



Belle River Wind Project 2019 Disturbance Monitoring

Natural Resource Solutions Inc. (NRSI) was retained to conduct post-construction wildlife monitoring at the operational Belle River Wind Project (Belle River WP) located in the Municipality of Lakeshore, Essex County, Ontario. This wind energy project has a total nameplate capacity of 100MW and consists of 40 turbines. This document provides an executive summary of the methods and results of the second year of post-construction wildlife monitoring conducted at the Belle River WP in 2019.

Methods

NRSI biologists conducted post-construction wildlife behaviour monitoring at the Belle River WP following methods approved by the Ministry of Natural Resources and Forestry (MNRF) as part of the Project's Natural Heritage Assessment (NHA), Environmental Effects Monitoring Plan (EEMP), and Pre-construction Monitoring Report (NRSI 2015a, 2015b, 2016). As outlined in these documents, one (1) provincially Significant Wildlife Habitat (SWH) required post-construction behaviour surveys in 2019:

- One (1) habitat for a Bird Species of Conservation Concern (SCC), Eastern Wood-pewee (*Contopus virens*) (EWP-006).

In accordance with the NHA and the Pre-construction Monitoring Report (NRSI 2015a, 2016), post-construction mortality monitoring was also required at turbines located within 120m of three (3) habitats for butterfly SCC, Duke's Skipper (*Euphyes dukesi*) (DUS-001, DUS-004) and Giant Swallowtail (*Papilio cresphontes*) (GSW-001).

These habitats were identified to be provincially significant in the Environmental Impact Study (EIS) report of the NHA (NRSI 2015a), the EEMP (NRSI 2015b), and the Pre-construction Monitoring Report (NRSI 2016), which were completed prior to the construction of the Project. Provincial significance of the habitats was identified based on criteria established, or otherwise approved, by the MNRF.

As per the EIS report of the NHA and the EEMP (NRSI 2015a, 2015b), the following methods were implemented for the monitoring study:

- Point count and transect surveys for breeding Eastern Wood-pewee were conducted three (3) times from June to July; and
- Mortality monitoring of butterfly SCC, Duke's Skipper and Giant Swallowtail, was conducted at two (2) turbines (T205 and T210) twice-weekly from May to October and weekly in November.

Results

Bird Species of Conservation Concern Habitat

The results of the post-construction surveys of the Bird SCC habitat (Eastern Wood-pewee) conducted in 2019, in comparison with the baseline data collected in 2015, and the post-construction results from 2018 are outlined below:

Feature ID	Pre-construction Results (2015)	Post-construction Results (2018)	Post-construction Results (2019)
EWP-006	<p>Significant</p> <p>Six (6) observations of Eastern Wood-pewee¹</p> <p>Highest Breeding Evidence: Probable</p>	<p>Not Significant</p> <p>Two (2) observations of Eastern Wood-pewee</p> <p>Highest Breeding Evidence: Possible</p>	<p>Significant</p> <p>Three (3) observations of Eastern Wood-pewee¹</p> <p>Highest Breeding Evidence: Probable</p>

1. Presence of nesting or breeding was observed for this species. NRSI considered Ontario Breeding Bird Atlas (OBBA) breeding evidence codes for probable or confirmed breeding evidence as a reasonable indication if a bird is nesting or breeding.

The Bird SCC habitat meets the established standards for significance based on post-construction monitoring surveys conducted in 2019.

Butterfly Species of Conservation Concern Mortality Monitoring

No butterfly SCC mortalities were observed at turbines within 120m of Duke's Skipper (DUS-001, DUS-004) or Giant Swallowtail (GSW-001) habitats at the Belle River WP during the first two (2) years of post-construction mortality monitoring conducted in 2018 and 2019. As a result, there are no confirmed, or suspected, operational turbine impacts to butterfly SCC at the Belle River WP.

Additional Monitoring Commitments

Post-construction surveys are required to be conducted for one (1) additional year (2020) for the Eastern Wood-pewee habitat (EWP-006) and to monitor for butterfly SCC mortalities, and for two (2) additional years (2020 and 2022) for Vegetation SCC habitats (MIW-004, MIW-008, MSE-006, SHH-002, SHH-003, SHH-004, SHH-005, SHU-001).at the Belle River WP.