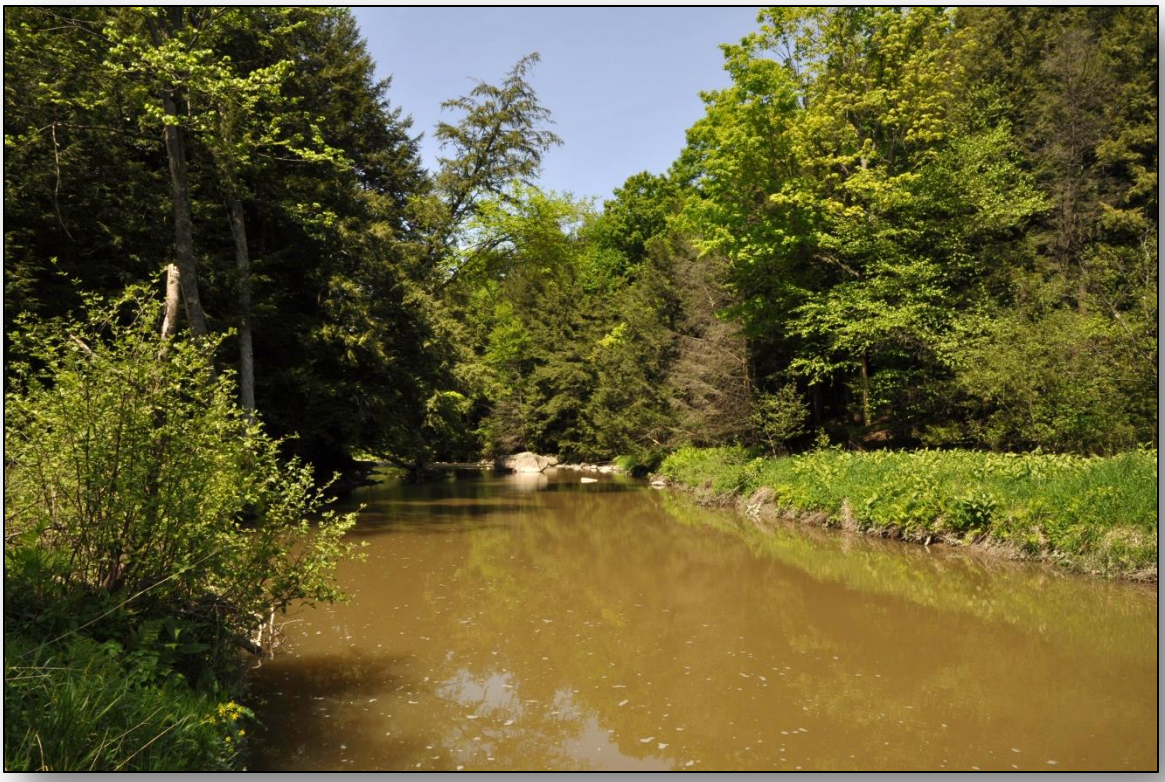
- As much as possible, avoid circulating in ATVs and keep livestock from venturing onto the sand and gravel beds that are created by the natural erosion of the shoreline, beginning at the end of May (start of nesting season). Sand and gravel beds are nesting sites. The female digs a hole in the substrate, lays her eggs and then covers them up again. The closest eggs are just a few centimetres from the surface and therefore highly vulnerable to being crushed.

- Avoid removing fallen trees and immersed trunks, as much as possible. Partially submerged dead trees are ideal spots for sun basking, an essential activity for these species. Turtles also take shelter beneath trees and immersed branches for protection and to hibernate.

RECOMMENDATIONS FOR THE PROTECTION OF BIRDS

- Observe birds from a distance and without making any noise, so as to protect nesting sites and feeding areas.
- Protect shrub riverbanks, which are indispensable for feeding and nesting.
- Preserve dead tree stumps, often used as feeders, nesting holes and perches.
- Plant forage crops.
- Preserve wetlands.

Rock River in the Chemin Pelletier Sud sector



CONSERVATION OPTIONS

The guarantee that future generations will be able to benefit from natural spaces is the most important benefit that comes from the voluntary conservation of a property.

In essence, there are three basic ways to ensure the protection of your property:

- recognition as a **nature reserve**
- **transfer of the property** to an organization dedicated to conservation (by donation, sale or bargain sale)
- establishment of a **conservation easement**

A number of programs exist to support these actions. For example, if you decide to donate your property or make a conservation easement donation, Environment Canada's *Ecological Gifts Program* offers significant tax benefits. Thus, you can receive a tax credit equivalent to the fair market value of your donation, applicable over a five-year period. A bargain sale allows you to reduce your capital gain and obtain a tax credit equivalent to the discount agreed on at the time of sale. In the case of a nature reserve, you can obtain a partial or total exemption from municipal and school property taxes.

Committing to a conservation project may mean having to make some changes to how your property is used. Depending on the option chosen, the property owner voluntarily accepts to give up certain rights and to restrict certain activities on his property, such as any commercial or industrial operations. In the case of a property sale or donation, all property rights are transferred, while requiring that the owner continues to protect the property.

For each of these conservation options, a set of specific criteria must be met. Collaboration between the owner and a conservation organization is required in some cases, although not for a private nature reserve, where the owner signs an agreement directly with the MDDEFP.

In all cases, a fiscal analysis can be useful in helping to make the right choice.

NATURE RESERVES ON PRIVATE LAND

The *Natural Heritage Conservation Act* allows the MDDEFP to recognize private properties as **nature reserves**. A nature reserve can be recognized for a minimum of 25 years, or it can be perpetual. The owner maintains his property rights with certain restrictions : for example, the owner may harvest a certain amount of wood, but only for personal use. Allowed activities must not jeopardize the natural features that warranted the property's recognition as a nature reserve. The agreement must be signed before a notary.

Under the *Act respecting Municipal taxation*, nature reserves are exempt from some or all

municipal or school property taxes. The owner may submit an application for recognition without going through a conservation organization. This procedure can take from one to three years.

Procedure
Fill out the form for recognition as a nature reserve, which can be found on the website of the MDDEFP.

Conditions
- No exploitation of resources or of the land for commercial or industrial purposes.
- The property must contain significant natural features that warrant preservation according to the criteria established by the MDDEFP.
- The conservation agreement between the owner and the MDDEFP must be for a term of at least 25 years.
- The owner must pay all professional fees, such as land survey and notary fees; these may be reimbursed by the MDDEFP subsidy, up to $5,000.

Benefits
- The property owner maintains property ownership. No property rights are granted to the government.
- There are no restrictions on property size; what matters is the value of the natural features that it contains.
- Reduction in or exemption from municipal and school property taxes on the portion holding the status of a nature reserve (according to municipal bylaw).

The owner may reserve the right to use the natural resources on the portion designated as a nature reserve, but only for personal use (e.g. wood cutting: maximum 1 m^3/ hectare/year and preservation of a minimum of 70% of the vegetation cover).

PROPERTY TRANSFER TO A CONSERVATION ORGANIZATION

To guarantee the long-term protection of a territory, an owner may choose to **sell** or **donate** his property to a conservation organization, on an entirely free and voluntary basis.

Donation of land gives the owner certain tax benefits related to charitable donations (for receipts of less than $20,000) and/or a tax credit for ecological gifts.

A **bargain sale** enables the owner to reduce his potential capital gain and to obtain benefits related to donations, equivalent to the difference between the appraised market value of the property and the actual price paid.

We strongly recommend consulting a tax specialist in order to study the financial impacts of each of these options, because the tax advantages and tax credits will vary according to the individual profile of each property owner. This procedure can take up to one year.

Procedure

- The property owner approaches a conservation organization that is interested in receiving a land donation or buying the land.
- The conservation organization and the owner agree on the procedure to be followed.
- The owner consults a tax specialist to understand the consequences and tax advantages of such an action.
- The land is assessed by an accredited appraiser.
- A notary prepares a report on the deeds.
- A land surveyor draws up the plan of survey for the land.
- The project must be approved internally by the conservation organization and by its board of directors.
- The agreement is finalized by a notarial act between the conservation organization and the owner.

Conditions

- The conservation organization must be interested in buying the property.
- The owner gives up all property rights.
- The choice of protection measure must be carefully studied by a tax specialist or accountant, because tax advantages and credits will depend on the individual characteristics of each property.

Benefits

- In the case of a donation or bargain sale, the owner receives a charitable donation receipt.
- In the case of a donation or bargain sale, other tax benefits may apply if the transaction is accepted as an ecological gift. Example: tax credit or no capital gain.
- The land can be protected in perpetuity.

CONSERVATION EASEMENT

Owners who wish to retain ownership of their property to preserve certain land uses (e.g. residency) may decide to establish a conservation easement. This is a legal agreement in which certain rights are relinquished to a conservation organization for the purpose of ensuring the future protection of the land.

This is a real right tied to the property and must be executed by notarial act. In other words, the conservation easement is tied to the property, and is therefore transferred from one owner to another, guaranteeing the land's long-term protection. The conservation organization must then ensure that the agreement is respected, which usually translates into a few visits each year.

Procedure

- The owner approaches a conservation organization interested in preserving the land.
- Together, the conservation organization and the owner determine the list of restrictions

to be covered by the easement.
- The land as well as the value of the easement must be assessed by an accredited appraiser.
- The owner consults a tax specialist to understand the consequences and tax advantages of such an action.
- A notary prepares a report on the deeds.
- A land surveyor draws up the plan of survey for the land.
- The project must be approved internally by the conservation organization and by its board of directors.
- The agreement is finalized by a notarial act between the conservation organization and the owner.

Conditions
- The owner continues to pay the property taxes.
- The conservation easement agreement (donation or sale) must be between two parties: a servient estate, represented by the owner, and a dominant estate, represented by the conservation organization.
- It must be demonstrated that the servient estate is providing a service to the dominant estate.

Benefits
- The property owner can reserve the right to exploit the land's agricultural, forest or other potential, according to the agreement.
- The owner receives a tax receipt applicable over 5 years.

EXCEPTIONAL FOREST ECOSYSTEM DESIGNATION

The status of Exceptional Forest Ecosystem (EFE) is a designation issued by the Quebec government through the Ministère des Ressources naturelles. This designation has three categories : rare forests, old-growth forests and shelter forests. Shelter forests contain one or more threatened or vulnerable plant species. They may contain a very rare species, a population that is of great value to the conservation of one of these species, or a significant concentration (at least three) of these species. At the moment there are no tax advantages to being designated an exceptional forest ecosystem, but it is a valuable asset in the land conservation process.

PLANT HABITAT

A plant habitat is a legal status granted under the *Act respecting threatened or vulnerable species*. In order to receive this designation, the habitat must contain at least one threatened plant species or plant community, in sufficient quantity (determined according to the species). The population must be determined viable and the habitat must be of good quality. The territory can be delimited according to the perimeter of the plant community and its buffer zone; it can therefore be fragmented in order to allow certain activities (e.g. logging).

It usually takes about a year and a half to obtain this legal status. At the moment, there are no related tax incentives.

Forest area near a marsh in the Chemin Pelletier Sud sector

PROJECT LEADERS

Organisme de bassin versant de la baie Missisquoi

The Organisme de bassin versant de la baie Missisquoi (www.obvbm.org) receives its power from the Government of Quebec under the *Act to affirm the collective nature of water resources and provide for increased water resource protection*. In concert with the stakeholders in the field, the OBVBM is mandated to develop and update a water master plan that identifies local issues related to the protection of this resource, within a perspective of environmental protection and the territory's sustainable development.

Amphibia-Nature

Amphibia-Nature (www.amphibia-nature.org) is a research group made up of environment professionals whose expertise is called on to conduct impact studies, develop conservation programs and implement scientific research projects, in Quebec and internationally. The inventories and monitoring of amphibian and reptile populations, environmental sentinel species, are at the core of its assessments of the biodiversity and the ecological integrity of the areas under study. With an emphasis on wetland, littoral and marine environments, this approach leads to the application of concrete conservation measures that take local concerns into account. These measures are aimed at reducing impacts on fauna and flora, in particular on rare or threatened species and their habitats. Wildlife habitat creation and restoration projects are approached from this same perspective.

OBVBM PRODUCTION TEAM

Johanne Bérubé, executive director
Julie Bellefroid, project leader
Frédérick Thuot-Deschamps, intern

AMPHIBIA-NATURE PRODUCTION TEAM

Patrick Galois, Ph.D., biologist
Martin Ouellet, environmental veterinarian
Marie-Ève Garon-Labrecque, field assistant

OTHER PARTNERS

Jean-Guy Papineau, ornithologist
André Sabourin, botanical consultant

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Falls sector of Rock River

AN OBSERVATION TO REPORT?

If you observe a plant or bird of interest, please contact the OBVBM.
Elements to note: species, date, place, details (state, behaviour)

For info and to send photos : **obvbm@bellnet.ca**

Telephone : **450-248-0100**

For observations concerning amphibians or reptiles (including road deaths of turtles), please contact Amphibia-Nature.
Elements to note: species, date, place, details (state, behaviour)

For info and to send photos : **info@amphibia-nature.org**

Telephone : **514-521-6121**

Thank you for sharing your observations!

Snapping Turtle laying eggs at the edge of a road

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Ruisseau Brandy, downstream section

APPENDICES

APPENDIX 1 - FLORA

List of plant species observed in five sectors of Saint-Armand and the Saint-Armand hills

Designation in Canada and in Quebec :
Endangered in Canada (E), of interest (I), threatened (T), likely to be designated as threatened or vulnerable (L), vulnerable (V), vulnerable to commercial exploitation (VC).

Espèce				
Nom français	**Nom scientifique**	**Nom anglais**	**Statut**	
			Canada	**Québec**
ACERACÉES				
Érable noir	*Acer nigrum*	Black Maple	-	V
ALLIACÉES				
Ail des bois	*Allium tricoccum*	Wild Leek	-	V
ARALIACÉES				
Ginseng à cinq folioles	*Panan quinquefolius*	American Ginseng	E	T
ARISTOLOCHIACÉE				
Asaret du Canada	*Asarum canadenses*	Wild Ginger	-	VC
ASPLENIACÉES				
Doradille ambulante	*Asplenium rhizophyllum*	Walking-fern Spleenwort	-	L
Doradille des murailles	*Asplenium ruta-muraria*	Wall Rue Spleenwort	-	T
Doradille ébène	*Asplenium platyneuron*	Ebony Spleenwort	-	L
ASTÉRACÉES				
Aster à rameaux étalés	*Eurybia divaricata*	White Wood Aster	T	T
Aster de Pringle	*Symphyotrichum pilosum* var. *pringlei*	Pringle's Aster	-	L
Séneçon à feuilles obovales	*Packera obovata*	Round-leaved Radwort	-	T
BÉTULACÉES				
Noisetier d'Amérique	*Corylus americana*	American Hazel	-	L
BRASSICACÉES				
Arabette lisse	*Boechera lævigata*	Smooth Rock Cress	-	L
Cardamine bulbeuse	*Cardamine bulbosa*	Bulbous Bitter-Cress	-	L

Espèce				
Nom français	**Nom scientifique**	**Nom anglais**	**Statut**	
			Canada	**Québec**
Cardamine découpée	*Cardamine concatenata*	Cut-leaved Toothwort	-	L
CANNABACÉES				
Micocoulier occidental	*Celtis occidentalis*	Hackberry	-	I
CARYOPHYLLACÉES				
Céraiste penché	*Cerastium nutans* var. *nutans*	Nodding Mouse-ear Chickweed	-	L
Minuartie de Michaux	*Minuartia michauxii*	Michaux's Stichwort	-	L
CLÉOMACÉES				
Polanisie à douze étamines	*Polanisia dodecandra*	Clammy-weed	-	L
CUPRESSACÉES				
Génévrier de Virginie	*Juniperus virginiana* var. *virginiana*	Eastern Red-cedar	-	L
CYPÉRACÉES				
Carex à gaine tronquée	*Carex annectens*	Yellow fruited Sedge	-	L
Carex à larges feuilles	*Carex platyphylla*	Broad-leaved Sedge	-	I
Carex de Hitchcock	*Carex hitchcockiana*	Hitchcock's Sedge	-	I
Carex de Swan	*Carex swanii*	Swan's Sedge	-	L
Carex des Appalaches	*Carex appalachica*	Appalachian Sedge	-	L
Carex épi-de-blé	*Carex atherodes*	Awned Sedge	-	L
Carex faux-rubanier	*Carex sparganioides*	Bur-reed Sedge	-	L
Carex hirsute	*Carex hirsutella*	Hirsute Sedge	-	L
Carex porte-tête	*Carex céphalophora*	Oval Headed-sedge	-	L
Scirpe pendant	*Scirpus pendula*	Hanging Bulrush	-	L
Souchet grêle	*Cyperus lupulinus* ssp. *macilentus*	Great Plains Flatsedge	-	L
DRYOPTÉRIDACÉES				
Matteuccie fougère-à-l'autruche	*Matteuccia struthiopteris*	Ostrich Fern	-	VC
FABACÉES				
Desmodie nudiflore	*Desmodium nudiflorum*	Naked-flowered Tick-trefoil	-	L

Espèce				
Nom français	**Nom scientifique**	**Nom anglais**	**Statut**	
			Canada	**Québec**
Gess jaunâtre	*Latrhyus ochroleucus*	Cream-colored Vetchling	-	L
FAGACÉES				
Chêne blanc	*Quercus alba*	White Oak	-	I
JUGLANDACÉES				
Caryer ovale	*Carya ovata* var. *ovata*	Shagbark Hickory	-	L
Noyer cendré	*Juglans cinerea*	Butternut	E	L
LAMIACÉES				
Agastache faux-népéta	*Agastache nepetoides*	Yellow Giant-hyssop	-	L
Lycope de Virginie	*Lycopus virginicus*	Virginia Bugleweed	-	L
LEMNACÉES				
Wolffie boréale	*Wolffia borealis*	Northern Water-meal	-	L
ORCHIDACÉES				
Aplectrelle d'hiver	*Aplectrum hyemale*	Putty-root	-	T
Galéaris remarquable	*Galearis spectabilis*	Showy Orchis	-	L
Goodyérie pubescente	*Goodyera pubescens*	Downy Rattlesnake-plantain	-	I
Spiranthe lustrée	*Spiranthes lucida*	Shining Ladies' Tresses	-	L
PAPAVÉRACÉES				
Adlumie fongueuse	*Adlumia fungosa*	Climbing Fumitory	-	I
PHYTOLACCACÉES				
Phytolaque d'Amérique	*Phytolacca americana*	Pokeweed	-	L
POACÉES				
Élyme des rivages	*Elymus riparius*	River Bank Wildrye	-	L
Muhlenbergie ténue	*Muhlenbergia tenuiflora*	Slender Muhly	-	T
Panic flexible	*Panicum flexile*	Wiry Witchgrass	-	L
POLYPODIACÉES				
Dryoptère de Clinton	*Dryopteris clintoniana*	Shield-fern	-	L
PTÉRIDACÉES				
Adiante du Canada	*Adianthum pedatum*	Maidenhair Fern	-	VC
ROSACÉES				
Aubépine dilatée	*Crataegus dilatata*	Broad-leaved Hawthorn	-	L

Espèce				
Nom français	**Nom scientifique**	**Nom anglais**	**Statut**	
			Canada	**Québec**
RUBIACÉES				
Gaillet fausse-circée	*Galium circæzans*	Wild Licorice	-	L
STAPHYLÉACÉES				
Staphylier à trois folioles	*Staphylea trifolia*	Bladdernut	-	L
ULMACÉES				
Orme liège	*Ulmus thomasii*	Rock Elm	-	T
VIOLACÉES				
Violette à long éperon	*Viola rostrata*	Long-spurred Violet	-	L
WOODSIACÉES				
Woodsie à lobes arrondis	*Woodsia obtusa*	Blunt-lobed Cliff Fern	E	T

APPENDIX 2 - AMPHIBIANS and REPTILES

List of amphibian and reptile species observed in five sectors of Saint-Armand with their status.

Designation in Canada and in Quebec :
Special concern (SC), likely to be designated as threatened or vulnerable (L).

Espèce				
Nom français	**Nom scientifique**	**Nom anglais**	**Statut**	
			Canada	**Québec**
AMPHIBIENS ANOURES				
Crapaud d'Amérique	*Anaxyrus americanus*	American Toad	-	-
Grenouille des bois	*Lithobates sylvaticus*	Wood Frog	-	-
Grenouille des marais	*Lithobates palustris*	Pickerel Frog	-	L
Grenouille verte	*Lithobates clamitans*	Green Frog	-	-
Ouaouaron	*Lithobates catesbeianus*	American Bullfrog	-	-
Rainette crucifère	*Pseudacris crucifer*	Spring Peeper	-	-
Rainette versicolore	*Hyla versicolor*	Gray Treefrog	-	-
URODÈLES				
Salamandre à deux lignes du Nord	*Eurycea bislineata*	Northern Two-lined Salamander	-	-
Salamandre à points bleus	*Ambystoma laterale*	Blue-spotted Salamander	-	-
Salamandre à quatre orteils	*Hemidactylium scutatum*	Four-toed Salamander	-	L
Salamandre cendrée	*Plethodon cinereus*	Eastern Red-backed Salamander	-	-
Salamandre maculée	*Ambystoma maculatum*	Spotted Salamander	-	-
Salamandre sombre du Nord	*Desmognathus fuscus*	Northern Dusky Salamander	-	L
Triton vert	*Notophthalmus viridescens*	Eastern Newt	-	-
REPTILES TESTUDINES				
Tortue peinte du Centre	*Chrysemys picta marginata*	Midland Painted Turtle	-	-
Tortue serpentine	*Chelydra serpentina*	Snapping Turtle	SC	-

APPENDIX 3 - BIRDS

List of bird species observed in five sectors of Saint-Armand and the Saint-Armand hills

Designation in Canada and in Quebec :
Endangered in Canada (E), of interest (I), threatened (T), special concern (SC), likely to be designated as threatened or vulnerable (L), vulnerable (V).

Espèce				
Nom français	**Nom scientifique**	**Nom anglais**	**Statut**	
			Canada	**Québec**
ACCIPITRIDAE				
Aigle royal	*Aquila chrysaetos*	Golden Eagle	I	V
Autour des palombes	*Accipiter gentillis*	Northern Goshawk	I	-
Balbuzard pêcheur	*Pandion haliaetus*	Western Osprey	-	-
Busard Saint-Martin	*Circus cyaneus*	Hen Harrier	I	-
Buse à épaulette	*Buteo linætus*	Red-shouldered Hawk	SC	-
Buse à queue rousse	*Buteo jamaicensis*	Red-tailed Hawk	-	-
Buse pattue	*Buteo lagopus*	Rough-legged Hawk	I	-
Épervier brun	*Accipiter striatus*	Sharp-shinned Hawk	-	-
Épervier de Cooper	*Accipiter cooperii*	Cooper's Hawk	-	-
Petite buse	*Buteo platypterus*	Broad-winged Hawk	-	-
Pygargue à tête blanche	*Haliaeetus leucocephallus*	Bald Eagle	I	V
ALAUDIDAE				
Alouette cornue	*Eremophila alpestris*	Horned Lark	-	-
ALCEDINIDAE				
Martin-pêcheur d'Amérique	*Megaceryle alcyon*	Belted Kingfisher	-	-
ANATIDAE				
Bernache du Canada	*Branta canadensis*	Canada Goose	-	-
Canard branchu	*Aix sponsa*	Wood Duck	-	-
Canard chipeau	*Anas strepera*	Gadwall	-	-
Canard colvert	*Anas platyrhynchos*	Mallard	-	-

Espèce				
Nom français	**Nom scientifique**	**Nom anglais**	**Statut**	
			Canada	**Québec**
Canard d'Amérique	*Anas americana*	American Wigeon	-	-
Canard noir	*Anas rubripes*	American Black Duck	-	-
Canard pilet	*Anas acuta*	Northern Pintail	-	-
Canard roux	*Oxyura jamaisensis*	Ruddy Duck	-	-
Canard souchet	*Anas clypeata*	Northern Shoveler	-	-
Cygne siffleur	*Cygnus columbianus*	Tundra Swan	-	-
Fuligule à collier	*Aythya collaris*	Ring Neck Duck	-	-
Fuligule milouinan	*Aythya marila*	Greater Scaup	-	-
Garrot à œil d'or	*Bucephala clangula*	Common Goldeneye	-	-
Garrot d'Islande	*Bucephala islandica*	Barrow's Goldeneye	SC	V
Grand harle	*Mergus merganser*	Common Merganser	-	-
Harelde kakawi	*Clangula hyemalis*	Long-tailed Duck	-	-
Harle couronné	*Lophodytes cucullatus*	Hooded Merganser	-	-
Harle huppé	*Mergus serrator*	Red-brested Merganser	-	-
Macreuse à front blanc	*Melanitta perspicillata*	Surf Scoter	-	-
Macreuse brune	*Melanitta fusca*	White-winged Scoter	-	-
Macreuse noire	*Melanitta nigra*	Black Scoter	-	-
Oie des neiges	*Chen caerulescens*	Snow Goose	-	-
Petit fuligule	*Aythya affinis*	Lesser Scaup	-	-
Petit garrot	*Bucephala albeola*	Buffle Head	-	-
Sarcelle à ailes bleues	*Anas discors*	Blue-winged Teal	-	-
Sarcelle à ailes vertes	*Anas carolinensis*	Green-winged Teal	-	-
APODIDAE				
Martinet ramoneur	*Chaetura pelagica*	Chimney Swift	T	L
ARDEIDAE				
Butor d'Amérique	*Botaurus lentiginosus*	American Bittern	-	-
Grand héron	*Ardea herodias*	Great Blue Heron	-	-
Grande aigrette	*Egretta alba*	Great Egret	-	-

Espèce				
Nom français	**Nom scientifique**	**Nom anglais**	**Statut**	
			Canada	**Québec**
Héron vert	*Butorides virescens*	Green Heron	-	-
Petit blongios	*Ixobrychus exilis*	Least Bittern	T	V
BOMBYCILLIDAE				
Jaseur d'Amérique	*Bombycilla cedrorum*	Cedar Waxwing	-	-
CAPRIMULGIDAE				
Engoulevent bois-pourri	*Caprimulgus vociferus*	Whip-poor-will	-	L
Engoulevent d'Amérique	*Chordeiles minor*	Common Nighthawk	-	L
Étourneau sansonnet	*Sturnus vulgaris*	Common Starling	-	-
CARDINALIDAE				
Cardinal à poitrine rose	*Pheucticus ludovicianus*	Rose-breasted Grosbeak	-	-
Cardinal rouge	*Cardinalis cardinalis*	Northern Cardinal	-	-
Passerin indigo	*Passerina cyanea*	Indigo Bunting	-	-
CATHARTIDAE				
Urubu à tête rouge	*Cathartes aura*	Turkey Vulture	-	-
CERTHIIDAE				
Grimpereau brun	*Certhia americana*	Brown Creeper	-	-
CHARADRIIDAE				
Pluvier kildir	*Charadrius vociferus*	Killdeer	-	-
COLUMBIDAE				
Pigeon biset	*Columbia livia*	Rock Pigeon	-	-
Tourterelle triste	*Zenaida macroura*	Mourning Dove	-	-
CORVIDAE				
Corneille d'Amérique	*Corvus brachyrhynchos*	American Crow	-	-
Geai bleu	*Cyanocitta cristata*	Blue Jay	-	-
Grand corbeau	*Corvus corax*	Common Raven	-	-
CUCULIDAE				
Coulicou à bec noir	*Coccyzus erythropthalkmus*	Black-billed Cuckoo	-	-

Espèce				
Nom français	**Nom scientifique**	**Nom anglais**	**Statut**	
			Canada	**Québec**
EMBERIZIDAE				
Bruant à couronne blanche	*Zonotrichia leucophrys*	White-crowned Sparrow	-	-
Bruant à gorge blanche	*Zonotrichia albicollis*	White-throated Sparrow	-	-
Bruant chanteur	*Melospiza melodia*	Song Sparrow	-	-
Bruant de Lincoln	*Melospiza lincolnii*	Lincoln's Sparrow	-	-
Bruant des champs	*Spizella pusilla*	Field Sparrow	-	-
Bruant des marais	*Melospiza georgiana*	Swamp Sparrow	-	-
Bruant des neiges	*Plectrophenax nivalis*	Snow Bunting	-	-
Bruant des plaines	*Spizella pallida*	Clay-colored Sparrow	-	-
Bruant des prés	*Passerculus sandwichensis*	Savannah Sparrow	-	-
Bruant familier	*Spizella passerina*	Chipping Sparrow	-	-
Bruant fauve	*Passerella iliaca*	Fox Sparrow	-	-
Bruant hudsonien	*Spizella arborea*	American Tree Sparrow	-	-
Junco ardoisé	*Junco hyemalis*	Dark-eyed Junco	-	-
Tohi à flancs roux	*Pipilo erythrophthalmus*	Eastern Towhee	-	-
FALCONIDAE				
Crécerelle d'Amérique	*Falco sparverius*	American Kestrel	-	-
Faucon émerillon	*Falco columbarius*	Merlin	I	-
Faucon pèlerin	*Falco peregrinus* ssp. *anatum*	Peregrine Falcon	SC	V
FRINGILLIDAE				
Bec-croisé bifacié	*Loxia leucoptera*	White-winged Crossbill	-	-
Chardonneret jaune	*Carduelis tristis*	American Goldfinch	-	-
Durbec des sapins	*Pinicola enucleator*	Pine Grosbeak	-	-
Gros-bec errant	*Coccothraustes vespertinus*	Evening Grosbeak	-	-
Roselin familier	*Carpodacus mexicanus*	House Finch	-	-
Roselin pourpré	*Carpodacus purpureus*	Purple Finch	-	-
Sizerin blanchâtre	*Acanthis hornemanni*	Hoary Redpoll	-	-
Sizerin flammé	*Carduelis flammea*	Common Redpoll	-	-

Espèce				
Nom français	**Nom scientifique**	**Nom anglais**	**Statut**	
			Canada	**Québec**
GAVIIDAE				
Plongeon catmarin	*Gavia stellata*	Red-throated Loon	-	-
Plongeon huard	*Gavia immer*	Common Loon	-	-
HIRUNDINIDAE				
Hirondelle à ailes hérissées	*Stelgydopteryx serripennis*	Northern Rough-winged Swallow	-	-
Hirondelle à front blanc	*Petrochelidon pyrrhonota*	American Cliff Swallow	-	-
Hirondelle bicolore	*Tachycineta bicolor*	Tree Swallow	-	-
Hirondelle de rivage	*Riparia riparia*	Bank Swallow	-	-
Hirondelle noire	*Progne subis*	Purple Martin	-	-
Hirondelle rustique	*Hirondo rustica*	Barn Swallow	T	-
ICTERIDAE				
Carouge à épaulettes	*Agelaius phoeniceus*	Red-winged Blackbird	-	-
Goglu des prés	*Dolichonyx oryzivorus*	Bobolink	T	-
Oriole de Baltimore	*Icterus galbula*	Baltimore Oriole	-	-
Oriole des vergers	*Icterus spurius*	Orchard Oriole	-	-
Quiscale bronzé	*Quiscalus quiscula*	Common Grackle	-	-
Quiscale rouilleux	*Euphagus carolinus*	Rusty Blackbird	SC	L
Sturnelle des prés	*Sturnella magna*	Eastern Meadowlark	T	-
Vacher à tête brune	*Molothrus ater*	Brown-headed Cowbird	-	-
LANIIDAE				
Pie-grièche grise	*Lanius excubitor*	Northern Shrike	-	-
LARIDAE				
Goéland à bec cerclé	*Larus delawarensis*	Ring-billed Gull	-	-
Goéland argenté	*Larus argentatus*	Herring Gull	-	-
Goéland marin	*Larus marinus*	Great Black-backed Gull	-	-
Guifette noire	*Chlidonias niger*	Black Tern	-	-
Mouette de Bonaparte	*Chroicocephalus philadelphia*	Bonaparte's Gull	-	-
Mouette pygmée	*Hydrocoloeus minutus*	Little Gull	-	-

Espèce				
Nom français	**Nom scientifique**	**Nom anglais**	**Statut**	
			Canada	**Québec**
Mouette rieuse	*Chroicocephalus ridibundus*	Black-headed Gull	-	-
Sterne pierregarin	*Sterna hirundo*	Common Tern	I	-
MIMIDAE				
Moqueur chat	*Dumtella carolinensis*	Gray Catbird	-	-
Moqueur polyglotte	*Mimus polyglottos*	Northern Mockingbird	-	-
Moqueur roux	*Toxostoma rufum*	Brown Thrasher	-	-
MOTACILLIDAE				
Pipit d'Amérique	*Anthus rubescens*	American Pitpit	-	-
PARIDAE				
Mésange à tête noire	*Poecile atricapillus*	Black-capped Chickadee	-	-
Mésange bicolore	*Baeolophus bicolor*	Tufted Titmouse	-	-
PARULIDAE				
Paruline à ailes bleues	*Vermivora pinus*	Blue-winged Warbler	-	-
Paruline à ailes dorées	*Vermivora chrysoptera*	Golden-winged Warbler	T	L
Paruline à calotte noire	*Wilsonia pusilla*	Wilson's Warbler	-	-
Paruline à collier	*Parula americana*	Northern Parula	-	-
Paruline à couronne rousse	*Dendroica palmarum*	Palm Warbler	-	-
Paruline à croupion jaune	*Dendroica coronata*	Yellow-rumped Warbler	-	-
Paruline à flancs marron	*Dendroica pensylvanica*	Chestnut-sided Warbler	-	-
Paruline à gorge noire	*Dendroica virens*	Black-throated Green Warbler	-	-
Paruline à gorge orangée	*Dendroica fusca*	Blackburnian Warbler	-	-
Paruline à joues grises	*Vermivora ruficaoilla*	Nashville Warbler	-	-
Paruline à poitrine baie	*Dendroica castanea*	Bay-breasted Warbler	-	-
Paruline à tête cendrée	*Dendroica magnolia*	Wagnolia Warbler	-	-
Paruline azurée	*Setophaga cerulea*	Cerulean Warbler	E	T
Paruline bleue	*Dendroica caerulescens*	Black-throated Blue Warbler	-	-
Paruline couronnée	*Seiurus aurocapillus*	Ovenbird	-	-

Espèce				
Nom français	**Nom scientifique**	**Nom anglais**	**Statut**	
			Canada	**Québec**
Paruline des pins	*Dendroica pinus*	Pine Warbler	-	-
Paruline des ruisseaux	*Seiurus noveboracensis*	Northern Waterthrush	-	-
Paruline du Canada	*Wilsonia canadensis*	Canada Warbler	T	L
Paruline flamboyante	*Setophaga ruticilla*	American Redstart	-	-
Paruline hochequeue	*Parkesia motacilla*	Louisiana Waterthrush	SC	L
Paruline jaune	*Dendroica petechia*	Yellow Warbler	-	-
Paruline masquée	*Geothlypis trichas*	Common Yellowthroat	-	-
Paruline noir et blanc	*Mniotilta varia*	Black-and-white Warbler	-	-
Paruline obscure	*Vermivora peregrina*	Tennessee Warbler	-	-
Paruline rayée	*Dendroica striata*	Blackpoll Warbler	-	-
Paruline tigrée	*Dendroica tigrina*	Cape May Warbler	-	-
Paruline triste	*Oporornis philadelphia*	Mourning Warbler	-	-
Paruline vermivore	*Helmitheros vermivorus*	Worm-eating Warbler	-	-
PASSERIDAE				
Moineau domestique	*Passer domesticus*	House Sparrow	-	-
PHALACROCORACIDAE				
Cormoran à aigrette	*Phalocrocorax auritus*	Double-crested Cormorant	I	-
PHASIANIDAE				
Dindon sauvage	*Meleagris gallopavo*	Wild Turkey	-	-
Gélinotte huppée	*Bonasa umbellus*	Ruffed Grouse	-	-
Perdrix grise	*Perdrix perdrix*	Gray Partridge	-	-
PICIDAE				
Grand pic	*Dryocopus pileatus*	Pileated Woodpecker	-	-
Pic à tête rouge	*Melanerpes erythrocephalus*	Red-headed Woodpecker	T	T
Pic à ventre roux	*Melanerpers carolinus*	Red-bellied Woodpecker	-	-
Pic chevelu	*Picoides villosus*	Hairy Woodpecker	-	-
Pic flamboyant	*Colaptes auratus*	Northern Flicker	-	-
Pic maculé	*Sphyrapicus varius*	Yellow-bellied Sapsucker	-	-

Espèce				
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			Canada	**Québec**
Pic mineur	*Picoides pubescens*	Downy Woodpecker	-	-
PODICIPEDIDAE				
Grèbe à bec bigarré	*Podilymbus podiceps*	Pied-billed Grebe	-	-
Grèbe cornu	*Podiceps auritus*	Horned Grebe	-	-
Grèbe jougris	*Podiceps grisegena*	Red-necked Grebe	I	-
POLIOPTILIDAE				
Gobemoucheron gris-bleu	*Muscicapa striata*	Spotted Flycatcher	-	-
RALLIDAE				
Foulque d'Amérique	*Fulica americana*	American Coot	I	-
Gallinule poule d'eau	*Gallinula chloropus*	Common Moorhen	-	-
Marouette de Caroline	*Porzana carolina*	Sora Crake	-	-
Râle de Virginie	*Rallus limicola*	Virginia Rail	-	-
REGULIDAE				
Roitelet à couronne dorée	*Regulus satrapa*	Golden-crowned Kinglet	-	-
Roitelet à couronne rubis	*Regulus calendula*	Ruby-crowned Kinglet	-	-
SCOLOPACIDAE				
Bécasseau à poitrine cendrée	*Calidris melanotos*	Pectoral Sandpiper	-	-
Bécasseau minuscule	*Calidris minutilla*	Least Sandpiper	-	-
Bécasseau sanderling	*Calidris alba*	Sanderling	-	-
Bécasseau semipalmé	*Calidris pussila*	Semipalmated Sandpiper	-	-
Bécassine d'Amérique	*Scolopax minor*	American Woodcock	-	-
Bécassine des marais	*Gallino gallino*	Common Snipe	-	-
Chevalier grivelé	*Actitis macularius*	Spotted Sandpiper	-	-
Chevalier solitaire	*Actitis macularius*	Solitary Sandpiper	-	-
Grand chevalier	*Tringa melanoleuca*	Greater Yellowlegs	-	-
Maubèche branlequeue	*Actitis macularia*	Spotted Sandpiper	-	-
Maubèche des champs	*Bartramia longicauda*	Upland Sandpiper	-	-
Petit chevalier	*Tringa flavipes*	Lesser Yellowlegs	-	-

Espèce				
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Tournepierre à collier	*Arenaria interpres*	Ruddy Turnstone	-	-
SITTIDAE				
Sittelle à poitrine blanche	*Sitta carolinensis*	White-breasted Nuthatch	-	-
Sittelle à poitrine rousse	*Sitta canadensis*	Red-breasted Nuthatch	-	-
Tangara écarlate	*Piranga olivacea*	Scarlet Tanager	-	-
Tarin des pins	*Carduelis pinus*	Pine Siskin	-	-
STERCORARIIDAE				
Grand labbe	*Stercorarius skua*	Great Skua	-	-
Labbe pomarin	*Stercorarius pomarinus*	Pomarine Jaeger	-	-
STRIGIDAE				
Chouette rayée	*Stria varia*	Northern Barred Owl	-	-
Grand-duc d'Amérique	*Bubo virginianus*	Great Horned Owl	-	-
Hibou des marais	*Asion flammeus*	Short-eared Owl	SC	L
Petit-duc maculé	*Megascops asio*	Eastern Screech-owl	I	
Petite nyctale	*Aegolius acadicus*	Northern Saw-whet Owl	-	-
SULIDAE				
Fou de Bassan	*Morus bassanus*	Northern Gannet	-	-
TROCHILIDAE				
Colibri à gorge rubis	*Archilochus colubris*	Ruby-throated Hummingbird	-	-
TROGLODYTIDAE				
Troglodyte de Caroline	*Thryothorus ludovicianus*	Carolina Wren	-	-
Troglodyte des forêts	*Troglodytes hiemalis*	Winter Wren	-	-
Troglodyte des marais	*Cisthothorus palustris*	Marsh Wren	-	-
Troglodyte familier	*Troglodytes aeron*	House Wren	-	-
Troglodyte mignon	*Troglodytes troglodytes*	Eurasian Wren	-	-
TURDIDAE				
Grive à dos olive	*Catharus ustulatus*	Swainson's Thrush	-	-
Grive des bois	*Hylocichla mustalina*	Wood Thrush	T	-

Espèce				
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Grive fauve	*Catharus fuscescens*	Veery	-	-
Grive solitaire	*Catharus guttatus*	Hermit Thrush	-	-
Merle d'Amérique	*Turdus migratorius*	American Robin	-	-
Merlebleu de l'Est	*Sialia sialis*	Eastern Bluebird	I	-
TYRANNIDAE				
Moucherolle à côtés olive	*Contopus cooperi*	Olive-sided Flycatcher	T	L
Moucherolle à ventre jaune	*Empidonax flaviventris*	Yellow-bellied Flycatcher	-	-
Moucherolle des aulnes	*Empidonax alnorum*	Alder Flycatcher	-	-
Moucherolle des saules	*Empidonax traillii*	Willow Flycatcher	-	-
Moucherolle phébi	*Sayornis phoebe*	Eastern Phoebe	-	-
Moucherolle tchébec	*Empidonax minimus*	Least Flycatcher	-	-
Pioui de l'Est	*Contopus virens*	Eastern Wood Pewee	SC	-
Tyran huppé	*Myiarchus crinitus*	Great-crested Flycatcher	-	-
Tyran tritri	*Tyrannus tyrannus*	Eastern Kingbird	-	-
VIREONIDAE				
Viréo à gorge jaune	*Vireo flavifrons*	Yellow-throated Vireo	-	-
Viréo à œil rouge	*Vireo olivaceus*	Red-eyed Vireo	-	-
Viréo de Philadelphie	*Vireo philadelphicus*	Philadelphia Vireo	-	-
Viréo mélodieux	*Vireo gilvus*	Eastern Warbling Vireo	-	-