APPENDIX P.2

Winter Bird Survey

2007-2008 Winter Bird Surveys
Big Galloo Island, NY

Final report - July 2008

Prepared for:

Upstate NY Power Corp.
950-A Union Road, Ste. 20
West Seneca, NY 14224-3454

Prepared by:

Old Bird, Inc.
605 W. State St.
Ithaca, NY 14850

TABLE OF CONTENTS

Introduction

This report is a baseline winter avian survey (primarily for raptors) that is part of the SEQRA and Article VII review processes for the proposed Hounsfield wind energy project on Big Galloo Island, Town of Hounsfield, NY. The wind energy project would consist of the construction and operation of up to 90 wind turbines, the installation and operation of associated collection lines (below grade and overhead), and related facilities including a docking facility, helipad, living quarters, parking areas and operations and maintenance facilities on Big Galloo Island.

This Big Galloo winter avian survey was conducted from November 28, 2007 – March 10, 2008. No prior bird surveys in winter have been conducted on Big Galloo Island. The protocol for the survey was developed in conjunction with feedback from the New York State Department of Environmental Conservation (NYDEC) in mid-November 2007 and was formally stated when the preconstruction bird and bat workplan for the project was finalized in March 2008 (Old Bird, Inc. 2008).

Baseline surveys for wintering waterfowl and raptors are regularly carried out at proposed wind energy projects that have extensive grasslands in proximity to large water bodies. Regional examples of such surveys can be found for the proposed wind projects on Wolfe Island, ON (www.wolfeislandwind.com) and Cape Vincent, NY (www.stlawrencewind.com), both within 20 km of Big Galloo Island.

Methods

Diurnal and crepuscular visual surveys for birds were attempted every 10-14 days from late November 2007 to mid-March 2008 with a primary focus on counting wintering raptors. Surveys also included rough visual counts of waterfowl during small aircraft flights around the island as well as documentation of the landbirds present. Surveys were timed to correspond with good weather conditions and to cover the daytime, early morning and late afternoon periods, including dusk.

Raptor and landbird surveys were carried out predominantly from snowmobile or ATV. Due to the small size of the island and the fact that wintering raptors are frequently on the move, surveys initially attempted to cover the perimeter of the island, including all major grassland areas, at a steady pace in order to avoid double counting of birds. The focus was on documenting the numbers of raptors, the region of the island where they occurred as well as specific information on whether birds were perched or in flight, their flight height, and direction of flight. The sex and age of individuals were determined when possible, but the quick pace of the surveys precluded gathering detailed information on age and sex of some species such as Rough-legged Hawk. Fig. 1 shows the location of the perimeter route and associated area surveyed during each visit. In addition, on most visits the wooded interior of the island was bisected in at least one survey made by ATV or by walking.

Approximate numbers of waterfowl were estimated during a single aircraft flight at less than 200 m above the water around the perimeter of the island during each visit. Observations were made from the right front passenger seat. Estimates were on the scale of +/- 500 birds. The location of waterfowl concentrations were noted along with ice conditions.

Additional landbird species were noted during the course of the raptor surveys.

Fig. 1. Big Galloo Island (from 2002 satellite image). The orange line indicates the route taken by snowmobile or ATV during the 2007-2008 winter bird surveys. The light orange area is a rough estimate of the area covered visually for perched and low flying raptors. The coverage for high-flying raptors included the whole island.

Results

Weather conditions prevented completion of surveys every 10-14 days. Five surveys could be carried out during the study period and on two of these five trips weather permitted overnight stay on the island enabling effective Short-eared Owl surveys. Study dates occurred roughly 4 weeks apart (Nov 28; Dec 20-21; Jan 16-17; Feb 14; Mar 10). Eight additional trips were tentatively scheduled but were cancelled due to weather. Most of the successful day surveys on the island were carried out at a quick pace because of the threat of changing weather. Surveys were carried out using a snowmobile on all trips except Nov 28 and Jan 16-17 when an ATV was used. The following subsections summarize results for each of the target species groups.

Raptors

Table 1 shows raptor totals tallied on a perimeter trip of the island during each of the five visits. On four of the visits (all but Nov 28), at least two perimeter trips were carried out. The numbers in Table 1 are the highest perimeter trip tallies per species during each visit to the island. Observation conditions during these surveys were similar with winds <10 mph and good visibility. Snow cover was light to absent on the early surveys but had increased substantially on the February 14 trip (estimated 12+ inch base with 2-3 foot drifts) and was

still substantial on the March 10 trip (6+ inch base with drifts). On most survey days, raptors were easily identifiable because of the close proximity of observation. On the January 16 survey, a few buteos were perched along the woods across the wide-open area on the western portion of the perimeter route. These birds were not easily identifiable because they were backlit and there was no easy way to get closer to them.

TABLE 1. High daily raptor counts tallied on Big Galloo Island. RLHA = Rough-legged Hawk; RTHA = Red-tailed Hawk; BAEG = Bald Eagle; GOEA = Golden Eagle; COHA = Cooper's Hawk; NOHA = Northern Harrier; SNOW = Snowy Owl; SEOW = Short-eared Owl; ?Bu = Unidentified Buteo (RLHA or RTHA); NORA = Northern Raven; NOSH = Northern Shrike.

Big Galloo	RLHA	RTHA	BAEA	GOEA	COHA	NOHA	NORA	NOSH	SNOW	SEOW	?Bu
28-Nov-07	20	10	1	0	1	0	0	2	0	0	0
20-Dec-07	50	22	2	0	1	0	0	3	1	0	0
16-Jan-08	31	10	4	0	0	0	1	1	0	0	3
14-Feb-08	21	11	12	0	0	0	2	1	0	0	0
10-Mar-08	8	12	9	1	0	1	2	0	0	0	0

Table 2 shows raptor numbers reported for Wolfe Island, Ontario (~20 km northeast of Galloo Island) during early 2008. These numbers were tallied by different birding groups and did not involve any consistency of route or effort. They were summarized and reported to the Ontario Birds listserv by Peter and Jane Good of the Kingston Field Naturalists.

TABLE 2. High daily raptor numbers reported on Wolfe Island, Ontario.

Wolfe Is.	RLHA	RTHA	BAEA	GOEA	COHA	NOHA	NORA	NOSH	SNOW	SEOW
20-Jan	41		5			7			4	3
26-27Jan	46	14	16							12
29-Jan	29	6	3					3	6-7	
16-Feb	30+	11							2-3	
29-Feb	~50	5				1		1	1	
12-Mar	50+								1	

Relatively low numbers of raptors were reported on Amherst Island, ON in winter 2007-2008, 30 km northwest of Big Galloo Island.

Additional regional raptor studies from winter 2007-2008 were made (e.g., G. Smith's survey on the Cape Vincent Peninsula). These data were not available at the time this report was compiled.

Most raptors observed were perched in trees along the perimeter route. Raptors perched close to the perimeter road often flushed when the snowmobile or ATV approached. These flushed birds flew to distant trees at altitudes below 30 meters agl.

Small numbers of Rough-legged hawks were regularly noted flying northeasterly or southwesterly down the grassland corridor on the eastern side of the island. These flights were typically less than 50 meters agl. This vector of movement also occurred right along the eastern shoreline and up to 100 meters offshore.

Rough-legged Hawks regularly flew across the broader grassland areas at the northern and southern ends of the island. This transit was typically 50 meters agl or less. No Rough-legged transit was observed across the wooded interior of the island. On the December 10 survey when Rough-legged numbers peaked, two transects across the wooded interior only yielded one Rough-legged Hawk (perched in a small open area).

During the first four visits a few Rough-legged Hawks regularly soared up 100-200 meters agl and circled about. This behavior was noted once or twice each visit (except Mar 10). A few Rough-legged Hawks were also seen in transit between Stony Island and Big Galloo.

Overall, Dark-phase Rough-leggeds were observed in approximately a 1:4 ratio to light-phase birds. Too small a sample of Rough-leggeds were identified to sex and age to make any conclusions about the proportions of such on the island.

On all surveys, Rough-legged hawks were most abundant in the grassland strip along the east side of the island and in the broader grassland areas at the north and south ends of the island. On the December 10 peak, 30 Rough-leggeds were concentrated in an estimated 1.5 square kilometer area at the south end of the island. In other visits, the greater concentration of Rough-leggeds was at the north end with relatively few at the south end.

Though numbers were lower, Red-tailed Hawks had a similar distribution and behavior on the island as Rough-legged Hawks. The only notable exception is that on the December 10 survey, the more forested western side of the island had 10 Red-tailed and only one Rough-legged. This segregation was not noted on other surveys and Rough-leggeds were more abundant than Red-taileds on the western side on other survey dates.

Of the approximately 50 percent of Red-taileds that were aged, about an equal percentage of first-year and adult-plumaged birds were noted.

Fig. 2 shows how the number of Rough-legged and Red-tailed Hawks varied over the five Big Galloo raptor surveys in winter 2007-2008.

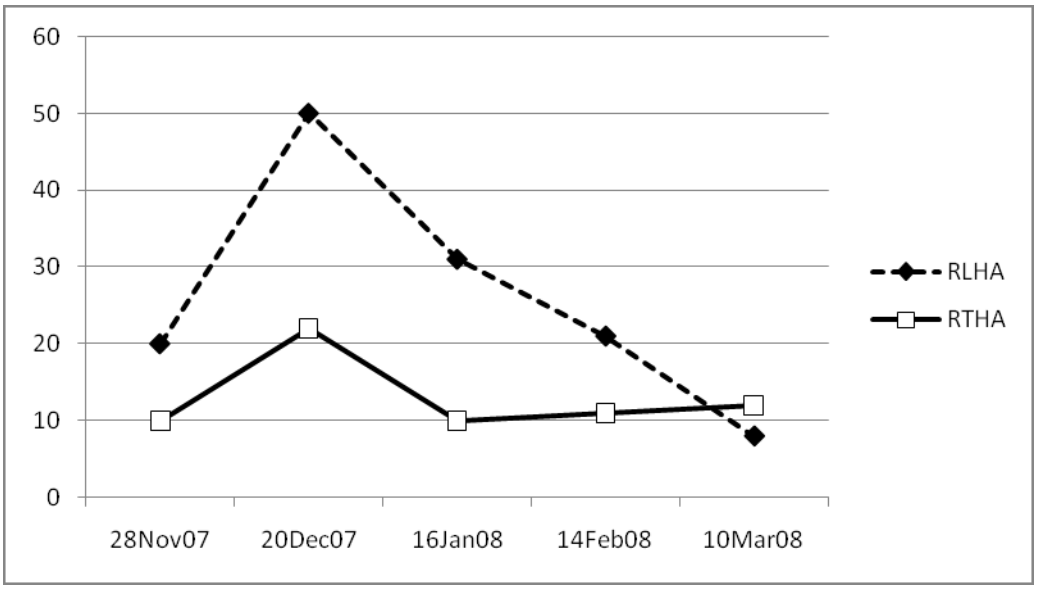

Fig. 2. Comparative Rough-legged and Red-tailed Hawk numbers on Big Galloo in winter 2007-2008.

Bald Eagles (NYS: Threatened) had increased notably by the February 14 survey. This also corresponded with an increase in ice around the island. Bald Eagles frequently roosted on the piles of ice that formed on the shoal near the northeastern end of the island. While most Bald Eagle activity was observed out over the water, on the February 14 survey five Bald Eagles were seen roosting in the island's interior. These birds were perched in trees along the edges of the forested portion of the island. On the March 10 survey, two juvenile Bald Eagles were seen feeding on a deer carcass that lay several hundred meters from the shoreline.

Bald Eagles were occasionally seen soaring over the island. On the March 10 survey, two subadult Bald Eagles soared together with a subadult Golden Eagle to 300 meters agl over the center of the island. Most Bald Eagle transit was observed over the water parallel to the eastern side of the island. Bald Eagles that were perched inland typically flushed when the snowmobile or ATV came in their proximity.

Subadult and adult Bald Eagles occurred in roughly a 1:1 ratio through the study (e.g., Feb 14 survey had 6 adults and 6 subadults).

As noted, a single Golden Eagle (subadult) was observed March 10th. The timing of this observation suggests the bird was a migrant but G. Smith (pers. comm.) reported that one Golden Eagle may have overwintered in the region this winter. The March 10th Golden Eagle was first noted roosting in trees along the fields in the northern portion of Big Galloo. It was later noted soaring with two Bald Eagles high over the center of the island.

No American Kestrels were seen during the winter survey period. The only accipiter was a single Cooper's Hawk seen on each of the first two surveys. Only one Northern Harrier was observed, an adult male on the March 10 survey, which could have been an early spring migrant.

One Snowy Owl was observed on the December 20 survey.

No systematic surveys for roosting owls were carried out in the extensive red cedar and arborvitae stands on the island, so no column for Long-eared or Saw-whet Owl is included in Table 1. However, during the December 20 survey, a single Long-eared Owl was flushed from a cedar along the western portion of the perimeter route.

No Short-eared Owls were observed during the diurnal perimeter surveys or during the dusk surveys of the islands grassland areas that occurred on the December 20 and January 16 visits. These surveys covered the open grassland areas at the northern and southern ends of the island and the grassland corridor along the east side of the island.

Northern Shrike and Northern Raven were seen in small numbers throughout the study. The shrikes exhibited their typical behavior of perching atop small trees and bushes and then making low flights to new perches. The Northern Ravens were seen in flight, typically less than 100 meters agl, all around the island.

Waterfowl

Table 3 shows estimated waterfowl totals made during aerial surveys around the island (< 15 minutes duration) at less than 200 m agl. Numbers were logged by estimating the area covered by a group of 100 birds and then multiplying that area across the larger area occupied by a flock of apparent uniform density. Accuracy was estimated to be +/- 500 birds for tallies of 2500, and +/- 1000 when tallies of 5000 or more were made.

TABLE 3. Big Galloo Island waterfowl numbers estimated from aerial surveys.

Big Galloo	Waterfowl	Notes	Ice conditions
28-Nov-07	9000	Mallard and American Black Ducks dominate; 1000+ Bufflehead	Open water
20-Dec-07	5000	Mallards and American Black Ducks still dominate; 100+ Tundra Swan; lower Bufflehead #s	Open water
16-Jan-08	2500	Diversity of species but numbers lower	Open water
14-Feb-08	2500	C. Goldeneye, Long-tailed Duck, Greater Scaup (& aethea sp.) dominate	West side iced in; east side open
10-Mar-08	2500	C. Goldeneye, Long-tailed Duck, Greater Scaup (& Aythya sp.) dominate	All iced in except pockets on east side

While detailed species composition was difficult to discern from the aerial surveys, general composition was determined. Dabbling ducks comprised the majority of waterfowl in the November 28 survey, with Mallard and American Black Duck the most common species along with substantial numbers Bufflehead (1000+). By December 20, dabblers and

Bufflehead numbers had noticeably declined. February 14 and March 10 had similar species compositions with Common Goldeneye the most numerous (1000+), along with substantial numbers of Long-tailed Ducks (300+) and Greater Scaup (& *Aythya sp*.). Common and Red-breasted Mergansers, White-winged Scoter, were also in notable numbers on these mid-to-late winter counts. Tundra Swans were most numerous on December 20th, with 100+ observed. Up to 6 Mute Swans were observed in the vicinity of the island through the winter.

Most waterfowl flight activity was over the water along the east end of the island. Very few waterfowl were seen in transit over the island. These incidences consisted of two to three observations during each survey of small duck flocks crossing over the interior of the island at heights less than 75 meters agl. Most of these observations were over the north or south ends of the island. The occurrences often occurred after flying Bald Eagles flushed rafts of ducks.

Other landbirds

While carrying out the perimeter and forest transect surveys, the additional landbird species listed in Table 4 were noted. Not indicated in Table 4 are European Starling and Rock Dove, which were noted on every survey (maxima of ~100 Starlings and ~40 Rock Doves). In general, there were very few small passerines on Big Galloo Island during winter 2007-2008.

TABLE 4. Additional passerine species observed during avian surveys of Big Galloo Island.

Species	28-Nov-07	20-Dec-07	16-Jan-08	14-Feb-08	10-Mar-08
Pileated Woodpecker	0	0	0	0	1
Downy Woodpecker	1	1	1	1	1
Hairy Woodpecker	0	0	1	0	0
Black-capped Chickadee	12	8	7	8	6
White-breasted Nuthatch	1	1	1	1	2
Horned Lark	flyover heard	10	flyover heard	0	0
Blue Jay	2	6	4	3	4
American Crow	0	0	0	0	2
American Robin	0	2	0	0	0
Northern Cardinal	<5	<5	<5	<5	6
Dark-eyed Junco	5	4	0	a few	6
American Tree Sparrow	20+	~20	a few	a few	calls heard
Snow Bunting	flyover	8	~20	0	~20
Am. Goldfinch	0	0	0	0	1 flyover
Redpoll species	20+	20+	2	2	0

Discussion

The general consensus among regional winter raptor watchers is that the grasslands in the northeast region of Lake Ontario had a peak in the 3-5 year vole cycle during winter 2006-2007 or in 2007-2008 (G. Smith, pers. comm.). Whereas raptor activity was notably lower on Amherst Island and the Cape Vincent Peninsula in winter 2007-2008 than the previous year (G. Smith, pers. comm.), significant raptor numbers were documented on Big Galloo as well as Wolfe Island, ON in winter 2007-2008. It is unknown whether vole peaks on these islands are always in synchrony with one another and how they might vary with the mainland. Another factor for Big Galloo Island is that potential year-round vole predators such as coyotes and fox have been largely controlled for a decade. The coyotes were hunted out to protect the island's cultivated white-tailed deer herd.

Within the 2007-2008 winter season on Big Galloo, Fig. 2 shows that peak numbers of Red-taileds and Rough-leggeds were noted on the December 20 survey and that both species' numbers had declined proportionately by Jan 16. Sometime between the January 16 and February 14 surveys, Rough-legged numbers began to decline whereas Red-tailed numbers remained constant. This suggests a dynamic other than changing food supply and it could be indicative of the beginning of Rough-legged spring migration. Bull (1998) notes

that Rough-leggeds in New York often begin spring migration by mid-February. But Bull also notes the same for Red-tailed Hawk. This trend of decreasing Rough-leggeds compared with stable numbers of Red-taileds continued on the March 10 survey. Red-tailed Hawks were then more abundant than Rough-leggeds.

The trend of decreasing Rough-legged Hawks after by mid-February was not apparent in the raptor numbers reported for Wolfe Island. Table 2 shows that Rough-leggeds were maintaining near season high numbers (50+) on Wolfe on March 12 while the March 10 survey on Big Galloo was at its season low of 8 Rough-leggeds. After the period of the Big Galloo winter raptor study, a March 29 birding expedition to Wolfe Island reported 75 Rough-legged Hawks. This contrasts with an additional raptor survey at Big Galloo made on March 27 that again found only 8 Rough-leggeds. The difference in the Rough-legged number trends in late winter and early spring 2008 is suggestive of a spring migration dynamic contributing to higher numbers on Wolfe Island but not on Big Galloo.

With regard to the New York State (NYS) listed Northern Harrier (NYS:Threatened) and Short-eared Owl (NYS:Endangered), the lack of reports of these species on Big Galloo in winter 2007-2008 is notable but in some years these species may over winter on the island. While there were reports of both species on Wolfe Island in winter 2007-2008, the numbers appear to have been lower in the region than in winter 2006-2007 (G. Smith, pers. comm.).

With regard to waterfowl, the winter 2007-2008 surveys on Big Galloo indicate that large numbers of waterfowl use the waters near Big Galloo for staging and wintering grounds. No regular patterns of waterfowl transit over the island were observed and only occasional small groups of waterfowl were noted crossing the island.

Very few landbirds were observed on Big Galloo during the winter 2007-2008 surveys. However, the landbirds observed included the Horned Lark and Cooper's Hawk, both listed as species of Special Concern in New York State.

Conclusion

The Big Galloo winter 2007-2008 raptor surveys suggest that Big Galloo is involved with the winter raptor concentrations that periodically occur in the grasslands proximal to northeastern Lake Ontario. While large numbers of wintering waterfowl were documented in the waters surrounding Big Galloo, very little transit of any waterfowl species was observed crossing the island. Landbirds were scarce on Big Galloo Island during the winter 2007-2008 study period.

Literature Cited

Final Work Plan for Bird and Bat Preconstruction Studies at the Hounsfield Wind Farm Project – Town of Hounsfield, Jefferson County, NY. Report prepared for Upstate NY Power Corp. by Old Bird, Inc. March 2008.

Appendix A – common and scientific bird names cited in report.

American Black Duck	*Anas rubripes*
American Crow	*Corvus brachyrhychos*
American Goldfinch	*Carduelis tristis*
American Kestrel	*Falco sparverius*
American Robin	*Turdus migratorius*
American Tree Sparrow	*Spizella arborea*
Bald Eagle	*Haliaeetus leucocephalus*
Black-capped Chickadee	*Poecile atricapilla*
Blue Jay	*Cyanocitta cristata*
Bufflehead	*Bucephala albeola*
Common Goldeneye	*Bucephala clangula*
Common Merganser	*Mergus merganser*
Cooper's Hawk	*Accipiter cooperii*
Dark-eyed Junco	*Junco hyemalis*
Downy Woodpecker	*Picoides pubescens*
European Starling	*Sturnus vulgaris*
Golden Eagle	*Aquila chrysaetos*
Greater Scaup	*Aythya marila*
Hairy Woodpecker	*Picoides villosus*
Horned Lark	*Eremophila alpestris*
Long-eared Owl	*Asio otus*
Long-tailed Duck	*Clangula hyemalis*
Mallard	*Anas platyrhynchos*
Mute Swan	*Cygnus olor*
Northern Cardinal	*Cardinalis cardinalis*
Northern Harrier	*Circus cyaneus*
Northern Raven	*Corvus corax*
Northern Shrike	*Lanius excubitor*
Pileated Woodpecker	*Dryocopus pileatus*
Red-breasted Merganser	*Mergus serrator*
Redpoll species	*Carduelis flammea or C. hornemanni*
Red-tailed Hawk	*Buteo jamaicensis*
Rock Dove	*Columba livia*
Rough-legged Hawk	*Buteo lagophus*
Short-eared Owl	*Asio flammeus*
Snow Bunting	*Plectrophenax nivalis*
Snowy Owl	*Nyctea scandiaca*
Tundra Swan	*Cygnus columbianus*
White-breasted Nuthatch	*Sitta carolinensis*
White-winged Scoter	*Melanitta fusca*