The Breeding Birds of
Tommy Thompson Park
2007

Toronto and Region Conservation

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January 2008

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Photo Credits: cover-Brown Thrasher at Nest, ONRS Workshop (TRCA), page 1-TTP aerial (TRCA), page 3- Eastern Wood-Pewee on Nest (Seabrooke Leckie/TTPBRS), page 6-Gadwall Nest (TRCA), page 4-Nest Building Downy Woodpecker (Seabrooke Leckie/TTPBRS)

Introduction

Study Area

Tommy Thompson Park

Tommy Thompson Park (TTP) is the largest area of existing natural habitat on the central Toronto waterfront. From the late 1950's until present day, a combination of lake-filling and dredging activities created the current configuration of the park. Through natural succession the spit has been colonized by an impressive variety of plant and animal communities. Tommy Thompson Park has been designated as an Environmentally Significant Area (ESA) and in 2001, was designated a globally significant Important Bird Area (IBA) by Birdlife International for its concentration of nesting colonial waterbirds and migratory value. Considerable effort by all three levels of government is being focused on the revitalization of Toronto's waterfront. The implementation of the Tommy Thompson Park Master Plan is a key piece of the proposed Lake Ontario Park, which will be a major part of the city's plan for a green waterfront. The geographical location of the park and its natural features make it very attractive for large numbers of migrating and nesting birds.

Project Background

Toronto and Region Conservation (TRCA) has invested significant effort into annual assessments of nesting colonial waterbirds at Tommy Thompson Park. This is due to the significance of the site for continentally and globally significant populations of several waterbird species, which include, Common Tern, Caspian Tern, Ring-billed Gull, Black-crowned Night Heron and Double-crested Cormorant. Comparatively little effort has been put toward other bird species. The Breeding Birds of Tommy Thompson Park Project detailed in this report was initiated in 2005 as a method of monitoring and documenting other nesting bird species for the site.

Rationale

The Breeding Birds of Tommy Thompson Park project is organized around monitoring of breeding bird density and diversity in response to habitat succession and restoration. Annual surveys of breeding non-colonial waterbird species at TTP will provide the following:

- Relative abundance data
- Detailed and accurate nest records
- A measurement of breeding bird abundance and diversity in relation to landscape level change
- Assessment of nesting success including parasitism and predation rates
- Data that can help steer habitat restoration work

This project is appropriate for TRCA because the labour and material cost is low, expertise is readily available and also because monitoring of avian response to habitat restoration efforts is lacking. The Tommy Thompson Park Bird Research Station, through volunteers and some staff support, will carry out the project annually in spring and summer.

Methods

A combination of variable circular plot (VCP) counts, nest searching and casual observations were employed from April – August 2007 (VCP counts restricted to June and July). Variable circular plot counts are the most recognized method for assessing breeding bird density and were employed for the recently completed Ontario Breeding Bird Atlas (OBBA). Nest searching and monitoring are also employed to provide valuable data on breeding success, nesting ecology and relative density of nesting attempts. Casual observations were recorded to augment the monitoring. All nest records gathered are submitted to the Ontario Nest Records Scheme (ONRS).

Results

Variable Circular Plot (VCP) Counts

The specific protocol for the counts during summer 2007 at Tommy Thompson Park was for 5-minute-long VCP counts. The VCP counting method has been widely promoted by biologists over the more popular point count method. VCP counts are much more applicable to analysis and have less bias. Analysis in this report is limited, however, this survey protocol ensures that future analysis will be efficient. Locations were targeted based on proportion of individual habitat types within the entire land area. Stations were visited on a rotational schedule such that time of day and season were equally represented. All counts were conducted between 7:00 am and 10:00 am. The protocol involved recording of start time, finish time (5 min), date, visit number and UTM location. Temperature, percentage cloud cover and wind speed were also recorded. Counts were completed on days with fair weather conditions such that visibility was high, wind speed was low to moderate (0-15kph) and precipitation was absent. All birds detected were estimated to the following distance parameters: <10m, 10-20m, 20-30m, 30-50m, 50-100m and >100m. Any flyovers and any birds detected beyond 100m were recorded in separate columns. The circumstance of each detection was also noted (e.g. observed, singing, territorial dispute, family group etc.).

Station locations were distributed in the following manner: four in forest habitats, four in meadow communities (wet and dry) and a single station was placed in an extensive shrub thicket (termed “shrubland”) which is bordered by forest. Each station was visited on six occasions between June 19 and July 9. A breakdown of station information is presented below in Table 1.

Table 1. VCP Station Information

Station	UTM Zone	Easting	Northing	Location	Habitat Type
1	17	635198	4834430	Baselands	Wet Meadow
2	17	635219	4834206	Baselands	Forest
3	17	634948	4834140	Baselands	Dry Meadow
4	17	635276	4833959	Baselands	Dry Meadow
5	17	635101	4832683	Causeway	Shrubland
6	17	634332	4832165	Peninsula D	Forest
7	17	634726	4831138	Toplands	Wet Meadow
8	17	634220	4831453	Peninsula B	Forest
9	17	634208	4831715	Peninsula C	Forest

VCP Results

Analysis of VCP count data presented here is a basic summation of results. More sophisticated analysis using DISTANCE software will be necessary in the future, once more data is collected, to make the effort worthwhile.

A total of 38 species were detected for all counts in 2007, down from the 39 species detected during summer 2006, but up four species from 34 in 2005. There were a few species that were detected this year, but not in 2005 or 2006, including Field Sparrow, Great Crested Flycatcher and Veery. American Kestrel, Belted ~~Kingfisher~~, House Sparrow and Cliff Swallow were recorded on counts in 2005 or 2006, but not in 2007, although they were detected during other surveys. The frequency of detection for all of the above mentioned species is low at TTP and therefore we can expect year-to-year fluctuations in representation by VCP counts. Based on cumulative work from 2005 to 2007 it is clear that the VCP counts are successful in deriving representative samples of avian communities for key habitats.

Table 2. VCP Species Lists for 2005, 2006 and 2007 (*denotes presumed migrant species)

Species	2005	2006	2007	Species	2005	2006	2007
AMGO	*	*	*	FISP			*
AMKE	*			GCFL			*
AMRO	*	*	*	GRCA	*	*	*
BANS	*	*	*	HOFI	*	*	*
BAOR	*	*	*	HOSP		*	
BARS	*	*	*	KILL	*	*	*
BCCH	*	*	*	LEFL		*	*
BEKI	*	*		MALL		*	
BGGN		*	*	MODO	*	*	*
BHCO	*	*	*	NOCA	*	*	*
BOBO		*	*	NOFL	*	*	*
BRTH	*		*	NRWS	*	*	*
CAGO		*		ROPI		*	*
CEDW	*	*	*	RWBL	*	*	*
CHSW		*	*	SAVS	*	*	*
CLSW	*			SOSP	*	*	*
COGR	*	*	*	SPSA	*	*	*
COLO*	*	*		TRES	*	*	*
COTE		*		UNDO*	*		
COYE	*	*	*	VEER			*
EAKI	*	*	*	WAVI	*	*	*
EAME		*	*	WIFL	*	*	*
EAWP	*		*	YWAR	*	*	*
EUST	*	*	*	Total	34	39	38

Species richness per station in 2007 was consistent with 2005 and 2006. The stations with the highest overall diversity in 2007 (23 species) were stations 4, 3, and 5, located in young scrubby habitats from the baselands to the causeway. Once again, the weakest station was station 9 located on peninsula C within the Double-crested Cormorant colony. Proximity to waterbird colonies may also be the reason behind low abundance and diversity at station 8 recorded in all years.

In terms of total station abundance (excluding flyovers) station 4 (baselands dry meadow) ranked at the top of the list followed closely by stations 3 (baselands dry meadow) and 5 (causeway shrubland). Station 4 showed the highest percentage increase in abundance (66%) from previous high year in 2005. Overall abundance from VCP counts in 2007 was higher than in 2005 or 2006.

Table 3. Total Abundance and Species Richness per Station

Station	2005 total birds	2006 total birds	2007 total birds	2005 species	2006 species	2007 species
1	74	69	83	19	24	23
2	67	61	73	19	15	23
3	116	64	98	22	18	19
4	120	61	199	20	24	23
5	118	93	96	19	21	19
6	124	101	92	19	20	19
7	60	97	95	15	20	17
8	39	45	34	10	12	14
9	23	17	26	6	8	4
Totals	741	608	796	34	39	38

The most valuable aspect of this project will be its ability to reveal changes in breeding bird abundance and diversity over time at the station, habitat and total area level. Breeding avifauna will respond to changes in habitat distribution, composition and structure due to natural succession and habitat restoration. At present the breeding bird communities (non-colonial waterbirds) are typical of early successional environments. Dominant species in all three years of VCP counts include Red-winged Blackbird, Song Sparrow and Yellow Warbler, all of which require basic habitat conditions to thrive. A summary of abundance per species detected by VCP counts (<100 metres) is presented below in Table 4. Both in 2006 and 2007 there were some notable changes in total abundance for some species, however it is difficult to attach any significance to these changes based on only three years of data. The unusually high numbers (104 BANS, 31 BARS and 22 NRWS in 2007, 92 EUST in 2006) are attributable to one or a few large flocks recorded in one or a few of the visits. Species with increased total abundance in 2007 include Mourning Dove, Brown-headed Cowbird and Least Flycatcher (results in Table 4 are total detections not individuals). Decreases are apparent for American Goldfinch, Common Grackle and Savannah Sparrow.

Table 4. Total Birds Detected by Species Within 100 metres

Species	2005	2006	2007	Species	2005	2006	2007
AMGO	19	22	15	GCFL			2
AMKE	1			GRCA	22	26	24
AMRO	27	14	24	HOFI	0	1	0
BANS	0	0	104	HOSP		3	
BAOR	30	21	29	KILL	5	3	1
BARS	2	1	31	LEFL		5	17
BCCH	1	3	1	MALL		0	
BEKI	1	3		MODO	0	1	6
BGGN		3	3	NILL	0		
BHCO	16	15	22	NOCA	2	2	3
BOBO		0	3	NOFL	3	2	1
BRTH	5		4	NRWS	0	0	22
CAGO		0		ROPI		0	0
CEDW	9	12	12	RWBL	151	167	153
CHSW		0	0	SAVS	13	12	2
CLSW	0			SOSP	98	74	69
COGR	18	21	12	SPSA	7	6	7
COLO	0	0		TRES	5	0	8
COTE		0		UNDO	0		
COYE	2	1	2	UNSW		0	
EAKI	15	12	18	VEER			1
EAME		1	2	WAVI	34	25	31
EAWP	1		1	WIFL	35	23	27
EUST	92	24	21	YWAR	127	105	115
FISP			3	Grand Total	741	608	796

Nest Searching

Protocol

The nest searching survey method is valuable to bird conservation because it provides indicators of breeding success and parasitism/predation rates. The protocol used in 2007 essentially followed the 2006 protocol, it involved exhaustive area searches of as much of the TTP area as time and personnel permitted. The two plots delineated in 2006 to provide a more concentrated effort in specific habitats and to standardize nest density estimates were used in 2007 as well. A plot was situated in the peninsula D forest near VCP station 6 and another was placed in the toplands meadow near VCP station 7. The location of the plots is shown in Appendix C. All nests discovered and monitored were recorded on uniquely numbered cards for the Ontario Nest Records Scheme (ONRS).

The following recommendations for nest searching from the 2005 report were adopted in 2006 and followed in 2007:

- Nest searching in pre-defined grids that are representative of major habitat types would be more instructive than random exhaustive area searching method.
- Efforts should be made to document more nests to increase sample size.
- More attention is required for ground nesting meadow species
- Nest searching effort should be quantified
- More personnel are needed to complete fieldwork

In 2007, a total of 290 hours were logged by six participants (see Table 5). Each participant was given a specific zone to work in, which was necessary to avoid overlap in data collection. This approach was effective and will be utilized in future years of the project. The entire land area encompassing Tommy Thompson Park/Leslie Street Spit was divided into six zones based on habitat type and standardized grids were located in sections C and E. Effort was recorded separately for each zone and grid. A breakdown of effort per zone and grid is presented in Table 6.

Table 5. 2007 Effort by Project Participants

Name	Total Hours
Dan Derbyshire	28:30
Attila Fust	21:45
Andrew Jano	87:00
Don Johnson	52:00
Seabrooke Leckie	15:35
Ian Sturdee	85:05
Total Hours	289:55

Table 6. Effort per Zone/Grid in 2006 and 2007

Zone	Grid	Habitat Type	2006 Total hours	2007 Total hours
A		forest, meadow	62:30	54:05
B		meadow,shrubland, forest	31:55	33:45
C		forest	30:20	45:50
D		meadow, shrubland	24:20	43:25
E		Meadow	19:15	41:55
F		Meadow, Forest	13:50	16:20
	C1	Forest	32:28	33:45
	E1	Meadow	13:25	20:50
Total			228:03	289:55

The introduction of more volunteer assistance, standard nest searching data forms, nest searching grids combined with experience gained in previous years were very successful as a total of 304 nests were discovered, 236 of them were monitored. This figure is an increase of 42% over 2006 when 213 nests were documented. Nests of 30 species were found this year compared to 33 in 2006 and 20 in 2005. New species in 2006 included some unusual nest records for Tommy Thompson Park. Least Flycatcher (2nd nesting record for TTP), Orchard Oriole (2nd record), Eastern Meadowlark (2nd record), Northern Rough-winged Swallow (1st record) and Belted Kingfisher (1st record) were all significant findings in 2006. Nests of three new species for the project were found in 2007, which include Downy Woodpecker, Eastern Wood-Pewee and House Finch. In 2007 two Least Flycatcher nests and two Orchard Oriole nests were found, Belted Kingfisher and Northern Rough-winged Swallow, both 1st nesting records in 2006, nested again this year. The substantial increase in the number of American Goldfinch nests in 2007 is the result of targeting this common breeding species and extending the search period into late summer. The total number of confirmed nesters after three years of surveys stands at 37. Refer to Species Accounts below for information on these records.

Table 7. Total Nests by Species

Species	2007	2006	2005	Species	2007	2006	2005
YWAR	71	34	8	KILL	2	3	
RWBL	58	45	5	LEFL	2	1	
AMRO	26	12	3	OROR	2	1	
WIFL	21	13	2	BEKI	1	1	
AMGO	19	1		BGGN	1	1	
EAKI	17	11	3	BRTH	1	1	1
BAOR	12	13	5	DOWO	1		
GRCA	9	12	3	EAWP	1		
CEDW	7	3		HOFI	1		
MALL	7	6	1	NRWS	1	1	
NOCA	6	1	2	BANS		2	15
SPSA	6	5	2	BCCH			2
TRES	6	7	4	CAGO		1	
BARS	5	5	7	EAME		1	
SOSP	5	6	1	HOSP		1	1
GADW	4	1	5	HOWR		1	
MODO	4	4		YSFL		4	2
WAVI	4	8	1				
COGR	2	3					
EUST	2	5		Total	304	214	73

Splitting the study area into specific zones and recording time spent in each zone allows us to assess nesting density on a spatial scale and determine species distribution. This is taken one step further by establishing grids that delineate smaller areas with a relatively homogenous habitat type. The grid C1 in zone C (peninsula D), measuring 4.64 hectares, is primarily mixed age poplar forest, while the grid E1 in zone E (toplands), measuring 7.49 hectares, is primarily meadow. These grids therefore provide samples of nesting density and species composition within primary habitats at Tommy Thompson Park. These standardized samples will be very powerful when compared to results ten or more years from now. A breakdown of nests per species for each zone/grid is presented below in Table 8.

Table 8. Nests Per Species by Area in 2006 and 2007

Zone	A		B		C		C1		D		E		E1		F	
Species	**2006**	**2007**	**2006**	**2007**	**2006**	**2007**	**2006**	**2007**	**2006**	**2007**	**2006**	**2007**	**2006**	**2007**	**2006**	**2007**
AMGO		6				3				1	1	5		3		1
AMRO	5	10			3	5	2	6	1	1	1	1		1		2
BANS											2					
BAOR	2	2	2	2	3	2	3	2			1	1			2	3
BARS	5	5														
BEKI					1			1								
BGGN	1	1														
BRTH						1							1			
CAGO					1											
CEDW		3			1		2	1				2		1		
COGR			1		1	1		1			1					
DOWO								1								
EAKI	2	2	2	5	3	5	1	2				1		1	3	1
EAWP												1				
EAME	1															
EUST						1	2	1			2				1	
GADW					1	2						1		1		
GRCA	3	1		2	4		4	2	1			4				
HOFI		1														
HOSP	1															
HOWR					1											
KILL		2	2								1					
LEFL	1	2														
MALL			1	1	4	4		1						1	1	
MODO	1		1		1	3					1	1				
NOCA							1	3				3				
NRWS								1			1					
ORORR			1	1												1
RWBL	7	15	20	13	9	13	3	4	1	3	1	4	2	4	2	1
SOSP		2			1	1	1	1		1	2	1	1		1	
SPSA		1			2	2			2			1	1			
TRES					1	4	2	2			2				2	
WAVI					2	2	1	1							5	1
WIFL	5	6	4	6		2	1	1	1	3	1	2			1	1
YSFL					2		1		1							
YWAR	9	27	12	13	7	9	2	10		3	1	7		1	3	1
Nests	43	86	46	43	48	60	26	41	7	12	18	35	5	13	21	12
Species	13	16	10	8	18	17	14	18	6	6	14	15	4	8	10	9
Effort (hrs.)	62:3	54:0	31:5	33:4	30:2	45:5	32:2	33:4	24:2	43:2	19:1	41:5	13:2	20:5	13:5	16:2
Nests Detected/Hour	.7	1.6	1.4	1.3	1.6	1.3	.8	1.2	.3	0.3	.9	0.8	.4	0.6	1.5	0.7

In terms of nest productivity, 67 of 144 nests with known outcomes failed while 77 were successful in fledging young. The remaining 94 nests have unknown outcomes. The 2007 failure rate of 46% falls between 42% in 2006 and 57% in 2005. The larger sample sizes in 2007 and 2006 are significant as results in 2005 were based on only 28 nests with known outcomes. Nest predation was the most common cause of nest failure and most nests failed at egg stage (77%).

Brown-headed Cowbird parasitism is a major issue for small landbird populations in more open habitats and forest fragments. The rate of parasitism among known host species at TTP changed from 24% in 2005 to 26% in 2006 to 28% in 2007. In 2007 a total of 42 nests of 4 species were found with cowbird eggs. The most heavily parasitized species were Red-winged Blackbird (8 nests), Yellow Warbler (29), Willow Flycatcher (4) and American Goldfinch (2).

The Overall Picture

Historically, a total of 66 species have bred at Tommy Thompson Park. A few of these breeding records are rare and isolated and are unlikely to recur with any regularity (e.g. Wilson's Phalarope and Northern Bobwhite). A complete historical breeding bird species list is presented below in the section titled "Species Accounts" (species in bold have been confirmed as breeders).

During summer 2007, 74 species were detected at Tommy Thompson Park through VCP counts, nest searching and casual observations. Of these, 12 were designated as possible breeders, 5 as probable and 44 species were confirmed breeders. An additional thirteen species were observed and classified as non-breeders (habitat unsuitable for breeding). In 2006, 75 species were recorded of which 45 were confirmed. Current habitat conditions are appropriate for nesting by many of the species listed as possible or probable so it is anticipated that the list of known breeding species will grow in the near future.

Table 9. Breeding Status for Each Species Detected In 2007 (species in red have never bred at TTP)

Observed	Possible	Probable	Confirmed
American Crow	Black-billed Cuckoo	Common Yellowthroat	American Goldfinch
American Redstart	Blue-winged Warbler	Eastern Meadowlark	American Robin
Blue Jay	Bobolink	Great-crest. Flycatcher	American Woodcock
Cliff Swallow	Chipping Sparrow	Red-breasted Nuthatch	Baltimore Oriole
Common Loon	Field Sparrow	Savannah Sparrow	Bank Swallow
Great Blue Heron	Hooded Merganser		Barn Swallow
Greater Scaup	Indigo Bunting		Belted Kingfisher
Lesser Scaup	Marsh Wren		Canvasback
Northern Saw-whet Owl	Northern Harrier		Black-crowned Night Heron
Ovenbird	North. Mockingbird		Bl-cap. Chickadee
Sharp-shinned Hawk	Red-eyed Vireo		Blue-gray Gnatcatcher
Turkey Vulture	Rock Pigeon		Brown Thrasher
Yellow-rumped Warbler			Brown-head Cowbird
			Canada Goose
			Caspian Tern
			Cedar Waxwing
			Common Grackle
			Common Tern
			Double-crested Cormorant
			Downy Woodpecker
			Eastern Wood Pewee
			Eastern Kingbird
			European Starling
			Gadwall
			Gray Catbird
			Herring Gull
			House Finch
			House Sparrow
			Killdeer
			Least Flycatcher
			Mallard
			Mourning Dove
			N.R-wing. Swallow
			Northern Cardinal
			Northern Flicker
			Orchard Oriole
			Red-wing Blackbird
			Ring-billed Gull
			Song Sparrow
			Spotted Sandpiper
			Tree Swallow
			Warbling Vireo
			Willow Flycatcher
			Yellow Warbler

Observed	Species observed in its breeding season (no evidence of breeding)
Possible Status	Singing male present or breeding calls heard in breeding season in suitable nesting habitat
	Species observed in breeding season in suitable nesting habitat
Probable Status	Nest building or excavation of nest hole
	Pair observed in their breeding season in suitable nesting habitat Permanent territory presumed through registration of territorial song on at least 2 days, one week or more apart at the same place
Confirmed Status	Adults leaving or entering nest site in circumstances indicating occupied nest
	Adult carrying food for young
	Recently fledged young or downy young
	Nest containing eggs
	Nest with young seen or heard

Species Accounts

The following accounts include species that were listed as possible, probable or confirmed in 2007 as well as historically confirmed breeders (marked in bold). Species highlighted in red were detected in 2007 but have not yet been classified as confirmed breeders at Tommy Thompson Park/Leslie Street Spit.

American Crow (2007-observed) Known to have bred historically at TTP.

American Goldfinch (2007-confirmed) This species is a regular nester at TTP. 19 nests were discovered.

American Kestrel (2007-absent) Known to have bred historically at TTP

American Redstart (2007-observed) This species has never been confirmed as a breeder at TTP. One singing SY male detected on peninsula D on June 27 most certainly did not breed although this could be a possible breeder in TTP forests in the future. A singing male was recorded in the same area in 2005 on June 17 and in 2006 on June 13.

American Robin (2007-confirmed) Common nesting species in forested areas throughout TTP. 26 nests were recorded in ~~2006~~ in nearly all zones.

American Woodcock- (2007-confirmed) This species is an early nester (April) and as such will likely be missed in most years of the project. Regular nester in forested areas throughout TTP. Recently fledged young found by Anne Gray on June 14, 2007 near the baselands.

American Black Duck- (2007-not detected) Known to have bred historically at TTP.

Baltimore Oriole (2007-confirmed) Common nesting species in forest areas of TTP. A total of 12 nests were recorded in 2006.

Bank Swallow (2007-confirmed) Small nesting colonies were discovered in both the meadows and southern shoreline of the toplands area.

Barn Swallow (2007-confirmed) Barn Swallows are regular nesters at TTP under the eaves of buildings, particularly the trailers located near the port authority booth. Five nests were discovered.

Belted Kingfisher (2007-confirmed) This species was confirmed for the first time in 2003 based on observations of fledged young. In 2007 a nest was found in a sandy bank on peninsula D by Ian Sturdee.

Black-billed Cuckoo (2007-possible) Known to have bred historically at TTP although no nesting evidence was obtained in 2007 beyond observation of the species in suitable habitat during the breeding season. A single individual was observed in the baselands on June 15, another in area B on Jul 6.

Black-capped Chickadee (2007-confirmed) A regular but uncommon nester at TTP. No nests were detected in 2007 although observations of adults at a nest site were frequent on peninsula D in June and July. This is a very difficult species to find outside of the forested areas of peninsula D.

Black-crowned Night Heron (2007-confirmed) An abundant nesting colonial-waterbird species at TTP. An estimated 30% of the Canada-wide population of Black-crowned Night Heron breeds here.

Blue Jay (2007-observed) This species has never been confirmed as a breeder at TTP. No nesting evidence was obtained in 2007 beyond observation of the species in suitable habitat during the breeding season.

Blue-gray Gnatcatcher (2007-confirmed) Known to have bred historically. First nest for this project was found in the baselands forest by Andrew Jano in 2006. The same nest was used in 2007 and again it was successful in fledging young.

Blue-winged Teal (2007-absent) Known to have bred historically at TTP.

Blue-winged ~~w~~arbler (2007-possible) Singing male was heard on June 15 in area B

Bobolink (2007-possible) This species has never been confirmed as a breeder at TTP. In 2007, three individuals were observed in suitable habitat

Brown Thrasher (2007-confirmed) Brown Thrasher is a regular but uncommon nester at TTP. A nest was discovered on peninsula D, it was successful.

Brown-headed Cowbird (2007-confirmed) Brown-headed Cowbird is a common species throughout TTP during summer where it was noted to have parasitized American Goldfinch, Yellow Warbler, Song Sparrow, Red-winged Blackbird and Willow Flycatcher.

Canada Goose (2007-confirmed) Canada Goose is a common breeder at TTP along shoreline edges of embayments and containment cells.

Canvasback (2007-confirmed) Canvasback has bred almost annually in recent years in the triangle pond area at TTP. On June ~~16~~ a female with ~~7~~ ducklings was observed in the triangle pond.

Caspian Tern (2007-confirmed) A regular nesting colonial-waterbird species at TTP.

Cedar Waxwing (2007-confirmed) A complete miss in 2005, a total of three nests were found in 2006. In 2007 a total of 7 nests were discovered.

Chipping Sparrow (2007- Possible) A single singing individual was seen in the baselands on June 29

Cliff Swallow (2007-observed) This species has never been confirmed as a breeder at TTP. No nesting evidence was obtained in 2007 beyond observation of the species.

Common Loon (2007-observed) This species has never been confirmed as a breeder at TTP. A single flyover was recorded on June 22.

Common Grackle (2007-confirmed) Common Grackle is a regular nester at TTP. Two nests were found in 2007.

Common Tern (2007-confirmed) An abundant nesting colonial-waterbird species at TTP.

Common Yellowthroat (2007-probable) Individuals of the species were found in the same locations as in 2005 and 2006. A single male was singing persistently between June 10 and July 11 in the baselands.

Double-crested Cormorant (2007-confirmed) An abundant nesting colonial-waterbird species at TTP.

Downy Woodpecker (2007-confirmed) A nest was discovered on peninsula D.

Eastern Kingbird (2007-confirmed) A regular breeder at TTP along forest edges where meadow and shrubs are present. A total of 17 nests were found, at least 7 of which were successful in fledging young.

Eastern Meadowlark- (2007-probable) This species was present from April to July in baselands meadow habitats. Behaviour of adults suggested nesting was occurring.

Eastern Wood Pewee (2007-confirmed) In 2007 a nest was discovered near the Goldfish Pond.

European Starling (2007-confirmed) Starlings are an abundant species at TTP although their breeding density is difficult to estimate. The species is known to nest in man-made structures and natural cavities throughout the area. Two nests were documented.

Field Sparrow (2007-possible) This species has never been confirmed as a breeder at TTP. Singing birds were observed on three occasions between June 12 and 27.

Gadwall (2007-confirmed) Gadwall is a surprisingly common nesting species at TTP. Four nests were found on peninsula D and in the toplands in 2007.

Gray Catbird (2007-confirmed) Gray Catbird is a regular nester at TTP, preferring dense shrubs with some tree cover. A total of nine nests were found.

Great Black-backed Gull (2007-absent)

Great Egret (2007-confirmed) TRCA staff confirmed two nests on peninsula C.

Great-blue Heron (2007-observed) Flyovers on July 21 and 30.

Great-crested Flycatcher (2007-probable) This species has never been confirmed as a breeder at TTP. Singles were observed between June 12 and July 9.. No other evidence for this species was obtained.

Greater Scaup (2007-observed) This species has never been confirmed as a breeder at TTP. Two males were observed in Cell 3 on June 27.

Herring Gull (2007-confirmed) A common nesting colonial-waterbird species at TTP.

Hooded Merganser (2007-possible) This species has never been confirmed as a breeder at TTP. Hooded Merganser has been a common summer species in TTP aquatic areas. Observations of the species typically involve counts of multiple adults, usually females. These birds may be breeding at TTP but are more likely breeders that have dispersed from other areas.

Horned Lark- (2007-absent) Known to have bred historically at TTP.

House Finch (2007-confirmed) A nest was found in the baselands.

House Sparrow (2007-confirmed) House Sparrow is a regular but uncommon nester at TTP. This species is expanding at TTP. The species was frequently encountered at the port authority buildings and in Cell 1.

House Wren (2007-absent) Known to have bred historically at TTP.

Indigo Bunting (2007-possible) A singing male was seen on June 24 in the baselands.

Killdeer (2007-confirmed) Killdeer is a common nesting species at TTP in open areas with low vegetation. A total of two nests were found in 2007.

Least Flycatcher (2007-confirmed) In 2006 a nest was located during a VCP count in the baselands forest. This was the 2nd nesting record for TTP and was successful in fledging young. Two nests were found in 2007 in the baseland forests.

Lesser Scaup (2007-observed) This species has never been confirmed as a breeder at TTP. Individuals were seen in Cell 2 and Cell 3 on June 29 and July 11.

Mallard (2007-confirmed) Mallard is a regular nester at TTP.

Marsh Wren (2007-possible) A single individual was located near the Triangle Pond on June 19.

Mourning Dove- (2007-confirmed) Mourning Dove is a common breeder at TTP. Four nests were found in 2007.

Mute Swan (2007-confirmed) Mute Swan is a regular nesting species along TTP shorelines.

Northern Rough-winged Swallow (2007-confirmed) This species is a confirmed historical breeder based on observations of recently fledged young in 2003. A nest found in 2006 in the rubble of the southern shoreline off the toplands meadows was a first. In 2007 a nest was found on the shoreline of peninsula D

Northern Bobwhite (2007-absent) Known to have bred historically, species not detected in 2007.

Northern Cardinal (2007-confirmed) Northern Cardinal is an uncommon but annually nesting species at TTP. In 2007 six nests were found.

Northern Flicker (2007-confirmed) Northern Flicker is a regular nesting species at TTP. No nests were found in 2007, recently fledged young were observed.

Northern Harrier (2007-possible) No nesting evidence was obtained in 2007 beyond observation of the species in suitable habitat during the breeding season.

Northern Mockingbird (2007-possible) This species has never been confirmed as a breeder at TTP. In 2007 a pair nested adjacent to the baselands off of Leslie Street and Unwin Avenue.

Northern Saw-whet Owl (2007-observed) A single individual was seen on July 30 in area E.

Orchard Oriole (2007-confirmed) Two nests attended by different breeding pairs were found, both nests were abandoned later. On July 5 an adult was observed feeding young in the baselands.

Ovenbird (2007-observed) On June 12 a singing male was heard on peninsula D

Red-eyed Vireo (2007-possible) This species has never been confirmed as a breeder at TTP. On June 15 a singing male was recorded in the baselands, on June 12 another individual was recorded on peninsula D.

Red-breasted Nuthatch (2007-probable) This species has never been confirmed as a breeder at TTP. In 2007, on June 12 a female was seen twice, also a male calling nearby. On July 3 a pair was observed in the peninsula C cottonwoods,

Redhead (2007-absent) Known to have bred historically at TTP.

Red-winged Blackbird (2007-confirmed) A common breeding species throughout the TTP area. The most abundant nesting species at TTP (excluding waterbirds). A total of 58 nests were documented although many more were known.

Ring-billed Gull (2007-confirmed) An abundant nesting colonial-waterbird species at TTP.

Ring-necked Pheasant (2007-absent) Known to have bred historically at TTP.

Rock Pigeon (2007-possible) Known to have bred historically at TTP although no nesting evidence was obtained in 2007 beyond observation of the species in suitable habitat during the breeding season.

Savannah Sparrow (2007-probable) Savannah Sparrow is a common nester in open areas of TTP with substantial ground cover, particularly in the baselands, along the causeway and in some areas of the toplands. Intensive searching in 2007 yielded no nests of this species.

Sharp-shinned Hawk (2007-observed) A single individual was observed on June 15.

Song Sparrow (2007-confirmed) Song Sparrow is one of the most abundant nesting species at TTP. Ground nesting species have proven to be elusive in all three years of the project. A total of five nests were found.

Sora (2007-absent) Known to have bred historically, species not detected in 2007.

Spotted Sandpiper (2007-confirmed) A common nester at TTP in open areas near water. Six nests were found in 2007. Observations of juveniles along roadways are frequent and it is likely that the greatest threat to breeding success at TTP for this species is collisions with vehicles.

Tree Swallow (2007-confirmed) Tree Swallow is a common breeder at TTP. In 2007 many nest boxes were occupied however only six nests were documented and monitored.

Turkey Vulture (2007-observed) This species has never been confirmed as a breeder at TTP. Probably the same individual was seen on June 15 and June 18

Virginia Rail (2007-absent) Known to have bred historically, species not detected in 2007.

Warbling Vireo (2007-confirmed) A common nesting species in forested areas of TTP. In 2005 it was reported that Warbling Vireo nests were hard to find. Further experience paid in 2006 as eight nests were found. In 2007 only four nests were found.

Willow Flycatcher (2007-confirmed) Willow Flycatcher is a common nesting species in more open areas with dense shrubs. Thirteen nests were located in 2006, in 2007 twenty-one nests were found.

Wilson's Phalarope (2007-absent) Known to have bred historically, species not detected in 2007.

Yellow Warbler (2007-confirmed) Yellow Warblers are common to abundant at TTP. Yellow Warbler colonies exist on peninsula D, in the baselands and in the shrubland area of the causeway (near main road junction on north side). A total of 71 nests were found without much effort. This species is frequently parasitized at TTP by Brown-headed Cowbirds.

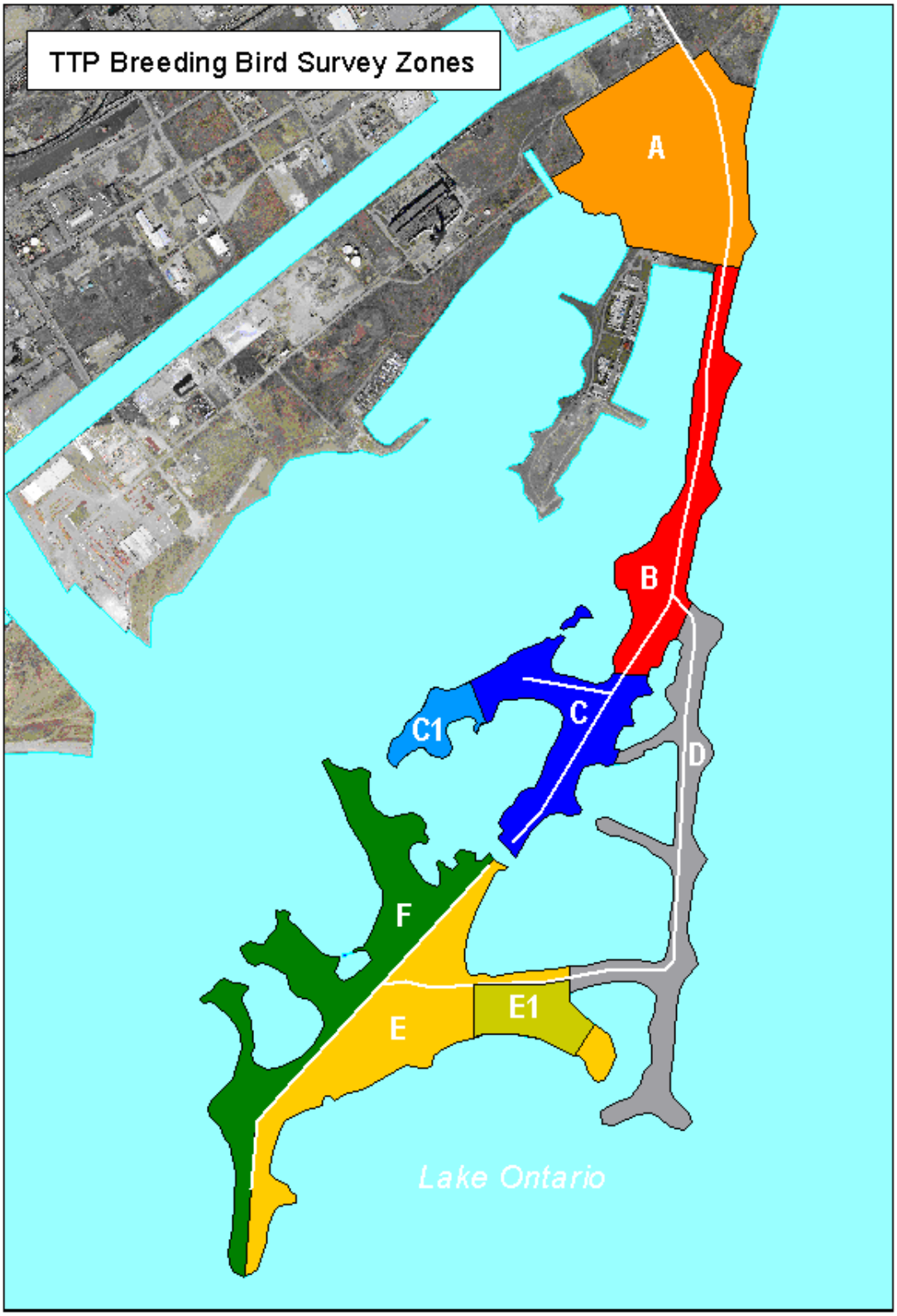
Yellow-rumped Warbler (2007-observed) This species has never been confirmed as a breeder at TTP. A singing male was heard on peninsula D on June 19 and 21.

Acknowledgement

The improved results from year two of the project detailed in this report is due to the efforts of the volunteer project participants. Volunteers Andrew Jano, Seabrooke Leckie, Attila Fust, Don Johnson and Ian Sturdee did a great job and we hope to have their support again in 2008. Thanks to Andrew Jano for providing mapping components of this report. Lastly, I would like to thank Anne Gray for submitting valuable observations of nesting birds to the project in 2007.

Appendices

Appendix A. Map of TTP Breeding Bird Zones



Appendix B. Summary of 2007 TTP Nest Records

Species	Zone	Nest Card Number	UTM-East	UTM-North	NAD	Success	Observer
AMGO	C	194338	634738	4832411	83	NN	IS
AMGO	D	194337	635270	4832207	83	OU	IS
AMGO	C	194339	634681	4831821	83	OU	IS
AMGO	C	194340	634823	4832038	83	OU	IS
AMGO	E	194280	634448	4831188	83	EA	DJ
AMGO	E	194281	634461	4831178	83	OU	DJ
AMGO	E	194262	634262	4831180	83	SL, NN	DJ
AMGO	E1	194264	634621	4831148	83	YC	DJ
AMGO	E1	194265	634788	4831108	83	OU	DJ
AMGO	E	194268	634042	4831073	83	OU	DJ
AMGO	E1	194398	634463	4831152	83	JP	DJ
AMGO	F	194400	633945	4831012	83	OU	DJ
AMGO	A	204682	634959	4834220	83	NE,YC	AJ
AMGO	A	204690	635327	4834078	83	OU	AJ
AMGO	A	204691	635157	4834088	83	OU	AJ
AMGO	A	204692	635261	4834565	83	OU	AJ
AMGO	A	204695	635373	4834440	83	EW,ED	AJ
AMRO	C	200918	634717	4832282	83	JP	IS
AMRO	C	200890	634654	4832312	83	XI	IS
AMRO	C1	200828	634249	4832070	83	NN	IS
AMRO	C1	200948	634316	4832155	83	EE	IS
AMRO	C	194467	634772	4831948	83	OU	IS
AMRO	C1	200895	634331	4832220	83	VA	IS
AMRO	C1	200967	634306	4832186	83	JP	IS
AMRO	C1	194336	634272	4832141	83	NN	IS
AMRO	E	194272	634667	4831290	83	NN	DJ
AMRO	F	194375	634464	4831585	83	OU	DJ
AMRO	F	194399	633965	4831033	83	OU	DJ
AMRO	D	194190	635130	4831768	83	XO	AF
AMRO	A	200850	635191	4834523	83	XE	AJ
AMRO	A	200991	635211	4834212	83	ED	AJ
AMRO	A	200993	635064	4834108	83	NE,NN	AJ
AMRO	A	204693	634918	4834030	83	NE,YC	AJ
AMRO	A	204696	635105	4833913	83	NE,YC	AJ
BAOR	F	194225	634243	4831637	83	SY	DGD
BAOR	C1	194230	634333	4832156	83	YC NN	DGD
BAOR	F	194239	634302	4831372	83	OU	DGD
BAOR	C	200898	634763	4832316	83	NN	IS
BAOR	C1	200892	634248	4832101	83	NN	IS
BAOR	C	194346	634971	4832317	83	YC	IS
BAOR	A	200873	635375	4834219	83	OU	AJ
BAOR	A	194376	635194	4834087	83	NN,AC	AJ
BAOR	B	194380	635104	4832591	83	OU	AJ
BAOR	B	204674	635141	4832686	83	NN,AC	AJ
BEKI	C1	200946	634302	4832202	83	NN	IS
BGGN	A	200861	635175	4834184	83	NE,NN	AJ
BRTH	C	194319	634562	4832250	83	NN VA	DGD
CEDW	C1	194329	634271	4832133	83	OU	IS
CEDW	E	194278	634023	4831042	83	YC	DJ
CEDW	E1	194370	634797	4831049	83	OU	DJ
CEDW	E	194397	634446	4831503	83	OU	DJ
CEDW	A	204686	634991	4834234	83	ED	AJ
CEDW	A	204694	635119	4834001	83	NE,YC	AJ
COGR	C1	194316	634516	4832187	83	OU	DGD
COGR	C	194296	634768	4832257	83	OU	IS
DOWO	C1	194311	634343	4832243	83	NN	DGD
EAKI	C	194232	634568	4832329	83	OU	DGD
EAKI	E	194291	634060	4831106	83	OU	DGD
EAKI	C	194469	634720	4831853	83	OU	IS

Species	Zone	Nest Card Number	UTM-East	UTM-North	NAD	Success	Observer
EAKI	C	194330	634773	4832426	83	NN	IS
EAKI	C	194348	634883	4832135	83	NN	IS
EAKI	C1	194478	634272	4832125	83	OU	IS
EAKI	C1	194334	634385	4832153	83	NN	IS
EAKI	E1	194282	634572	4831224	83	YC	DJ
EAKI	B	194378	635037	4832391	83	NN	AJ
EAKI	B	194383	635070	4832680	83	NN,AC	AJ
EAKI	B	204677	635261	4832990	83	OU	AJ
EAKI	B	204678	635310	4833237	83	OU	AJ
EAKI	B	204680	635373	4833762	83	NE,NN	AJ
EAKI	A	204683	635164	4834373	83	OU	AJ
EAWP	E	194279	634064	4831027	83	EO	DJ
EUST	C	200970	634670	4832289	83	NN	IS
EUST	C1	200914	634255	4832114	83	VA	IS
GADW	C	194171	634658	4832378	83	EP	DGD
GADW	C	194333	634549	4832332	83	EP	IS
GADW	E1	194284	634708	4831143	83	ED	DJ
GADW	E	194369	634132	4831191	83	HS	DJ
GRCA	C1	194317			83	XE	DGD
GRCA	C1	194349	634332	4832094	83	OU	IS
GRCA	E	194275	634022	4831036	83	JP	DJ
GRCA	E	194373	634430	4831477	83	OU	DJ
GRCA	B	204679	635324	4833411	83	NN,EA	AJ
HOFI	A	194227	634894	4834185	83	EO	DGD
KILL	A	204669	635326	4834326	83	EP	AJ
KILL	A	200871	635221	4834016	83	OU	AJ
LEFL	A	194243	635268	4834252	83	OU	DGD
LEFL	A	194244	635195	4834183	83	EX	DGD
MALL	C	194245	635033	4832269	83	ED	DGD
MALL	C	200827	634740	4832408	83	EB	IS
MALL	C	194293	634886	4832294	83	OU	IS
MALL	C	194347	634876	4832088	83	OU	IS
MALL	C1	194345	634379	4832131	83	ED	IS
MALL	E1	194286	634750	4831191	83	EP	DJ
MALL	B	204685	635209	4832813	83	EP	AJ
MODO	C	200885	634612	4832319	83	OU	IS
MODO	E	194396	634438	4831499	83	NN	DJ
NOCA	C1	194305	634306	4832173	83	NN YC	DGD
NOCA	C1	200963	634390	4832205	83	ED	IS
NOCA	E	194283	634069	4831000	83	JJ	DJ
NOCA	E	194273	634736	4831272	83	JJ	DJ
NOCA	E	194368	634030	4831082	83	OU	DJ
NRWS	C1	194308	634290	4832196	83	OU	DGD
ORORO	F	194241	634308	4831401	83	OU	DGD
ORORO	B	204676	635117	4832768	83	OU	AJ
RWBL	C	194191	634854	4832225	83	NN	DGD
RWBL	E1	194233	634702	4831161	83	EA	DGD
RWBL	E1	194234	634687	4831170	83	SY	DGD
RWBL	E	194237	634015	4831019	83	OU	DGD
RWBL	D	194288	635171	4832446	83	OU	DGD
RWBL	D	194289	635266	4832461	83	OU	DGD
RWBL	C1	194304	634249	4832135	83	NN	DGD
RWBL	D	194315	635248	4832485	83	YC VA	DGD
RWBL	C1	200920	634266	4832107	83	EE	DGD
RWBL	C	194476	634612	4832313	83	OU	IS
RWBL	C	194466	634756	4831987	83	VA	IS
RWBL	C	200884	634885	4832300	83	OU	IS
RWBL	C	194365	634638	4831865	83	EW	IS
RWBL	C	200891	634891	4832313	83	VA	IS
RWBL	C	200902	634803	4832093	83	OU	IS

Species	Zone	Nest Card Number	UTM-East	UTM-North	NAD	Success	Observer
RWBL	C	200907	634765	4832030	83	NN	IS
RWBL	C	200909	634780	4832002	83	VA	IS
RWBL	C	200910	634785	4831987	83	VA	IS
RWBL	C	194295	634780	4832064	83	ED	IS
RWBL	C1	200888	634318	4832169	83	OU	IS
RWBL	E	194274	634272	4831050	83	OU	DJ
RWBL	A	200851	635150	4834507	83	ED	AJ
RWBL	A	200852	635134	4834485	83	NE,VA	AJ
RWBL	A	200856	634960	4834399	83	EO	AJ
RWBL	A	200859	635293	4834241	83	OU	AJ
RWBL	A	200860	635284	4834290	83	NE,YC	AJ
RWBL	A	200862	635293	4834298	83	EP	AJ
RWBL	A	200994	635255	4834073	83	NE.YC	AJ
RWBL	B	194381	635068	4832707	83	NE,YC	AJ
RWBL	B	204697	635092	4832696	83	ED	AJ
RWBL	B	194392	635207	4832745	83	OU	AJ
RWBL	B	194393	635218	4832775	83	OU	AJ
RWBL	B	194394	635188	4832815	83	NE,YC	AJ
RWBL	B	204670	635151	4832844	83	OU	AJ
RWBL	B	204672	635219	4832897	83	EP,ED	AJ
SOSP	E	194228	634107	4830923	83	OU	DGD
SOSP	C	194314	634624	4832390	83	YC	DGD
SOSP	C1	200896	634314	4832213	83	OU	IS
SOSP	A	204688	634989	4834328	83	OU	AJ
SOSP	A	204689	635466	4834011	83	OU	AJ
SPSA	E	194238	634108	4830915	83	OU	DGD
SPSA	C1	194307	634335	4832200	83	EJ	DGD
SPSA	C	194313	634632	4832406	83	OU	DGD
SPSA	C	200916	634696	4832434	83	OU	IS
SPSA	D	194332	635139	4831278	83	ED	IS
SPSA	A	200998	635356	4834181	83	OU	AJ
TRES	C	194287	634835	4832091	83	OU	DGD
TRES	C1	194318	634443	4832221	83	OU	DGD
TRES	C1	200879	634302	4832202	83	OU	IS
TRES	C	200813	634764	4831915	83	NE	AF
TRES	C	200814	634781	4831925	83	NE	AF
TRES	C	200812	634839	4831958	83	OU	AF
WAVI	C	194189	634775	4832331	83	OU	DGD
WAVI	F	194240	634308	4831400	83	OU	DGD
WAVI	C1	200964	634344	4832176	83	OU	IS
WAVI	C	200889	634650	4832296	83	OU	IS
WIFL	E	194276	634736	4831282	83	NN, VA	DJ
WIFL	D	194259	634896	4831299	83	YC, VA	DJ
WIFL	E	194266	634444	4831250	83	EJ	DJ
WIFL	D	194298	635241	4831937	83	NE, VA	AF
WIFL	D	194300	635203	4831717	83	NE	AF
WIFL	A	200872	635107	4834480	83	NE,YC	AJ
WIFL	A	200996	635225	4834095	83	ED	AJ
WIFL	B	204719	635115	4832707	83	NN	AJ
WIFL	B	194387	635127	4832709	83	OU	AJ
WIFL	B	204671	635194	4832890	83	OU,ED	AJ
WIFL	B	204673	635102	4832801	83	NE.YC	AJ
WIFL	A	204681	634959	4834405	83	YC,EA	AJ
WIFL	B	204684	635154	4832838	83	NN,VA	AJ
WIFL	A	204687	635367	4834074	83	OU	AJ
WIFL	A	204700	634961	4834399	83	EP	AJ
WILF	C	200903	634800	4832084	83	OU	IS
WILF	C	200908	634772	4832007	83	EX	IS
WILF	C1	200899	634306	4832186	83	OU	IS
YWAR	C	160370	634563	4832318	83	EO EJ	DGD

Species	Zone	Nest Card Number	UTM-East	UTM-North	NAD	Success	Observer
YWAR	C1	194207	634394	4832163	83	ED EJ	DGD
YWAR	E	194236	634033	4831011	83	OU	DGD
YWAR	F	194242	634297	4831419	83	OU	DGD
YWAR	C	194290	634673	4831806	83	OU	DGD
YWAR	C1	194310	634383	4832266	83	ED	DGD
YWAR	C1	200915	634344	4832113	83	EP	IS
YWAR	C1	194479	634402	4832199	83	EE	IS
YWAR	C1	200897	634437	4832216	83	EP	IS
YWAR	C	200966	634570	4832361	83	EP	IS
YWAR	C	194468	634762	4831907	83	OU	IS
YWAR	C	200968	634882	4832305	83	OU	IS
YWAR	C1	200894	634387	4832215	83	OU	IS
YWAR	C1	194257	634293	4832119	83	OU	IS
YWAR	C1	200883	634247	4832108	83	OU	IS
YWAR	C	200901	634800	4832105	83	OU	IS
YWAR	C	200904	634815	4832078	83	OU	IS
YWAR	C	200906	634814	4832076	83	OU	IS
YWAR	C	194294	634779	4832067	83	OU	IS
YWAR	C1	200886	634348	4832209	83	OU	IS
YWAR	C1	200893	634229	4832106	83	OU	IS
YWAR	E	194258	634420	4831209	83	OU	DJ
YWAR	D	194297	635158	4831727	83	NN	AF
YWAR	D	194301	635134	4831745	83	XO	AF
YWAR	D	194302	635009	4831791	83	NE	AF
YWAR	A	200853	635085	4834454	83	NE,VA	AJ
YWAR	A	200854	634968	4834420	83	OU	AJ
YWAR	A	200857	634997	4834135	83	EO	AJ
YWAR	A	200858	635070	4834099	83	EA,OU	AJ
YWAR	A	200863	635263	4834298	83	JP,EA	AJ
YWAR	A	200864	635205	4834467	83	OU	AJ
YWAR	A	200865	635162	4834562	83	EP	AJ
YWAR	A	200866	635163	4834522	83	ED	AJ
YWAR	A	200867	634911	4834306	83	OU	AJ
YWAR	A	200868	635034	4834105	83	NE,YC	AJ
YWAR	A	200869	635109	4834130	83	NE,NN	AJ
YWAR	A	200870	635169	4834077	83	JP	AJ
YWAR	A	200874	635305	4834198	83	XP	AJ
YWAR	A	200992	634929	4834300	83	NE,YC	AJ
YWAR	A	200995	635253	4834082	83	NE,NL	AJ
YWAR	A	200999	634968	4834366	83	EP	AJ
YWAR	A	200997	634924	4834213	83	NE,YC	AJ
YWAR	A	201000	634902	4834163	83	JP,ED	AJ
YWAR	A	194377	635361	4834092	83	NE,YC	AJ
YWAR	B	194379	635091	4832487	83	NE,YC	AJ
YWAR	B	194382	635077	4832706	83	OU	AJ
YWAR	B	194385	635101	4832700	83	OU	AJ
YWAR	B	194386	635135	4832693	83	NE,YC	AJ
YWAR	B	194388	635163	4832675	83	EP	AJ
YWAR	A	194389	634971	4834368	83	EP,ED	AJ
YWAR	B	194390	635100	4832610	83	NE,EX	AJ
YWAR	B	194391	635049	4832719	83	NE,YC	AJ
YWAR	B	194395	635154	4832800	83	OU	AJ
YWAR	B	204675	635144	4832786	83	OU	AJ
YWAR	B	204698	635144	4832721	83	ED	AJ
YWAR	A	204699	635348	4834272	83	ED	AJ
YWAR	A	204701	635153	4834075	83	ED	AJ
YWAR	A	204702	634941	4834121	83	ED	AJ

Appendix C. Map of 2007 Nest Locations