

Forest Birds at Risk in the Carolinian Forest of Southwestern Ontario

2015 Report



Photo: Louisiana Waterthrush, Sarah Dobney

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PREAMBLE

This report summarizes results of the fifth and final field season of the Forest Birds at Risk project, initiated by Bird Studies Canada (BSC) in 2011. This project is undertaken through the support of Environment Canada's Habitat Stewardship Program and the Ontario Ministry of Natural Resources Species at Risk Stewardship Fund.

The report contains sensitive information on species at risk (SAR) locations and thus this report is not for general distribution. For further information contact Jody Allair at jalliar@birdscanada.org.

ACKNOWLEDGEMENTS

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Thank you to BSC field staff who collected all of the data for this report, as well as helped prepare the summary reports and produce the Forest Bird Species at Risk and Carolinian Birds of Ontario fact sheets. Thank you to Catherine Jardine, who manages the Forest Birds at Risk database and helped produce various summaries, and to many other BSC staff who provided input and commentary for this report.

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PROJECT GOALS

The project focuses on improving understanding and identifying threats for four high conservation priority bird species that occur in Ontario's Carolinian Forest: Acadian Flycatcher (ACFL), Louisiana Waterthrush (LOWA), Cerulean Warbler (CERW) and Prothonotary Warbler (PROW). Our primary goal is to document these species' distributions and occupancy patterns in southwestern Ontario, and relate these to nesting productivity, habitat preference, and influence of previous forest management practices. The results of the project are intended to inform conservation and stewardship efforts and, ultimately, improve conservation status of the four target species in southwestern Ontario.

OBJECTIVES

1. Collect data on site occupancy of target species in known and potential sites within the Norfolk Sand Plain and other priority areas.
2. Improve understanding of ACFL habitat preferences, and use this knowledge to assess current critical habitat for ACFL and recommend new sites for designation.
3. Determine extent of LOWA site fidelity in adults and chicks in the Norfolk IBA through a colour banding project.
4. Increase public awareness and understanding of forest birds at risk and encourage public and private landowners to take stewardship action for species at risk.

METHODS

Target species were searched for in forest tracts that encompassed known and potential breeding habitat for one or more of the four target species: ACFL, CERW, LOWA, and PROW. Canada Warbler (CAWA), Eastern Wood-Pewee (EAWP), Red-headed Woodpecker (RHWO), Wood Thrush (WOTH), and any other bird species at risk were also recorded when encountered, however targeted efforts were not made to survey these species extensively.

SURVEY EFFORT

Surveys were completed at 65 sites from April 27th to August 12th, 2015 throughout southwestern Ontario, primarily within the Norfolk Sand Plain (Figure 1). Sites are categorized as known sites (occupied by target species within the last five years (34 sites), historic sites (occupied by target species over five years ago and not since (14 sites), or new sites (have never been surveyed by BSC, or have never had a target species (17 sites)). In 2015, effort was made to visit all remaining sites listed as critical habitat in the Acadian Flycatcher Recovery Plan, to determine current suitability for ACFL. Site details and survey effort are represented in Table 1.

All target sites were surveyed at least once during the breeding seasons of each target species. Many sites were surveyed multiple times throughout the season to account for differences in nesting times between species (eg. LOWAs nest from May to mid June and ACFLs nest from June to August). 2015 survey effort totalled 297.25 survey hours, (621.25 person-hours) spread over 226 site visits. BSC staff surveyed each site, recording target species occupancy and assessing habitat quality. Threats to species at risk, such as logging, ATV use, pests, etc, were recorded for each site. For ACFL, Ecological Land Classifications were conducted at 10 known and historic sites, putting priority on currently listed critical habitat (see accompanying report: "Ecological Land Classification of Lands Adjacent to Active and Historic Acadian Flycatcher Nests in Norfolk, Elgin, Middlesex, Lambton Counties, and Chatham-Kent

November 2015”). Point counts were conducted at sites chosen for ELC surveys in 2013 and 2014, to determine bird species composition found at known and historic ACFL breeding sites. Standardized breeding forest bird survey protocol was used, wherein counts were conducted before 11:00 am, between June 5th and July 7th 2015 (see Appendix A).

Nests were searched for and monitored for each target species where pairs were observed. Nest data was recorded on Ontario Nest Record Scheme cards, and was entered into the Project NestWatch database. All data collected was entered into the Forest Birds at Risk database, maintained by BSC, and submitted to the OMNRF Natural Heritage Information Centre and Environment Canada. Data from private sites was released to respective landowners during the field season.

Figure 1: Map of study area showing 2015 survey sites and species detected. County boundaries and forest cover are shown.

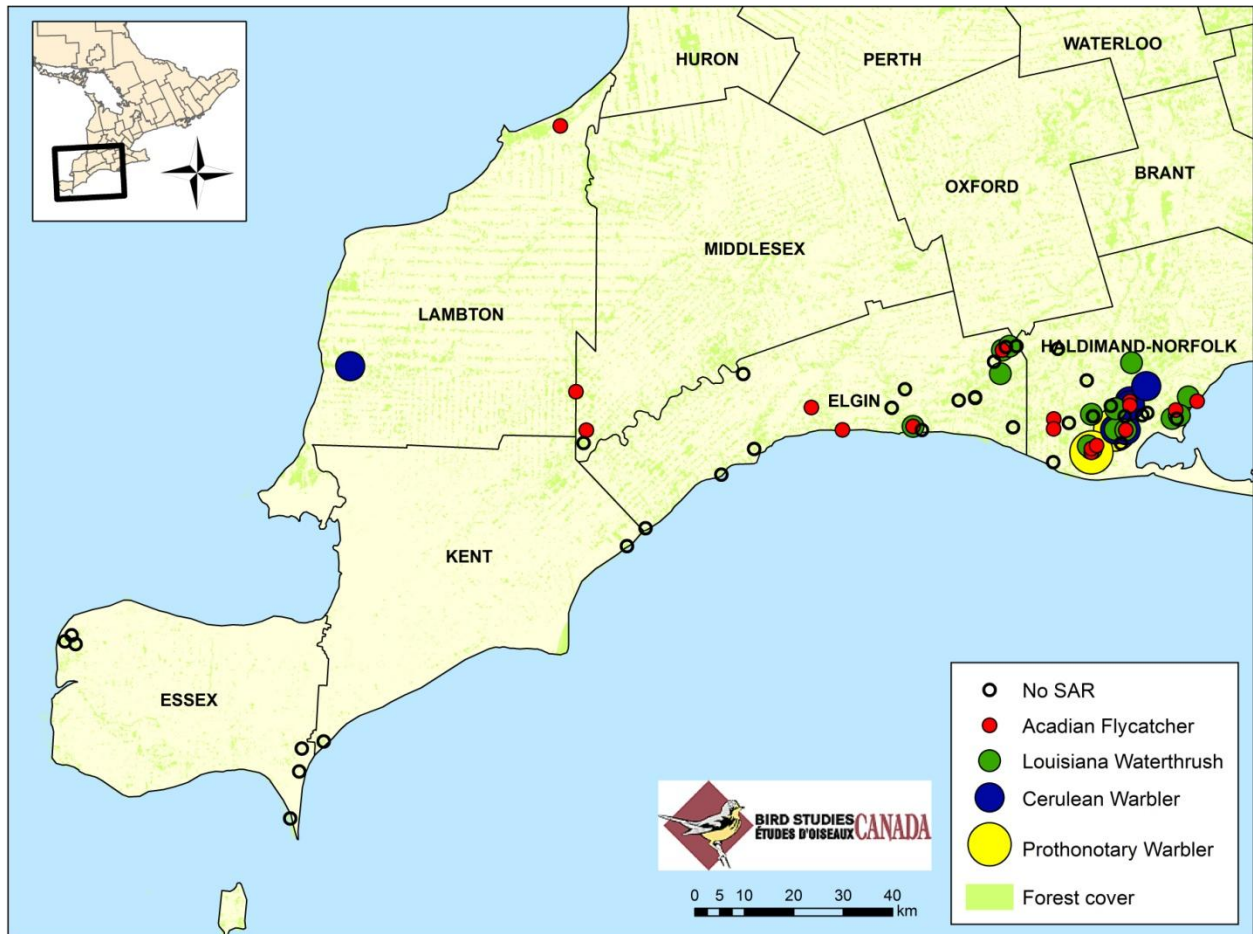


Table 1. Summary of 2015 survey effort by site. Sites currently listed as critical habitat for ACFL are bolded.

Site ID	Site Name (Site complex)	Land Ownership	VISITS (#)	TIME (hours)	EFFORT (person-hours)
BR49z	Concession 3 Rd. Swamp	Unknown	1	1	1
EL15z	Springwater Forest	CCCA	1	1.5	3
EL17z	Wormall	Private	1	0.75	1.5
EL19a	Duttona Trailer Park	Private	1	0.25	0.5
EL20z	Hawk Cliff	Private	2	4	4
EL27z	Rush Creek	Private	10	11.75	23.5
EL28z	Grigg Tract	Private	1	1	2
EL29b	Big Otter James Rd. South Ravine	Private	1	0.75	2.25
EL29z	Big Otter James Rd.	Private	1	0.75	0.75
EL3z	Bachan Bush	Private	1	1.25	3.75
EL33a	Reinke Ravine	Private	1	0.25	0.5
EL43b	Calton Swamp	CCCA	1	1	2
EL45z	Carson Line Ravine	Private	10	12.5	22.25
EL46b	Talbot Line Ravine-Gagnon	Private	2	4.75	9.5
EL46c	Talbot Line Ravine-Gagnon-South	Private	1	0.5	1
EL47z	Ashmore	Private	1	1	2
EL49z	Blizzard Forest	Private	1	0.75	1.5
EL51z	Rugienis Tract	LPRCA & MNR	1	0.5	1
EL52z	Stewart Ravine	Private	1	3	6
EL54b	Ketchabaw Forest	Private	2	2	4
EL55z	Yarmouth Nature Area	CCCA	1	1.75	3.5
ES2z	Point Pelee Provincial Park	Parks Canada	1	4	12
ES6z	Spring Garden Natural Area	Windsor Parks	1	0.5	1.5
ES7z	Ojibway Park	Windsor Parks	1	0.5	1.5
ES8z	Malden Park	Windsor Parks	1	0.25	0.75
ES9z	Kopegaron Woods	ERCA	1	0.5	1.5
ES10z	Hilman Marsh Conservation Area	ERCA	1	0.75	2.25
HN1b	Backus North	NCC	20	39.75	67.25
HN1c	Backus South	NCC	22	40.25	87.75
HN112b	South Coast Gardens Property	Private	11	11.5	30.5
HN114a	Jackson Gunn	LPBLT	1	0.25	0.75
HN12d	St. Williams-SW	Provincial Government	2	1	1.5
HN12g	St. Williams-NE	Provincial Government	8	9.25	20.25
HN14z	Spooky Hollow	ENGO	5	7.5	15
HN16b	Turkey Point SW Bluff & Ravines	Provincial Government	10	13.75	28.5
HN16e	Turkey Point Tract SW Block	Provincial Government	1	0.25	0.5
HN16m	Long Point Eco Adventures	Provincial Government	1	0.5	0.5

HN17a	McKay-Kyte-Laforge	LPRCA	1	1.75	3.5
HN17b	Vandervyvere-Lipsit-Penner	LPRCA	2	1	3.5
HN19b	Jackson Tract	LPRCA	2	1.5	3
HN21a	Swick King	LPRCA	1	1.75	3.5
HN24z	Middleton McConkey Tract	LPRCA	1	3.25	3.25
HN27a	Wilson Tract	LPRCA	9	7.5	14
HN27c	Coppens Tract	LPRCA	14	16	34
HN27d	Armstrong Tract	LPRCA	12	12	21.75
HN27g	Rowanwood Tract	ENGO	7	7.25	11.5
HN30a	Shoppe's Creek-Saul	Private	1	0.25	0.25
HN30z	Shoppe's Creek	Private	9	10.25	28.25
HN31a	Fisher's Glen-South	LPBLT	1	1.25	3.75
HN4d	Burwell Tract	LPRCA	4	6.5	10
HN5a	Hepburn Tract	LPRCA	4	3.5	7
HN5b	Woolley Tract	NCC	2	0.5	1
HN5c	Casier Tract	NCC	2	1	2
HN52a	Trout Creek	Regional Government	3	5	8.5
HN68z	Concession 2 Forest-Ravines	Private	1	1.5	3
HN69z	Eerenberg Forest	Private	2	1.5	3
HN8a	De Vos Tract	LPRCA	1	2.5	7.5
HN81z	Arthur Langford	LPBLT	10	15.5	32.5
KE1a	Clear Creek	Private	1	1.25	3.75
KE3z	Wheatley Park	Ontario Parks	1	0.5	1.5
LA2z	Port Franks	Lambton Wildlife Inc.	1	3.5	14
LA3z	Bickford Woods	Lambton Wildlife Inc.	1	3.25	9.75
MI3e	Skunk's Misery NE-Leech/North Hurdle	TTLT	1	1.5	6
MI3n	Skunk's Misery Middle Central	TTLT	1	1	4
MI6z	County Line Woods	Middlesex County	1	1	4

Notes: CCCA= Catfish Creek Conservation Authority; LPRCA= Long Point Region Conservation Authority; MNR= Ministry of Natural Resources; ERCA= Essex Region Conservation Authority; NCC= Nature Conservancy of Canada; LPBLT= Long Point Basin Land Trust; ENGO= Non Government Organization; TTLT= Thames Talbot Land Trust.

COLOUR BANDING

A colour banding program was initiated in 2011 and continued until 2015 to study site fidelity and return rates for LOWA. Both adults and chicks were banded at the nest site before the chicks reached fledging dates.

STEWARDSHIP

All landowners were contacted prior to entering each forest to gain permission to search for species at risk. New landowners were given a copy of the *Forest Bird Species at Risk Factsheet*. Interested landowners were also encouraged to accompany BSC staff on nest checks in their forests.

RESULTS AND DISCUSSION

Species data collected in 2015, including the number of pairs, individuals and nests found for each species, is detailed in Table 2. Of the 64 total sites surveyed, ACFL, LOWA, CERW and PROW were detected at 17, 15, 6, and 2 sites respectively (Figure 2).

Table 2. Forest birds at risk found in 2015 in southwestern Ontario by site. Sites currently listed as critical habitat for ACFL are bolded.

Site ID	Site Name (Site complex)	LOWA			ACFL			CERW		PROW		CAWA	
		P	S	N	P	S	N	P	S	P	S	P	S
BR49z	Concession Rd. 3 Swamp									1			
EL15z	Springwater Forest												
EL17z	Wormall												
EL19a	Duttona Trailer Park												
EL20z	Hawk Cliff				1		1						
EL27z	Rush Creek	1		1	3		3						1
EL28z	Grigg Tract												
EL29b	Big Otter James Rd South Ravine												
EL29z	Big Otter James Rd.												
EL3z	Bachan Bush												
EL33a	Reinke Ravine												
EL43b	Calton Swamp												
EL45z	Carson Line Ravine	1		1	1		1						
EL46b	Talbot Line Ravine-Gagnon			1									
EL46c	Talbot Line Ravine-Gagnon-South												
EL47z	Ashmore						1						
EL49z	Blizzard Forest												
EL51z	Rugienis Tract												
EL52z	Stewart Ravine												
EL54b	Ketchabaw Forest		1										
EL55z	Yarmouth Nature Area												
ES2z	Point Pelee Provincial Park												
ES6z	Spring Garden Natural Area												
ES7z	Ojibway Park												
ES8z	Malden Park												
ES9z	Kopagaron Woods												
ES10z	Hilman Marsh												
HN1b	Backus North	1	2	1				1	4	7			
HN1c	Backus South	1	3	1	1	1	1	0	3				
HN112b	South Coast Gardens Property	1		1									
HN114a	Jackson Gunn												
HN12d	St. Williams-SW												
HN12g	St. Williams-NE				1		1	1	3				

HN14z	Spooky Hollow		1									1	
HN16b	Turkey Point SW Bluff & Ravines	1	1	1									
HN16e	Turkey Point Tract SW Block					1							
HN16m	Long Point Eco Adventures												
HN17a	McKay-Kyte-Laforge												
HN17b	Vandervyvere-Lipsit-Penner												
HN19b	Jackson Tract												
HN21a	Swick King							2					
HN24z	Middleton McConkey Tract												
HN27a	Wilson Tract		1										
HN27c	Coppens Tract	1	1	1	1	1	1						
HN27d	Armstrong Tract				1	1	2						
HN27g	Rowanwood Tract				2		3						
HN30z	Shoppe's Creek	2		2									
HN30a	Shoppe's Creek-Saul												
HN31a	Fisher's Glen-South	1				1							
HN4d	Burwell Tract				1		1						
HN5a	Hepburn Tract		1										
HN5b	Woolley Tract												
HN5c	Casier Tract												
HN52a	Trout Creek		1										
HN68z	Concession 2 Forest-Ravines												
HN69z	Eerenberg Forest					1		3					
HN8a	De Vos Tract												
HN81z	Arthur Langford				5		7						
KE1a	Clear Creek												
KE3z	Wheatley Park												
LA2z	Port Franks IBA				1	3	1						
LA3z	Bickford Woods							1					
MI3e	Skunk's Misery NE-Leech/North Hurdle				1		1						
MI3n	Skunk's Misery Middle Central												
MI6z	County Line Woods East					1							
TOTALS		10	12	10	19	12	23	2	16	7	0	1	1

Notes: ACFL= Acadian Flycatcher, LOWA = Louisiana Waterthrush, CERW = Cerulean Warbler, PROW = Prothonotary Warbler, CAWA = Canada Warbler. P = Number of pairs, S = Single (unpaired individuals), N = number of nests found.

Table 3. Summary of forest birds at risk data collected in southwestern Ontario between 2011 and 2015. Some species did not receive as much attention as others, and as such, totals are represented with brackets to show an underestimated value.

Species	Year	# Sites	% Sites Occupied	Pairs	Males	Females	Nests	Host Young Fledged	Host Young Fledged/Nest	Nest Parasitism Rate	Cowbird Young Fledged
Acadian Flycatcher	2011	12	0.32	11	18	12	18	15	0.83	0.00	0
	2012	17	0.28	13	20	13	16	15	0.94	0.06	0
	2013	12	0.22	10	17	10	16	23	1.44	0.00	0
	2014	18	0.31	26	37	26	33	28+	0.85	0.00	0
	2015	17	0.27	19	31	19	23	25+	1.14	0.00	0
Cerulean Warbler	2011	6	0.16	(1)	(16)	(1)	(0)	-	-	-	-
	2012	5	0.08	(2)	(13)	(2)	(0)	-	-	-	-
	2013	5	0.09	(1)	(15)	(1)	(1)	2+	2.00	0.00	0
	2014	8	0.14	(1)	(20)	(1)	(0)	-	-	-	-
	2015	6	0.10	(2)	(15)	(2)	(0)	-	-	-	-
Louisiana Waterthrush	2011	11	0.30	7	13	7	7	16	2.29	0.14	1
	2012	17	0.28	17	24	17	8	31	3.88	0.00	0
	2013	13	0.24	11	17	12	10	26+	2.60	0.30	3+
	2014	11	0.19	13	15	12	11	25	2.27	0.42	2
	2015	15	0.23	9	22	10	10	14*	1.40	0.30	4
Prothonotary Warbler	2011	1	0.03	(1)	(2)	(1)	(1)	(5)	(5.00)	0.00	0
	2012	1	0.02	(4)	(3)	(4)	(5)	(25)	(5.00)	0.00	0
	2013	1	0.02	(4)	(4)	(4)	(4)	(20)	(5.00)	0.00	0
	2014	4	0.06	(7)	(7)	(7)	(8)	(32)	(4.00)	0.00	0
	2015	2	0.03	(8)	(6)	(8)	(9)	(33)	(4.13)	0.00	0
Hooded Warbler	2011	20	0.54	41	71	41	29	41	1.41	0.24	3
	2012	30	0.49	31	63	31	22	40	1.82	0.27	2

1. Total number of sites surveyed in 2011=37; in 2012=61; in 2013=54; in 2014=58; and in 2015=62.

2. Nest parasitism rate was calculated by dividing the number of parasitized nests by the total number of nests for each host species.

3. Hooded Warbler is included because the species was a focus of the study initially in 2011 and 2012. In 2013 it was no longer included as a target species and no additional effort has been made to record Hood Warbler presence since that time because it is now relatively common, widespread, and presumably continues to increase in numbers and distribution.

*2015 Louisiana Waterthrush fledged young is much lower than previous years. Explanations are provided in the Louisiana Waterthrush species summary.

ACADIAN FLYCATCHER

Overall, from 2011 to 2015, on average 15.6 ACFL pairs were detected at 34 total sites. In 2015, 19 pairs and 11 single male ACFLs were detected at 17 sites (Table 2). Of these, 14 were known sites (9 of which are listed as critical habitat in the ACFL Recovery Strategy), one was a historic site, and two were new sites. In total, 23 nests were found and monitored until the end of the breeding season, of which 11 were successful, 7 failed and 5 had unknown outcomes. At least 25 young fledged from the successful nests. No ACFL nests were parasitized by Brown-headed Cowbirds in 2015 (Table 3). Interestingly, one male ACFL, in Rowanwood, was observed building a nest with the female. To our knowledge, nest building has never been documented in males for this species. In addition, a female ACFL, in Arthur

Langford, was observed singing near her nest site. It is well documented in the literature that a female ACFL (and other flycatcher species) will produce songs when in high stress situations (such as when disturbed from a nest or after being released from the hand); however until this point of the study, females had only been observed to produce call notes.

2015 ELC Surveys

ELC surveys were conducted at 10 sites, including Port Franks, St. Williams NE, Skunk’s Misery North East, Skunk’s Misery North Central, County Line Woods East, Ungers Corners Forest Complex, Bachan Bush, Clear Creek, Big Otter James Rd., and Turkey Point Bluff SW. Since 2013, effort has been made to conduct ELC surveys at all ACFL critical habitat locations. Nest coordinates were desired locations for ELC surveys, however when no nest coordinates were available for a site, ELC surveys were conducted at locations where the highest ACFL breeding evidence was observed (eg: pair, singing male). Some critical sites were excluded as BSC does not have access to ACFL locations for these sites.

Point Counts

Point counts were conducted by BSC staff, during the 2015 field season, to determine bird species composition at known and historic ACFL breeding sites. Point count locations were chosen based on sites used to conduct ELC surveys in 2013 and 2014. Of these sites, Eerenberg Forest and Hawk Cliff were excluded due to landowner issues. In summary, point counts were conducted at 19 sites between June 5th and July 7th, all before 11:00 am. Species, distance and direction from observer of every bird detected in a 50 m radius were recorded during each 10 minute count. On average there were 7 species/site consisting of 11.05 individual birds/site. Number of species and individual birds observed per site is represented by Table 4. The top ten species detected overall were: Acadian Flycatcher, American Crow, American Robin, Black-capped Chickadee, Blue Jay, Eastern-Wood Pewee, Red-eyed Vireo, Scarlet Tanager, Wood Thrush and Yellow-bellied Sapsucker. A full list of species observed for all sites is shown in Table 5. Point count forms for all sites are available in Appendix A.

Table 4. Average number of species and individual birds detected during point counts at each site. The UTM locations and the date the survey took place are indicated. Overall average # of species and average # of individuals for all surveys together is calculated. Bolded sites represent sites currently listed as critical habitat for ACFL.

Site ID	Site Name	UTM	Total Species	Individual Birds	Date
EL14z	Springwater Forest	17 498345 4732437	6	8	07-Jul-15
EL27z	Rush Creek	17 500170 4724798	7	11	03-Jul-15
EL28z	Grigg Forest	17 520307 4724748	4	5	07-Jul-15
EL45z	Carson Line	17 518153 4740123	4	7	22-Jun-15
EL46b	Talbot Line-Gagnon	17 519509 4741160	3	4	03-Jul-15
EL49z	Bossuyt-Fick	17 501847 4724022	11	14	03-Jul-15
HN1b	Backus North	17 541366 4724307	8	18	02-Jul-15
HN1c	Backus South	17 542758 4723749	11	21	06-Jul-15
HN1c	Backus South	17 543190 4723926	13	19	06-Jul-15
HN1c	Backus South	17 543103 4724021	5	11	06-Jul-15
HN12d	St. Williams SW	17 543530 4727627	8	11	02-Jul-15
HN14z	Spooky Hollow	17 555816 4730571	10	14	02-Jul-15

HN27a	Wilson Tract	17 535968 4720482	9	11	05-Jun-15
HN27c	Coppens Tract	17 536428 4720281	5	6	05-Jun-15
HN27d	Armstrong Tract	17 536524 4719514	5	10	06-Jul-15
HN27g	Rowanwood	17 537559 4721006	6	10	06-Jul-15
HN4d	Burwell Tract	17 528652 4724087	6	9	07-Jul-15
HN5a	Hepburn Tract	17 536315 4727123	7	10	01-Jul-15
HN81z	Arthur Langford	17 528629 4726334	7	11	05-Jun-15
Average Species = 7			Average Individuals = 11.05		

Table 5. 35 species detected during 19 point counts (7 species/site and 11.05 individuals/site) at previous ACFL nest locations. Species are listed in taxonomic order.

Species Detected at all 2015 Forest Point Counts			
Yellow-billed Cuckoo	Acadian Flycatcher	Blue-gray Gnatcatcher	Common Yellowthroat
Belted Kingfisher	Eastern Phoebe	American Robin	Hooded Warbler
Red-bellied Woodpecker	Great Crested Flycatcher	Wood Thrush	Scarlet Tanager
Yellow-bellied Sapsucker	Red-eyed Vireo	Veery	Rose-breasted Grosbeak
Downy Woodpecker	Blue Jay	Cedar Waxwing	Indigo Bunting
Hairy Woodpecker	American Crow	Pine Warbler	Eastern Towhee
Northern Flicker	Black-capped Chickadee	American Redstart	Chipping Sparrow
Pileated Woodpecker	White-breasted Nuthatch	Ovenbird	Song Sparrow
Eastern Wood-Pewee	House Wren	Louisiana Waterthrush	

ACFL Critical Habitat Suggestions

Critical habitat for ACFL has been described in the species Recovery Strategy as sites containing suitable nesting habitat, that have had confirmed, probable, or possible breeding evidence detected for at least 2 separate years. Single or transient birds are not included as confirmed, probably or possible breeding evidence.

Since 2011, 103 sites have been surveyed specifically for ACFL, of which ACFL have been found in only 34. Effort was made to visit each site listed as critical habitat at least once over the five year study. Other sites were chosen if ACFL were currently found, historically found or if there was potential nesting habitat. Each site varies in how many years it was surveyed as well as how many years ACFL were detected (Table 6). This information, in addition to habitat quality information, was used to make suggestions for changes to the current ACFL critical habitat list, provided in the species Recovery Strategy. During this study, ACFL were detected, consistently, at sites not currently identified as 'critical habitat', indicating that these sites should potentially be identified as 'critical habitat' and listed in Appendix 2 of the species Recovery Strategy. Sites suggested for addition include:

- Carson Line Ravine (17 518209 4740290)
- St. Williams Forest-Southwest (17 543624 4727547)
- South Walsingham-Rowanwood (17 537704 4720731)
- Arthur Langford (17 528720 4726349)

One site currently listed as critical for ACFL was not occupied by ACFL during this project, and appeared to no longer have suitable habitat to support ACFL breeding, due to recent extensive logging. This site is:

- South Otter Headwaters-Grigg (17 520231 4724554)

In addition, ACFL were not found at several other sites currently listed as critical habitat, however, to our knowledge, these sites still have suitable nesting habitat, and it is predicted that as long as no disturbances occur in the forest (eg: logging, pests), ACFL should return to breed in the near future. Lastly it is suggested that “South Walsingham Southwest Block” be separated in the Recovery Strategy into “South Walsingham-Coppens” (17 536241 4719964) and “South Walsingham-Armstrong” (17 536574 4719468).

Table 6: Sites surveyed between 2011 and 2015 searching for ACFL. The number of years each site was surveyed, the number of years ACFL was present, and the number of years confirmed breeding was observed are indicated. Bolded sites indicate current critical habitat. Bolded and highlighted sites indicate sites that are currently listed as critical, but should be removed from this list. Highlighted, unbolded, sites represent sites that should be declared as critical habitat.

Site ID	Site_ Name	# Years Surveyed	# Years ACFL Present	# Years Confirmed Breeding
BR48z	Oakland Swamp	1	0	0
BR81a	Hatchley Swamp	1	0	0
EL14z	Passmore Farm-Silver Creek	2	0	0
EL14a	Silver Creek-VanOverloop	1	1	1
EL15z	Springwater CA	2	0	0
EL17z	Wormall	1	0	0
EL19a	Duttona Trailer Park	1	0	0
EL20z	Hawk Cliff	4	2	2
EL22z	Little Creek	1	0	0
EL27z	Rush Creek	4	4	4
EL28z	Grigg-South Otter Headwaters	3	0	0
EL29b	Big Otter James Rd. South Ravine	3	0	0
EL29z	James Road	1	0	0
EL3z	Bachan Bush	2	1	1
EL33a	Reinke Ravine	1	0	0
EL34z	John E. Pearce Provincial Park	1	0	0
EL38z	Harmony Acres Ravine	1	0	0
EL4z	Closed Bridge-Barnabas	1	0	0
EL43a	Calton Swamp-SE	3	1	0
EL45z	Carson Line Ravine	4	4	4
EL46a	Talbot Line Ravine-Baldwin	1	0	0
EL46b	Talbot Line Ravine-Gagnon	4	2	1

EL46c	Talbot Line Ravine-Gagnon South	4	1	0
EL46d	Talbot Line Ravine-Graydon	1	0	0
EL47z	Ashmore	1	1	0
EL49z	Bossuyt-Fick	4	1	0
EL50a	Dennis Property	2	0	0
EL52z	Stewart Ravine	2	0	0
EL53a	Richmond Forest-Walker	1	0	0
EL53b	Richmond Forest- Rochus	1	0	0
EL54c	Little Otter Creek- Howey	1	0	0
EL54d	Little Otter Creek- Wood	1	0	0
EL55z	Yarmouth Nature Area	1	0	0
ES2z	Point Pelee Provincial Park	1	0	0
ES6z	Spring Garden Natural Area	1	0	0
ES7z	Ojibway Park	1	0	0
ES8z	Malden Park	1	0	0
ES9z	Kopegaron Woods	1	0	0
ES10z	Hilman Marsh Conservation Area	1	0	0
HN1b	Backus Woods North Tract	5	2	2
HN1c	Backus Woods South Tract	5	5	5
HN102z	Demaiter	1	0	0
HN113a	Miles Property (NCC Office Ravine)	2	0	0
HN12e	St.Williams Forest - Southeast	2	1	0
HN12g	St.Williams Forest - Northeast	5	4	1
HN12d	St.Williams Forest - Southwest	5	2	2
HN12f	St.Williams Forest - Northwest	2	1	0
HN14z	Spooky Hollow	5	2	2
HN16b	Turkey Point SW Bluff & Ravines	5	0	0
HN16e	Turkey Point Tract SW Block	1	1	0
HN16m	Long Point Eco Adventures	3	1	0
HN17a	McKay-Kyte-Laforge Tract	2	0	0
HN17b	Vandervyere-Lipsit-Penner	2	0	0
HN19a	Dedecker Tract	1	0	0
HN19b	Jackson Tract	5	0	0
HN2z	Barbetti Woods	1	0	0
HN24z	Middleton McConkey Tract	1	0	0
HN111e	SW of Cultus	1	0	0
HN26a	Harvey Tract	1	0	0
HN26e	DeSylva Tract	1	0	0
HN27a	Wilson Tract	5	0	0
HN27c	South Walsingham Coppens Tract	5	5	5
HN27d	South Walsingham Armstrong Tract	5	5	2

HN27h	South Walsingham Ferguson Property	1	0	0
HN27g	South Walsingham Rowanwood	5	5	5
HN30z	Shoppe's Creek	3	0	0
HN30a	Shoppe's Creek-Saul	3	0	0
HN31a	Fisher's Glen-South	2	1	0
HN31z	Fishers Glen	3	0	0
HN32z	Hay Creek Conservation Area	1	0	0
HN37a	Abbott-Townsend Tract nw	3	0	0
HN37z	Abbott-Townsend Tract sw	3	0	0
HN4a	Harris Harris Floyd Tract (Cultus Woods)	3	0	0
HN4d	Burwell Tract (Cultus Woods)	5	3	2
HN4z	Cultus Woods	1	0	0
HN41z	South East of Bill's Corners	1	0	0
HN5a	Hepburn Tract (Deer Creek Valley)	5	2	1
HN5b	Woolley Tract	3	0	0
HN5c	Casier Tract	3	0	0
HN5z	Deer Creek Valley	3	1	0
HN52a	Trout Creek	5	2	0
HN68z	Concession 2 Forest-Ravines	1	0	0
HN69z	Eerenberg Forest	2	2	1
HN7z	Monroe Landon's Woods	2	0	0
HN78z	Fair North Forest	1	0	0
HN80z	Jonckheere Forest	1	0	0
HN81z	Arthur Langford	5	5	5
HN90z	Buchner Mason Tract	1	0	0
HN98z	County Forest C-7, Bills Corners	1	0	0
HW1z	Dundas Valley General	1	0	0
HW1b	Dundas Valley East	1	0	0
HW10z	Royal Botanical Gardens	1	0	0
KE1a	Clear Creek	1	0	0
KE2z	Rondeau Provincial Park	1	1	1
KE3z	Wheatley Park	1	0	0
LA2z	Port Franks IBA	2	2	2
LA3z	Bickford Woods	1	0	0
LA5z	Pinery Provincial Park	1	0	0
MI33b	Skunks Misery NE-Leech/North Hurdle	2	2	2
MI34a	Skunks Misery NC-Jane Bowles Trail	1	0	0
MI36z	Skunks Misery Middle Central	2	1	0
MI37z	Skunks Misery South Central	1	0	0
MI6z	County Line Woods East	2	2	1

CERULEAN WARBLER

Overall, from 2011 to 2015, on average 1.4 CERW pairs were detected at 15 total sites. In 2015, 18 male CERW were recorded at six sites (Table 2). Of these, five were known sites and one was a historic site. Two pairs were observed, in Backus North and St. Williams NE, however no nests were found.

Sites consistently occupied by CERW can be used in drafting the species Recovery Strategy as locations suitable for designation as critical habitat. In addition, greater effort should be made to survey and monitor CERW in the Norfolk Sand Plain to help identify additional areas as 'critical habitat', as well as to better understand the population dynamics of Ontario's southernmost CERW population.

The information gathered on CERW in southwestern Ontario does not represent Ontario's total breeding population, and is greatly underestimated as a result of insufficient effort placed on this species.

PROTHONOTARY WARBLER

Overall, from 2011 to 2015, on average 4.4 PROW pairs were detected at five total sites. In 2015, seven PROW pairs (seven females and five males) were reported nesting in various boxes throughout the consistently-occupied Backus Woods North site. Thirty-three chicks fledged successfully from 8 nests in Backus this year, including one successful double brood. An additional nesting pair was found at Concession Rd. 3 Swamp, but was not monitored. This represents the highest number of nests, pairs and fledged young during the five year study for this species. New sites found in 2014 were not occupied again in 2015.

Point Pelee Provincial Park was visited during the PROW breeding season, however, no PROW were observed. Jody Allair gave a short presentation to a group of Park Staff, outlining the work done at BSC and specifically the goals targeted by the Forest Birds at Risk project. Two park staff then surveyed ideal PROW nesting locations with BSC staff, where habitat quality and nest boxes were examined. Some advice was given to staff concerning placement of nest boxes in sloughs and sizes of holes on nest boxes; however, habitat seems prime for PROW regardless.

The information gathered on PROW in southwestern Ontario does not represent Ontario's total breeding population, and is greatly underestimated as a result of insufficient effort placed on this species.

LOUISIANA WATERTHRUSH

Overall, from 2011 to 2015, on average 11.4 LOWA pairs were detected at 27 total sites. In 2015, 10 pairs, 10 nests, and 12 single male birds were detected in 15 sites (12 known, one historic, two new) across southwestern Ontario (Table 2). Of the 10 nests monitored, four nests were successful in fledging a total of 14 chicks, and three nests were parasitized by Brown-headed Cowbirds (Table 3). From 2011 to 2014 nest parasitism by BHCO yielded one cowbird chick per parasitized nest. This was proven to pose no threat to LOWA nest success. However, in 2015 all of the parasitized LOWA nests contained two cowbird chicks that ultimately pushed out all LOWA chicks before fledging dates arrived. Three nests also contained eggs that did not hatch. In Talbot Line Ravine, 0/5 eggs hatched, indicating that a male may not have returned to this site this season. In Turkey Point Ravine and Shoppe's Creek, 1/5 eggs and 4/5 eggs respectively did not hatch. This is most likely due to cold temperatures experienced early in the

breeding season. High parasitism and low hatching rates together explain the record low number of fledged young per nest in 2015* (Table 3).

A colour banding program was initiated in 2011 and continued until 2015 to study LOWA site fidelity and return rates. Both adults and chicks were banded at the nest site prior to fledging dates. In 2015, two adult males, 2 adult females, and 11 chicks were colour banded. In total, since 2011, 115 LOWAs have been banded, including 84 chicks, 15 males and 16 females (Table 6). Of these banded birds, only 18 individuals returned to breed in later years, consisting of eight females (banded as adults), four males (banded as adults), and six males (banded as nestlings) (Table 6). A complete list of re-sighted LOWA pairs can be viewed in Table 7. A list of mating preferences of each returning bird is shown in Table 8.

LOWAs Banded as Adults

All re-sighted birds banded as adults showed 100% same site fidelity, always returning to breed in the same site as previous years (Table 7).

Backus North

The 2011 banded female returned in 2012 and mated with a new male. A new pair bred in 2013. The male from this pair returned in 2014 to breed with a new female. This new female returned in 2015 to breed with a different male, which was originally banded in 2013 as a chick in Backus North.

Backus South

The 2012 banded male returned to the same forest every year until 2015, mating with the same female in 2013 and 2014, but with different females in 2012 and 2015.

Turkey Point

The 2011 banded male returned every year until 2014, mating with one female in both 2011/2012, and another female in 2013/2014. In 2015 the female from 2013/2014 returned to mate with a new male, who was originally banded as a chick in 2012 in Turkey Point.

South Coast Gardens

The male banded in 2012 did not return in 2013, but did return in 2014 and 2015, mating with a new female each year.

Wilson Tract

The 2012 banded female returned in 2013, and 2014, mating with a different male every year.

Coppens Tract

The 2011 banded female returned in 2012, 2013 and 2014, mating with a new male every year.

LOWAs Banded as Chicks

Nestlings showed only 33% same site fidelity (Table 7). One banded chick was re-sighted in 2012, while all five remaining re-sighted chicks were observed in 2015. All chicks that returned to breed were males.

Backus North

One male chick, banded in 2013, returned to breed in Backus North.

Turkey Point

One male chick was banded in 2012 and returned in 2015 to breed in Turkey Point. Another male chick, banded in 2013, returned to breed at Backus South in 2015.

Wilson Tract

One male chick, hatched in 2014, returned to breed in Shoppe's Creek in 2015.

Coppens Tract

One male nestling, banded in 2011, returned to breed in 2012 at Backus North. Another male chick, banded in 2014, returned to Shoppe's Creek to breed in 2015.

Table 7. Total LOWAs banded from 2011-2015, including return rates

Total Males Banded	Total Females Banded	Total Nestlings Banded	Number of Adult Banded Males Returned	Number of Adult Banded Females Returned	Number of Banded Chick Males Returned	Number of Banded Chick Females Returned
15	16	84	4	8	6	0

Table 8. Re-sighted LOWAs from 2011 to 2015. The year each bird was banded and re-sighted, as well as the age and sex of the bird when it was initially banded is indicated. Each individual LOWA is differentiated by unique its band number.

Band Number	Age/Sex	Year Banded	Year(s) Re-sighted	Site Banded	Site Re-sighted
2401-80801	Adult/Female	2011	2012	Turkey Point	Turkey Point
2401-80802	Adult/Male	2011	2012, 2013, 2014	Turkey Point	Turkey Point
2401-80805	Adult/Female	2011	2012, 2013, 2014	Coppens Tract	Coppens Tract
2401-80812	Adult/Female	2011	2012	Backus North	Backus North
2401-80816	Chick/Male	2011	2012	Coppens Tract	Backus North
2401-80820	Adult/Female	2012	2013, 2014	Wilson Tract	Wilson Tract
2401-80825 ¹	Chick/Male	2012	2015	Turkey Point	Turkey Point
2401-80826	Adult/Male	2012	2014, 2015	South Coast Gardens	South Coast Gardens
2401-80840	Adult/Male	2012	2013, 2014, 2015	Backus South	Backus South
2401-80847	Chick/Male	2013	2015	Backus North	Backus North
2401-80865	Adult/Female	2013	2015	Shoppe's Creek	Shoppe's Creek
2401-80867	Adult/Male	2013	2014	Backus North	Backus North
2401-80871	Adult/Female	2013	2014	Backus South	Backus South
2401-80874/75 ²	Chick/Male	2013	2015	Turkey Point	Backus South
2401-80876	Adult/Female	2013	2014, 2015	Turkey Point	Turkey Point
2401-80884	Chick/Male	2014	2015	Coppens Tract	Shoppe's Creek
2401-80890	Chick/Male	2014	2015	Wilson Tract	Shoppe's Creek
2401-80900	Adult/Female	2014	2015	Backus North	Backus North

¹This bird was observed in Turkey Point forest in 2015 with the band combination: Left Leg=Silver/White, Right Leg=Black/White. This combination was given to a male LOWA from South Coast Gardens in 2012, however this bird was also seen in South Coast Gardens in 2015. After careful examination of the banding data it was assumed that the bird seen in Turkey Point was actually banded in 2012 as a nestling with the band number 2401-80825. This was unverified however, as this bird was not caught in 2015.

²The full band combination of this bird was not seen, however the three bands seen allowed us to determine that this bird had one of two band numbers (2401-80874 or 2401-80875); however, both of these birds were banded as chicks in Turkey Point in 2013.

Table 9. Mate choice of each colour banded LOWA from 2011 to 2015. Each individual LOWA is differentiated by its unique band number.

Band Number	Year Banded	Mate in Year Banded	Year Re-sighted	Mate When Re-sighted
2401-80801	2011	2401-80802	2012	2401-80802
2401-80802	2011	2401-80801	2012	2401-80801
			2013	2401-80876
			2014	2401-80876
			2015	2521-79115
2401-80805	2011	2401-80818	2012	unbanded
			2013	unbanded
			2014	2401-80889
2401-80812	2011	2401-80813	2012	2401-80816
2401-80816	2011	chick	2012	2401-80812
2401-80820	2012	2401-80819	2013	unbanded
			2014	2401-80895
2401-80825	2012	chick	2015	2401-80876
2401-80826	2012	2401-80827	2014	2401-80889
			2015	unbanded
2401-80840	2012	2401-80839	2013	2401-80871
			2014	2401-80871
			2015	2521-79115
2401-80847	2013	chick	2015	2401-80900
2401-80865	2013	2401-80864	2015	unbanded
2401-80867	2013	2401-80866	2014	2401-80900
2401-80871	2013	2401-80840	2014	2401-80840
2401-80874/75	2013	chick	2015	single
2401-80876	2013	2401-80802	2014	2401-80802
			2015	2401-80825
2401-80884	2014	chick	2015	2521-79114
2401-80890	2014	chick	2015	2401-80865
2401-80900	2014	2401-80867	2015	2401-80847

Notes: "unbanded" indicates that the bird of question mated with a bird that was never banded; "chick" indicates that the bird was banded as a nestling, and therefore would not have mated the year it was banded; "single" indicates that the bird of question was of breeding age, however did not form any pairs.

OTHER SPECIES

One CAWA pair was observed near Spooky Hollow, however the pair was located on a section of private property, so no nest was searched for. One CAWA male was also observed on territory at Rush Creek, but no nest was found. A pair of RHWO was observed nesting at Jackson Gunn Forest and near South

Coast Gardens. A single RHWOW was detected just east of Vittoria. All EAWP and WOTH nests were recorded when found incidentally, however no effort was made to target these species.

Since 2011, 360 nests have been found and monitored in total (73 in 2011, 64 in 2012, 53 in 2013, 81 in 2014, and 88 in 2015). This number is inclusive of nests of the four target species, as well as other species found incidentally during field work.

THREATS OBSERVED

In 2015, several threats were observed in many sites, including logging, invasive species, ATV use, and pollution. Some examples of threats observed in 2015 are listed below:

- Wormall – Large canopy gaps created by Emerald Ash Borer (EAB) killing off most ash trees. Habitat that was once prime for ACFL and possibly LOWA and CERW is now unsuitable.
- Ashmore – Past logging has reduced quality of ACFL habitat.
- Ketchabaw Forest – Forest was logged in 2015 between May and June, during the LOWA breeding season. A male LOWA was observed in the area before logging occurred, however not again after.
- Fisher's Glen-South – Extensive damage by EAB. Damage observed mostly near the ravine, however assumed to be spread throughout forested area, reducing quality of ACFL and LOWA habitat.
- Concession 2 Forest-Ravines – Evidence of past logging.
- Eerenberg Forest – Jack Eerenberg notified BSC of plans to log his forest in November 2015. Trees marked to be removed were located within the 2014 ACFL nesting territory as well as the surrounding area. Jody Allair and Sarah Dobney met with Jack to discuss the importance of ACFL and the implications of logging trees out of suitable nesting habitat. Jack understood that logging would destroy ACFL habitat, and did not wish to see the ACFLs leave, however explained that, unfortunately, he was not able to prevent the logging from occurring. The forest should be monitored again in 2016 and subsequent years to determine how the habitat changes and how ACFL are affected.
- County Line Woods-East – The forest was logged in the fall of 2014, heavily within the 2014 ACFL nesting territory and the surrounding area. The forest now looks unsuitable for ACFL nesting. One single male ACFL was detected moving around the forest, however no female was found.

All other major threats observed throughout this five year study are listed below:

- Silver Creek-Passmore - In 2012 some garbage had been dumped into the ravine.
- Hawk Cliff – In 2013, a lot of garbage was dumped into the ravine. The landowner expressed that this was a reoccurring event, and BSC staff assisted her to clean the ravine.
- Rush Creek – Several ATV trails exist throughout the forest, following along the ravine as well as cutting across it at multiple locations.
- Grigg-South Otter – The forest was logged in 2010 or 2011. Forest no longer supports ACFL breeding.
- South Coast Gardens – Garbage has been dumped repeatedly near the northeast section of this ravine.
- Jackson Tract – Extensive logging along river.
- Swick-King Tract – Several small patches of forest cleared. This may have actually resulted in providing additional CERW nesting habitat.

- Armstrong Tract – There are trails throughout the forest that people have used for ATVs, which resulted in the trails becoming flooded. Once ATVs could no longer drive over trails, the ATVers moved into the forest, creating new trails. This has completely destroyed several sections of forest, and several sections of important LOWA and ACFL nesting habitat.
- Shoppe’s Creek – In 2013, a lot of garbage was dumped into the ravine. Since then it appears that no new garbage has been dumped.
- Trout Creek – Several bike trails throughout forest and along river.

LANDOWNER STEWARDSHIP

Six new landowners were contacted in 2015, two of which own forests that had never been surveyed before, and four of which own historic ACFL sites. New *Forest Bird Species at Risk* factsheets were given to five new private landowners and 1 new public landowner in 2015. Since the factsheets were created in 2012, 22 in total have been given to private landowners (2012=10; 2013=1; 2014=6; 2015=5), and 5 in total have been given to public landowners (2012=2; 2013=2; 2014=0; 2015=1).

In 2013 and 2014 interviews and follow-up interviews were conducted with all landowners who received a factsheet, to determine general forest use, feelings towards species at risk and BSC, and each landowner’s level of interest in receiving the factsheet and learning more about birds at risk. Meaningful relationships were made with several of the landowners. It is believed that the positive interactions with landowners have increased public awareness of species at risk and the importance of forests in southwestern Ontario significantly.

In addition, three keen landowners joined BSC staff on site surveys. Of these keen landowners, one at Rush Creek has allowed BSC staff to conduct research on his property since 2012, received a factsheet in 2012, and joined staff on his first ACFL nest check in 2013; another landowner, at South Coast Gardens, has allowed BSC staff on his property to study LOWA since 2011, and has joined BSC staff on LOWA nest checks every year since; the third landowner, at James Rd, led staff into his forest to show routes in/out and to show property boundaries. This landowner was also given advice on options for reduced property tax values. Two other landowners showed interest in joining staff on site surveys, however their schedules did not permit them to do so.

As many forests occupied by species at risk are privately owned, it has been a high priority throughout this study to seek out and speak with as many private landowners as possible. Initial interactions with landowners were, when possible, in person at the property in question. Conversations were not just geared to seek permission to survey, or even to discuss the importance of the targeted species, but were designed for the staff to introduce themselves, discuss the property and gauge the level of interest of each landowner, in a friendly, personable and easy-going manner. After this point, conversations were allowed to form naturally with the landowner, discussing the target birds with more interested landowners or discussing property uses with those uninterested in birds. It is believed that by approaching landowners this way, and avoiding the use of pre-generated speeches to seek permission into the forest, landowners were more likely to grant permission and care more about the work being done.

Due to the nature of this project, many sites with species at risk were visited multiple times throughout a summer, and even over several years, to re-sight transient birds or to monitor nests, etc. In almost every case, landowners were spoken to after every site visit to discuss what was found in the forest. Starting in 2015, summaries of these dialogues were recorded and entered into the Forest Birds at Risk

database. By making time to speak to each landowner, relationships were encouraged to form between BSC and private landowners, and each landowner was included in the project and in helping the target birds at risk. This also presented more opportunities to discuss the importance of the birds of interest, the habitat requirements of each species, and what classifies as disturbance to each species. Over the years, after so many interactions, friendships have grown with numerous landowners!

Some of the more significant landowner interactions include:

- Taking each landowner on a site visit. Specifically, witnessing Al Pitter, at Rush Creek, literally rip binoculars away from BSC staff in excitement to get a better look at a female ACFL on her nest!
- Giving advice to Stephen and Katie Hotchkiss regarding possibilities for tax reductions for their property, for owning ACFL critical habitat.
- Meeting Pat Hartwell McLean and discussing her love of birds and her involvement with BSC over several years, while having *her* lead BSC staff into the forest to see the ACFL that she found on her own!
- Helping Cheryl Barendregt clean out the ravine at Hawk Cliff after someone dumped garbage into it.
- Getting to know Sandra Carson from 2012-2015 and see her excitement for the study birds. Sandra not only allowed BSC staff to survey her forest, but was also helpful in providing information of other properties she owns that are home to many nesting Barn Swallows.
- Banding LOWA chicks with two NCC employees at NCC owned property: Backus Woods North.
- Conversing with park staff at Point Pelee Provincial Park in 2015. Jody Allair gave park staff a short presentation outlining the Forest Birds at Risk project, which was followed by a survey of PROW nesting locations with two park staff.

CONCLUSIONS

2015 Summary

64 sites were surveyed for ACFL, LOWA, CERW and PROW. ACFL were found at 17 sites, of which 19 pairs created 23 nests. LOWA were found at 15 sites, of which 9 pairs created 10 nests. CERW were found at 6 sites, of which 2 pairs were observed. PROW were found at 2 sites, of which 8 pairs created 9 nests.

To better understand ACFL habitat requirements, ELC surveys were continued at 10 sites, placing priority on surveying sites listed as critical ACFL habitat in the ACFL Recovery Strategy. In addition, standardized point counts were conducted at sites chosen for 2013 and 2014 ELC surveys to examine average bird species composition associated with ACFL breeding territories. Point counts show that on average there are 7 species detected per site, consisting of 11.05 individuals per site. The top ten species detected overall were: Acadian Flycatcher, American Crow, American Robin, Black-capped Chickadee, Blue Jay, Eastern-Wood Pewee, Red-eyed Vireo, Scarlet Tanager, Wood Thrush and Yellow-bellied Sapsucker.

LOWA site fidelity was examined by colour banding adults and chicks at the nest prior to fledging dates. Four adults (two males and two females) and 11 chicks were caught and banded in 2015. Ten LOWAs that had previously been colour banded returned in 2015 to breed. This includes three females (banded as adults) and seven males (two banded as adults and two banded as chicks). All birds that were banded as adults returned to the same forest they were banded in (100%). The majority of birds banded as

chicks returned to breed in different forests than they were banded in, however some returned to breed within their hatching vicinity (33%).

In 2015 six new landowners were contacted, five factsheets were given out, and three landowners joined BSC staff on surveys of their forests.

Critical habitat for ACFL has been identified in Appendix 2 of the species Recovery Strategy, based on information gathered from 1997 to 2007. Based on field work conducted from 2011- 2015, suggestions have been made to update this list, to better represent critical breeding habitat for ACFL.

2011-2015 Summary

Between 2011 and 2015 surveys have been conducted at 135 sites across southwestern Ontario, including Chatham-Kent county, Elgin county, Essex county, Haldimand county, Lambton county, Middlesex county, and Norfolk county. 360 nests have been found and monitored in total (73 in 2011, 64 in 2012, 53 in 2013, 81 in 2014, and 88 in 2015), including nests of the four target species, as well as other species found incidentally during field work.

On average, 15.6 ACFL pairs were detected at 34 sites, 1.4 pairs of CERW were detected at 15 sites, 11.4 pairs of LOWA were detected at 27 sites, and 4.4 pairs of PROW were detected at five sites between 2011 and 2015 in southwestern Ontario.

To better understand breeding habitat requirements of ACFL, 32 ELC surveys were conducted at 30 sites (10 surveys at 10 sites in 2013, and 11 surveys at 10 sites in 2014 and 2015). In this sample of active and historic nests, ACFL nests were constructed in a wide range of vegetation types: 10 types of deciduous forest, 3 types of mixed forest, 3 types of deciduous swamp, 1 type of mixed swamp, 1 type of marsh, and, 2 types of conifer plantation. Nevertheless, 45.5% of nests were constructed in three vegetation types: FOD6-5: Fresh-Moist Sugar Maple – Hardwood Deciduous Forest; FOM6-2: Fresh-Moist Hemlock - Hardwood Mixed Forest; and, SWD3-3: Swamp Maple Mineral Deciduous Swamp. The preferred nest tree was a young stem of Eastern Hemlock (11 nests, 37.9% of 29 active nests) situated on a riparian terrace or valley wall adjacent to a permanent stream or in rolling upland terrain at the base of slope in proximity to seasonal standing water. Presence/absence of water, successional stage, tree age, branch architecture, and density of cover in the shrub and herb layer, were better predictors of nest location than were vegetation type and the species of tree or shrub in which the nest was constructed. The weak association between nest occurrence and vegetation type was due in part to the occurrence of the principal nest trees in more than one vegetation type and to the broad moisture tolerance of American Beech.

For complete results see the accompanying report: “Ecological Land Classification of Lands Adjacent to Active and Historic Acadian Flycatcher Nests in Norfolk, Elgin, Middlesex, Lambton Counties, and Chatham-Kent November 2015”.

To learn about LOWA site fidelity, 115 LOWAs were banded from 2011 to 2015. Of these, 18 birds (8 females, 4 males and 6 male chicks), returned in different years to breed in southwestern Ontario. Birds originally banded as adults showed a 100% same site fidelity, always returning to breed in the same forest they were banded in, whereas birds originally banded as chicks showed a 33% same site fidelity, rarely returning to the same forest to breed as they were hatched in. All chicks that returned to breed were confirmed to be male.

Landowners were searched for and contacted for each private site from 2012-2015. Forest Bird Species at Risk fact sheets were created in 2012, and sent to 22 private and five public landowners (2012=10 private and 2 public; 2013= 1 private and 2 public; 2014= 6 private; 2015= 5 private and 1 public). In 2013 and 2014 interviews and follow-up interviews were conducted with all landowners who received a factsheet, to determine general forest use, feelings towards species at risk and BSC, and each landowner's level of interest in receiving the factsheet and learning more about birds at risk. Meaningful relationships were made with several of the landowners! It is believed that the positive interactions with landowners have increased public awareness of species at risk and the importance of forests in southwestern Ontario significantly.

Appendix A: Point count data collected from June 5th to July 7th 2015

Site	Coppens Tract		2012/2013 ACFL Nest
Observer	Sarah Dobney & Heather Polowyk		17 536423 4720287
Date	05-Jun-15	Wind	10km/h S
Start Time	8:05	Temperature (°C)	16
End Time	8:15	Cloud Cover (%)	50
Species Code	Sex	Distance (Direction)	Relocation?
ACFL	Male	25-50 (N)	75-100 (NW)
ACFL	Female	25-50 (N)	
LOWA	Female	25-50 (W)	<25 (E)
REVI	Male	25-50 (E)	50-75 (SE)
SCTA	Male	>100 (N)	
WOTH	Male	50-75 (SW)	
Total # Species			5
Total # Individuals			6

Site	Carson Line Ravine		2014 ACFL Nest
Observer	Sarah Dobney		17 518153 4740123
Date	22-Jun-15	Wind	N/A
Start Time	9:30	Temperature (°C)	N/A
End Time	9:40	Cloud Cover (%)	N/A
Species Code	Sex	Distance (Direction)	Relocation?
ACFL	Male	<25 (SW)	
ACFL	Female	<25 (SW)	
BCCH		75-100 (NE)	>100 (NE)
BCCH		50-75 (E)	75-100 (NE)
EAWP		>100 (NE)	
EAWP		>100 (SW)	
SCTA	Male	75-100 (NE)	
Total # Species			4
Total # Individuals			7

Site	Arthur Langford		2013 ACFL Nest
Observer	Sarah Dobney & Heather Polowyk		17 528629 4726334
Date	05-Jun-15	Wind	14km/h SW
Start Time	10:18	Temperature (°C)	20
End Time	10:28	Cloud Cover (%)	20
Species Code	Sex	Distance (Direction)	Relocation?
ACFL	Female	<25 (NE)	25-50 (E)
ACFL	Male	25-50 (W)	
AMRO		25-50 (W)	
INBU	Male	>100 (N)	
OVEN	Male	>100 (NW)	
REVI	Male	25-50 (NW)	
REVI	Male	25-50 (N)	
REVI	Male	75-100 (SE)	
REVI	Male	50-75 (SW)	
SCTA	Male	50-75 (E)	
WOTH	Male	>100 (NE)	>100 (SE)
Total # Species			7
Total # Individuals			11

Site	Wilson Tract		2002 ACFL Nest
Observer	Sarah Dobney & Heather Polowyk		17 535968 4720482
Date	05-Jun-15	Wind	12km/h S
Start Time	8:49	Temperature (°C)	17
End Time	8:59	Cloud Cover (%)	30
Species Code	Sex	Distance (Direction)	Relocation?
AMCR		>100 (NE)	
BCCH		75-100 (W)	
BLJA		75-100 (N)	
EAWP	Male	75-100 (NE)	50-75 (NE)
HOWA	Male	>100 (S)	
RBWO		25-50 (NW)	
REVI	Male	25-50 (NW)	
REVI	Male	25-50 (S)	
REVI	Male	75-100 (E)	
WOTH	Male	>100 (SW)	
YBSA		75-100 (NE)	
Total # Species			9
Total # Individuals			11

Site	Hepburn		2010/2011 ACFL Nest 17 536315 4727123
Observer	Heather Polowyk		
Date	01-Jul-15	Wind	18 km/h W
Start Time	9:58	Temperature (°C)	18
End Time	10:08	Cloud Cover (%)	75
Species Code	Sex	Distance (Direction)	Relocation?
BCCH		75-100 (SE)	
BCCH		75-100 (SE)	
BLJA		50-75 (E)	
BLJA		75-100 (NE)	
EAWP		75-100 (NW)	50-75 (NW)
INBU	Male	75-100 (W)	
RBGR	Male	>100 (W)	
RBGR	Male	50-75 (NE)	
REVI	Male	50-75 (NW)	
WOTH	Male	75-100 (SW)	
Total # Species			7
Total # Individuals			10

Site	Rowanwood		2013/2014 ACFL Nest 17 537559 4721006
Observer	Sarah Dobney & Heather Polowyk		
Date	06-Jul-15	Wind	5 km/h SE
Start Time	9:10	Temperature (°C)	19
End Time	9:20	Cloud Cover (%)	
Species Code	Sex	Distance (Direction)	Relocation?
ACFL	Female	>100 (N)	
ACFL	Male	<25 (NE)	
AMRO		50-75 (NE)	
OVEN	Male	75-100 (E)	
REVI	Male	50-75 (N)	
REVI	Male	<25 (SE)	
SCTA	Male	50-75 (E)	
WOTH	Male	25-50 (SW)	
WOTH	Male	>100 (SE)	
WOTH	Male	25-50 (NE)	
Total # Species			6
Total # Individuals			10

Site	Rush Creek		2014 ACFL Nest 17 500170 4724798
Observer	Heather Polowyk		
Date	03-Jul-15	Wind	6 km/h NE
Start Time	7:10	Temperature (°C)	12
End Time	7:20	Cloud Cover (%)	40
Species Code	Sex	Distance (Direction)	Relocation?
ACFL	Male	<25 (NE)	25-50 (NW)
ACFL	Female	25-50 (N)	
AMCR		75-100 (E)	
AMCR		75-100 (E)	
BLJA		50-75 (NE)	
BLJA		25-50 (W)	
REVI	Male	75-100 (NW)	
REVI	Male	75-100 (SW)	
VEER	Male	75-100 (NW)	
WBNU		50-75 (NW)	
YBSA		50-75 (SE)	
Total # Species			7
Total # Individuals			11

Site	Burwell Tract		2012 ACFL Nest 17 528652 4724087
Observer	Jody Allair		
Date	07-Jul-15	Wind	N/A
Start Time	10:05	Temperature (°C)	23
End Time	10:15	Cloud Cover (%)	80
Species Code	Sex	Distance (Direction)	Relocation?
ACFL		75-100 (NW)	25-50 (W)
AMRE		75-100 (SE)	
EAWP		50-75 (NE)	25-50 (S)
OVEN		50-75 (SW)	
REVI		25-50 (NE)	
REVI		75-100 (W)	
REVI		50-75 (NE)	
WOTH		50-75 (E)	75-100 (E)
WOTH		75-100 (NE)	
Total # Species			6
Total # Individuals			9

Site	St. Williams SW		2013 ACFL Nest
Observer	Sarah Dobney & Heather Polowyk		17 543530 4727627
Date	02-Jul-15	Wind	11 km/h N
Start Time	9:09	Temperature (°C)	15
End Time	9:19	Cloud Cover (%)	0
Species Code	Sex	Distance (Direction)	Relocation?
BCCH		75-100 (W)	
BLJA		75-100 (NE)	
BLJA		50-75 (N)	
CHSP	Male	50-75 (NW)	
CHSP	Male	75-100 (N)	
OVEN	Male	75-100 (NW)	
PIWA	Male	75-100 (NE)	
PIWA	Male	50-75 (NW)	
RBGR	Male	75-100 (SE)	
REVI	Male	75-100 (W)	
SCTA	Male	75-100 (NW)	
Total # Species			8
Total # Individuals			11

Site	Backus South River		2014 ACFL Nest (14BSAFN1)
Observer	Sarah Dobney & Heather Polowyk		17 543103 4724021
Date	06-Jul-15	Wind	5 km/h SE
Start Time	7:44	Temperature (°C)	19
End Time	7:54	Cloud Cover (%)	
Species Code	Sex	Distance (Direction)	Relocation?
AMCR		>100 (NW)	
AMCR		>100 (NW)	
NOFL		50-75 (SW)	
REVI	Male	50-75 (N)	
REVI	Male	25-50 (E)	
REVI	Male	25-50 (S)	
WBNU		<25 (NE)	
WBNU		<25 (NE)	
WOTH	Male	50-75 (S)	
WOTH	Male	50-75 (NW)	50-75 (N)
WOTH	Male	50-75 (S)	
Total # Species			5
Total # Individuals			11

Site	Talbot Line Ravine		2012 ACFL Nest
Observer	Sarah Dobney & Heather Polowyk		17 519509 4741160
Date	03-Jul-15	Wind	10 km/h E
Start Time	10:32	Temperature (°C)	19
End Time	10:42	Cloud Cover (%)	0
Species Code	Sex	Distance (Direction)	Relocation?
BLJA		50-75 (SW)	
REVI	Male	25-50 (S)	
REVI	Male	25-50 (SE)	
SCTA	Male	25-50 (SW)	
Total # Species			3
Total # Individuals			4

Site	Grigg Forest		2002 ACFL Nest
Observer	Sarah Dobney & Heather Polowyk		17 520307 4724748
Date	07-Jul-15	Wind	18 km/h SW
Start Time	10:22	Temperature (°C)	24
End Time	10:32	Cloud Cover (%)	100
Species Code	Sex	Distance (Direction)	Relocation?
CEDW		<25 (E)	25-50 (W)
HAWO		75-100 (NE)	
REVI	Male	25-50 (NE)	
REVI	Male	25-50 (SE)	
WOTH	Male	>100 (NW)	
Total # Species			4
Total # Individuals			5

Site	Backus South Slough		2012 ACFL Nest
Observer	Sarah Dobney & Heather Polowyk		17 542758 4723749
Date	06-Jul-15	Wind	5 km/h SE
Start Time	6:35	Temperature (°C)	18
End Time	6:45	Cloud Cover (%)	0
Species Code	Sex	Distance (Direction)	Relocation?
BEKI		<25 (E)	
DOWO		50-75 (W)	
EAPH	Male	<25 (NE)	
EAPH	Female	<25 (NE)	
EAWP		75-100 (NE)	
EAWP		50-75 (E)	
GCFL		25-50 (E)	
GCFL		<25 (N)	
HOWA	Male	25-50 (W)	
RBGR	Male	25-50 (S)	
REVI	Male	25-50 (E)	
REVI	Male	50-75 (NW)	
REVI	Male	50-75 (W)	
REVI	Male	75-100 (N)	
REVI	Male	<25 (N)	
WOTH		50-75 (N)	
WOTH		50-75 (NW)	
WOTH	Male	75-100 (N)	
YBCU		>100 (E)	
YBSA		<25 (SE)	<25 (E)
YBSA		25-50 (SE)	
Total # Species			11
Total # Individuals			21

Site	Springwater Forest		2003 ACFL Nest
Observer	Sarah Dobney & Heather Polowyk		17 498345 4732437
Date	07-Jul-15	Wind	14 km/h SW
Start Time	8:08	Temperature (°C)	22
End Time	8:18	Cloud Cover (%)	50
Species Code	Sex	Distance (Direction)	Relocation?
CEDW		50-75 (N)	
DOWO		75-100 (NW)	
EAWP		75-100 (SW)	
REVI	Male	50-75 (NW)	
REVI	Male	50-75 (SE)	
SCTA	Male	75-100 (SW)	
WOTH	Male	50-75 (SW)	25-50 (SE)
WOTH	Male	75-100 (SW)	
Total # Species			6
Total # Individuals			8

Site	Armstrong Tract		2011 ACFL Nest
Observer	Sarah Dobney & Heather Polowyk		17 536524 4719514
Date	06-Jul-15	Wind	6 km/h SE
Start Time	10:31	Temperature (°C)	22
End Time	10:41	Cloud Cover (%)	0
Species Code	Sex	Distance (Direction)	Relocation?
ACFL	Male	25-50 (E)	25-50 (SW)
AMRO		<25 (N)	
EAWP		50-75 (W)	
REVI	Male	50-75 (SW)	
REVI	Male	25-50 (NE)	
REVI	Male	25-50 (SE)	
REVI	Male	50-75 (NE)	
REVI	Male	50-75 (N)	
REVI	Male	<25 (S)	
WOTH	Male	>100 (SW)	
Total # Species			5
Total # Individuals			10

	Site	Backus South River	2014 ACFL Nest (14BSAFN1.2)
Observer	Sarah Dobney & Heather Polowyk		17 543190 4723926
Date	06-Jul-15	Wind	5 km/h E
Start Time	7:05	Temperature (°C)	17
End Time	7:15	Cloud Cover (%)	0
Species Code	Sex	Distance (Direction)	Relocation?
ACFL	Male	<25 (E)	<25 (N)
AMCR		50-75 (N)	50-75 (NW)
BCCH		25-50 (S)	
BGGN		<25 (SE)	
COYE	Male	50-75 (E)	
EAWP		50-75 (SE)	
EAWP		>100 (SW)	25-50 (S)
HAWO		50-75 (SE)	
NOFL		50-75 (SE)	
PIWO		50-75 (NW)	
REVI	Male	25-50 (NE)	
REVI	Male	25-50 (N)	
REVI	Male	<25 (SW)	
REVI	Male	25-50 (SE)	
SOSP	Male	50-75 (E)	
WBNU		50-75 (SW)	
WBNU		25-50 (E)	
WOTH	Male	25-50 (SE)	
WOTH	Male	25-50 (SW)	
		Total # Species	13
		Total # Individuals	19

	Site	Backus North	2012 ACFL Nest
Observer	Sarah Dobney & Heather Polowyk		17 541366 4724307
Date	02-Jul-15	Wind	11 km/h N
Start Time	10:50	Temperature (°C)	18
End Time	11:00	Cloud Cover (%)	100
Species Code	Sex	Distance (Direction)	Relocation?
AMCR		>100 (W)	
AMCR		>100 (W)	
AMRO		75-100 (NW)	
AMRO		25-50 (NE)	
AMRO		50-75 (NE)	
AMRO		25-50 (E)	
CEDW		25-50 (SE)	
EAWP		>100 (NW)	
HOWA	Male	25-50 (NE)	
REVI		50-75 (E)	
REVI	Male	75-100 (W)	
REVI	Male	50-75 (N)	
REVI		50-75 (NE)	
WOTH	Male	25-50 (E)	
WOTH	Male	50-75 (NE)	
YBSA		50-75 (SE)	
YBSA		50-75 (SE)	
YBSA		75-100 (NW)	
		Total # Species	8
		Total # Individuals	18

Site	Spooky Hollow		2012 ACFL Nest
Observer	Sarah Dobney & Heather Polowyk		17 555816 4730571
Date	02-Jul-15	Wind	6 km/h N
Start Time	7:48	Temperature (°C)	14
End Time	7:58	Cloud Cover (%)	100
Species Code	Sex	Distance (Direction)	Relocation?
AMCR		>100 (NE)	>100 (N)
AMRO	Male	75-100 (W)	
BCCH		75-100 (W)	
BLJA		>100 (NW)	
HOWA	Male	50-75 (NW)	25-50 (SW)
OVEN	Male	>100 (NW)	
REVI	Male	50-75 (SW)	
REVI	Male	50-75 (N)	
SCTA	Male	25-50 (W)	
WBNU		25-50 (NE)	50-75 (NW)
WOTH	Male	75-100 (W)	
WOTH	Male	50-75 (W)	25-50 (W)
WOTH	Male	50-75 (SW)	
WOTH	Male	75-100 (NW)	
		Total # Species	10
		Total # Individuals	14

Site	Bossuyt-Fick		2004 ACFL Nest
Observer	Sarah Dobney & Heather Polowyk		17 501847 4724022
Date	03-Jul-15	Wind	5 km/h E
Start Time	8:33	Temperature (°C)	16
End Time	8:43	Cloud Cover (%)	0
Species Code	Sex	Distance (Direction)	Relocation?
AMCR		>100 (N)	
AMRO		75-100 (N)	
AMRO		50-75 (W)	
EATO		>100 (N)	
EAWP		75-100 (NE)	
EAWP		75-100 (W)	
GCFL		<25 (W)	50-75 (SW)
HOWA	Male	75-100 (SW)	
HOWR	Male	50-75 (NE)	
INBU	Male	25-50 (N)	50-75 (NE)
RBWO		25-50 (E)	
REVI	Male	<25 (N)	
REVI	Male	75-100 (SW)	
WBNU		75-100 (NW)	
		Total # Species	11
		Total # Individuals	14

Average # Species	7
Average # Individuals	11.05