

Executive Summary

Ecological assessment of a natural area in Hudson, Québec.

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Hudson, Québec

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Background and summary of findings

A 10.35 ha forested wetland situated on the shores of the Ottawa River in the town of Hudson, Québec, has recently been targeted for residential development. In the spring of 2021, Nature Hudson and the Legacy Fund for the Environment mandated TerraHumana Solutions to conduct an ecological evaluation of this area (the study area). The study area included the natural space between Royalview street and Jack Layton Park (Lot MH2 or eastern block), and the area called Sandy Beach (Lot MH3 or western block) (Figures 1 & 2). Previous studies have listed this area as the highest priority for conservation.

We completed 26 field surveys to assess plants, insects, amphibians, reptiles, birds and bats from 4 April to 22 July 2021. The objectives of this ecological assessment were to delimit the wetlands, inventory the flora and fauna, identify species at risk¹, and provide recommendations based on the study's findings. This inventory is far from complete, as many phyla have not been surveyed, or only briefly. Mobile species who would use the study area, but were observed along the borders, such as the Ottawa river beachfront or Jack Layton Park, are included.

During our study, we observed and positively identified 343 species of flora and fauna, including a total of 29 species at risk (Table 1). Among the species at risk, we identified 13 plant species, three turtle species, six bird species, four bat species, and three insect species (Table 1).

¹ Species at risk includes those listed under the [Federal](#) Species At Risk Act (SARA) designated as "endangered", "threatened" or of "special concern", and those so assessed under the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). The province of Quebec consigns species to four levels: "menacé", "vulnérable", "susceptible d'être désignée menacée ou vulnérable", or "espèces floristiques vulnérables à la récolte".

Table 1. Number of species at risk (according to both federal and provincial designations) across all taxa observed in the study area from April to July 2021. A total of 29 species at risk were observed in the study area. Note that a single species can be listed both at the federal and provincial levels.

Species at risk status level	Number
Federal	
Committee on the Status of Endangered Wildlife in Canada (COSEWIC)	
COSEWIC endangered	3
COSEWIC threatened	3
COSEWIC special concern	5
Species At Risk (SARA)	
SARA Endangered	2
SARA threatened	3
SARA special concern	5
Canada Wild Species Insect listing^a	
Wild Species critically imperilled	1
Wild Species vulnerable	1
Province of Quebec	
Menacé	1
Vulnérable	2
Susceptible d'être désignée comme menacée ou vulnérable	9
Vulnérable à la récolte	7

^aCanada lists only a few insect Orders, Quebec does not list any.

Findings for each taxon are as follows:

Plants

We identified a total of 212 plant species, including 13 species at risk (one federal and 12 provincial designations, Table 2), including a plant so rare – the toothed bittercress (*Cardamine dentata*) – it is not listed in Quebec (listed as excluded). A total of 49 tree species were identified. The site is classified as second growth but contains large diameter “old-growth sized” trees and stands of federally threatened black ash (*Fraxinus nigra*) that appear to have some resistance to the emerald ash borer (*Agrilus planipennis*). The American Forest Service encourages people to report such trees, to begin a recovery program for resistant ash.

Table 2. At-risk plants observed in the study area from April to July 2021.

Common Name	Scientific name	COSEWIC status ^a	SARA status ^a	Provincial status ^b	Date observed
Northern maidenhair fern	<i>Adiantum pedatum</i>			vulnérable à la récolte ^c	2021-05-13
Canada wild ginger	<i>Asarum canadense</i>			vulnérable à la récolte	2021-06-01
Two-leaved toothwort	<i>Cardamine diphylla</i>			vulnérable à la récolte	2021-04-04
Black ash	<i>Fraxinus nigra</i>	threatened			2021-06-01
Ostrich fern	<i>Matteuccia struthiopteris</i>			vulnérable à la récolte	2021-06-01
Two-leaved mitrewort	<i>Mitella diphylla</i>			susceptible	2021-05-13
Swamp white oak	<i>Quercus bicolor</i>			susceptible	2021-04-04
Yellow water buttercup	<i>Ranunculus flabellaris</i>			susceptible	2021-06-11
Narrow-leaved blue-eyed-grass	<i>Sisyrinchium angustifolium</i>			susceptible	2021-07-12
White trillium	<i>Trillium grandiflorum</i>			vulnérable à la récolte	2021-04-04
Red trillium	<i>Trillium erectum</i>			vulnérable à la récolte	2021-04-04
Rock elm	<i>Ulmus thomasii</i>			menacée	2021-07-12
Large-flowered bellwort	<i>Uvularia grandiflora</i>			vulnérable à la récolte	2021-05-13
Toothed bittercress	<i>Cardamine dentata</i>	VASCAN excluded ^d			2021-06-11

^aGovernment of Canada. Species at Risk Public Registry. Available from https://wildlife-species.canada.ca/species-risk-registry/sar/index/default_e.cfm. Accessed 14 July 2021.

^bMinistère du Développement Durable, Environnement et Lutte contre les changements climatiques. Available from "<http://www.mddelcc.gouv.qc.ca/biodiversite/especes/>". Accessed 14 July 2021.

^cSensitive to commercial harvesting for horticulture or other reasons.

^dVASCAN, the database of vascular plants of Canada. Available from <https://data.canadensys.net/vascan/taxon/3965?lang=en>. Accessed 05 September 2021.

Insects

Forty-one species of insects were observed in only one morning's survey and other opportunistic observations (Table 3). Many more species may be present here. One federal and two listed species were found². The fraternal potter wasp (*Eumenes fraternus*) is listed as critically imperilled in Quebec. The female builds a tiny pot out of mud to house her offspring (Figure 3).



Figure 3. Fraternal potter wasp (*Eumenes fraternus*) found in the study area, June 2021. Source: M. MacNair

Table 3. At-risk insect species observed in the study area from April to July 2021.

Common Name	Scientific name	COSEWIC status ^a	SARA status ^a	Wild Species status	Date observed
Monarch	<i>Danaus plexippus</i>	endangered	special concern		2021-06-28
Fraternal potter wasp	<i>Eumenes fraternus</i>			critically imperilled	2021-07-12
Dion skipper	<i>Euphyes dion</i>			vulnerable	2021-07-05

^aGovernment of Canada. Species at Risk Public Registry. Available from https://wildlife-species.canada.ca/species-risk-registry/sar/index/default_e.cfm. Accessed 16 July 2021.

Fish

The province reports observations of three species that are designated at risk federally within an 8-kilometer radius of the study area; a local fisherman reported (July 2021) catching riverhorse (Genus *Moxostoma*) in the study area. Two of the four *Moxostoma* species found here are at risk. The Department of Fisheries and Oceans requires that any development plan including backfill into the Viviry river wetland obtain a federal permit, due to the potential presence of at-risk species. As of April 2021, and as far as we were informed, no permit had been requested. We recommend conducting fish surveys in the spring and summer of 2022 to determine the presence of these species.

Herpetofauna

² As the federal government only lists several Orders, and the province does not include invertebrates in its listings, [Wild Species: The General Status of Species in Canada](#) listing was also used to assess insects.

We identified 13 species of amphibians and reptiles, including three at-risk turtles either nesting or with juveniles (two federal and one federal and provincial designation, Table 4). Turtles are the most imperiled group of vertebrates on the planet and require up to 500m of surrounding habitat. The longest span across the study area is almost 650m. The loss of potential nesting area may force females on nesting migrations and increase their vulnerability to road mortality from the development. Frogs require 300m of habitat surrounding their birth pond and are particularly sensitive to aquatic perturbations, such as backfilling. Juveniles were observed in ponds slated to be backfilled. Given the observation by the province of three at-risk snake species in the immediate environment, surveys for snakes are recommended in the spring and summer of 2022.

Table 4. At-risk herpetofauna observed in the study area from April to July 2021.

Common Name	Scientific name	COSEWIC status ^a	SARA status ^a	Provincial status ^b	Date observed	CDPNQ observed
Snapping turtle (+nests)	<i>Chelydra serpentina</i>	special concern	special concern		2021-07-12	
Midland painted turtle (+nests)	<i>Chrysemys picta marginata</i>	special concern			2021-07-12	
Northern map turtle (+juveniles)	<i>Graptemys geographica</i>	special concern	special concern	vulnérable	2021-07-12	x

^aGovernment of Canada. Species at Risk Public Registry. Available from https://wildlife-species.canada.ca/species-risk-registry/sar/index/default_e.cfm. Accessed 16 July 2021.

^bMinistère du Développement Durable, Environnement et Lutte contre les changements climatiques. Available from Centre de données sur le patrimoine naturel du Québec (CDPNQ), <https://cdpng.gouv.qc.ca/produits.htm#>. Accessed 14 July 2021.

Avifauna

Of the 64 species of bird observed, six are species at risk (Table 5). The wetland is a hunting ground for at-risk raptors, including the red-shouldered hawk (*Buteo lineatus*) and the bald eagle (*Haliaeetus leucocephalus*), who perch on trees in the forest, while such species as the Eastern wood pewee (*Contopus virens*) and the chimney swift (*Chaetura pelagica*) use the forest of the study area as a breeding or feeding site.

Table 5. At-risk avifauna observed in the study area from April to July 2021.

Common Name	Scientific name	COSEWIC status ^a	SARA status ^a	Provincial status ^b	Migratory status ^c	Breeding Evidence Code	Date observed
Red-shouldered hawk	<i>Buteo lineatus</i>		special concern		M	T	2021-05-03
Chimney swift	<i>Chaetura pelagica</i>	threatened	threatened	susceptible	M		2021-07-05
Olive-sided flycatcher	<i>Contopus cooperi</i>	special concern	threatened	susceptible	M		2021-05-21
Eastern wood pewee	<i>Contopus virens</i>	special concern	special concern		M	T	2021-05-21
Bald eagle	<i>Haliaeetus leucocephalus</i>			vulnérable	M		2021-07-02
Wood thrush	<i>Hylocichla mustelina</i>	threatened	threatened		M	T	2021-05-13

^aGovernment of Canada. Species at Risk Public Registry. Available from https://wildlife-species.canada.ca/species-risk-registry/sar/index/default_e.cfm. Accessed 16 July 2021.

^bMinistère du Développement Durable, Environnement et Lutte contre les changements climatiques (MDDELCC). Available from Centre de données sur le patrimoine naturel du Québec (CDPNQ) <https://cdpnq.gouv.qc.ca/produits.htm#>. Accessed 14 July 2021.

^cQuebec Breeding Bird Atlas: Breeding evidence codes. Available from https://www.atlas-oiseaux.qc.ca/explications_indices_en.jsp. Accessed 07 July 2021.

Mammals

We observed 13 species of mammals, including five species at risk (Table 6). American river otters were observed by visitors frequently throughout spring and summer. Of the 455 bat (order Chiroptera) passes recorded, 357 originated from four species at risk (two federally endangered and two susceptible at the provincial level, Table 6). Females of the endangered little brown myotis (*Myotis lucifugus*) and tri-coloured bat (*Perimyotis subflavus*) establish summer maternity colonies in large-diameter trees such as those found in the study area. We recommend surveys during the breeding period (spring to fall 2022) to confirm the presence of maternity roosts in the forest.

Table 6. At-risk mammals observed in the study area from April to July 2021.

Common Name	Scientific name	COSEWIC status ^a	SARA status ^a	Provincial status ^b	Date observed
Silver-haired bat	<i>Lasiurus noctivagans</i>			susceptible	2021-06-28
Red bat	<i>Lasiurus borealis</i>			susceptible	2021-06-28
Little brown myotis	<i>Myotis lucifugus</i>	endangered	endangered	susceptible	2021-06-28
Tri-coloured bat	<i>Perimyotis subflavus</i>	endangered	endangered		2021-06-28

^aGovernment of Canada. Species at Risk Public Registry. Available from https://wildlife-species.canada.ca/species-risk-registry/sar/index/default_e.cfm. Accessed 16 July 2021.

^bMinistère du Développement Durable, Environnement et Lutte contre les changements climatiques (MDDELCC). Available from Centre de données sur le patrimoine naturel du Québec (CDPNQ) <https://cdpnq.gouv.qc.ca/produits.htm#>. Accessed 14 July 2021.

Wetland Delimitation

The study area is characterized by extensive wetlands (Figure 2). We found the wetland extent and size, especially of the eastern block, to be greater than the previously delineated area by the development plans submitted to Hudson in 2020 by Nicanco Holdings (9370-2413 Quebec Inc). In fact, our delineation is a better match to the one reported in the *zone d'intervention spéciale* (ZIS) plans created in 2019 by the *Ministère des Affaires des municipales et de l'Habitation* (MAMH, Figure 3). More backfill of wetlands will be required to build the development than described by the plans.

The existing backfill plans (Figure 3) of the wetlands will have negative consequences for many at-risk species. Wetlands slated to be filled include some of the richest biota of the study area. That is, at-risk plants would be removed, birds would lose feeding perches and nests, bats would lose roosts and potential maternity trees, fish and amphibians would be impacted by reduced dissolved oxygen in the water and turtles would suffer from the loss of habitat and traffic mortality from increased human presence.

Of the 29 species at risk documented in our study, the government lists only one within an eight-km radius of the study area, implying that few surveys exist of the site. The 28 currently unlisted species at risk we observed should be registered with the Centre de données sur le patrimoine naturel du Québec (CDPNQ). The CDPNQ tracks populations of animal and plant species to inform biodiversity conservation efforts at the provincial level. The province's current knowledge of the site is insufficient, and development permits granted on that basis do not reflect the value of the site.

Conclusion

The study area is one of the last undeveloped riverine lowland forest habitats on this shoreline in Quebec. Given our findings, it contains critical habitat for both federally and provincially at-risk species. The planned development will result in direct, indirect, and potentially cumulative negative effects on at-risk species and their habitats. It is implausible to expect to retain the current species and their habitat while deforesting and backfilling as planned by the development proposed by Nicanco Holdings. We therefore conclude that the area is of ecological significance. We would recommend that the town of Hudson take the findings of this study into account and consider revisiting its plan to develop the study area.



Figure 1. Map of the 2021 study area in Hudson, Québec, showing georectified developer property lines, the wetland delimitation measured in this study, and the sampled vernal pool locations. Georectification is a mapping tool used to align the proposed development plans to the coordinates on the maps. Some differences will occur. Only a land surveyor is authorized under the law to conduct delimitation or positioning of properties. Map prepared with OpenStreetMap (in French), Nicanco Holdings Plan 2: Plan d'Implantation, 30 June 2020 (in French).

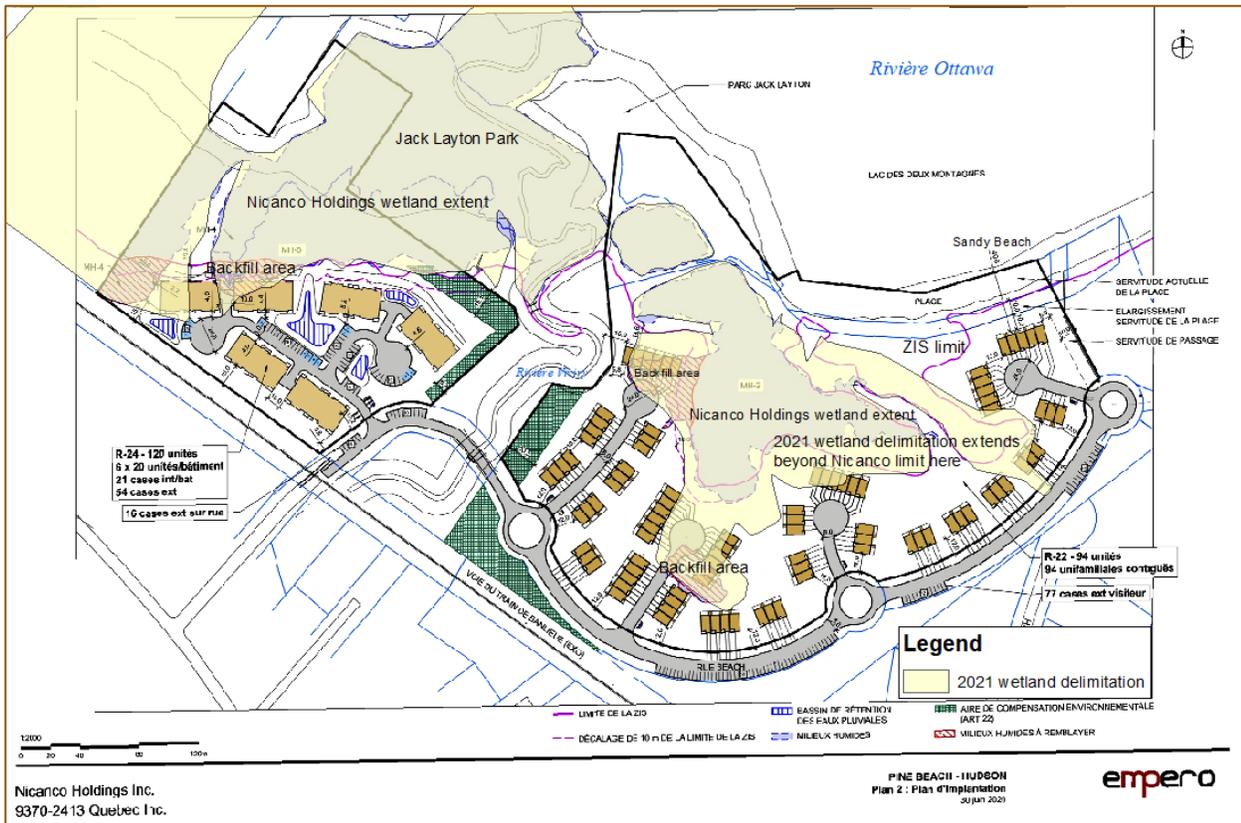


Figure 2. Georectification comparing Nicanco wetland limit and 2021 delimitation. Map prepared with OpenStreetMap (in French), Nicanco Holdings Plan 2: Plan d'Implantation, 30 June 2020 (in French).