McGill Bird Observatory
Spring Migration Monitoring Program
2005 Report

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MIGRATION RESEARCH FOUNDATION

Avian Science and Conservation Centre

About the McGill Bird Observatory:

The McGill Bird Observatory (MBO) was founded in 2004 as a joint effort of the Migration Research Foundation and McGill University's Avian Science and Conservation Centre. MBO is the only active banding station in southwestern Quebec, with the nearest other sites being Innis Point Bird Observatory in Ottawa, to the west, Prince Edward Point Bird Observatory in Quinte, to the southwest, and l'Observatoire d'Oiseaux de Tadoussac, to the east. Operations at MBO are patterned after those at other Canadian bird observatories, with a particular emphasis on standardized research protocols. In addition to collecting valuable scientific data, MBO serves as a training facility for students and other individuals interested in developing practical skills in field ornithology.

The Spring Migration Monitoring Program:

The Spring Migration Monitoring Program (SMMP) is a standardized study to be undertaken at MBO annually, providing the basis for long-term trend analysis of bird populations. It is intended to be compatible with the aims and methodology of the Canadian Migration Monitoring Network. The program involves daily monitoring throughout the season, including a standardized census, banding, and incidental observations. A detailed protocol for the migration monitoring programs at MBO has been published (Gahbauer and Hudson, 2004).

2005 season:

Aside from a few hours of experimentation in May 2004, this was the first spring season for MBO. This year's SMMP was conducted as a pilot project, conforming to the protocol for the most part, but allowing for some experimentation with net placement and hours of operation. A 60-day season was settled upon to span the full range of early to late passerine migrants. The season began April 5, and ended June 3. MBO was operational for 59 of 60 days, with only April 23 omitted entirely due to very poor weather. Full banding activities took place on 27 days; on all other days census took place, sometimes supplemented by additional observations later in the day. The census was skipped only four times, when the volume of birds in the nets was too great at that time to spare any volunteers for an hour.

The main purpose of this season was to evaluate the potential of the site for passerine monitoring during spring migration, and if applicable, to identify the best locations for nets. As such, the emphasis was on experimentation, rather than strict adherence to the SMMP protocol. In particular, some nets were used for only part of the season, to allow for standardized usage of a core set of nets to be supplemented by experiments with nets in additional areas. The resulting data will overall not be directly comparable to those from future FMMP seasons, but as records are kept by net line, there will be consistency at that level.

Equipment

Mist nets (30-mm mesh) were used for all trapping. Thirteen nets were used, all of which remained in the same place throughout the season. Nine were from Spidertech and four from Avinet. All were in new or nearly new condition at the start of the season. Details of net allocations are listed in Appendix B.

Changes from Fall 2004 methodology

The protocol from FMMP 2004 was left largely unchanged, aside from the relocation of some nets. Based on the fall results, net groups C, D, and E were left unchanged for spring. The B group was retained in modified form. B1 was kept, with B2 advanced to adjoin it. The former B3 remained in place and was renamed B4. A new B3 was installed a bit beyond where B2 was in the fall. A new net designated A1 was installed on the field side of the path near the north

end of Stoneycroft Pond, in a natural gap between two rows of hawthorn and apple trees. At the south end of Stoneycroft Pond, F3 was kept in place, and F1 was added closer to the census route. The O nets used in fall were not put up for spring.

Results:
650 birds of 62 species were banded during SMMP 2004. The peak for both species richness and abundance came on May 16, with 57 birds of 22 species banded. Factoring in census and incidental observations, 134 species were observed over the course of the season, with a daily high of 64 on May 27. Figures 1 and 2 summarize the number of species banded, censused, and observed over the course of the two-month spring season. The census consistently resulted in 20 to 30 species over the first five weeks, then mostly over 30 species over the final four weeks. For banding, the peak period in terms of both species and individuals was the third week of May.

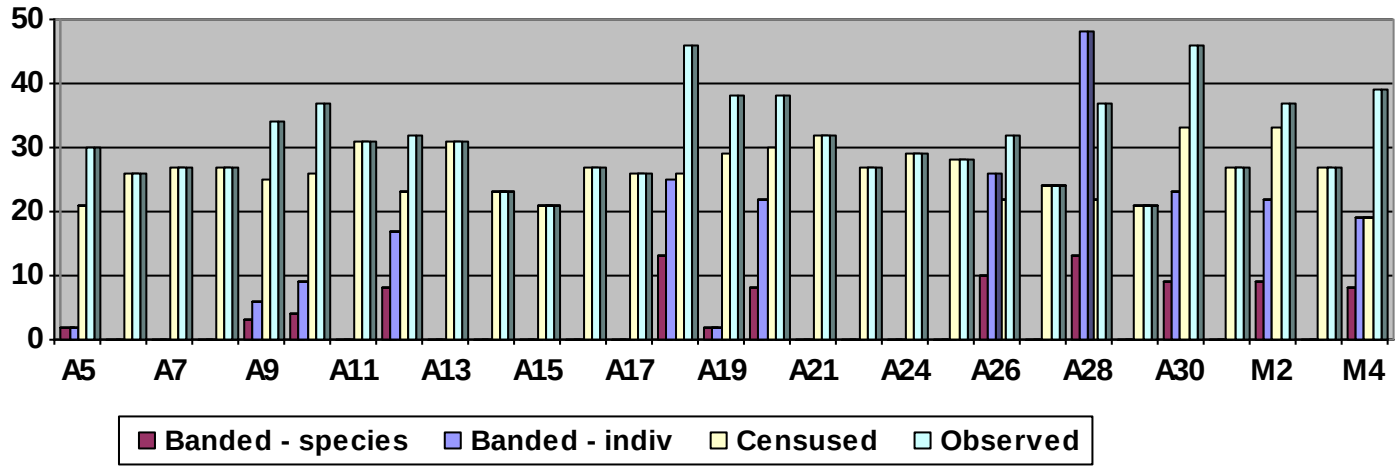

Figure 1: Daily statistics for the first 30 days of the spring 2005 season in April (A) and May (M)

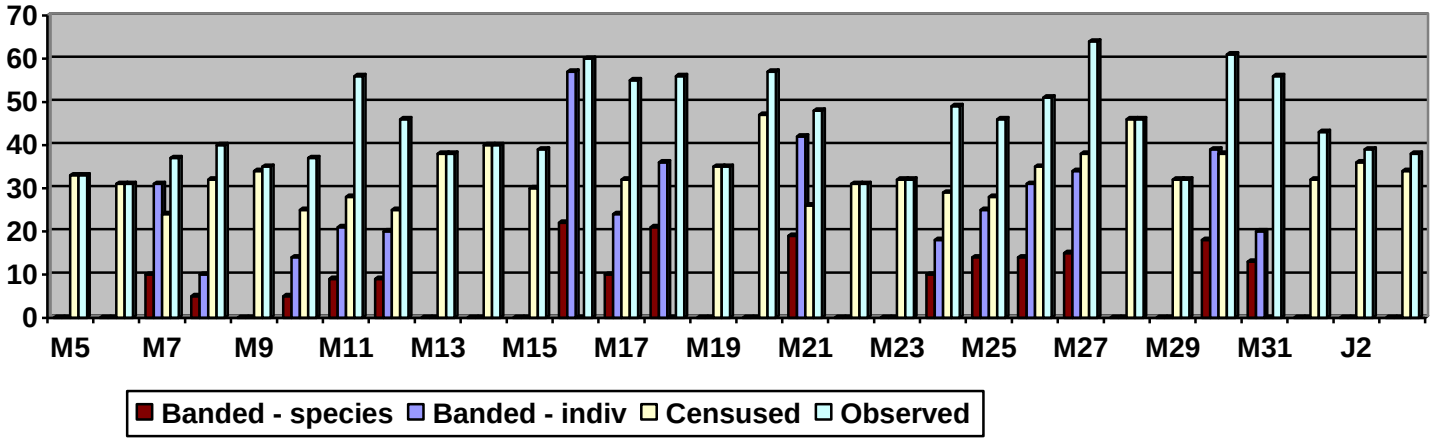

Figure 2: Daily statistics for the last 30 days of the spring 2005 season in May (M) and June (J)

Table 1 lists the ten most frequently banded species this spring. However, the two biggest highlights of the season were species caught only once. The first Rusty Blackbird was banded at MBO on April 30, significant as it is one of the boreal species experiencing a severe population decline. The biggest rarity, however, was the Bicknell's Thrush banded on May 27. The species is only very rarely recorded in Montreal during migration, and this individual was presumably from the small breeding population in the Laurentians.

Table 1: Top ten species banded at MBO during spring 2005

Species	# banded
American Goldfinch	111
Red-winged Blackbird	73
Cedar Waxwing	59
Yellow Warbler	47
Song Sparrow	30
White-throated Sparrow	29
Yellow-rumped (Myrtle) Warbler	25
Common Yellowthroat	22
Common Grackle	21
Ruby-crowned Kinglet	20

Another thirteen species were caught and banded only once: Mourning Dove, Northern (Yellow-shafted) Flicker*, Yellow-bellied Flycatcher, Northern Rough-winged Swallow*, Golden-crowned Kinglet, White-breasted Nuthatch*, Brown Creeper, Veery*, Grey-cheeked Thrush*, Swainson's Thrush, Black-and-white Warbler*, Black-throated Blue Warbler, and Blackburnian Warbler* (asterisks indicate species banded at MBO for the first time).

Among the more common species, those with the highest banding totals (American Goldfinch, Red-winged Blackbird, and Cedar Waxwing) were present throughout the season. Local breeders, including Yellow Warbler and Common Yellowthroat, became regular following their arrival. Others, such as the White-throated Sparrow and Ruby-crowned Kinglet moved through within a fairly brief period. The American Goldfinch also holds the distinction of being the only species caught at least once in each net. Six of the top ten species this spring were also in the top ten list from FMMP 2004 (Gahbauer 2004).

In addition to the birds banded, interesting observations were made of other species using the area, as fewer than half of the 134 species recorded were banded. Among these were 15 species not previously reported at MBO, including several waterfowl, most notably Hooded Merganser, Green-winged Teal, and Northern Pintail, all of which lingered on the rear ponds for at least a few days. Also showing an interest in that area were Black-crowned Night Heron, Virginia Rail, Mourning Warbler, and several Solitary Sandpipers seen daily over a period of two weeks in mid-May. Elsewhere on the property, unusual sightings included Northern Mockingbird at the end of April, and Yellow-billed Cuckoo at the end of May.

Research and education:

Contributing data to the North American bird banding database and accumulating records for future population analyses are at the core of MBO's mandate. However, these also offer the potential for additional research and education. Assisting with banding was a learning experience for all involved, especially for those who had not previously handled birds. To extend the scope of the project, photographs were taken of representative individuals of each species handled. These are posted for public reference on the MBO website (www.migrationresearch.org/mbo.html). Where possible, different ages and sexes are shown. The intent is to continue adding to this reference library over time. This spring, many photos of wings and tails were taken to illustrate the key features used in ageing the birds. These will form the basis of an expanded identification guide on the website later in 2005. The results of this pilot spring season indicated that, as in fall, there are several species that occur at MBO in substantial numbers, and could be targeted for in-depth study in future years.

Site evaluation:

One of the goals of SMMP 2005 was to evaluate net location for spring migration monitoring. Table 2 summarizes the usage and productivity of all nets. The overall capture rate is substantially lower than in the fall, which is to be expected, given the large number of juveniles present in fall that do not return in spring.

Table 2: Net usage and capture rates during SMMP 2005

Net	Net hours	New captures	Repeats	Total birds	Birds / 100 net hours	
					Banded	Total
A1 **/ A – TOTAL**	**131.5**	**119**	**52**	**171**	**90.5**	**130.0**
B1	119.8	29	5	34	24.2	28.4
B2	119.8	20	7	27	16.7	22.5
B3	119.8	16	7	23	13.4	19.2
B4	113.8	21	9	30	18.5	26.4
B – TOTAL	**473.2**	**86**	**28**	**114**	**18.2**	**24.0**
C1	132.4	50	17	67	37.8	50.6
C2	132.4	59	23	82	44.6	61.9
C – TOTAL	**266.8**	**109**	**40**	**149**	**40.9**	**55.8**
D1	133.6	80	40	120	59.9	89.8
D2	133.6	65	18	83	48.7	62.1
D3	133.6	89	29	118	66.6	88.3
D – TOTAL	**400.8**	**234**	**87**	**321**	**58.4**	**80.0**
E1 **/ E – TOTAL**	**122.7**	**38**	**9**	**47**	**31.0**	**38.3**
F1	87.4	26	11	37	29.7	42.3
F3	81.4	35	9	44	43.0	54.1
F – TOTAL	**168.8**	**61**	**20**	**81**	**36.1**	**48.0**
GRAND TOTAL	**1563.8**	**647**	**236**	**883**	**41.4**	**56.5**

Net A1 was added to the site this spring and proved to be exceptional. It was productive throughout the season, and in the end captured over 30% more individuals than the next best net. This success can likely be attributed largely to the net being placed within a natural corridor between parallel lines of hawthorns and apples, across which birds travel regularly. Yellow Warblers and American Goldfinches were caught in particularly large numbers, but the area was frequented by a wide variety of birds, with 34 species caught in this one net. The only other net to come close was D3 with 30; all others had 24 or fewer. Consideration should be given to extending A, and/or exploring the site for similar natural corridors that could be tested.

As a group, the B nets had the lowest capture rate, as was the case during FMMP 2004. However, once again they did yield birds caught nowhere else on the site, including the Bicknell's Thrush, Rusty Blackbird, and five other species caught just once. Also as in fall, they were particularly successful for Common Grackle. As such, there is merit in keeping the B nets despite their overall low capture rate. Further adjustments of the specific net positions within this area are not likely to change the results greatly.

The C nets performed quite well throughout the season, despite the sumacs not leafing out fully until late May. Interestingly, all three Indigo Buntings banded were caught at C, and it also accounted for nearly half of all Rose-breasted Grosbeak captures. Although C1 and C2 are separated by under 10 metres, there were considerable differences between them in terms of species captured. Swamp Sparrow and Cedar Waxwing were particularly common in C2, while Red-winged Blackbird and Common Grackle were mostly in C1. In the FMMP 2004 report (Gahbauer 2004) it was suggested that there may be value in adding C3 immediately beyond

C2. This possibility was not tested this spring, but given the number of Swamp Sparrows and Common Yellowthroats caught in the existing nets, the added benefit may be minor.

As a group, the D nets accounted for 36% of new captures, and individually the nets ranked 2 through 4 in terms of productivity, behind A1. Over the three nets, 38 species were caught. As in fall 2004, captures tapered off noticeably on sunny mornings when the nets became more conspicuous, yet despite this the overall rate of birds per net hour remains impressive. The nets have been effective in both fall and spring, and should remain in the current location.

As in fall 2004, E1 was moderately successful. Although it rarely catches more than one or two birds at a time, it averages only 20% fewer birds per net hour than C, which is generally considered a successful net lane. The hollow behind E1 had been considered as a location for E2, but was flooded for extended periods this spring, and was therefore not tested.

The two nets at F were also moderately successful. Because of their distance from the banding station they were opened less frequently than the other nets, but on a birds per net hour basis, they rank between E and C in productivity. Space exists between F1 and F3 to insert F2 if desired, but to date the level of activity observed in the area does not seem to justify it. It might be of greater value to install F4 beyond F3, which would be under some of the larger trees closer to the road, and might catch birds moving through the edge of the forest understory.

Overall, the net arrangement appears to be sampling the birds at MBO well. There are some areas which remain largely uncovered, most notably the far side of Stoneycroft Pond and the area close to the entrance. It would be interesting to experiment with nets in these areas when time permits. However, there is a limit to the number of nets that can be safely operated by a small number of experienced volunteers. As it is, the F nets are far enough from the cabin that it is advisable to keep them closed on days when the BIC is the only experienced extractor on site. When volunteer resources are limited, priority should be given to operating net lines A through D. If any areas beyond those currently in use prove to be valuable, it may be necessary to curtail the use of E and/or F until a greater number of experienced volunteers become available on a regular basis.

Summary:

The pilot SMMP in 2005 was a great success, with 62 species and nearly 650 individuals banded. Included in this total were many of the boreal species which MBO has identified as targets for monitoring. The 60-day season proved to be well-selected, capturing both very early migrants (e.g. Northern Shrike, American Tree Sparrow) and the latest species (e.g. Grey-cheeked Thrush, Yellow-billed Cuckoo). For consistency, it is recommended that the same dates (April 5 through June 3) be monitored in future years.

This year banding took place on just under half of the days during the spring season. With full coverage, the number of birds banded could easily exceed 1000, and would likely include some of the species missed this year, such as Mourning Warbler, Palm Warbler, and Warbling Vireo. However, full coverage of spring may be difficult due to volunteers generally being less available than in fall. Given the much larger number of migrants present in fall, priority should be given annually to full coverage of the FMMP. If resources permit, SMMP should be operated fully too, but otherwise a half-time banding effort coupled with daily censuses would provide adequate coverage. As in fall 2004, it was found in spring 2005 that the final hour of the morning was mostly quiet, and it may be possible to reduce the daily program to five hours of banding without sacrificing any monitoring power.

Acknowledgments:
The operation of MBO would not be possible without the support of the many individuals and organizations generously contributing their time and/or financial resources. A licensed Bander-In-Charge (BIC) must be present whenever banding is being undertaken, to process the birds and/or supervise other banders in doing so, and to generally oversee activities at the observatory. The assistance of other banders is most welcome, especially on busy days. Equally important are all the other banding assistants who help with extracting birds from the nets, scribing, site maintenance, censusing, and more. The following volunteers filled these roles in spring 2005:

Banders-in-charge: Marcel Gahbauer, Lance Laviolette
Banders: Shawn Craik, Barbara Frei, Marie-Anne Hudson, Isabel Julian, Crissy Ranellucci
Banding / census assistants: Daniel Brown, Mélisa Brunet, Jean Demers, Christina Donehower, Sarah Fraser, Helen Garland, Robin Goldstein, Gay and Peter Gruner, Marie-Eve Jacques, Noémie Laplante, Meghan Laviolette, Marylise Lefevre, Barbara Macduff, Michael Mayer, Betsy McFarlane, Anthi Mimidakis, Julia Mlynarek, Chris Murphy, Nicole Rose, Clémence Soulard, Arnaud Tarroux, Kim Tendland-Frenette, Alain Theriault, Rodger Titman, Mona Wizenberg

In addition, we extend our sincere thanks to all who donated materials or funds to MBO during the first half of 2005:
Canada Steamship Lines (donation toward operating costs)
Bird Protection Quebec (donation toward operating costs)
Avian Science and Conservation Centre (banding equipment)
Migration Research Foundation (nets and other banding equipment)
Wildlifers (donation of bird feeders and bird seed for the winter season)
EMCO Building Products (donation of roofing material to finish repairs to the cabin)

Special thanks are also due to the many individuals who either participated in the first annual MBO Birdathon on May 14, or pledged a contribution in support of them.

References:
Gahbauer, M.A. 2004. McGill Bird Observatory Fall Migration Monitoring Program 2004 Report. McGill Bird Observatory, Montreal, Quebec.
www.migrationresearch.org/mbo/fmmp2004.pdf

Gahbauer, M.A. and M-A.R. Hudson. 2004. McGill Bird Observatory Field Protocol for Migration Monitoring Program. McGill Bird Observatory, Montreal, Quebec.
www.migrationresearch.org/MBO%20protocol.pdf

Appendix A: Complete list of species observed during SMMP 2005

Species	Code	First observed	# banded	# repeats	# returns
Common Loon	COLO	May 7			
Pied-billed Grebe	PBGR	Apr 16			
Double-crested Cormorant	DCCO	Apr 6			
American Bittern	AMBI	Apr 25			
Great Blue Heron	GBHE	Apr 5			
Green Heron	GRHE	May 16			
Black-crowned Night Heron	BCNH	Apr 28			
Snow Goose	SNGO	Apr 5			
Canada Goose	CAGO	Apr 5			
Wood Duck	WODU	Apr 5			
Green-winged Teal	GWTE	Apr 21			
American Black Duck	BLDU	Apr 20			
Mallard	MALL	Apr 5			
Northern Pintail	NOPI	Apr 30			
Blue-winged Teal	BWTE	Apr 21			
Northern Shoveler	NORS	May 1			
Hooded Merganser	HOME	Apr 10			
Turkey Vulture	TUVU	Apr 18			
Northern Harrier	NOHA	May 1			
Sharp-shinned Hawk	SSHA	May 12			
Cooper's Hawk	COHA	Apr 5			
Red-shouldered Hawk	RSHA	Apr 7			
Broad-winged Hawk	BWHA	Apr 19			
Red-tailed Hawk	RTHA	Apr 30			
American Kestrel	AMKE	Apr 10			
Merlin	MERL	Apr 8			
Peregrine Falcon	PEFA	May 4			
Virginia Rail	VIRA	May 24			
Sora	SORA	May 16			
Killdeer	KILL	Apr 8			
Greater Yellowlegs	GRYE	May 27			
Solitary Sandpiper	SOSA	May 7			
Spotted Sandpiper	SPSA	May 21			
Ring-billed Gull	RBGU	Apr 5			
Herring Gull	HERG	Apr 8			
Great Black-backed Gull	GBBG	Apr 5			
Iceland Gull	ICGU	Apr 7			
Rock Pigeon	ROPI	Apr 7			
Mourning Dove	MODO	Apr 5	1		
Yellow-billed Cuckoo	YBCU	May 31			
Great Horned Owl	GHOW	Apr 30			
Ruby-throated Hummingbird	RTHU	May 17			
Belted Kingfisher	BEKI	Apr 10			
Yellow-bellied Sapsucker	YBSA	Apr 11	2		
Downy Woodpecker	DOWO	Apr 5	3		
Hairy Woodpecker	HAWO	Apr 5	2	2	
Yellow-shafted Flicker	YSFL	Apr 6	1		
Pileated Woodpecker	PIWO	Apr 5			
Yellow-bellied Flycatcher	YBFL	May 30	1		
Traill's Flycatcher	TRFL	May 16	5		
Alder Flycatcher	ALFL	May 28			
Least Flycatcher	LEFL	May 11	9		
Eastern Phoebe	EAPH	Apr 5	2	2	
Eastern Kingbird	EAKI	May 11	2		
Great Crested Flycatcher	GCFL	May 11	2	1	
Purple Martin	PUMA	May 17			
Tree Swallow	TRES	Apr 9	10	1	
Northern Rough-winged Swallow	NRWS	May 24	1		
Bank Swallow	BANS	May 17			
Cliff Swallow	CLSW	May 7			
Barn Swallow	BARS	Apr 18			
Blue Jay	BLJA	Apr 5			
American Crow	AMCR	Apr 5			
Common Raven	CORA	Apr 9			
Black-capped Chickadee	BCCH	Apr 5	3	26	3
White-breasted Nuthatch	WBNU	Apr 5	1	1	
Brown Creeper	BRCR	Apr 7	1		
House Wren	HOWR	May 17			

Species	Code	First observed	# banded	# repeats	# returns
Marsh Wren	MAWR	May 28			
Golden-crowned Kinglet	GCKI	Apr 7	1		
Ruby-crowned Kinglet	RCKI	Apr 17	20		
Eastern Bluebird	EABL	Apr 19			
Veery	VEER	May 14	1		
Bicknell's Thrush	BITH	May 27	1		
Grey-cheeked Thrush	GCTH	May 30	1		
Swainson's Thrush	SWTH	May 30	1		
Hermit Thrush	HETH	Apr 27			
Wood Thrush	WOTH	May 11			
American Robin	AMRO	Apr 5	16		1
Gray Catbird	GRCA	May 11	9	9	
Northern Mockingbird	NOMO	Apr 30			
Brown Thrasher	BRTH	Apr 11	4		
Bohemian Waxwing	BOWA	Apr 5			
Cedar Waxwing	CEDW	Apr 5	59		
Northern Shrike	NSHR	Apr 7			
European Starling	EUST	Apr 7	2		
Blue-headed Vireo	BHVI	May 14			
Warbling Vireo	WAVI	May 22			
Philadelphia Vireo	PHVI	May 21			
Red-eyed Vireo	REVI	May 19	3		
Tennessee Warbler	TEWA	May 18	4		
Nashville Warbler	NAWA	May 11	6		
Northern Parula	NOPA	May 20			
Yellow Warbler	YWAR	May 11	47	46	
Chestnut-sided Warbler	CSWA	May 16	3		
Magnolia Warbler	MAWA	May 16	5		
Black-throated Blue Warbler	BTBW	May 11	1		
Yellow-rumped Warbler	MYWA	Apr 27	25	1	
Black-throated Green Warbler	BTNW	May 16			
Blackburnian Warbler	BLBW	May 21	1		
Western Palm Warbler	WPWA	May 18			
Blackpoll Warbler	BLPW	May 16	3		
Black-and-white Warbler	BAWW	May 10	1		
American Redstart	AMRE	May 12	6		
Ovenbird	OVEN	May 24			
Northern Waterthrush	NOWA	May 14	4		
Mourning Warbler	MOWA	May 28			
Common Yellowthroat	COYE	May 7	22	6	
Wilson's Warbler	WIWA	May 21	5		
Scarlet Tanager	SCTA	May 18			
Northern Cardinal	NOCA	Apr 5	5	1	1
Rose-breasted Grosbeak	RBGR	May 7	12	10	
Indigo Bunting	INBU	May 16	3		
American Tree Sparrow	ATSP	Apr 5	3		
Chipping Sparrow	CHSP	Apr 10	3		
Savannah Sparrow	SAVS	Apr 24			
Fox Sparrow	FOSP	Apr 7	8		
Song Sparrow	SOSP	Apr 5	30	29	12
Lincoln's Sparrow	LISP	May 12	2	1	
Swamp Sparrow	SWSP	Apr 9	19	8	
White-throated Sparrow	WTSP	Apr 18	29		
White-crowned Sparrow	WCSP	Apr 17	5		
Slate-coloured Junco	SCJU	Apr 5	5		
Bobolink	BOBO	May 8			
Red-winged Blackbird	RWBL	Apr 5	73	18	
Rusty Blackbird	RUBL	Apr 30	1		
Common Grackle	COGR	Apr 5	20	1	
Brown-headed Cowbird	BHCO	Apr 5	3	2	
Baltimore Oriole	BAOR	May 10	14	20	1
Purple Finch	PUFI	Apr 10	5	1	
House Finch	HOFI	Apr 5			
American Goldfinch	AMGO	Apr 5	111	31	1
House Sparrow	HOSP	Apr 5	2		

Appendix B: Net allocation for SMMP 2005

Net location	Net number	Manufacturer	Length / mesh	Dates
A1	AC14	Avinet	18 m / 30 mm	Apr 5 – Jun 3
B1	ST7	Spidertech	12 m / 30 mm	Apr 5 – Jun 3
B2	ST1	Spidertech	12 m / 30 mm	Apr 5 – Jun 3
B3	ST2	Spidertech	12 m / 30 mm	Apr 5 – Jun 3
B4	ST4	Spidertech	12 m / 30 mm	Apr 5 – Jun 3
C1	ST6	Spidertech	12 m / 30 mm	Apr 5 – Jun 3
C2	ST5	Spidertech	12 m / 30 mm	Apr 5 – Jun 3
D1	AC2	Avinet	18 m / 30 mm	Apr 5 – Jun 3
D2	AC1	Avinet	12 m / 30 mm	Apr 5 – Jun 3
D3	AC4	Avinet	12 m / 30 mm	Apr 5 – Jun 3
E1	ST3	Spidertech	12 m / 30 mm	Apr 5 – Jun 3
F1	ST10	Spidertech	12 m / 30 mm	Apr 12 – Jun 3
F3	ST30	Spidertech	18 m / 30 mm	Apr 19 – Jun 3