

# Summary of Environmental Studies Conducted to Date

## Overview

On February 23, 2022 Natural Forces registered an Environmental Assessment ('EA') Registration Document with the province of Nova Scotia for the proposed Westchester Wind Project (the 'Project'). The Project consists of up to 12 wind turbine generators ('WTGs') capable of producing approximately 50 MW of renewable energy that will be connected to the existing Nova Scotia Power transmission grid via an overhead transmission line. The Project is being developed by a partnership between Natural Forces Developments Limited Partnership and Wskijinu'k Mtno'taquinuow Agency Limited Partnership, a corporate body wholly owned by the 13 Mi'kmaq bands in Nova Scotia, together they are referred to as the 'Proponent'. The Project is located on lands in Mi'kmaq traditional territory in an area where the Mi'kmaq have historically and continue to use the land and exercise their Aboriginal and Treaty rights.

The purpose of this Project is to help Nova Scotia achieve their renewable electricity standards through the generation of clean, renewable energy, and reduce Nova Scotia's reliance on imported energy sources through the development of a localized renewable energy generation (Renewable Electricity Regulations 2021).

This summary document provides a high-level overview of the environmental studies conducted by the Proponent for the proposed Westchester Wind Project. The full Environmental Assessment details the full assessment of the studies conducted for this Project, the detailed evaluation of potential impacts of the Project, and the proposed measures to mitigate impacts. The Environmental Assessment for the Project and other information related to the project are available at:

<https://www.naturalforces.ca/westchester-wind-project.html>.

## Existing Land Use

The proposed Project is located within an area that has been extensively used for agriculture and forestry practices, and is disturbed by other existing land uses such as the quarry that has proposed a major expansion to the north. The project development area was selected to incorporate agricultural areas and existing roads to minimize (to the extent possible) undisturbed forest habitat.

## Terrestrial Wildlife

Field studies of terrestrial habitats were conducted between April and October 2021, in collaboration with other targeted field surveys (i.e., avian surveys, wetlands, watercourses, baseline vegetation and rare plants). They studied:

- Available desktop data;
- Potential habitat for species at risk/species of conservation concern; and
- Incidental observation and documentation of all observed wildlife, signs of wildlife and their habitat, including species at risk/species of conservation concern.

The results of their study are summarized briefly below:

- Beaver, coyote, white-tailed deer, porcupine, black bear, red fox, snowshoe hare, northern racoon were observed;
- No moose were observed during studies, but there have been historic observances of moose in the area; and,
- All reptiles and amphibians observed have secure populations. Wood frog, green frog, pickerel frog, and common garter snake were observed on site.

## Birds

Birds activity on the Project site was studied in three ways:

- 1) Desktop review of available data;
- 2) On-site bird count field surveys; and,
- 3) Remote sensing (radar) detection of bird migration over site.

The results of their study are summarized below:

- The number of bird species and individual birds detected during 2021 field surveys are summarized in the table below.

<b>Season of study</b>	<b>Number of Species Observed (Diversity)</b>	<b>Number of Birds Detected (Abundance)</b>
Late-Winter Surveys (February- March)	13	92
Spring Surveys (April to June)	70	1502
Summer Surveys (June to late July)	56	584
Fall Surveys (mid-August to late-October)	64	1286

- Across all seasons, more than 80% of bird species observed on site represent secure populations. The species at risk are addressed below.
- Most common species identified during each survey:
  - o Winter: Black-capped Chickadee, Golden-crowned Kinglet, American Crow, Boreal Chickadee, Dark-eyed Junco
  - o Spring: White-throated Sparrow, American Robin, Black-throated Green Warbler, Ovenbird, Hermit Thrush
  - o Summer: White-throated Sparrow, Black-throated Green Warbler, Common Yellowthroat, Magnolia Warbler, Ovenbird
  - o Fall: Blue Jay, Yellow-rumped Warbler, Black-capped Chickadee, Golden-crowned Kinglet, White-throated Sparrow
- Radar studies show some migration happening on most nights, with a large proportion of migration in each season occurring within just to a few nights when favourable tailwinds are present. The majority of migration detected happened under 400 m above ground level.

## Bats

Acoustic monitoring for resident and migratory bat species occurred from June to October 2021 in order to study their breeding season and fall migratory season.

The results of their study are summarized below:

- Migratory and resident bat species were detected.
- Average of 0.20 bat passes were detected per detector night for all bats, which decreases to 0.06 passes per detector night for migratory bats and as such, represents low bat usage of the site.
- The nearest known bat hibernacula is 12 km away.

## Watercourse, Fish and Fish Habitat

Watercourses were delineated in the field and details on observed water quality parameters and substrate, vegetation, and habitat types were recorded. Additionally, incidental observations on water flow, seasonality of the watercourse and presence of fish were made throughout the field season.

A habitat suitability assessment survey for wood turtles was conducted in June 2021 along sections of Gleason Brook, as this watercourse intersects the Project site and was identified as having the highest potential to support wood turtles. Incidental surveys for wood turtles were also conducted during wetland surveys and any bird surveys in suitable habitat.

The results of their study are summarized below:

- No turtles were identified during surveys, but have been observed historically which will be taken into account in Project design.
- Some streams have potential to bear fish, which will be taken into account in Project design.
- No fish species of conservation concern were identified during surveys or historically within 10 km of site.
- A species at risk aquatic lichen was identified on site. Project infrastructure will be set back appropriately from these occurrences.

## Wetlands and Vegetation

Biologists field delineated wetlands and surveyed the vegetation throughout the Project area.

The results of their study are summarized below:

- No wetlands are predicted to be directly impacted by proposed turbine locations. There may be potential for interactions with wetlands and project access roads.
- Proper mitigations and best practices to be put in place to protect wetlands during construction.
- One aquatic lichen species at risk was observed, and one plant species of concern. Appropriate setbacks will be applied for the species based on best practices and discussions with provincial specialists.

## Species at Risk

During the aforementioned field studies, 6 Species at Risk (SAR) were observed on site, including birds and additional acoustic records of bats.

The results of their study are summarized below:

- Historic observations of a total of 16 species at risk have occurred within 50 km of the proposed Project area, including birds, moose, lichen species, monarch butterfly, and turtles.
- Species at risk observed during surveys or historically within 50 km of the Project include:
  - o Bats: Little Brown Myotis, Northern/ Long Eared Myotis, Tri-coloured Bat
  - o Birds: Canada Warbler, Chimney Swift, Common Nighthawk, Eastern Wood Pewee, Evening Grosbeak, Olive Sided Flycatcher, Short Eared Owl, Rusty Blackbird, Bank Swallow, Barn Swallow, Bobolink
  - o Mammals: Eastern Pipistrelle, Moose
  - o Reptiles: Eastern Painted Turtle, Wood Turtle, Snapping Turtle
  - o Invertebrates: Monarch Butterfly
  - o Lichen: Eastern Waterfan
  - o Plant: Large Purple Fringed Orchid
- Fish: Atlantic Salmon
- Appropriate buffers and mitigation will be applied on a case-by-case basis for best practices for each species.
- Migratory and resident bat passes are very low across the Project area.
- The Proponent will aim to avoid clearing during bird nesting season.
- Avian mortality in Atlantic Canada has been historically low, with an average of approximately 1 bird mortality/ turbine / year for non-raptors, and 0 mortalities/turbine/ year then non raptors. This is noticeably less than what is regularly observed in Ontario and Western provinces (Bird Studies Canada, 2018). Additionally, many studies indicate that the varying flight heights at which birds migrate suggests that turbines ~200m tall do not pose a new risk compared to previous generations of turbines (Horton, 2014). Finally, it is found that the proportion of small passerine (songbird) mortalities from wind turbine collisions is extremely low, less than 0.043% of all small passerine mortalities and this rate does not pose a threat to bird populations. Factors of significantly greater impact to bird mortality include, but are not limited to, house cats, buildings, and communication towers (Erickson, 2016). The intertwining effects of clearcutting/extensive habitat destruction and fragmentation, and climate change also pose a more significant risk to birds.
- The proponent will develop an Adaptive Management Plan to assess the risk of post construction impacts to migrant avian species with a management response plan that includes post construction monitoring and a phased mitigation approach based on the results of the monitoring program.

## Closure

A thorough analysis of the proposed Project components and activities has been carried out in the Environmental Assessment for all Project phases - construction, operation, and decommissioning. Baseline existing environmental characteristics of the region have been documented throughout the Environmental Assessment and the VECs have been assessed. The Mi'kmaq in Nova Scotia have been and will continue to be engaged with and updated on Project activities, and a Mi'kmaq Ecological Knowledge study has been initiated. Consultation with the public and various stakeholders is ongoing to gauge the full range of impacts and concerns with regards to the Project, which is integrated into planning efforts.

The impact of the Project on the local environment has been evaluated based on the many criteria and mitigative measures presented throughout the Environmental Assessment and will be adopted to minimize the chance and reduce the significance of the potential residual impacts as a result of Project activity. Cumulative effects of the Project on the environment due to other regional Projects and activities have also been identified and assessed.

From the data presented in the Environmental Assessment process, there are no significant residual environmental effects predicted for the construction, operation, and decommissioning phases of the Project.

## Environmental Study Registration Document

The full Environmental Assessment for the Project and other information related to the project are available at:

<https://www.naturalforces.ca/westchester-wind-project.html>

## References

Bird Studies Canada, Canadian Wind Energy Association, Environment Canada and Ontario Ministry of Natural Resources 2018. Wind Energy Bird and Bat Monitoring Database Summary of the Findings from Post-construction Monitoring Reports.

[https://www.birdscanada.org/resources/wind/2018\\_Database\\_Summary\\_Report.pdf](https://www.birdscanada.org/resources/wind/2018_Database_Summary_Report.pdf)

Erickson WP, Wolfe MM, Bay KJ, Johnson DH, Gehring JL. (2014). A Comprehensive Analysis of Small- Passerine Fatalities from Collision with Turbines at Wind Energy Facilities. PLoS ONE 9(9): e107491. <https://doi.org/10.1371/journal.pone.0107491>

Horton, K.G., Van Doren, B.M .Stepanian, P.M, Farnsworth, A and Jeffrey F. Kelly, J.F. 2016. Where in the air? Aerial habitat use of nocturnally migrating birds. Published:01 November 2016. Available at: <https://doi.org/10.1098/rsbl.2016.0591>

Zimmerling, J., Pomeroy, A., d'Entremont, M., & Francis, C. (2013). Canadian estimate of bird mortality due to collisions and direct habitat loss associated with wind turbine developments. *Avian Conservation and Ecology*, 8(2).