NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Belle River Wind Project

2022 Disturbance Monitoring

Natural Resource Solutions Inc. (NRSI) was retained to conduct post-construction 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 post-construction Significant Wildlife Habitat (SWH) monitoring conducted in 2022 at the Belle River WP, which represents the third year of post-construction monitoring for Vegetation Species of Conservation Concern (SCC) habitats.

Methods

NRSI biologists conducted post-construction vegetation 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; NRSI 2015a), and Pre-construction Monitoring Report (NRSI 2016). As outlined in these documents, eight provincially SWHs required post-construction surveys in 2022, including:

- Eight habitats for Vegetation SCC [(Missouri Ironweed) (*Veronia missurica*) (MIW-004, MIW-008)], [(Muskingum Sedge) (*Carex muskingumgensis*) (MSE-006)], [(Shellbark Hickory) (*Carya laciniosa*) (SHH-002, SHH-003, SHH-004, SHH-005)], [(Shumard Oak) (*Quercus shumardii*) (SHU-001)].

These habitats were identified to be provincially significant in the Environmental Impact Study (EIS) report of the NHA (NRSI 2015a) and/or 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 (NRSI 2015a), the following methods were implemented for the monitoring study:

- One standardized area search was conducted for each Vegetation SCC habitat during a time period when plant species exhibit characteristics that allow for confident identification.

Results

Vegetation Species of Conservation Concern Habitats

The results of the post-construction surveys of the Vegetation SCC habitats (Missouri Ironweed, Muskingum Sedge, Shellbark Hickory, Shumard Oak) conducted in 2022, in comparison with the baseline data collected in 2014-2015, and post-construction results from 2018 and 2020 are outlined below:

Feature ID	Pre-Construction Results (2014-2015)	Post-Construction Results (2018)	Post-construction Results (2020)	Post-construction Results (2022)
MIW-004	**Significant** Ten (10) stems observed of Missouri Ironweed	**Significant** Twelve (12) stems observed of Missouri Ironweed	**Significant** Seventeen (17) stems observed of Missouri Ironweed	**Significant** Thirty-three (33) stems observed of Missouri Ironweed
MIW-008	**Significant** Twenty-five (25) stems observed of Missouri Ironweed	**Significant** Twenty-five (25) stems observed of Missouri Ironweed	**Significant** Twenty-eight (28) stems observed of Missouri Ironweed Seventy-one (71) stems observed of Missouri Ironweed during a subsequent visit in October	**Significant** Seventy-three (73) stems observed of Missouri Ironweed
MSE-006	**Significant** Several-hundred individuals observed of Muskingum Sedge	**Significant** Four-hundred and thirty-five (435) individuals observed of Muskingum Sedge	**Significant** Five-hundred and fourteen (514) individuals observed of Muskingum Sedge	**Significant** Two-hundred and eighty-six (286) individuals observed of Muskingum Sedge
SHH-002	**Significant** This species was confirmed to be present in the candidate habitat during area searches conducted with Ecological Land Classification (ELC) mapping.	**Significant** Twenty (20) Shellbark Hickory trees observed	**Significant** Sixty-five (65) Shellbark Hickory trees observed	**Significant** Eighty-nine (89) Shellbark Hickory trees observed
SHH-003	**Significant** This species was confirmed to be present in the candidate habitat during area searches conducted with ELC mapping.	**Significant** Forty-four (44) Shellbark Hickory trees observed	**Significant** Ninety-three (93) Shellbark Hickory trees observed	**Significant** One hundred and two (102) Shellbark Hickory trees observed
SHH-004	**Significant** This species was confirmed to be present in the candidate habitat during area searches conducted with ELC mapping.	**Significant** Sixty (60) Shellbark Hickory trees observed	**Significant** Sixty-six (66) Shellbark Hickory trees observed	**Significant** Twenty-three (23) Shellbark Hickory trees observed
SHH-005	**Significant** This species was confirmed to be present in the candidate habitat during area searches conducted with ELC mapping.	**Significant** Four (4) Shellbark Hickory trees observed	**Significant** Nineteen (19) Shellbark Hickory trees observed	**Significant** Thirty (30) Shellbark Hickory trees observed
SHU-001	**Significant** This species was confirmed to be present in the candidate habitat during area searches conducted with ELC mapping.	**Significant** Fifteen (15) Shumard Oak trees observed	**Significant** Thirty-one (31) Shumard Oak trees observed	**Significant** Forty-two (42) Shumard Oak trees observed

The Vegetation SCC habitats continue to meet the standards for significance based on post-construction monitoring surveys conducted in 2022.

Additional Monitoring Commitments

Post-construction SWH monitoring conducted by NRSI in 2022 at the Belle River WP represents the third and final year of post-construction monitoring for Vegetation SCC habitats.

All post-construction disturbance monitoring commitments for Vegetation SCC habitats have been met and no further disturbance monitoring for vegetation is required for the Belle River WP.