The Breeding Birds of
Tommy Thompson Park
2006

Toronto and Region Conservation

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Table of Contents

Tables, Figures and Appendices

Photo Credits: cover-Spotted Sandpiper Egg, Mourning Dove Nest (Derbyshire), page 1-TTP aerial (TRCA), page 2-Least Flycatcher at Nest (Derbyshire), page 4-Toplands Meadow Habitat (Derbyshire), page 5-Brown Thrasher Nest (Derbyshire), page 7-Juvenile Killdeer (Derbyshire)

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 birds, butterflies and nesting waterbirds.

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 – July 2006 (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 (OSNA).

Results

Variable Circular Plot (VCP) Counts

Protocol

The specific protocol for the counts during summer 2006 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).

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 22 and July 11. 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 39 species were detected for all counts during summer 2006, which is up five species from 34 in 2005. There were several key species that were detected this year, but not in 2005, including Blue-gray Gnatcatcher, Bobolink, Eastern Meadowlark, and Least Flycatcher. Eastern Wood Pewee, American Kestrel, and Brown Thrasher were recorded on counts in 2005 but not in 2006, 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 and 2006 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 and 2006 (*denotes presumed migrant species)

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

Species richness per station in 2006 was consistent with 2005. The stations with the highest overall diversity in 2006 (24 species) were stations 1 and 4, both located in the baselands. 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 both years.

In terms of total station abundance (excluding flyovers) station 7 (toplands wet meadow) ranked at the top of the list followed closely by stations 5 (shrubland) and 4 (baselands dry meadow). Station 7 showed the highest percentage increase in abundance (248%) and diversity (33%). Overall abundance from VCP counts in 2006 was slightly lower than 2005.

Table 3. Total Abundance and Species Richness per Station

Station	2005 total birds	2006 total birds	Station	2005 species	2006 species
1	93	112	1	19	24
2	89	66	2	19	15
3	199	146	3	22	18
4	244	170	4	20	24
5	183	186	5	19	21
6	135	103	6	19	20
7	128	209	7	15	20
8	42	49	8	10	12
9	29	23	9	6	8
Totals	1142	1064	Totals	34	39

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 both 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. In 2006, there were some notable changes in total abundance for some species. European Starling numbers dropped by 73%, Willow Flycatcher by 33%, and American Robin dropped by 48%.

There were no significant increases in abundance for any common species, however an overall increase in diversity of species is apparent.

Table 4. Total Birds Detected by Species Within 100 metres

Species	2005	2006	Species	2005	2006
RWBL	151	167	LEFL		5
YWAR	127	105	KILL	5	3
SOSP	98	74	BCCH	1	3
GRCA	22	26	BEKI	1	3
WAVI	34	25	BGGN		3
EUST	92	24	HOSP		3
WIFL	35	23	NOFL	3	2
AMGO	19	22	NOCA	2	2
BAOR	30	21	BARS	2	1
COGR	18	21	COYE	2	1
BHCO	16	15	EAME		1
AMRO	27	14	HOFI		1
EAKI	15	12	MODO		1
SAVS	13	12	BRTH	5	
CEDW	9	12	TRES	5	
SPSA	7	6	AMKE	1	
Totals				740	608

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 2006 involved exhaustive area searches of as much of the TTP area as time and personnel permitted. Two plots were delineated in 2006 to provide a more concentrated effort in specific habitats and to standardize nest density estimates. 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. All nests discovered 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:

- 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 2006, a total of 231 hours were logged by seven 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. A standardized grid was located in sections C and E, each 1200 metres square in size. Effort was recorded separately for each grid. A breakdown of effort per zone and grid is presented in Table 6.

Table 5. 2006 Effort by Project Participants

Name	Total Hours
Andrew Jano	64:10
Dan Derbyshire	27:08
Ian Sturdee	49:40
Larry Menard	29:30
Seabrooke Leckie	33:10
Jan McDonald and Pierre Robillard	27:25
Total Hours	231:00

Table 6. Effort per Zone/Grid

Zone	Grid	Habitat Type	Total Hours
A		forest, meadow	62:30
B		meadow,shrubland, forest	31:55
C		forest	30:20
D		meadow, shrubland	24:20
E		Meadow	19:15
F		Meadow, Forest	13:50
	C1	Forest	32:28
	E1	Meadow	13:25

Results

The introduction of more volunteer assistance, standard nest searching data forms and nest searching grids were very successful as a total of 214 nests were discovered and monitored. This figure is an increase of 196% over 2005 when 73 nests were documented. Nests of 33 species were found this year compared to 20 in 2005. The additional 13 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. Refer to Species Accounts below for information on these records.

Table 7. Total Nests by Species in 2005 and 2006

Species	2006	2005	Species	2006	2005
RWBL	45	5	KILL	3	
YWAR	34	8	BANS	2	15
BAOR	13	5	BEKI	1	
WIFL	13	2	AMGO	1	
AMRO	12	3	BGGN	1	
GRCA	12	3	BRTH	1	1
EAKI	11	3	CAGO	1	
WAVI	8	1	EAME	1	
TRES	7	4	GADW	1	5
MALL	6	1	HOSP	1	1
SOSP	6	1	HOWR	1	
BARS	5	7	LEFL	1	
EUST	5		NOCA	1	2
SPSA	5	2	NRWS	1	
MODO	4		ORORR	1	
YSFL	4	2	BCCH		2
CEDW	3				
COGR	3		Total	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 in zone C (peninsula D) is primarily

mixed age poplar forest while the grid in zone E (toplands) 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

Species	A	B	C	C- grid	D	E	E- grid	F
BEKI			1					
AMGO						1		
AMRO	5		3	2	1	1		
BANS						2		
BAOR	2	2	3	3		1		2
BARS	5							
BGGN	1							
BRTH							1	
CAGO			1					
CEDW			1	2				
COGR		1	1			1		
EAKI	2	2	3	1				3
EAME	1							
EUST				2		2		1
GADW			1					
GRCA	3		4	4	1			
HOSP	1							
HOWR			1					
KILL		2				1		
LEFL	1							
MALL		1	4					1
MODO	1	1	1			1		
NOCA				1				
NRWS						1		
ORORR		1						
RWBL	7	20	9	3	1	1	2	2
SOSP			1	1		2	1	1
SPSA			2		2		1	
TRES			1	2		2		2
WAVI			2	1				5
WIFL	5	4		1	1	1		1
YSFL			2	1	1			
YWAR	9	12	7	2		1		3
Total Nests	43	46	48	26	7	18	5	21
Total Species	13	10	18	14	6	14	4	10
Total Effort (hrs.)	62:30	31:55	30:20	32:28	24:20	19:15	13:25	13:50
Nests Detected/Hour	.7	1.4	1.6	.8	.3	.9	.4	1.5

In terms of nest productivity, 61 of 143 nests with known outcomes failed while 82 were successful in fledging young. The remaining 71 nests have unknown outcomes. The failure rate of 42% in 2006 is lower than that of 2005 when 57% nests failed. The larger sample size in 2006 is 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 (82%).

Brown-headed Cowbird parasitism has become a major issue for small landbird populations in more open habitats and forest fragments. The rate of parasitism among known host species at TTP increased from 24% in 2005 to 26% in 2006. A total of 27 nests of 5 species were found with cowbird eggs. The most heavily parasitized species were Red-winged Blackbird (12 nests), Yellow Warbler (9), Willow Flycatcher (3), Song Sparrow (2) and American Goldfinch (1).

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 2006, 75 species were detected at Tommy Thompson Park through VCP counts, nest searching and casual observations. Of these, 19 were designated as possible breeders, 4 as probable and 45 species were confirmed breeders. An additional seven species were observed and classified as non-breeders (habitat unsuitable for breeding). In 2005, 67 species were recorded of which 35 were confirmed. No new confirmed breeding species were added to the TTP breeding list in 2006 although 18 new species were listed as either possible (17) or probable (1). Current habitat conditions are appropriate for nesting by some of these species so it is anticipated that the list of known breeding species will grow in the near future.

Table 9. Breeding Status Codes for Each Species Detected In 2006

	Observed	Possible	Probable	Confirmed
1	Chimney Swift	American Black Duck	Bobolink	American Goldfinch
2	Common Goldeneye	American Kestrel	Eastern Meadowlark	American Robin
3	Common Loon	American Redstart	Eastern Wood Pewee	American Woodcock
4	Hermit Thrush	Black-billed Cuckoo	House Finch	Baltimore Oriole
5	Purple Martin	Blue Jay		Bank Swallow
6	Red-breasted Nuthatch	Blue-winged Teal		Barn Swallow
7	Trumpeter Swan	Cliff Swallow		Black-crowned Night Heron
8		Common Yellowthroat		Blue-gray Gnatcatcher
9		Downy Woodpecker		Belted Kingfisher
10		Field Sparrow		Black-capped Chickadee
11		Great-crest. Flycatcher		Brown Thrasher
12		Green-winged Teal		Brown-head Cowbird
13		Hooded Merganser		Canada Goose
14		Northern Mockingbird		Canvasback
15		Northern Harrier		Caspian Tern
16		Red-eyed Vireo		Cedar Waxwing
17		Rock Pigeon		Common Grackle
18		Wood Duck		Common Tern
19		Yellow-billed Cuckoo		Double-crested Cormorant
20				Eastern Kingbird
21				European Starling
22				Gadwall
23				Gray Catbird
24				Great Egret
25				Herring Gull
26				House Sparrow
27				House Wren
28				Killdeer
29				Least Flycatcher
30				Mallard
31				Mourning Dove
32				Mute Swan
33				N.R-wing. Swallow
34				Northern Cardinal
35				Northern Flicker
36				Orchard Oriole
37				Ring-billed Gull
38				Red-wing Blackbird
39				Savannah Sparrow
40				Song Sparrow
41				Spotted Sandpiper
42				Tree Swallow
43				Warbling Vireo
44				Willow Flycatcher
45				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 2006 as well as historically confirmed breeders (marked in bold). Species highlighted in red were detected in 2006 but have not yet been classified as confirmed breeders at Tommy Thompson Park/Leslie Street Spit.

American Goldfinch- (2006-confirmed) This species is a regular nester at TTP. The species has been surprisingly difficult to find, however Seabrooke Leckie discovered a nest in the toplands in 2006.

American Kestrel (2006-possible) Known to have bred historically at TTP although no nesting evidence was obtained in 2006 beyond observation of the species in suitable habitat during the breeding season.

American Redstart (2006-possible) This species has never been confirmed as a breeder at TTP. One singing male detected on peninsula D on June 13 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.

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

American Woodcock- (2006-confirmed) This species is an early nester (April) and as such will likely be missed in most years of the project. Confirmed breeding status attained by the capture of juvenile birds in May at TTPBRS and an observation of juveniles with adults on May 14. Regular nester in forested areas throughout TTP.

American Black Duck (2006-possible) Known to have bred historically at TTP although no nesting evidence was obtained in 2006 beyond observation of the species in suitable habitat during the breeding season.

Baltimore Oriole (2006-confirmed) Common nesting species in forest areas of TTP. A total of 13 nests were recorded in 2006.

Bank Swallow (2006-confirmed) Bank Swallows took up residence in the sand bank feature in Cell 1. Approximately 32 nest holes were excavated. The colony was predated by Raccoons, which forced adults to relocate to other areas. Small nesting colonies were discovered in both the meadows and southern shoreline of the toplands area.

Barn Swallow (2006-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 here of which three were successful.

Belted Kingfisher (2006-confirmed) This species was confirmed for the first time in 2003 based on observations of fledged young. In 2006 a nest was found in a sandy bank on peninsula D by Ian Sturdee. This nest was successful in rearing young.

Black-billed Cuckoo (2006-possible) Known to have bred historically at TTP although no nesting evidence was obtained in 2005 beyond observation of the species in suitable habitat during the breeding season. A single individual was observed in the toplands meadows on Jul 11.

Black-capped Chickadee (2006-confirmed) A regular but uncommon nester at TTP. No nests were detected in 2006 although observations of adults feeding young 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 (2006-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 (2006-possible) This species has never been confirmed as a breeder at TTP. No nesting evidence was obtained in 2006 beyond observation of the species in suitable habitat during the breeding season.

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

Blue-winged Teal (2006-possible) Known to have bred historically at TTP although no nesting evidence was obtained in 2006 beyond observation of the species in suitable habitat during the breeding season.

Bobolink (2006-probable) This species has never been confirmed as a breeder at TTP. In 2006, a total of six sightings were recorded between May 29 and July 11. Observations of both males and females suggested that breeding may have been underway in the toplands meadow area near VCP station 7. There was also a cluster of sightings centered around the baselands meadow.

Brown Thrasher (2006-confirmed) Brown Thrasher is a regular but uncommon nester at TTP. A nest was discovered in a wild rose bush in the toplands, that later failed. The species was confirmed as a nester on peninsula D based on capture of a female with brood patch and observations of adult behaviour indicating an occupied nest.

Brown-headed Cowbird (2006-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 (2006-confirmed) Canada Goose is a common breeder at TTP along shoreline edges of embayments and containment cells.

Canvasback (2006-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 (2006-confirmed) A regular nesting colonial-waterbird species at TTP.

Cedar Waxwing (2006-confirmed) A complete miss in 2005, a total of three nests were found in 2006. The outcome of all of these nests are unknown.

Chimney Swift (2006-observed) This species has never been confirmed as a breeder at TTP. Observations of foraging birds near the baselands are frequent however at present there are no suitable nesting locations for the species at TTP.

Cliff Swallow (2006-possible) This species has never been confirmed as a breeder at TTP. No nesting evidence was obtained in 2006 beyond observation of the species in suitable habitat during the breeding season

Common Goldeneye (2006-observed) This species has never been confirmed as a breeder at TTP. A single individual was present on June 15 and July 5 in Cell 3.

Common Loon (2006-observed) This species has never been confirmed as a breeder at TTP. A single flyover was recorded on July 5.

Common Grackle (2006-confirmed) Common Grackle is a regular nester at TTP. No active nests were located in 2005, however, three nests were found in 2006. The first nest discovered was in a spruce near the goldfish pond, which later fledged young.

Common Tern (2006-confirmed) An abundant nesting colonial-waterbird species at TTP.

Common Yellowthroat (2006-possible) Individuals of the species were found in the same locations as in 2005. A single female was observed in the wet meadows of the baselands on June 10 and a singing male was observed in the wet thickets between peninsula C and B on June 14.

Double-crested Cormorant (2006-confirmed) An abundant nesting colonial-waterbird species at TTP.

Downy Woodpecker (2006-possible) Possibly an annual nester but irregular.

Eastern Kingbird (2006-confirmed) A regular breeder at TTP along forest edges where meadow and shrubs are present. A total of 11 nests were found, at least 10 of which were successful in fledging young.

Eastern Meadowlark- (2006-probable) This species was present from April to July in baselands meadow habitats. Behaviour of adults suggested nesting was occurring. Two territorial males were present on May 29. The only evidence of breeding obtained was that of a partially constructed nest.

Eastern Wood Pewee (2006-possible) No nesting evidence was obtained in 2006 beyond observation of the species in suitable habitat during the breeding season. Singing males were recorded on both peninsula D and C (possibly same individual).

European Starling (2006-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. A total of five nests were documented.

Field Sparrow (2006-possible) This species has never been confirmed as a breeder at TTP. A single bird was observed near the goldfish pond on May 29. This is the second consecutive year that the species has been found here, however subsequent visits failed to produce any further observations.

Gadwall (2006-confirmed) Gadwall is a surprisingly common nesting species at TTP. A single nest was found on peninsula D in 2006. Several observations of adults with young were made throughout the summer period.

Gray Catbird (2006-confirmed) Gray Catbird is a regular nester at TTP, preferring dense shrubs with some tree cover. The nesting density of Gray Catbird on peninsula D was particularly high as a total of eight nests were found and were active simultaneously.

Great black-backed Gull (2006-absent)

Great Egret (2006-confirmed) TRCA staff confirmed two nests on peninsula C.

Great-blue Heron- (2006-absent)

Great-crested Flycatcher (2006-possible) This species has never been confirmed as a breeder at TTP. A single individual was observed on June 14. No other evidence for this species was obtained.

Green Heron- (2006-absent)

Green-winged Teal- (2006-possible) Known to have bred historically at TTP although no nesting evidence was obtained in 2006 beyond observation of the species in suitable habitat during the breeding season. Three birds were observed in zone D on July 5.

Hermit Thrush (2006-observed) This species has never been confirmed as a breeder at TTP. A single individual recorded on June 23 was very strange and most certainly not a breeder.

Herring Gull (2006-confirmed) A common nesting colonial-waterbird species at TTP.

Hooded Merganser (2006-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- (2006-absent)

House Finch (2006-probable) A single House Finch was heard singing in the baselands forest on June 14 but was not heard or observed again.

House Sparrow (2006-confirmed) House Sparrow is a regular but uncommon nester at TTP. This species is expanding at TTP. A single nest from the baselands was documented and the species was frequently encountered at the port authority buildings and in Cell 1.

House Wren (2006-confirmed) House Wren was recorded on peninsula D only in 2006. A nest box on the sailing club fence was occupied but later failed at an unknown stage.

Killdeer (2006-confirmed) Killdeer is a common nesting species at TTP in open areas with low vegetation. A total of three nests were found in 2006.

Least Flycatcher (2006-confirmed) Last bred at TTP in 2003 (peninsula D). 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.

Mallard (2006-confirmed) Mallard is a regular nester at TTP. Six Mallard nests were documented in 2006; all except one were predated.

Mourning Dove- (2006-confirmed) Mourning Dove is a common breeder at TTP. Three nests were found in 2006.

Mute Swan (2006-confirmed) Mute Swan is a regular nesting species along TTP shorelines.

Northern Rough-winged Swallow (2006-confirmed) This species is a confirmed historical breeder based on observations of recently fledged young in 2003. A nest found in the rubble of the southern shoreline off the toplands meadows was a first. Nests are difficult to find in the innumerable cavities along this shoreline, however observations suggest that as many as 10-20 pairs may nest here.

Northern Bobwhite- Known to have bred historically, species not detected in 2006.

Northern Cardinal (2006-confirmed) Northern Cardinal is an uncommon but annually nesting species at TTP. A single nest was found in thick dogwood scrub on peninsula D, which later failed. There was an observation of recently fledged young on peninsula B on July 30.

Northern Flicker (2006-confirmed) Northern Flicker is a regular nesting species at TTP. Four nests were located in 2006, one in Cell 1 and three on peninsula D. A banded adult was observed evicting a starling nest from a natural nest cavity near the tip of peninsula D. Two of the nests had unknown outcomes and the other two failed due to predation.

Northern Harrier (2006-possible) Known to have bred historically at TTP although no nesting evidence was obtained in 2006 beyond observation of the species in suitable habitat during the breeding season.

Northern Mockingbird (2006-possible) This species has never been confirmed as a breeder at TTP. In 2006 a pair nested adjacent to the baselands off of Leslie Street and Unwin Avenue.

Orchard Oriole (2006-confirmed) Nest records of this species at TTP are few and far between. On June 14 a singing male was heard in the forested area near embayment D. A search of the area produced an active nest of a second-year male. This nest was eventually successful. On June 30 an after-second year male was observed feeding young in the baselands, suggesting that two nests had been successful at TTP in 2006.

Purple Martin (2006-observed) This species has never been confirmed as a breeder at TTP. A single flyover was recorded on June 23.

Red-eyed Vireo (2006-possible) This species has never been confirmed as a breeder at TTP. On June 14 a singing male was recorded in zone F. No other records of the species were obtained at TTP in 2006.

Red-breasted Nuthatch (2006-observed) This species has never been confirmed as a breeder at TTP. On June 14 a calling male was recorded in zone F. No other records of the species were obtained at TTP in 2006.

Redhead- Known to have bred historically, species not detected in 2006.

Red-winged Blackbird (2006-confirmed) A common breeding species throughout the TTP area. The most abundant nesting species at TTP (excluding waterbirds). A total of 45 nests were documented although many more were known.

Ring-billed Gull (2006-confirmed) An abundant nesting colonial-waterbird species at TTP.

Ring-necked Pheasant- Known to have bred historically, species not detected in 2006.

Rock Pigeon (2006-possible) Known to have bred historically at TTP although no nesting evidence was obtained in 2005 beyond observation of the species in suitable habitat during the breeding season.

Savannah Sparrow (2006-confirmed) 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 2006 yielded zero nests of this species. Breeding was confirmed by observations of adults carrying food.

Song Sparrow (2006-confirmed) Song Sparrow is one of the most abundant nesting species at TTP. Ground nesting species have proven to be elusive in both years of the project. In 2006, a total of six nests were found which was an improvement over 2005 results.

Sora- Known to have bred historically, species not detected in 2006.

Spotted Sandpiper (2006-confirmed) A common nester at TTP in open areas near water. Five nests were found in 2006, three of which were successful in rearing young. 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 (2006-confirmed) Tree Swallow is a common breeder at TTP. In 2005 many nest boxes were occupied however only seven nests were documented and monitored. The earliest nest record in 2006 was that of a pair that nested in a cavity occupied by Black-capped Chickadees in 2005. When checking nest contents it was discovered that a banded Downy Woodpecker had recently died in the cavity and was being used as a base for the nesting Tree Swallows!

Trumpeter Swan (2006-observed) This species has never been confirmed as a breeder at TTP. On June 16, a group of six were seen flying along the lakeshore of TTP.

Virginia Rail- Known to have bred historically, species not detected in 2006.

Warbling Vireo (2006-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.

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

Wilson's Phalarope- Known to have bred historically, species not detected in 2006.

Wood Duck (2006-possible) This species has never been confirmed as a breeder at TTP. A lone male was recorded on June 21 in the Triangle pond.

Yellow-billed Cuckoo (2006-possible) This species has never been confirmed as a breeder at TTP. A presumed Yellow-billed Cuckoo was heard calling on peninsula C on June 14.

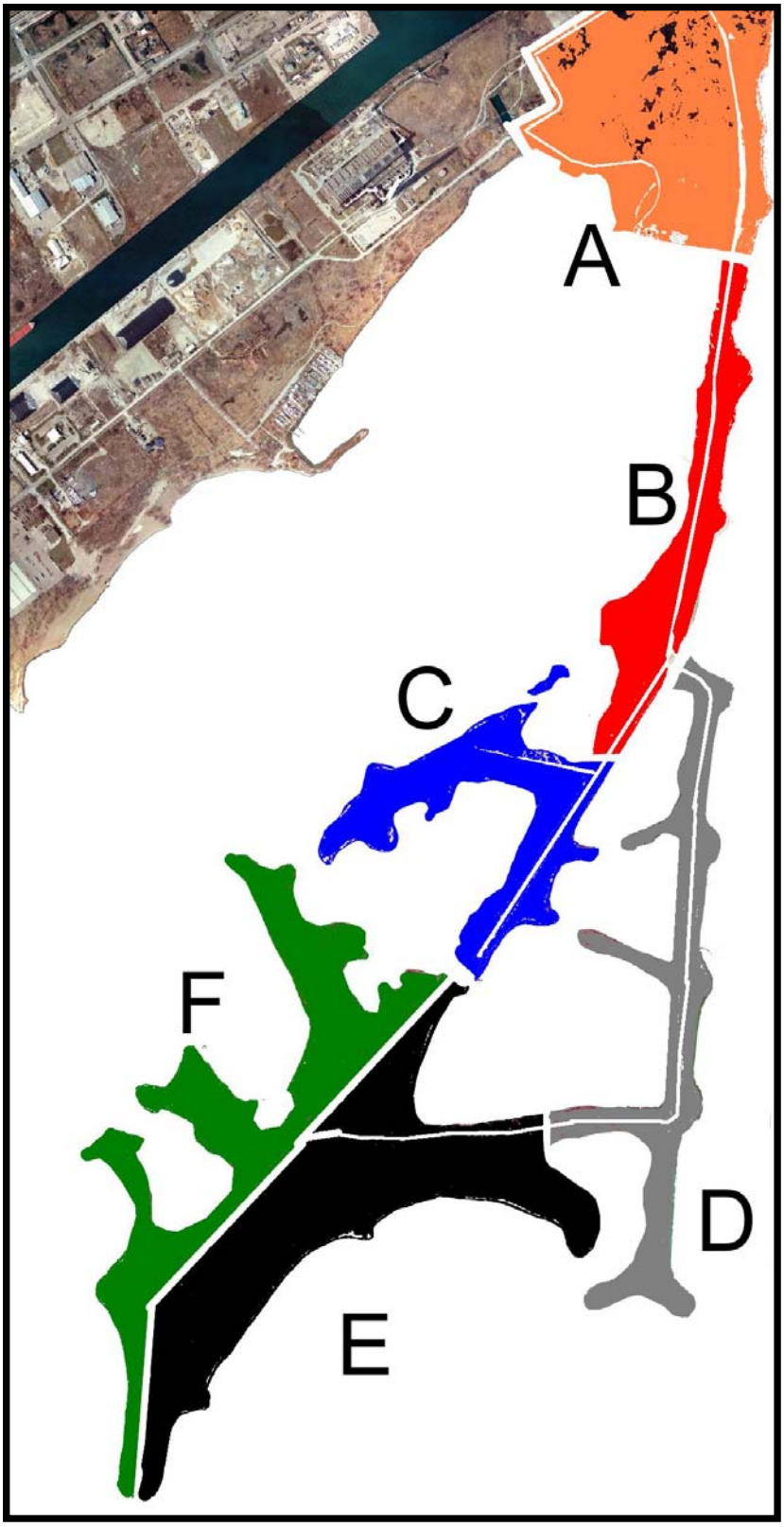
Yellow Warbler (2006-confirmed) Yellow Warblers are common to abundant at TTP. Yellow Warbler colonies exist on peninsula D and in the shrubland area of the causeway (near main road junction on north side). A total of 34 nests were found without much effort. This species is frequently parasitized at TTP by Brown-headed Cowbirds.

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, Jan McDonald, Larry Menard, Pierre Robillard and Ian Sturdee did a great job and we hope to have their support again in 2007. 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 2006.

Appendices

Appendix A. Map of TTP Breeding Bird Zones



Appendix B. Summary of 2006 TTP Nest Records

Species	Zone	Nest Card Number	UTM-East	UTM-North	NAD	Success	Observer
EUST	E	162229	634129	4830879	83	OU	SNL
TRES	E	192157	634354	4831433	83	OU	SNL
WAVI	F	192158	634353	4831449	83	OU	SNL
YWAR	F	192159	634359	4831452	83	JP	SNL
BAOR	F	192160	634340	4831481	83	OU	SNL
TRES	F	192161	634364	4831498	83	OU	SNL
WAVI	F	192162	634409	4831537	83	OU	SNL
EAKI	F	192163	634428	4831521	83	YC	SNL
AMRO	E	192164	634472	4831526	83	OU	SNL
TRES	E	192165	634490	4831578	83	OU	SNL
WAVI	F	192166	634413	4831524	83	OU	SNL
YWAR	F	192167	634424	4831470	83	OU	SNL
EAKI	F	192168	634279	4831512	83	YC VA	SNL
EUST	F	192169	634295	4831509	83	OU	SNL
WAVI	F	192170	634292	4831540	83	OU	SNL
SOSP	F	192171	633649	4830796	83	EP	SNL
RWBL	F	192172	633668	4830840	83	VA	SNL
WAVI	F	192173	633759	4830849	83	OU	SNL
TRES	F	192174	633719	4830875	83	OU	SNL
YWAR	F	192176	633689	4830895	83	EO	SNL
BANS	E	192177	634222	4830945	83	OU	SNL
EUST	E	200976	633996	4830923	83	YC	SNL
BANS	E	200977	634274	4831086	83	OU	SNL
WIFL	F	200978	633664	4830514	83	OU	SNL
RWBL	F	200979	633657	4830738	83	OU	SNL
BAOR	F	200980	633641	4830658	83	NN	SNL
BAOR	E	200981	634388	4831482	83	NN	SNL
MALL	F	200982	634308	4831477	83	ED	SNL
KILL	E	200983	633767	4830450	83	YC	SNL
AMGO	E	200984	634455	4831179	83	EX SY	SNL
YWAR	E	200985	634472	4831191	83	EO	SNL
SOSP	E	200986	634502	4831116	83	EO	SNL
WIFL	E	200987	634694	4831250	83	NN	SNL
EAKI	F	200988	634380	4831246	83	YC	SNL
EAME	A		635297	4834086	83	XO	SNL
YWAR	A	192005	635340	4834108	83	OU	JM/PR
YWAR	A	192006	635290	4834242	83	NN	JM/PR
EAKI	B	192008	635274	4833071	83	NN	JM/PR
AMRO	A	192148	635313	4834068	83	OU	JM/PR
AMRO	A	192149	635166	4834058	83	EO	JM/PR
RWBL	A	192150	635239	4833935	83	NE	JM/PR
RWBL	A	192151	635305	4833955	83	OU	JM/PR
YWAR	A	192152	634940	4834156	83	NE	JM/PR
RWBL	A	192153	634937	4834104	83	OU	JM/PR
WIFL	A	192154	635355	4834125	83	NN	JM/PR
SPSA	D	167242	634983	4831288	83	VA	IS
RWBL	C	167243	634793	4832451	83	OU	IS
RWBL	C	167244	634793	4832446	83	OU	IS
SOSP	C1	167246	634351	4832116	83	ED	IS
BEKI	C	169149	634309	4832206	83	NN	IS
RWBL	C1	169150	634417	4832108	83	VA JE	IS
HOWR	C	192037	634651	4832314	83	OU	IS
RWBL	C	192048	634648	4831880	83	OU	IS
YWAR	C	192049	634642	4831853	83	OU	IS
RWBL	C	192050	634647	4831853	83	OU	IS
RWBL	C	192051	634660	4831857	83	JD	IS
EAKI	C	192052	634720	4831851	83	OU	IS

Species	Zone	Nest Card Number	UTM-East	UTM-North	NAD	Success	Observer
AMRO	D	192053	635245	4832294	83	VA	IS
RWBL	D	192061	635199	4831224	83	VA	IS
MALL	C	192078	634763	4831992	83	EE	IS
YSFL	C1	192095	634256	4832117	83	JD OU	IS
AMRO	C1	192101	634223	4832077	83	OU	IS
TRES	C1	192104	634295	4832199	83	OU	IS
TRES	C	192105	634543	4832262	83	VA	IS
GRCA	C1	192106	634408	4832103	83	VA NN	IS
GRCA	C1	192107	634395	4832129	83	OU	IS
YWAR	C1	192109	634350	4832202	83	NE	IS
EUST	C1	192113	634299	4832196	83	OU	IS
WAVI	C	192114	634596	4832305	83	VA	IS
AMRO	C1	192115	634276	4832141	83	XE	IS
TRES	C1	192118	634227	4832087	83	OU	IS
BAOR	C	192119	634614	4832301	83	AC	IS
YWAR	C	192120	634910	4832304	83	OU	IS
YSFL	C	192121	634919	4832304	83	OU	IS
GRCA	C	192122	634681	4831891	83	EE	IS
BAOR	C1	192123	634235	4832090	83	OU	IS
BAOR	C	192125	634956	4832298	83	OU	IS
SPSA	D	192131	634905	4831261	83	VA	IS
RWBL	C1	192134	634212	4832057	83	VA	IS
RWBL	C	192135	634809	4832472	83	ED	IS
SPSA	E1	200943	634820	4831187	83	OU	IS
YSFL	D	200944	635225	4832164	83	OU	IS
WIFL	D	200950	635199	4831224	83	OU	IS
CEDW	C	200971	634850	4831972	83	OU	IS
BAOR	C	200974	634807	4831981	83	OU	IS
GRCA	D	200975	634862	4831898	83	OU	IS
AMRO	C	169151	634682	4832287	83	EO	DGD
AMRO	C	192004	634341	4832163	83	JO	DGD
YWAR	C	192021	634341	4832167	83	EP	DGD
YSFL	C	192022	634244	4832093	83	EP	DGD
RWBL	C1	192023	634241	4832078	83	HS VA	DGD
EUST	C1	192024	634229	4832134	83	OU	DGD
RWBL	C	192025	634805	4832445	83	EJ	DGD
MALL	C	192026	634725	4832342	83	ED	DGD
SOSP	C	192027	634266	4832108	83	OU	DGD
MODO	E	192028	634041	4831025	83	NE	DGD
YWAR	C	192030	634393	4832164	83	OU	DGD
RWBL	C	192032	634804	4832447	83	OU	DGD
YWAR	C	192034	634375	4832195	83	ED	DGD
GRCA	C	192035	634458	4832206	83	EE	DGD
BAOR	C1	192036	634293	4832147	83	OU	DGD
YWAR	C	192039	634303	4832164	83	VA	DGD
COGR	E	192040	634032	4831026	83	NN	DGD
WAVI	C1	192041	634356	4832194	83	OU	DGD
MALL	C	192042	634902	4832275	83	EP	DGD
WAVI	C	192043	634818	4832299	83	OU	DGD
RWBL	A	192045	635191	4834252	83	ED	DGD
RWBL	E	192046	634350	4831262	83	OU	DGD
GRCA	C1	192047	634318	4832180	83	VA	DGD
RWBL	E1	192054	634686	4831163	83	ED	DGD
SOSP	E1	192055	634614	4831119	83	OU	DGD
GRCA	C	192058	634550	4832191	83	XD	DGD
SPSA	C	192059	634676	4832430	83	EA	DGD
BAOR	C1	192062	634333	4832160	83	NN	DGD
GRCA	C	192063	634312	4832094	83	OU	DGD

Species	Zone	Nest Card Number	UTM-East	UTM-North	NAD	Success	Observer
AMRO	C	192064	634497	4832220	83	OU	DGD
COGR	C	192065	634777	4832386	83	ED	DGD
MALL	C	192066	634377	4832289	83	EP	DGD
GADW	C	192067	634658	4832387	83	NE	DGD
NOCA	C1	192068	634364	4832129	83	EJ	DGD
RWBL	E1	192069	634698	4831166	83	OU	DGD
GRCA	C1	192070	634515	4832179	83	OU	DGD
SOSP	E	192071	634570	4831184	83	XP	DGD
YWAR	C1	192072	634462	4832208	83	EE	DGD
BRTH	E1	192073	634506	4831076	83	EP	DGD
EAKI	C1	192074	634373	4832130	83	NN VA	DGD
SPSA	C	192075	634629	4832404	83	VA	DGD
EAKI	C	192076	634647	4832325	83	VA YC	DGD
NRWS	E	192079	634700	4831061	83	YC	DGD
MODO	C	192096	634610	4832335	83	JD	DGD
CAGO	C	192103	634348	4832110	83	EP	DGD
YWAR	C	192108	634649	4832346	83	ED	DGD
EAKI	C	192155	634790	4832443	83	VA	DGD
WIFL	C1	192156	634368	4832076	83	ED	DGD
CEDW	C1	200815	634399	4832140	83	EW	DGD
CEDW	C1	200935	634328	4832128	83	OU	DGD
LEFL	A	200989	635212	4834212	83	YC	DGD
WIFL	A	159738	635228	4834100	83	NE YC	AJ
RWBL	A	160165	635178	4834261	83	NE	AJ
BAOR	A	162230	635256	4834247	83	OU	AJ
GRCA	A	162231	635132	4834480	83	XP	AJ
YWAR	A	162232	635268	4834235	83	NE	AJ
YWAR	A	179052	635086	4834461	83	NE	AJ
YWAR	A	179053	635310	4834205	83	NE	AJ
MODO	A	179054	635314	4834176	83	EE	AJ
WIFL	A	179055	635108	4834486	83	YC,VA	AJ
RWBL	B	179056	635077	4832401	83	NE	AJ
WIFL	A	179057	635176	4834542	83	ED	AJ
YWAR	A	179058	635164	4834536	83	NE,VA	AJ
YWAR	A	179060	635259	4834293	83	ED	AJ
RWBL	B	179061	635167	4832841	83	NE,NN	AJ
RWBL	B	179063	635164	4832869	83	NE,VA	AJ
RWBL	B	179064	635167	4832841	83	NE	AJ
RWBL	B	179065	635167	4832841	83	JE	AJ
RWBL	B	179068	635220	4832784	83	NE	AJ
RWBL	B	179069	635220	4832784	83	NE,VA	AJ
RWBL	B	179070	635208	4832749	83	NE	AJ
RWBL	B	179071	635216	4832734	83	EX	AJ
YWAR	B	179072	635205	4832709	83	OU	AJ
RWBL	B	179073	635179	4832574	83	ED	AJ
YWAR	B	179074	635054	4832738	83	OU	AJ
YWAR	B	179075	635094	4832741	83	OU	AJ
YWAR	B	179076	635140	4832701	83	NE	AJ
RWBL	B	179077	635092	4832787	83	EE	AJ
RWBL	B	179078	635040	4832760	83	OU	AJ
RWBL	B	179079	635069	4832767	83	EE	AJ
YWAR	B	179080	635107	4832754	83	NE	AJ
GRCA	A	180514	635256	4834305	83	ED,J	AJ
BARS	A	180516	635403	4833941	83	OU	AJ
BARS	A	180517	635403	4833941	83	NE NN	AJ
BARS	A	180518	635403	4833941	83	NE NN	AJ
BARS	A	180519	635403	4833941	83	OU	AJ
BARS	A	180533	635403	4833941	83	SY NE	AJ

Species	Zone	Nest Card Number	UTM-East	UTM-North	NAD	Success	Observer
GRCA	A	186534	635146	4834203	83	NE SL	AJ
MODO	B	186535	635131	4832519	83	NN,YC	AJ
YWAR	B	186536	635105	4832706	83	OU	AJ
RWBL	B	186537	635179	4832574	83	EP,E	AJ
YWAR	B	192015	635177	4832646	83	EE	AJ
WIFL	A	192077	635168	4834535	83	NE,VA	AJ
RWBL	A	192082	635331	4834254	83	EO	AJ
BAOR	A	192083	635362	4834203	83	OU	AJ
RWBL	A	192084	635280	4834287	83	NE,YC	AJ
BAOR	B	192085	635104	4832582	83	NE	AJ
RWBL	B	192087	635021	4832667	83	NE	AJ
RWBL	B	192088	635179	4832574	83	EE	AJ
BAOR	B	192089	635076	4832680	83	OU	AJ
YWAR	A	192090	635260	4834293	83	EJ	AJ
AMRO	A	192091	635193	4834175	83	OU	AJ
AMRO	A	192092	635235	4834189	83	OU	AJ
AMRO	A	192093	635241	4834277	83	NE	AJ
BGGN	A	192094	635175	4834184	83	NE	AJ
OROR	B	192129	635084	4832492	83	NE,AC	AJ
KILL	B	192136	635127	4832613	83	NE,VA	AJ
KILL	B	192137	635081	4832677	83	NE,VA	AJ
RWBL	C	192138	634915	4832332	83	EO	AJ
YWAR	B	192139	635108	4832610	83	EE,ED	AJ
RWBL	B	192140	635106	4832594	83	EE	AJ
MALL	B	192141	635084	4832578	83	OU	AJ
COGR	B	192142	635063	4832506	83	EE	AJ
RWBL	B	192143	635078	4832560	83	EE,ED	AJ
YWAR	B	192144	635169	4832677	83	NE,VA	AJ
YWAR	B	192145	635112	4832724	83	NE	AJ
RWBL	B	192146	635090	4832722	83	NE	AJ
RWBL	B	192147	635092	4832720	83	EO	AJ
HOSP	A	192178	635251	4834622	83	NE	AJ
WIFL	B	200816	635167	4832841	83	YC,VA	AJ
WIFL	B	200817	635119	4832711	83	YC	AJ
EAKI	B	200819	635076	4832680	83	NN AC	AJ
WIFL	B	200820	635074	4832701	83	YC,VA	AJ
EAKI	A	200821	635229	4834149	83	NE NN	AJ
WIFL	B	200822	635046	4832760	84	EP	AJ
EAKI	A	200823	635410	4834333	83	NN	AJ
YWAR	B	200824	635229	4832885	83	NE	AJ
YWAR	B	200825	635229	4832885	83	EP	AJ

Appendix C. Map of 2006 Nest Locations