CALGARY BIRD BANDING SOCIETY

2009 ANNUAL TECHNICAL REPORT

Prepared
by

Douglas M. Collister
Bill Taylor
and
Garry Hornbeck

Published
by

Calgary Bird Banding Society
247 Parkside Cr. SE
Calgary, AB T2J 4J3

www.calgarybirdbandingsociety.org

August 2011

Custodire aves
Keep watch on birds

Calgary Bird Banding Society Code of Ethics

1. **Members are jointly responsible for the safety and welfare of the birds they capture and study. Stress, injuries and mortalities must be minimized. The following guidelines must be adhered to:**
    - handle each bird carefully, gently, quietly, and with respect.
    - capture only as many birds as you can safely process.
    - close traps or nets when predators in the area result in unacceptable risk to bird safety.
    - do not open nets in inclement weather.
    - assess the condition of nets frequently and repair or replace them quickly.
    - members must be properly trained and supervised.
    - check nets at least every 30 minutes.
    - close and properly furl all nets at the end of each banding day.
    - do not double bag birds.
    - use the correct band size and banding pliers for each bird.
    - treat all bird injuries in the most humane way.

2. **Members must continually assess their own work to ensure that the highest standards possible are maintained. The following guidelines must be adhered to:**
    - reassess methods and your approach whenever an injury or mortality occurs.
    - accept constructive and positive criticism from peers.

3. **Members must offer honest and constructive assessment of other members' work to help develop and maintain the highest standards possible. The following guidelines must be adhered to:**
    - provide criticism to other members in a constructive and positive manner.
    - inform members and others of innovations and improvements in capture, handling and banding techniques.
    - any mistreatment of birds or improper conduct by a member must be reported to the BIC and/or a member of the CBBS executive.

Banding crew at Inglewood Bird Sanctuary 21 August 2009 (L-R Don Stiles, Bill Taylor, Bruce Wilson)
(Photo by Lynda Alderman)

TABLE OF CONTENTS

FIGURES

TABLES

APPENDICES

EXECUTIVE SUMMARY

The Calgary Bird Banding Society (CBBS) was incorporated in March 1995. The main objective of CBBS is to conduct migration monitoring and other banding-based studies at Inglewood Bird Sanctuary (IBS), a federal Migratory Bird Sanctuary in Calgary. Located within 80-km of the Rocky Mountains in southwestern Alberta, the site is a unique component of the Canadian Migration Monitoring Network.

Banders-in-Charge and volunteers contributed 305 person-days or approximately 2440 hours to CBBS projects during 2009.

Spring migration monitoring was carried out at IBS for the 8th consecutive year since it was initiated in 2002. The 2009 fall program marks the 15th year of migration monitoring and follows pilot programs in 1992 and 1994 and full fall programs in 1995 through 2008. Mist-nets were operated on 35 of the 37 days between 1 May and 6 June (2374 net-hrs) and 66 of the 72 days between 28 July and 7 October (4789 net-hrs). Total new bandings of 700 and 1066 were achieved for the spring and fall programs, respectively.

Recaptures of a Tennessee Warbler and a Yellow-rumped Warbler both provide evidence of stopover site fidelity. Two American Robins, at least 9 and 11 years old, a Yellow Warbler at least 7 years old, a Brown-headed Cowbird at least 6 years old and a Baltimore Oriole at least 6 years old were re-encountered. A Yellow Warbler banded at IBS was recaptured in Illinois 46 days and 2107 km later. A Red-tailed Hawk banded at the Calgary airport in 2003 was found killed by another raptor 105 km ESE and at least 7 years old.

IBS MAPS was carried out again in 2009, the 17th replicate since 1992. The 76 new bandings of 19 species was average since the project was initiated in 1992. An analysis of IBS MAPS results through 2008 was undertaken in 2009 (Smith et al. 2009 – see website).

Trend analysis was undertaken on 25 and 11 species in fall and spring, respectively, occurring as migrants at IBS and captured in sufficient quantity to allow analysis. Species exhibiting significant ($P<0.05$) or nearly significant ($P<0.10$) trends were House Wren (positive), Least Flycatcher (Positive) and Common Yellowthroat (negative).

The number of mortalities during 2009 CBBS banding projects remained relatively high at 0.40% of all birds captured primarily due to predation while the injury rate was 0.92%.

INTRODUCTION

The Calgary Bird Banding Society (CBBS) was incorporated on 22 March 1995 with the following objectives:

- Quantify long-term population trends of Neotropical migratory birds using constant effort mist-netting;
- Promote involvement and expertise in bird banding; and
- Promote conservation of Neotropical migratory birds by fostering public awareness and understanding of Neotropical migratory birds.

While the primary project of the CBBS is monitoring of migratory birds at Inglewood Bird Sanctuary (IBS) in Calgary, other projects have also been undertaken:

- a Monitoring Avian Productivity and Survivorship (MAPS) station was established at IBS in 1992 and continued in 1993 and 1995-2004 and 2006-2009;
- spring banding was initiated in 1997 at Dunbow Road approximately 22-km SSE of the City of Calgary and continued in 1998 and 1999;
- spring and fall banding/migration monitoring was initiated at the Cominco Natural Area (CNA) in 2000 with spring banding continued in 2001;
- colour-banding and relocation of Red-tailed and Swainson's Hawks at Calgary International Airport was initiated in cooperation with the Calgary Airport Authority in 2000 and continued through 2004;
- pilot spring migration monitoring was initiated at Las Caletas on the Osa Peninsula, Costa Rica in 2002, continued in 2003 and full migration monitoring initiated in 2004 and continued in 2005, 2007 and 2008;
- pilot Monitereo de Sobrevivercia Invernal (MoSI) was undertaken in Costa Rica both at Las Caletas and another site on Isla Violin in 2006 and continued at Las Caletas 2007-2008;
- a pilot Northern Saw-whet Owl migration monitoring pilot program was carried out at IBS in 2000;
- pilot Northern Saw-whet Owl migration monitoring was carried out in 2003 and full migration monitoring was initiated in 2004 and continued through 2008 at the De Wit ranch in the foothills southwest of Calgary – due to unavailability of Banders-in-Charge this project was suspended during 2009;
- pilot MAPS was undertaken at Dinosaur Provincial Park (DPP) in 2006; and
- pilot spring migration monitoring was undertaken at DPP in 2007.

Since 1998 IBS has been a fully designated member of the Canadian Migration Monitoring Network (CMMN) which is a cooperative initiative of the member stations, the Canadian Wildlife Service and Bird Studies Canada. This formal association of migration monitoring sites across Canada significantly enhances the value of the work conducted at each site. The Calgary Bird Banding Society and Inglewood Bird Sanctuary hosted the 2003 CMMN national meeting and a face-to-face meeting of the CMMN Steering Committee in November 2006.

Canadian Migration Monitoring Network (CMMN)

CMMN Stations

1, Rocky Point
2, Teslin Lake
3, Mackenzie
4, Vaseaux Lake
5, Inglewood
6, Lesser Slave Lake
7, Beaverhill
8, Last Mountain
9, Delta Marsh
10, Thunder Cape
11, Whitefish Point
12, Bruce Peninsula
13, Pelee Island
14, Long Point
15, Haldimand
16, Tommy Thompson Park
17, Prince Edward Point
18, Innis Point
19, McGill
20, Tadoussac
21, St. Andrew's
22, Atlantic
23, Brier Island
24, Point Lepreau
25, Gros Morne

FUNDING AND ACKNOWLEDGEMENTS

Funding sources during 2009 included:

- membership dues;
- member donations;
- participation in the Baillie Birdathon;
- proceeds from Alberta Gaming and Liquor Commission arising from CBBS sponsored casinos; and
- a grant from the Petro-Canada Volunteer Grant Program.

Funds were used:

- to provide a per diem to Banders-in-Charge (BICs);
- purchase mist-nets and other banding equipment and miscellaneous costs;
- produce the Annual Technical Report;
- maintain and enhance the CBBS website;
- conduct stable isotope analyses of feather samples;
- publish the CMMN 10-year report;
- provide the *Introduction to Banding* course and other seminars; and
- support attendance at the CMMN biennial meeting in Tadoussac.

Sincere appreciation goes out to all CBBS members who have helped make 2009 another successful year for CBBS. Many non-members have also helped immensely by volunteering at our casino, participating in the Baillie Birdathon and providing expertise such as carpentry and electrical.

Deer resting beside open mist-net at Inglewood Bird Sanctuary (Photo by Lynda Alderman)

MIGRATION MONITORING AT INGLEWOOD BIRD SANCTUARY

Background

Neotropical migrants are birds that breed in the Nearctic biogeographic realm and winter in the Neotropics. Neotropical bird migration involves some 5-10 billion birds of over 150 species (Greenberg 1992). Trends in data from the North American Breeding Bird Survey (BBS) indicate that populations of many Neotropical migrants in North America may be decreasing. Although destruction of tropical forests on the wintering grounds has been implicated in declines, increasing concern is being raised about the potential effect of accelerated land-use changes on breeding grounds.

Inglewood Bird Sanctuary (IBS) is a federal Migratory Bird Sanctuary known as an important site for migrating passerines. IBS is strategically located within 80-km of the Rocky Mountains (Figure 1) and is a unique and valuable member of the Canadian Migration Monitoring Network. IBS is located within Calgary which greatly facilitates member involvement. Pilot monitoring, covering only a portion of the fall migration, was undertaken in 1992 and 1994. Full spring and fall migration monitoring has occurred since 2002 and 1995, respectively, and 2009 marks CBBS' 15th anniversary. Monitoring songbird population change based on fall mist-netting has been shown to be an effective technique (Dunn *et al*. 1997). Better trend information is required for species (particularly those primarily breeding in the Boreal Forest) not well monitored by the BBS. In addition the BBS has intrinsic bias towards overstating declines in bird populations. BBS surveys are conducted along roads which tend to become busier over time resulting in suppression of bird activity and are more likely to suffer from adjacent habitat change/degradation than un-roaded areas.

Methods and Study Site

Spring and fall migration of Neotropical migrants were monitored in 2009 at Inglewood Bird Sanctuary (IBS). IBS's 35 hectares includes mature riverine balsam poplar forest known for its number and diversity of songbirds during spring and fall migration (Sherrington 1975; Elphinstone 1990). Constant-effort mist-netting (i.e. constant number of nets in permanent locations for constant time period each day) and collection of associated morphometric and other data (e.g. age, sex, wing chord, weight, fat reserves, capture net, time of capture) from each bird captured were carried out each day, weather permitting, during spring and fall migration. Twelve 12-m long x 2.6-m high x 30-mm mesh mist-nets were operated in permanent net lanes for approximately 6 hours each day beginning at sunrise. A daily census was obtained occasionally when personnel and the level of bird activity permitted.

The migration monitoring protocol used at IBS was developed from procedures outlined in McCracken et al. (1993) (*A Manual for Monitoring Bird Migration*), Hagan et al. (1994) (*Recommended Methods for Monitoring Bird Migration*) and Hussell and Ralph (1996) (*Recommended Methods for Monitoring Bird Populations by Counting and Capture of Migrants*). Net locations and the daily census route are shown on Figure 2.

Monitoring Schedule and Coverage

Spring

Spring migration monitoring at IBS was conducted from 1 May to 6 June 2009. This was the 8th year of full spring migration monitoring at IBS. Mist-netting occurred on 35 of the 37 target days (95% coverage) for a total of 2374 net-hours (Table 1a, Figure 3a). Inclement weather also resulted in another 6 days of the 35 with a reduced number of net-hours from the daily target of 72.

Fall

Fall migration monitoring at IBS was conducted from 28 July to 7 October 2009. In addition to standardized constant-effort mist-netting, observations of other birds present in the reserve were noted. Mist-netting occurred on 66 of the 72 target days (92% coverage) for a total of 4789 net-hours (Table 1b, Figure 3b). Inclement weather (3 days), casino duty (2 days) and no BIC (1 day) resulted in 6 days of the monitoring period without banding. Inclement weather also resulted in another 6 days with a reduced number of net-hours from the daily target of 72.

New Bandings

Spring

A total of 700 new bands were placed on birds of 45 species (Table 2a, Appendix 1a). Four days with ≥ 40 new banding accounted for 41% of all new bandings during spring 2009 (Figure 3a). New banding totals by species at IBS are presented in Table 2a.

The 20 most frequently banded species over all years, and during 2009, are identified in Appendix 2. The top five in 2009 in descending order were Yellow-rumped Warbler, Lincoln's Sparrow, Swainson's Thrush, Clay-colored Sparrow and American Robin compared to Yellow-rumped Warbler, Swainson's Thrush, Lincoln's Sparrow, American Robin and Chipping Sparrow for 2002-2009 combined.

Fall

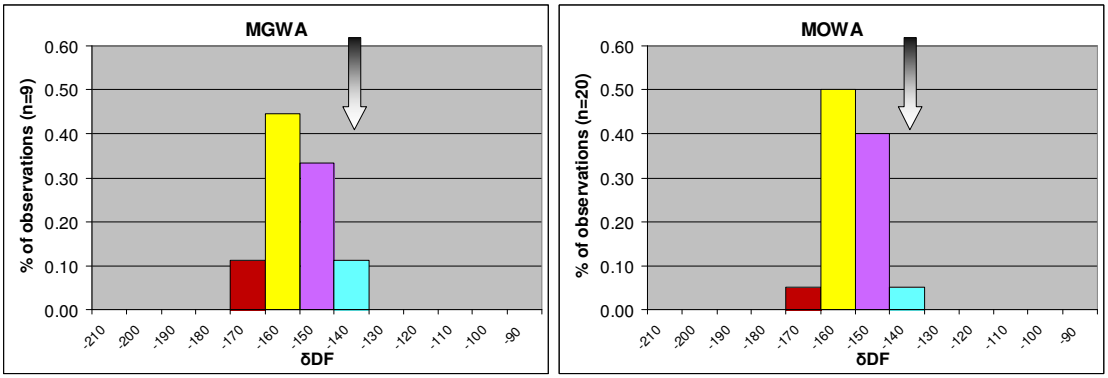
A total of 1066 new bands were placed on birds of 58 species (Table 2b, Appendix 1b). At least 30, 40, 50, and 70 new bandings occurred on 12, 4, 2 and 1 days, respectively (Figure 3b). Approximately 65% of new bandings occurred in August and 27% in September. The level of new bandings that occur in August versus September at IBS has varied since 1995 but seems to be increasing (see previous ATRs). New bandings at IBS from 1992-2009 are presented in Table 2b.

The 20 most frequently banded species over all years, and during 2009, are identified in Appendix 2. The top five in 2009 in descending order were Wilson's Warbler, House Wren, Yellow-rumped Warbler, Chipping Sparrow and Cedar Waxwing compared to Yellow-rumped Warbler, Wilson's Warbler, Yellow Warbler, Orange-crowned Warbler and Tennessee Warbler for 2002-2009 combined.

Insight from Mist-netting

Mist-netting can substantially add to understanding the avifauna at a site particularly for detection of rare or elusive species. Single Black-and-white Warbler and Brewer's Sparrow during spring and a single Hammond's Flycatcher during fall were first bandings at IBS of species rarely observed.

The *Oporornis* warblers are often difficult to detect and identify with binoculars. During 2009 fall migration monitoring at IBS, one Connecticut Warbler, three Mourning Warblers and three MacGillivray's Warblers were banded. Although the expectation might be that Mourning Warblers banded at IBS are from areas farther north than MacGillivray's Warblers, stable isotope analysis of rectrices collected at IBS in 2003, 2004 and 2008 suggests similar geographic origins. IBS is in an area of hybridization of these species (Hall 1979) and the similarity of their apparent origin may be an artifact of the difficulty in speciating hybrids.



Origin of MacGillivray's (MGWA) and Mourning (MOWA) Warbler feather samples obtained at IBS in 2003, 2004 and 2008. More negative δDF values indicate a more northerly origin. The arrow points to the expected value of feather material obtained at IBS.

Other areas of research have involved, or have the potential to involve, data from IBS. Banding data were provided to Erica Dunn of CWS as part of a cooperative study on mass gain among migrating songbirds at Canadian stopover sites. Her analysis (Dunn 2002) provided insight that IBS appears to be an important refueling stop for Neotropical migrants. A copy of her paper appeared in Appendix 4 of the 2003 ATR and is available on the CBBS website - http://calgarybirdbandingsociety.org/articles.php.

Stable Isotope Analyses

Stable isotope analyses, through identifying the geographic origin of birds captured, offers the possibility of confirming the hypothesis that CMMN sites, including IBS, monitor birds from a wide area north-west of their respective locations. Preliminary results involving 1999 samples from Delta Marsh Bird Observatory and Atlantic Bird Observatory indeed indicated that CMMN stations are capturing birds from a broad area, not simply from a small region close to the station.

To investigate the origin of birds captured at IBS during the fall migration, feather samples were collected from 54 resident and migrant birds of six species during 2003. A total of 919 feather samples were collected from 28 species at IBS during 2004 while an additional 1028 were collected from 33 species in 2008. Feather samples have been analyzed as of 2009 and these results will be used to identify the breeding and/or natal geographic areas of origin.

Recaptures

Recaptures at IBS during migration monitoring totaled 574 of at least 379 different birds of 42 species (see table on following page). Recapture rates were highest in resident species (e.g. House Wren, Black-capped Chickadee, Downy Woodpecker, Tree Swallow). However some resident species evidenced a relatively low recapture rate suggesting that short-stopover migrants swell the ranks (e.g. American Robin, Least Flycatcher, Yellow Warbler). A few migrant species appear to use IBS for moulting or extended re-migratory foraging as evidenced by high recapture rates (e.g. Northern Waterthrush, Common Yellowthroaat, Lincoln's Sparrow, White-throated Sparrow).

Fifty-six (56) birds banded at IBS in previous years were recaptured in 2009. Year-to-year recaptures from 1992-2009 are presented in Appendix 4. Most year-to-year recaptures occur in the year following banding. However in a few cases birds are recaptured in several subsequent years and occasionally re-appear a number of years after banding:

- a Northern Flicker banded in 2002 and recaptured in 2003 and 2004 then again in 2009
- a House Wren banded in 2004 was not recaptured until 2009
- an American Robin banded in 1999 was not re-encountered until found injured in 2009
- an American Robin banded in 2001 was recaptured in 2006 and then again in 2009
- a Brown-headed Cowbird banded in 2004 was not recaptured until 2009

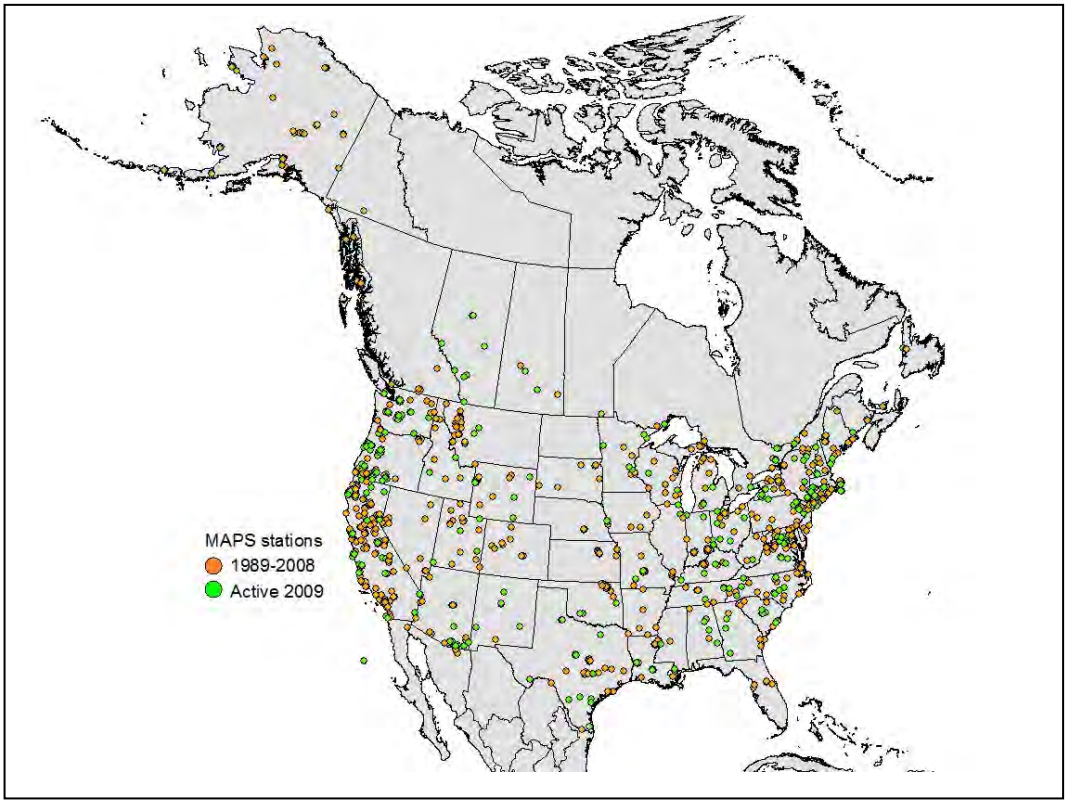
Individuals Recaptured at Inglewood Bird Sanctuary during MM 2009					
Species	**Recap**	**Banded**	**Species**	**Recap**	**Banded**
Sharp-shinned Hawk	2	6	Orange-crowned Warbler	6	43
Solitary Sandpiper	3	12	Yellow Warbler	16	83
Belted Kingfisher	4	7	Yellow-rumped Warbler	40	310
Downy Woodpecker	20	14	Blackpoll Warbler	1	9
Hairy Woodpecker	1	1	American Redstart	2	10
Northern Flicker	1	3	Ovenbird	7	8
Western Wood-Pewee	3	22	Northern Waterthrush	40	55
Traill's Flycatcher	3	27	Mourning Warbler	1	3
Least Flycatcher	4	41	McGillivray's Warbler	1	3
Warbling Vireo	4	15	Common Yellowthroat	10	10
Tree Swallow	30	36	Wilson's Warbler	15	117
Northern Rough-winged Swallow	1	9	Chipping Sparrow	4	110
Black-capped Chickadee	36	19	Clay-colored Sparrow	12	68
White-breasted Nuthatch	4	5	Song Sparrow	10	14
House Wren	124	125	Lincoln's Sparrow	49	87
Swainson's Thrush	16	69	White-throated Sparrow	15	21
Hermit Thrush	1	5	White-crowned Sparrow	13	30
American Robin	22	97	Brown-headed Cowbird	4	6
Gray Catbird	16	28	Baltimore Oriole	10	18
Cedar Waxwing	8	74	House Finch	2	11
Tennessee Warbler	11	56	American Goldfinch	2	4

Solitary Sandpiper – Inglewood Bird Sanctuary
(Photo by Lynda Alderman)

MONITORING AVIAN PRODUCTIVITY AND SURVIVORSHIP (MAPS)

Background

The Monitoring Avian Productivity and Survivorship (MAPS) program is a cooperative effort among public agencies, private organizations, and bird banders of North America. It provides long-term data on population and demographic parameters for target landbird species throughout the continent. The 2009 field season was MAPS 21st year of North American operation.



MAPS consists of standardized, constant-effort mist-netting during the breeding season at a continent-wide network of stations. Annual regional indices of adult population size and post-fledging productivity are estimated from capture data during the breeding season. Annual regional estimates are made of adult survivorship, adult population size and recruitment into the adult population from capture-recapture data.

North America is divided into eight major regions based on biogeographical and meteorological considerations, and each region has, within it, target species. IBS falls into the Northwest Region whose target species are:

Dusky Flycatcher	Yellow Warbler;
Western Flycatcher complex	MacGillivray's Warbler;
Swainson's Thrush	Wilson's Warbler;
American Robin	Song Sparrow;
Warbling Vireo	Lincoln's Sparrow;
Orange-crowned Warbler	"Oregon" Dark-eyed Junco

All of these species have been captured at IBS although only American Robin, Warbling Vireo, Yellow Warbler, Song Sparrow, and Lincoln's Sparrow are breeders. MAPS data is provided to the Institute for Bird Populations in Point Reyes, CA where it is integrated with data from more than 500 other North American stations.

Objectives

The overall objective of the MAPS Program is to contribute to an integrated avian population monitoring system for selected North American landbirds. The indices and estimates obtained:

- determine annual changes and, ultimately, longer-term trends in population and demographic parameters of target species in each region;
- relate these trends to readily-measured environmental co-variates such as climatic factors, habitat type, and management practice; and
- refine current population models and develop new ones.

Methods

The MAPS Program consists of standardized constant-effort mist-netting during the breeding season. The breeding season is considered to extend from May through mid-August and is divided into 10 ten-day periods. Mist-netting commences the first ten-day period during which the majority of breeding adults of the target species have established territories and migrant individuals of these species are no longer passing through the area. Ten 12-m long x 2.6-m high x 30-mm mesh mist-nets were operated for 6 hours from sunrise on one day in each of the ten-day periods. The operation of the mist-nests must continue for a minimum of three periods in the adult "super-period" and two periods in the young "super-period". At IBS, MAPS initiates during period 4 (31 May - 9 June) and coverage entails the last 7 of the 10 ten-day periods. In recent years period 10 has been operated during fall migration monitoring. During 2003 period 9 was also operated during fall migration monitoring.

An additional requirement is to record the type and distribution of vegetation present at the MAPS station. Because changes in the vegetation at a station can cause changes in breeding populations and demographic parameters, the habitat is assessed every 5 years. CBBS conducted an initial habitat assessment in 2001 and another in 2007.

Schedule

2009 marked the 17th year of the MAPS project at IBS since 1992. A shortage of qualified personnel precluded gathering data in 1994. Record rainfall and flooding in 2005 limited effort to 121 net-hours, all during the first two periods and precluded further access to the site until late July. Although period 4 is no longer required at stations at the latitude of IBS we have continued with it in most years because of tradition.

Results

The number of each species banded, by date, during 2009 are summarized in Table 3. The number of each species that was banded is presented in Table 4 and Figure 5 for 2009 as well as the 16 previous years. Note that 7 of the 10 MAPS nets are also MM nets and therefore many new bandings are both MM and MAPS birds and included in tables and appendices for both projects. New MAPS bandings totaled 76 individuals of 19 species. Year-to-year recaptures are an important part of MAPS. In 2009 there were a total of 40 recaptures many of which were birds banded in previous years (see Appendix 4).

Discussion

Lack of regeneration of balsam poplar is an issue at IBS. The heavy flooding that occurred during 2005 may have enhanced poplar seedling recruitment thereby helping to alleviate this problem. The habitat assessment scheduled for 2012 should identify if regeneration is occurring.

An analysis of IBS MAPS results through 2008 was undertaken in 2009 (Smith et al. 2009 – see website). The objective of the analysis was to detect and compare trends in populations, productivity and survival of target species.

A total of 1642 captures of 52 species were recorded at IBS between 1992 and 2008. There were 1048 new bandings of adult birds. Newly banded birds comprised 64% of the total captures. The most abundant species, with overall capture rates greater than 4.0 adults/600 net-hours were, in descending order: American Robin, Yellow Warbler, Cedar Waxwing, House Wren, Gray Catbird, Warbling Vireo, Baltimore Oriole and Least Flycatcher. Total species richness was 48 species, while the mean number of adults captured was 114 per 600 net-hours, and the mean reproductive index was 0.55 young per adult over the entire period.

Populations of adult birds of nine species pooled indicated a nearly-substantial, highly fluctuating but not significant increasing population trend. All nine species showed substantially fluctuating trends (SE of the slope $\geq$ 0.021). Adult populations of three (Warbling Vireo, Black-capped Chickadee and Least Flycatcher) of nine target species showed substantially declining trends, which was offset by substantially increasing trends in three (House Wren, American Robin and Gray Catbird) other species.

Short-term (same 1992-2008 period as IBS operation) population trends of the same nine target species, taken from Breeding Bird Survey (BBS) routes in Alberta, were compared to the IBS results. Two (Least Flycatcher and Warbling Vireo) of the three species showing declining populations at IBS also showed declines on the BBS routes, while the trend for Black-capped Chickadee was opposite, with the BBS showing an increasing trend. Two (House Wren and Gray Catbird) of the three species showing increasing populations at IBS also showed an increase on the BBS routes, while one species (American Robin) had an opposite trend, although the BBS decline was insignificant. Cedar Waxwing, Yellow Warbler and Baltimore Oriole all showed no trends at IBS, but declining trends (-11.03, -1.79 and -6.27, respectively) on BBS routes.

Productivity trends were assessed for nine species. Only American Robin showed a substantially declining trend ($r \leq -0.3$), but it was not significant ($P > 0.05$). Both Black-capped Chickadee and House Wren showed substantially increasing trends ($r \geq 0.3$), but the former was significant and the latter was not significant. Populations of Gray Catbird, Cedar Waxwing, Yellow Warbler and Baltimore Oriole showed non-substantial (absolute $r < 0.3$) and substantially fluctuating (SE of the slope $\geq$ 0.021) trends, while Least Flycatcher and Warbling Vireo trends were not substantially fluctuating. Overall, only one of the nine species showed a negative trend, two showed positive trends, and six trends were flat. The 17-year trend of all species pooled represented an average annual substantial ($r = 0.368$), fluctuating increase in productivity of 0.022 (SE = 0.016) per year.

Estimates of annual adult survival rate ranged from a low of 0.320 for Baltimore Oriole to a high of 0.781 for Black-capped Chickadee, with a mean of 0.553. Estimated annual survival for Yellow Warbler (0.349) was below the mean, while estimates for Least Flycatcher (0.612) and American Robin (0.703) were above the mean. The estimates for survival probability for Least Flycatcher and Baltimore Oriole should be viewed with caution because they are based on fewer than five between-year recaptures or the estimate is very imprecise ($SE(\varphi) \geq 0.200$ or $CV(\varphi) \geq 50.0\%$).

The estimated mean survival rate for adults at IBS (0.553) appears to be similar compared with values for the Northwest MAPS region (1992-2003; see http://www.birdpop.org/nbii/surv/default.asp), but 8.6% higher than that of the North-central Region (0.467). Three species showed substantially higher (>10%) values for IBS than in the North-central Region (Least Flycatcher, Black-capped Chickadee and American Robin), while only the latter two showed substantially higher values for IBS than in the Northwest Region. Yellow Warbler and Baltimore Oriole showed substantially lower (<10%) survival at IBS than in the North-central Region, while Yellow Warbler and Least Flycatcher showed lower survival values for IBS than in the Northwest Region.

Recapture probability varied from a low of 0.033 for American Robin to a high of 0.415 for Yellow Warbler, with a mean of 0.167. Recapture probability for Least Flycatcher (0.073) and Baltimore Oriole (0.137) were below the mean, while the estimate for Black-capped Chickadee (0.175) was above the mean. There were many fewer between-year recaptures at IBS than would be expected for a data set including this many years of operation. Because of the lack of between-year recaptures there were only seven species for which we could attempt survival analysis, and for two of these (House Wren and Gray Catbird) program MARK could not produce estimates. Once at the site, the birds are remaining for entire breeding season as demonstrated by large numbers of within-year recaptures. However, birds are not recaptured in subsequent seasons. We are not sure why this is the case, because the habitat appears to be of good quality. The use of MAPS net locations during spring migration probably has some effect on what is captured during the MAPS season (i.e. net avoidance). Further seasons of data or correlation of these data to weather or habitat variables may answer this question.

Of three substantially decreasing species at IBS, two (Least Flycatcher and Warbling Vireo) had a slightly lower population trend, while one (Black-capped Chickadee) had a slightly higher trend than that for the two MAPS regions; productivity was variable but showing a stable or increasing trend; and survival rate was higher for two species (Least Flycatcher and Black-capped Chickadee) and unavailable for comparison for Warbling Vireo. The evidence suggests that for Least Flycatcher and Warbling Vireo low productivity may be the driving factor of the decline, but that this could improve over time if the positive trend continues, while for Black-capped Chickadee the evidence suggests that both productivity and survival are increasing. Higher-than-expected productivity may also be driving the population trend for two (House Wren and American Robin) of the three significantly increasing species. Assessment is compromised by the unavailability of survival rates for three of the four species.

The 15 years of operation of the IBS MAPS Station offers a unique opportunity to look at long-term trends. The two gaps in operation offered challenges for data analysis, though, as did the operation of migration monitoring nets in the same location. As a result we were only able to assess vital rates for eight target species. For some species, the general stability or increase in productivity would suggest that the habitat quality is improving because the adults that are present on the stations can produce more young per adult even as adult population levels are increasing. Looking at the age structure of the population may shed more light on this question. An adult population that is composed mostly of after-second year birds suggests that the habitat is of good quality because these birds "know" and can defend good territories. However, if the adult population is composed mostly of second year birds it suggests that after a single year of occupying a territory the birds are leaving Inglewood to find better habitat. After-second year birds are also assumed to be able to produce more young than inexperienced second year birds and a population high in after-second year birds would therefore have higher productivity.

SIGNIFICANT RE-ENCOUNTERS

Significant re-encounters of birds banded in previous years are listed below. All recaptures of birds at CBBS study sites and banded prior to 2009 are indicated in Appendix 3. Recaptures of a Tennessee Warbler and a Yellow-rumped Warbler both evidencing possible stopover site fidelity were recorded. The choice of which recaptures to include below is somewhat arbitrary, although species for which there are many recaptures over the years (e.g. Yellow Warbler, House Wren) are not included unless inferred age is > 5 years. Other species that are recaptured infrequently and for which longevity data may be lacking may be included even if inferred age is < 5 years.

Red-tailed Hawk 0987-28149 Banded as AHY-U on 23 May 2003 at Calgary Airport and relocated to Leduc. Found dead killed by another raptor by Len Lupyczuk on 15 September 2009. At least 7-years old. 105-km ESE (121^{o}).

American Robin 1142-55058 Banded as AHY-U by Scott Wilson at Inglewood Bird Sanctuary 11 August 2001. Recaptured as ASY-F there on 5 July 2006 and 4 July 2009 as ASY-F. At least 9-years old.

American Robin 1152-38773 Banded as AHY-U on 26 July 1999 at Inglewood Bird Sanctuary. Recaptured due to injury and released on 11 September 2009 in the same L-L block by Dale Tomie. At least 11-years old.

Tennessee Warbler 2410-05077 Banded as AHY-U on 17 August 2007 at Inglewood Bird Sanctuary in Calgary. Recaptured there as ASY-M on 28 July 2009.

Yellow Warbler 2290-88365 Banded as ASY-M at Inglewood Bird Sanctuary on 26 May 2004. Recaptured there on 23 June 2009. At least 7-years old.

Yellow Warbler 2580-26932 Banded as HY-F at Inglewood Bird Sanctuary on 10 August 2009. Recaptured at the Sand Bluff Bird Observatory 4 miles NW of Shirland, Winnebago County, Illinois on 25 September 2009. Travelled 2107-km ESE (107^{o}) in 46 days averaging 46-km/day.

Yellow-rumped Warbler 2490-22589 Banded as AHY-F at Inglewood Bird Sanctuary on 5 August 2007. Recaptured there as ASY-M on 6 August 2009. At least 3-years old.

Brown-headed Cowbird 1811-73610 Banded as AHY-F by Steve Lane at Inglewood Bird Sanctuary on 8 May 2004. Recaptured there 19 May 2009. At least 6-years old.

Baltimore Oriole 8041-83221 Banded as AHY-M by Steve Lane at Inglewood Bird Sanctuary on 15 August 2004. Recaptured there on 29 May 2005, 30 May 2008 and 24 May 2009. At least 6-years old.

TREND ANALYSES

Table 5 and Appendix 3 present the results of trend analysis on those species that are monitored at Inglewood Bird Sanctuary during spring and fall migration. Monitored species were, for the most part, those for which at least 10 individuals were captured on at least 5 different days. None of the species for which there were > 10 new captures occurred over < 5 days. Species exhibiting significant ($P<0.05$) or nearly significant ($P<0.10$) trends were House Wren (positive), Least Flycatcher (Positive) and Common Yellowthroat (negative).

Trend analysis is based on total captures from 1995-2009 and 2002-2009 for fall and spring respectively and was performed by Bird Studies Canada (Tara Crewe). Note that scientific investigation normally requires a P level of < 0.05 and preferably <0.01 in order to consider results significant. Due to net-lane inconsistencies from year-to-year trends for 10 species could only be analyzed using a subset of the data.

Although the trends for House Wren, Least Flycatcher and Common Yellowthroat are likely real, the cause behind them is open to interpretation. Only time and comparison to other CMMN stations and interpretation in the context of other data sets will indicate whether significant trends are due to changes in regional populations or to other confounding variables such as weather. Correlating trends between migration monitoring stations monitoring similar regions, adds strength to the interpretation that a trend is reflecting regional populations. Comparable annual indices from other stations were not available for comparison in this report.

Crewe et al. (2008) (see PDF on CBBS website) examined annual population indices through 2006 at 14 CMMN stations with at least 10 years of migration data during at least one migration season. Using migration data, annual population indices were estimated using a generalized linear model which controls for effects of date. Population trajectories (trends) in annual indices were then modeled for each species and station using linear models for stations having less than 10 years of data, and polynomial models for stations having 10 or more years of data.

Broad regional similarities in population trends were supported by positive between-station correlations of annual indices at relatively short inter-station distances. However, correlations were zero or even negative beyond about 2000 km. Furthermore, trends within a region were more similar than trends among regions, with more positive trends in Ontario (spring and fall) and Western (fall) regions and more negative trends in Prairie (spring and fall) and Eastern (fall) regions. Taken together across the country, population trends were not affected by migration strategy (temperate vs neotropical migrant) or by ecoregional association (boreal vs non-boreal). Hence, at the national level, roughly equal proportions of neotropical migrants and temperate migrants were declining or increasing. However, regional differences did occur in these patterns. For example, more species in the Prairie region exhibited negative trends in spring and fall for both neotropical and temperate migrants (including species breeding in the boreal forest) than other regions of Canada.

Breeding Bird Survey (BBS) coverage in Canada is primarily restricted to the southern part of the country. For species that have ranges that are predominantly within areas of high BBS coverage, good correlations would be expected between BBS regional trend statistics and those developed from migration monitoring. However, correlations would be expected to be weak or non-existent for species that breed predominantly in northern areas outside the main area of BBS coverage. To investigate this, long-term annual indices and trends (1968-2006) were compared at Long Point Bird Observatory with BBS statistics from Ontario. The analysis indicated that migration monitoring is indeed measuring a similar population signal to BBS for species breeding primarily in the south, particularly in spring. However, this relationship breaks down for species breeding primarily north of BBS coverage. By inference, these results further support the notion that migration monitoring can be used to effectively monitor the status of boreal/northern breeding birds where BBS coverage is weak.

Further scientific advances in migration monitoring are underway with the development of new analytical approaches and a large collaborative isotope project that will help investigate the geographic origins of birds sampled at migration stopover sites.

Connecticut Warbler (HY-U) - Inglewood Bird Sanctuary
(Photo by Matt Ginn)

PERSONNEL

Volunteers

Volunteer participation in all of the CBBS projects continues to be the key to the success of monitoring and research efforts. Banding at IBS is done in an area of the sanctuary designated "reserve" and off-limits to the public. A condition of operation is that a limited number of people are in the reserve at one time, in order to minimize impact. Thus, on any given day, a Bander-in-Charge (BIC) and from 1-3 volunteers conduct the banding. CBBS projects not based in IBS are not subject to this restriction. All participants in CBBS projects are required to have taken the *Introduction to Banding* course and complete the IBS (for IBS projects only) and CBBS orientations each year.

Without donated time by members of the Calgary Bird Banding Society, the high degree of success of CBBS projects would not have been possible. Sincere appreciation is extended to all of the Banders-in-Charge (BICs) and volunteers listed in Table 8 who contributed approximately 8 hours in the field on each day indicated (305 person-days or 2440 hours).

Banders-in-Charge (BIC)

CBBS has no salaried staff. However, a per diem is available to all Banders-in-Charge during most CBBS projects. This arrangement provides an incentive for qualified individuals to assume the BIC duties and imposes accountability on the BIC to complete field data sheets and input data to computer files. No per diems are paid until all duties of the BIC, including data entry, have been fully completed. The per diem established by the General Membership for the 2009 field season was $125/day for Migration Monitoring and MAPS at IBS.

Black-billed Magpie giving immature Bald Eagle an earful
Inglewood Bird Sanctuary (Photo by Dick Stauffer)

MORTALITIES AND INJURIES

The goal of the CBBS is to achieve as low a rate of casualties as possible during all banding projects. Casualties refer to all injuries, minor and serious, including fatalities. Our goal is to come as close to zero as possible.

Table 7 presents all casualties during 2009 for Migration Monitoring and MAPS projects. Note that the number captured, by species, is only given where that species experienced injury or mortality. The number of mortalities during CBBS banding projects in 2009 remained relatively high at 0.40%. Of the 10 mortalities, 7 were due to predation. The injury rate in 2009 was 0.92% (Figure 5).

Increases through 1997 were in part due to an increased awareness of banding personnel to record even slight abrasions. In other words, the data pre-1998 likely underestimates the rate of injury. CBBS BICs and volunteers take each mortality and injury very seriously and continuously endeavour to identify potential for reduction or avoidance of similar occurrences in the future.

Meadow Vole in mist-net – Inglewood Bird Sanctuary
(Photo by Matt Ginn)

REFERENCES

Cited references, references not cited but of direct relevance to CBBS research, CBBS publications and studies based on CBBS data.

Annual Technical Reports

Collister, D., G. Booth, G. Meyer and B. Couronne. 1996. Calgary Bird Banding Society 1995 Annual Technical Report. Calgary Bird Banding Society, Calgary, AB. 42 pp plus appendices.

Collister, D., G. Booth and B. Couronne. 1997. Calgary Bird Banding Society 1996 Annual Technical Report. Calgary Bird Banding Society, Calgary, AB. 55 pp plus appendices.

Booth, G. and D. Collister. 1998. Calgary Bird Banding Society 1997 Annual Technical Report. Calgary Bird Banding Society, Calgary, AB. 38 pp plus appendices.

Booth, G. and D. Collister. 1998. Calgary Bird Banding Society 1998 Annual Technical Report. Calgary Bird Banding Society, Calgary, AB. 39 pp plus appendices.

Collister, D., G. Booth, and G. Hornbeck. 2000. Calgary Bird Banding Society 1999 Annual Technical Report. Calgary Bird Banding Society, Calgary, AB. 35 pp plus appendices.

Collister, D., G. Booth, and R. Dickson. 2001. Calgary Bird Banding Society 2000 Annual Technical Report. Calgary Bird Banding Society, Calgary, AB. 45 pp plus appendices.

Collister, D. and G. Booth. 2002. Calgary Bird Banding Society 2001 Annual Technical Report. Calgary Bird Banding Society, Calgary, AB. 35 pp plus appendices.

Collister, D., G. Booth, and S. Lane. 2003. Calgary Bird Banding Society 2002 Annual Technical Report. Calgary Bird Banding Society, Calgary, AB. 17 pp plus figures, tables and appendices.

Collister, D. 2004. Calgary Bird Banding Society 2003 Annual Technical Report. Calgary Bird Banding Society, Calgary, AB. 20 pp plus figures, tables and appendices.

Collister, D., R. Dickson and G. Smiley. 2005. Calgary Bird Banding Society 2004 Annual Technical Report. Calgary Bird Banding Society, Calgary, AB. 23 pp plus figures, tables and appendices.

Collister, D., G. Meyer and G. Smiley. 2006. Calgary Bird Banding Society 2005 Annual Technical Report. Calgary Bird Banding Society, Calgary, AB. 23 pp plus figures, tables and appendices.

Collister, D. and G. Smiley. 2007. Calgary Bird Banding Society 2006 Annual Technical Report. Calgary Bird Banding Society, Calgary, AB. 26 pp plus figures, tables and appendices.

Collister, D., G. Smiley and B. Trakalo. 2009. Calgary Bird Banding Society 2007 Annual Technical Report. Calgary Bird Banding Society, Calgary, AB. 26 pp plus figures, tables and appendices.

Collister, D., K. Foster, C. Godwin-Sheppard, G. Hornbeck and B. Trakalo. 2010. Calgary Bird Banding Society 2008 Annual Technical Report. Calgary Bird Banding Society, Calgary, AB. 29 pp plus figures, tables and appendices.

Other

Crewe, T.L., J.D. McCracken, P.D. Taylor, D. Lepage, and A.E. Heagy. 2008. The Canadian Migration Monitoring Network - Réseau canadien de surveillance des migrations: Ten-year Report on Monitoring Landbird Population Change. CMMN-RCSM ScientificTechnical Report #1. Produced by Bird Studies Canada, Port Rowan, Ontario. 69 pp.

DeSante, D.F., K.M. Burton, P. Velez and D. Froehlich. 2000. MAPS Manual 2000 Protocol. The Institute for Bird Populations. 67 pp.

DeSante, D.F., D.R. O'Grady, K.M. Burton, P. Velez, D. Froehlich, E.E. Fess, H. Smith, E.D. Ruhlen. 1998. The Monitoring Avian Productivity and Survivorship (MAPS) Program Sixth and Seventh Annual Report (1995 and 1996). Bird Populations 4:69-122.

DeSante, D.F. and K.M. Burton. 1994. The Monitoring Avian Productivity and Survivorship (MAPS) Program Third Annual Report (1992). Bird Populations 2:62-89.

DeSante, D.F., K.M. Burton, and D.R. O'Grady. 1996. The Monitoring Avian Productivity and Survivorship (MAPS) Program Fourth and Fifth Annual Report (1993 and 1994). Bird Populations 3:67-120.

Dunn, E. 2005. Report on the results of the CMMN isotope project. Unpublished report.

Dunn, E.H. 2002. A cross-Canada comparison of mass change in birds during migration stopover. Wilson. Bull. 114:368-379.

Dunn, E.H., D.J.T. Hussell and R.J. Adams. 1997. Monitoring songbird population change with autumn mist netting. J. Wildl. Manage. 6:389-396.

Elphinstone, D. 1990. Inglewood Bird Sanctuary – a place for all seasons. Rocky Mountain Books, Calgary, AB. 128 pp.

Finch, D.M. 1991. Population ecology, habitat requirements, and conservation of Neotropical Migratory Birds. USDA Forest Service General Technical Report RM-205.

Greenberg, R. 1992. The nonbreeding season: Introduction. Pages 175-177 In Hagan, J.M. and Johnston, D.W. (editors). Ecology and conservation of Neotropical migrant landbirds. Smithsonian Institution Press, Washington. Proceedings of a symposium hosted by Manomet Bird Observatory, 6-9 December, 1989.

Hagan, J.M., K.A. Hobson, D.J.T. Hussell, N. Nur and C.J. Ralph. 1994. Recommended methods for monitoring bird migration. Draft prepared by the Intensive Sites Technical Committee of the Migration Monitoring Council. 22 pp.

Hall, G.A. 1979. Hybridization between Mourning and MacGillivray's Warblers. Bird-banding. 50:101-107.

Hobson, K.A. 2002. Incredible Journeys. Science 295: 981-983.

Hussell, D.J.T. and C.J. Ralph. 1996. Recommended methods for monitoring bird populations by counting and capture of migrants. Report of the Intensive Sites Technical Committee of the Migration Monitoring Council. 13 pp.

McCracken, J.D., D.J.T. Hussell, and E. Dunn. 1993. A manual for monitoring bird migration. Long Point Bird Observatory, Port Rowan, Ontario. 65 pp.

Sauer, J.R. and S. Droege. 1992. Geographic patterns in population trends of Neotropical migrants in North America. Pages 26-42 In Hagan, J.M. and Johnston, D.W. editors. Ecology and conservation of Neotropical migrant landbirds. Smithsonian Institution Press, Washington. Proceedings of a symposium hosted by Manomet Bird Observatory, 6-9 December, 1989.

Sherrington, P. (editor). 1975. Calgary's Natural Areas: A Popular Guide. Calgary Field Naturalists' Society. 184 pp.

Smith, C. M., D. R. Kaschube, and D. Collister. 2009. Monitoring Avian Productivity and Survivorship (MAPS) at Inglewood Bird Sanctuary, Calgary, Alberta, 1992-2008. Unpublished technical report. Calgary Bird Banding Society, Calgary, AB. 29 pp.

Smith, C. M., D. R. Kaschube, B. Shepherd and J. Woods. 2008. Monitoring Avian Productivity and Survivorship (MAPS) in Mount Revelstoke, Banff, Waterton Lakes and Jasper National Parks, 1993-2006. Unpublished technical report. Parks Canada, Waterton Lakes National Park, Waterton Park, AB

Wilson, S., K.A. Hobson, D.M. Collister and A.G. Wilson. 2008a. Spring migratory stopover of Swainson's Thrush along the Pacific coast of southwest Costa Rica. Wilson Journal of Ornithology 120(1):74-84.

Wilson, S., K.A. Hobson, D.M. Collister and A.G. Wilson. 2008b. Breeding destinations and spring migration patterns of Swainson's Thrush (*Catharus ustulatus*) at a Costa Rican stopover site. Auk 125(1):95-104.

See website

www.calgarybirdbandingsociety.org

Yellow Jacket wasp nest – Inglewood Bird Sanctuary
(Photo by Lynda Alderman)

FIGURES

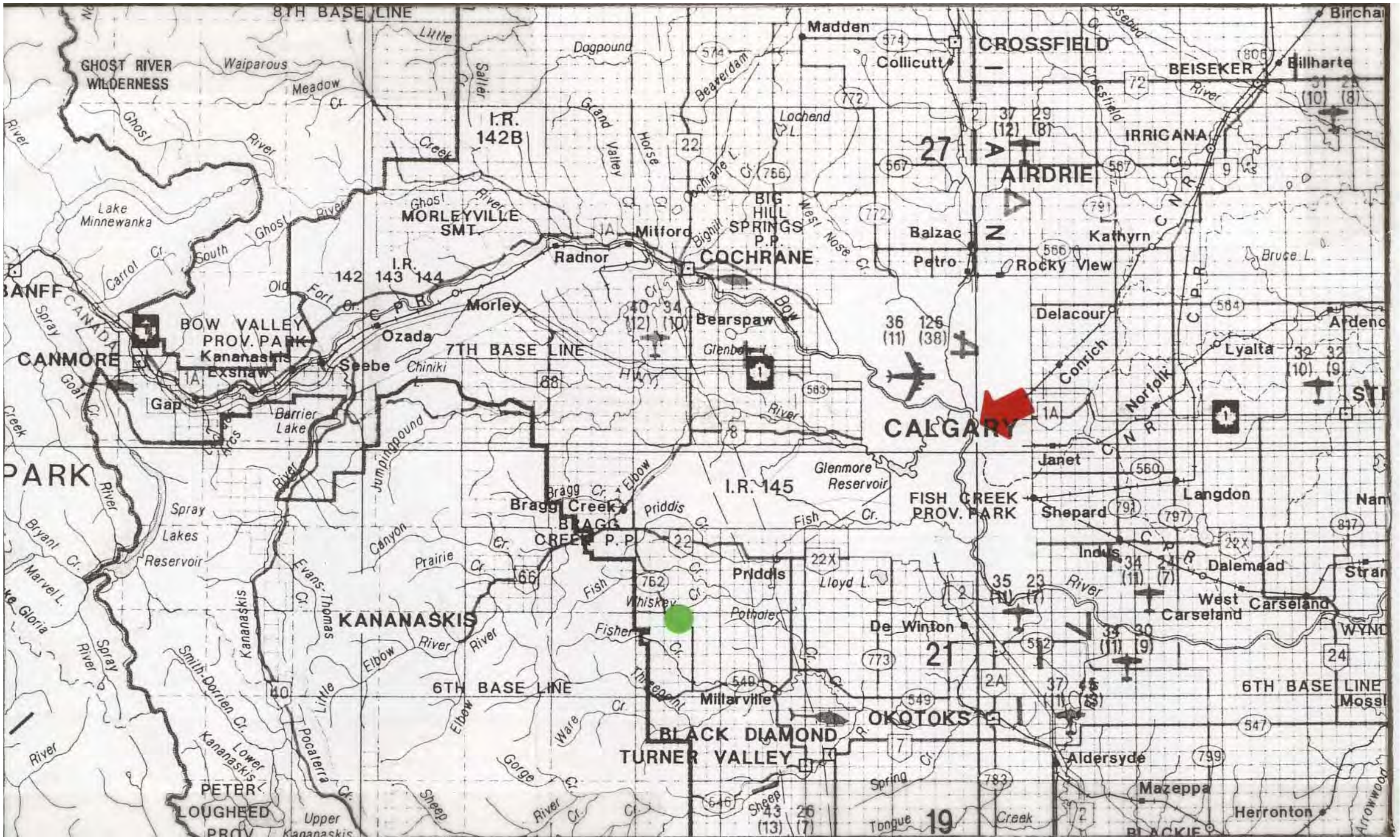


Figure 1: 1:250,000 NTS topographic map segment showing regional context of Inglewood Bird Sanctuary (red arrow) and the CBBS Northern Saw-whet Owl migration monitoring site (green dot)

Figure 2. Location of net locations (see legend) and banding area (**X**) in the southern reserve area of Inglewood Bird Sanctuary.

Figure 3a. New bandings at Inglewood Bird Sanctuary - Spring 2009

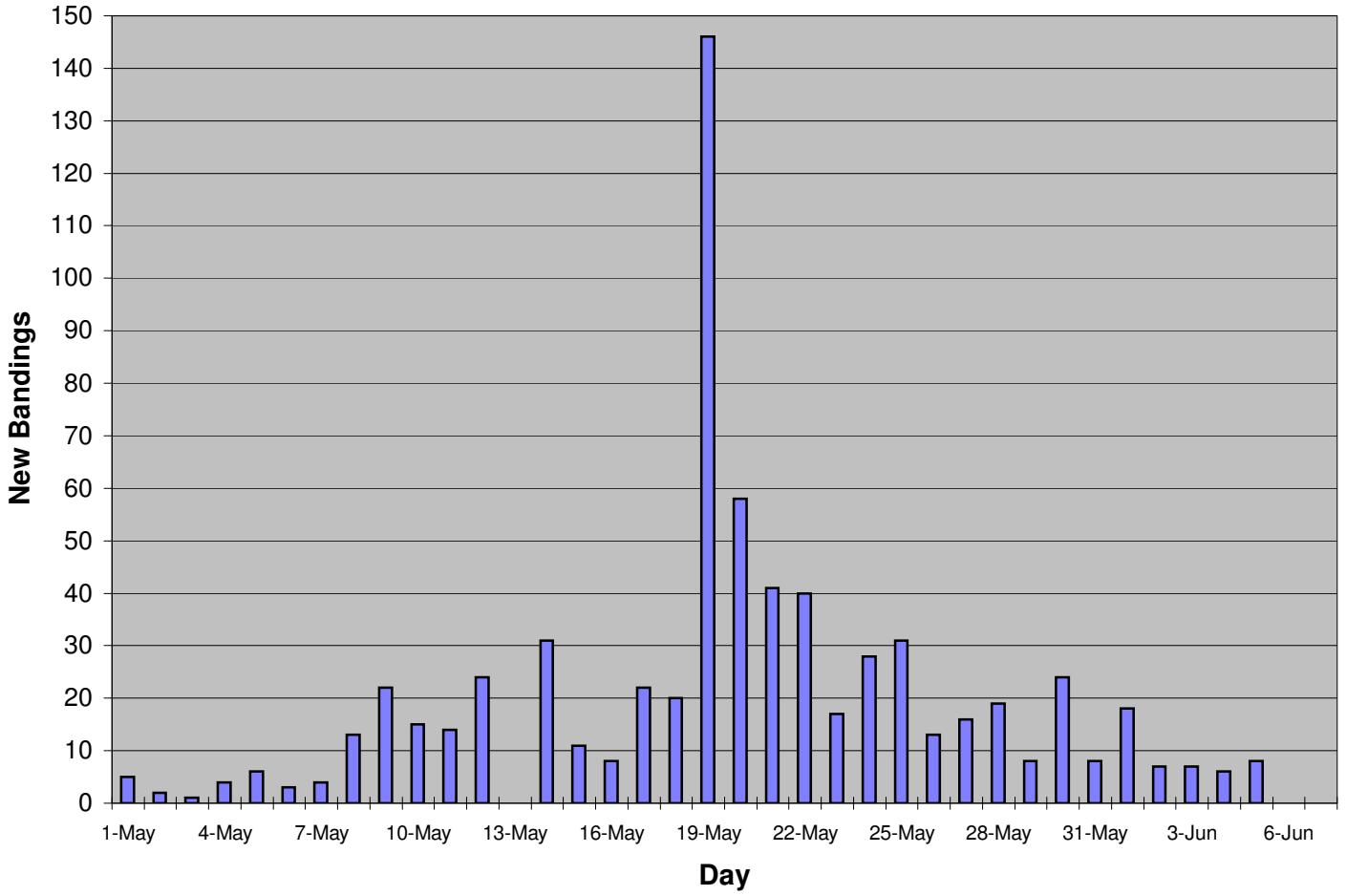


Figure 3b. New Bandings at Inglewood Bird Sanctuary - Fall 2009

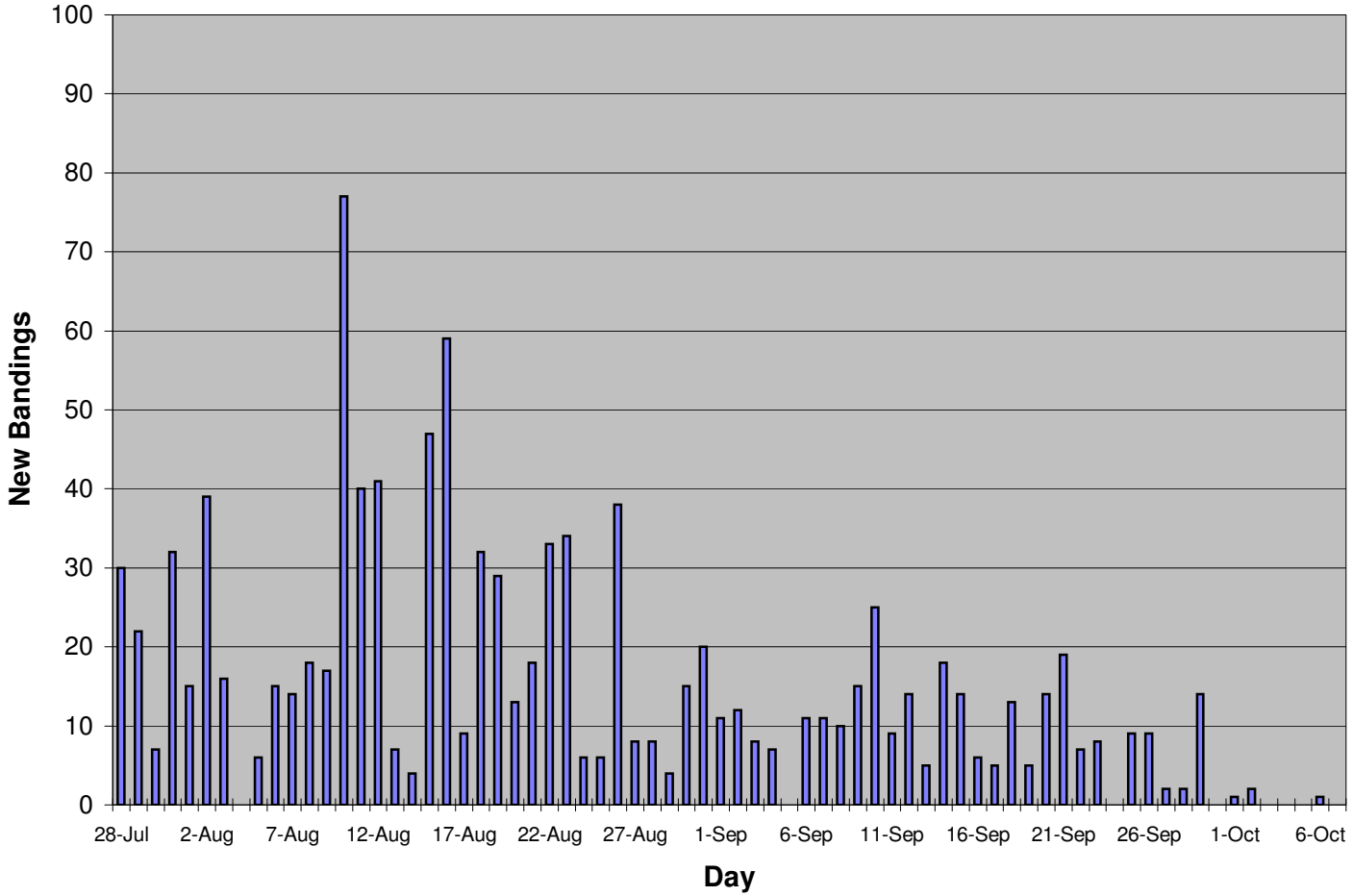


Figure 4. MAPS at Inglewood Bird Sanctuary

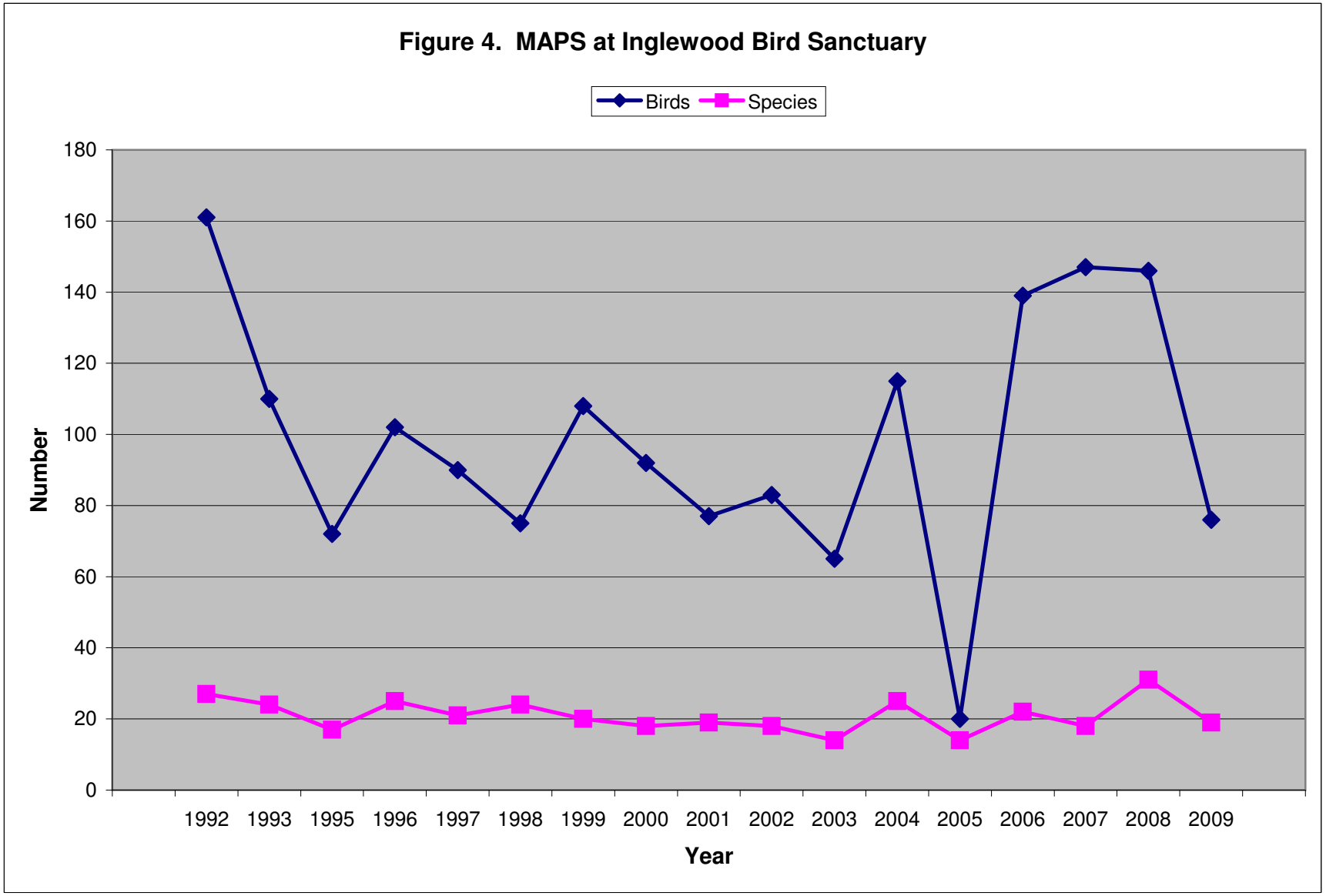
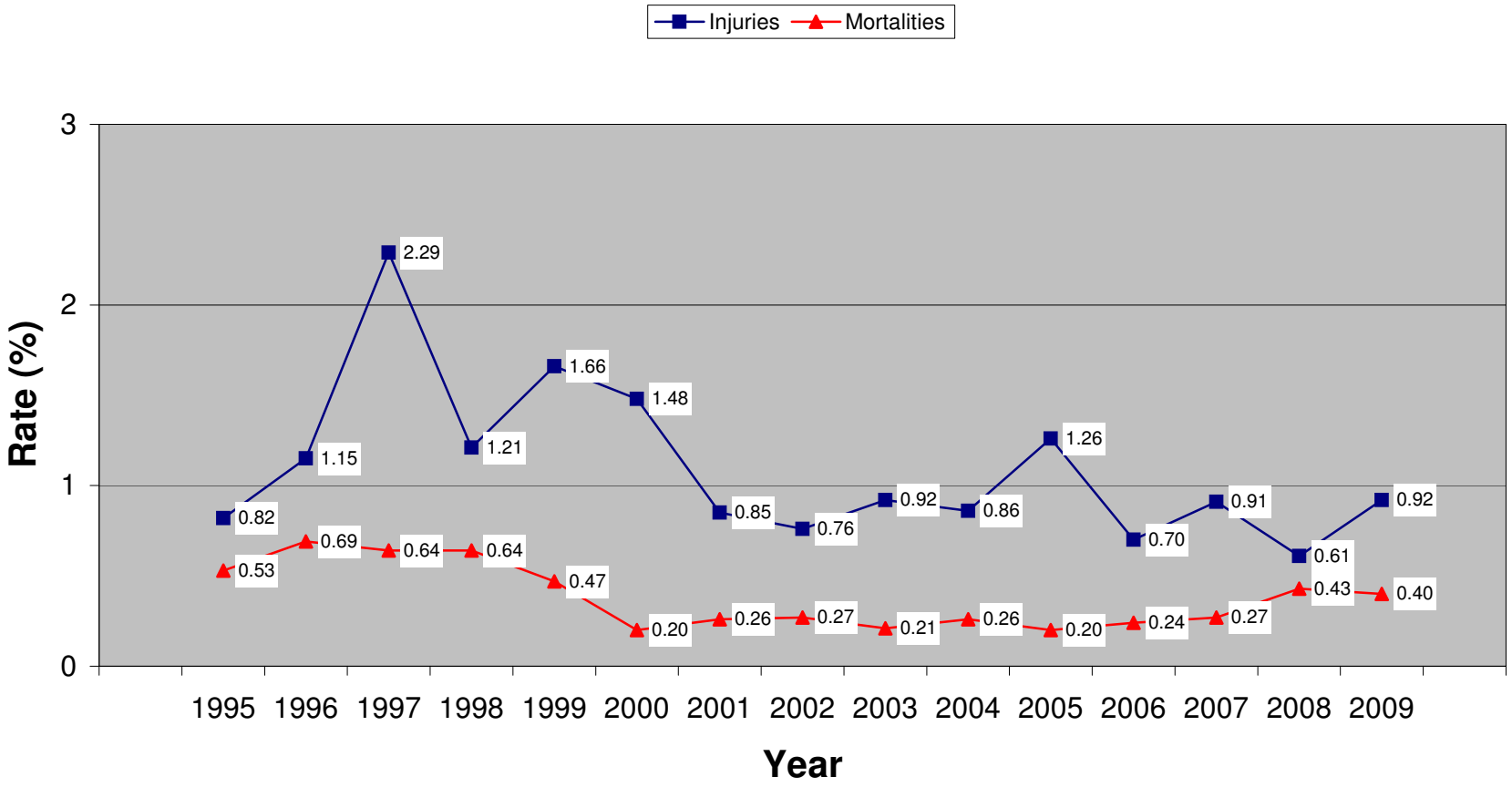


Figure 5. Casualty Rates for all CBBS Projects



TABLES

Table 1a. Coverage and Capture Rates During 2009 Spring MM at IBS

Date	Net-hours	Captures				Total	Captures/100 Net-hours
		New Bandings	Recaptures	Escapes/ unbanded	Mortalities		
01-May	72.0	5	1			6	8
02-May	72.0	2	1			3	4
03-May	72.8	1	3			4	5
04-May	39.0	4				4	10
05-May	72.7	6	1	2		9	12
06-May	72.5	3	1			4	6
07-May	31.7	4	2	1		7	22
08-May	72.6	13				13	18
09-May	72.0	22	7			29	40
10-May	73.2	15	9	1		25	34
11-May	72.2	14	4	1		19	26
12-May	74.3	24	5	1		30	40
13-May	cold and windy					0	
14-May	72.3	31	7	3		41	57
15-May	72.3	11	4			15	21
16-May	72.8	8	2	1		11	15
17-May	73.2	22	5			27	37
18-May	72.2	20	4			24	33
19-May	63.4	146	18	5		169	267
20-May	66.4	58	16	3	4	81	122
21-May	60.4	41	8	1		50	83
22-May	72.3	40	15	1		56	77
23-May	72.0	17	4			21	29
24-May	73.2	28	13	1		42	57
25-May	72.2	31	11			42	58
26-May	72.5	13	6	2		21	29
27-May	72.4	16	2	1		19	26
28-May	72.3	19	11			30	41
29-May	72.0	8	5	5		18	25
30-May	72.0	24	7			31	43
31-May	72.9	8	9			17	23
01-Jun	73.0	18	13	7		38	52
02-Jun	72.2	7	4			11	15
03-Jun	73.2	7	4	1		12	16
04-Jun	71.6	6	6			12	17
05-Jun	10.0	8		1		9	90
06-Jun	rain and snow					0	
Total	**2374**	**700**	**208**	**38**	**4**	**950**	40

< 72 net-hrs

Table 1b. Coverage and Capture Rates During 2009 Fall MM at IBS

Date	Net-hours	Captures				Total	Captures/100 Net-hours
		New Bandings	Recaptures	Escapes	Mortalities		
28-Jul	72.2	30	4		1	35	48
29-Jul	73.7	22	2			24	33
30-Jul	70.1	7	2			9	13
31-Jul	73.3	32	7			39	53
01-Aug	72.0	15	4	1		20	28
02-Aug	73.5	39	4			43	59
03-Aug	72.9	16	8			24	33
04-Aug	Rain					0	
05-Aug	53.3	6	2			8	15
06-Aug	57.6	15	4			19	33
07-Aug	73.2	14	9	4		27	37
08-Aug	73.6	18	7			25	34
09-Aug	73.7	17	6	1		24	33
10-Aug	69.4	77	12	4		93	134
11-Aug	73.9	40	7	4		51	69
12-Aug	72.3	41	21	7		69	95
13-Aug	69.0	7	16			23	33
14-Aug	72.0	4	3	2		9	13
15-Aug	72.7	47	8			55	76
16-Aug	74.4	59	12			71	95
17-Aug	71.9	9	7			16	22
18-Aug	72.3	32	5	2		39	54
19-Aug	72.0	29	10			39	54
20-Aug	72.0	13	7	1		21	29
21-Aug	71.2	18	6		1	25	35
22-Aug	73.5	33	15			48	65
23-Aug	73.2	34	11			45	61
24-Aug	72.1	6	5	2	1	14	19
25-Aug	71.7	6	7	1		14	20
26-Aug	60.9	38	12	1		51	84
27-Aug	73.0	8	8	1		17	23
28-Aug	72.2	8	6	1		15	21
29-Aug	73.3	4	4		1	9	12
30-Aug	74.3	15	10			25	34
31-Aug	76.2	20	4	1		25	33
01-Sep	67.8	11	9	1		21	31
02-Sep	60.0	12	5			17	28
03-Sep	71.4	8	4	2		14	20
04-Sep	71.6	7	3			10	14
05-Sep	72.0	0	0			0	0

Table 1b. Coverage and Capture Rates During 2009 Fall MM at IBS

Date	Net-hours	Captures				Total	Captures/100 Net-hours
		New Bandings	Recaptures	Escapes	Mortalities		
06-Sep	72.0	11	7	1		19	26
07-Sep	72.5	11	4			15	21
08-Sep	69.3	10	1	1		12	17
09-Sep	71.8	15	3	1		19	26
10-Sep	71.4	25	3			28	39
11-Sep	68.8	9	3			12	17
12-Sep	72.0	14	4	2		20	28
13-Sep	72.0	5	3			8	11
14-Sep	72.6	18	4			22	30
15-Sep	72.0	14	2			16	22
16-Sep	72.9	6	2			8	11
17-Sep	69.4	5				5	7
18-Sep	72.6	13	6	1		20	28
19-Sep	72.5	5	2			7	10
20-Sep	72.8	14	2			16	22
21-Sep	72.4	19	1			20	28
22-Sep	72.5	7	3	3		13	18
23-Sep	71.6	8	3	1		12	17
24-Sep	61.8		2	1		3	5
25-Sep	70.9	9	4	2		15	21
26-Sep	72.0	9				9	13
27-Sep	72.2	2	1			3	4
28-Sep	44.3	2	1			3	7
29-Sep	70.8	14	6	1		21	30
30-Sep	No BIC					0	
01-Oct	71.8	1	2			3	4
02-Oct	72.0	2	1			3	4
03-Oct	Weather					0	
04-Oct	Casino					0	
05-Oct	Casino					0	
06-Oct	63.9	1				1	2
07-Oct	Weather					0	
Total	**4656**	**1066**	**346**	**50**	**4**	**1466**	31

< 72 net-hrs

Table 2a. New Bandings at Inglewood Bird Sanctuary - Spring

Year	2002	2003	2004	2005	2006	2007	2008	2009	Total
Start	01-May	01-May	01-May	01-May	01-May	01-May	01-May	01-May	
Finish	07-Jun	07-Jun	07-Jun	07-Jun	07-Jun	05-Jun	06-Jun	05-Jun	
# Days	27	31	31	31	33	32	30	35	
Total	**597**	**230**	**440**	**370**	**311**	**528**	**589**	**700**	**3765**
Species	**46**	**36**	**41**	**41**	**41**	**44**	**46**	**45**	**57**
Net-hours	**1884**	**2138**	**2177**	**2248**	**2273**	**2113**	**1744**	**2374**	**16952**
Bandings/100 Net-hours	**31.7**	**10.8**	**20.2**	**16.5**	**13.7**	**25.0**	**33.8**	**29.5**	**22.2**
Sharp-shinned Hawk			1	1	1				3
Cooper's Hawk				1			1		2
American Kestrel	1								1
Killdeer						1			1
Solitary Sandpiper	1						1	4	6
Spotted Sandpiper	2		2		1			2	7
Belted Kingfisher	1			1	3	1	3		9
Red-naped Sapsucker				1					1
Downy Woodpecker	5	1	1	4	1	4	1	3	20
Hairy Woodpecker							1	1	2
Northern Flicker	1		1	1			2	2	7
Olive-sided Flycatcher			1						1
Western Wood-Pewee	5	1	5		4	4	1	13	33
Alder Flycatcher	6	4	6	5	1	8	5	11	46
Willow Flycatcher				1		1		1	3
Least Flycatcher	16	6	6	7	5	16	20	25	101
Eastern Phoebe	1								1
Eastern Kingbird		3	1	2	3	2			11
Blue-headed Vireo	2	1							3
Warbling Vireo	4	2			1	3	3	4	17
Red-eyed Vireo		1							1

Table 2a. New Bandings at Inglewood Bird Sanctuary - Spring

Year	2002	2003	2004	2005	2006	2007	2008	2009	Total
Black-billed Magpie			2	1		2	1		6
Tree Swallow	18	6	11	18	14	12	25	36	140
N Rough-winged Swallow	5		4	5	4	3	5	9	35
Bank Swallow		1	1	1			2		5
Barn Swallow	1								1
Black-capped Chickadee	3		2	2	1	2	2		12
Red-breasted Nuthatch	1		4	1		1		1	8
White-breasted Nuthatch	2				2	1			5
House Wren	13	15	8	13	10	18	28	18	123
Ruby-crowned Kinglet		2			3	1	3	1	10
Golden-crowned Kinglet					1				1
Gray-cheeked Thrush					1	2	1		4
Swainson's Thrush	54	38	5	25	46	44	44	54	310
Hermit Thrush	2	2	1	2		2		2	11
Veery		1					1		2
American Robin	28	35	32	4	37	38	26	40	240
Varied Thrush							1		1
Gray Catbird	13	13	11	1	15	9	19	13	94
Brown Thrasher					1			1	2
Cedar Waxwing	3		12	8	8	1	4	3	39
Orange-crowned Warbler	19	6	12	18	1	18	24	11	109
Yellow Warbler	33	2	13	2	21	23	10	23	127
Magnolia Warbler						1			1
Yellow-rumped Warbler	249	1	136	43	45	61	231	210	976
Blackpoll Warbler	3	2	1	1			4	7	18
Black-and-white Warbler								1	1
American Redstart	2	1			2	2	7	2	16
Ovenbird			1	1	1		1		4
Northern Waterthrush	8	3	7	2	3	4	1	5	33
MacGillivray's Warbler			1		1	1			3

Table 2a. New Bandings at Inglewood Bird Sanctuary - Spring

Year	2002	2003	2004	2005	2006	2007	2008	2009	Total
Common Yellowthroat	21	6	12	4	6	2	7	4	62
Wilson's Warbler	4	1	3		3	3	2	3	19
Western Tanager	1		6	1		4	3	1	16
Chipping Sparrow	3	6	1		6	108	14	30	168
Clay-colored Sparrow	15	9	1	1	6	63	16	45	156
Brewer's Sparrow								1	1
Savannah Sparrow	3		2	2	2		5	15	29
Fox Sparrow		1							1
Song Sparrow	3	1	8	7		2	1	3	25
Lincoln's Sparrow	19	31	37	42	16	20	32	62	259
White-throated Sparrow	5	2	7	7	2	2	13	7	45
White-crowned Sparrow	6	7	7	42	16	17	12	10	117
Dark-eyed Junco	1						1	2	4
Rose-breasted Grosbeak	1					1	1	1	4
Lazuli Bunting				1				1	2
Red-winged Blackbird	3	5	1	8	5	4	1	1	28
Common Grackle				1	2	3		1	7
Brown-headed Cowbird	5	3	7	8	4	8	2	4	41
Baltimore Oriole	4	7	6		6	3	1	6	33
American Goldfinch	1	4		2		2			9

*Note: Traill's Flycatcher includes both Willow and Alder

New species in 2009

Table 2b. New Bandings at Inglewood Bird Sanctuary - Fall

Year	1992	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Total
Start	03-Aug	18-Aug	01-Aug	31-Jul	31-Jul	25-Jul	26-Jul	01-Aug	25-Jul	27-Jul	28-Jul	28-Jul	29-Jul	28-Jul	28-Jul	28-Jul	28-Jul	all
Finish	22-Sep	09-Sep	30-Sep	12-Oct	15-Oct	02-Oct	08-Oct	30-Sep	06-Oct	06-Oct	06-Oct	06-Oct	06-Oct	04-Oct	07-Oct	07-Oct	07-Oct	years
# Days	26	20	54	70	65	61	68	55	73	68	69	71	62	62	66	67	66	1023
Total	841	466	1549	1121	1455	1898	1276	1262	1402	1466	1452	1872	1335	1625	1670	1679	1066	23435
Species	52	48	61	59	64	64	66	68	64	66	60	73	67	64	68	69	58	105
Net-hours	934	1078	3456	4547	4608	4371	4426	3842	5152	4838	4928	4944	4387	4509	4665	4789	4656	42182
Bandings/100 Net-hours	90.0	43.2	44.8	24.7	31.6	43.4	28.8	32.8	27.2	30.3	29.5	37.9	30.4	36.0	35.8	35.1	22.9	55.6
Wood Duck			1															1
Mallard							1											1
Green Heron												1						1
Sharp-shinned Hawk	2	2		1	5	4	3	1	1	3		1	2	3	1	3	6	38
Cooper's Hawk				1	1			1		1								4
Northern Goshawk				1														1
Broad-winged Hawk						1									1			2
Solitary Sandpiper	3	2	3	14	13	14	2	8	4	12	5	8	11	7	7	8	8	129
Spotted Sandpiper		1	2		3	3	2			5	1	4	4	3	6	1	7	42
Common Snipe								1		1								2
Mourning Dove												1						1
Belted Kingfisher	2	2	8	8	6	8	10	7	2	5	6	7	4	15	7	11	7	115
Yellow-bellied Sapsucker			1							1						1		3
Downy Woodpecker		1	2	3	5	7	3	9	9	13	12	16	9	7	13	18	11	138
Hairy Woodpecker								1		1		2		1		1		6
Northern Flicker	2	1	4	8	7	3	11	2		4	7	6	3	3	1	2	1	65
Olive-sided Flycatcher	3		3		5	2		2		2		2	3	1	3	1	1	28
Western Wood-Pewee	6	4	11	2	33	8	10	7	14	14	11	16	17	11	18	19	9	210
Yellow-bellied Flycatcher			1				1					2			2			6
Traill's Flycatcher*	24	16	29	25	50	36	24	40	46	45	32	197	173	71	99	26	15	948
Least Flycatcher	16	5	16	9	30	14	11	21	20	21	9	40	45	43	51	20	16	387
Hammond's Flycatcher																1		1
Dusky Flycatcher			2	1									2				1	6
Pacific-slope Flycatcher			1		1							1						3
Eastern Phoebe		1						1			1		1				1	5
Great Crested Flycatcher									1									1
Eastern Kingbird	1	2	7	18	17	19	2	7	17	7	15	17	11	17	15	7	4	183
Yellow-throated Vireo											1							1
Blue-headed Vireo	1		1	1	2			1		2		2		1	1	1		13
Warbling Vireo	8	15	13	18	27	18	8	7	12	9	17	12	1	17	25	24	10	241
Philadelphia Vireo	1							1	1		1	1			2		2	9
Red-eyed Vireo	3	1	2	4	3	12	2	4	2	2	4		3	4	5	2		53

Table 2b. New Bandings at Inglewood Bird Sanctuary - Fall

Year	1992	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Total
Blue Jay				1				1										2
Black-billed Magpie			2	1	8	2	2	1	3	1	3	3	3		2	3	3	37
Tree Swallow										1			7		5	7		20
N Rough-winged Swallow					2							1	2		2	3		10
Bank Swallow													1		1	1		3
Black-capped Chickadee	9	12	7	17	5	19	10	19	14	13	19	20	28	27	20	13	19	271
Red-breasted Nuthatch		3		2		4	2	20	7	1	2	4	2	3	3	15	1	69
White-breasted Nuthatch	1	1	6		4	4	4	5	5	5	7	5	2	2	5	6	5	67
Brown Creeper	1						1	1				1	1	6				11
House Wren	3	3	50	45	52	49	33	57	59	72	58	138	96	59	99	100	107	1080
Winter Wren								1				2		1				4
Golden-crowned Kinglet	2		2	1	1	1	2	1		2		1	2	5				20
Ruby-crowned Kinglet	3	1	10	18	20	14	5	11	15	14	24	18	11	29	20	13	3	229
Townsend's Solitaire				1					1		1			1				4
Veery	2					1						1						4
Gray-cheeked Thrush	1					1		1										3
Swainson's Thrush	34	13	17	52	10	28	19	13	30	13	19	31	27	17	34	29	15	401
Hermit Thrush	4		3	14	6	9	9	4	11	11	5	8	4	3	4	9	3	107
American Robin	5	11	114	81	81	31	60	32	105	37	89	28	43	29	46	56	57	905
Varied Thrush									1			5						6
Gray Catbird		1		5	7	6	5	4	14	8	19	14	14	13	12	14	15	151
Brown Thrasher					3						1		1					5
European Starling			2						4						1			7
Bohemian Waxwing							1											1
Cedar Waxwing	12	1	42	14	67	11	25	26	49	27	21	43	22	24	71	153	71	679
Tennessee Warbler	43	5	33	30	52	74	106	167	46	76	147	98	58	43	87	96	56	1217
Orange-crowned Warbler	24	36	177	116	86	207	91	84	58	71	115	45	45	154	163	123	32	1627
Nashville Warbler				1	2	1	1	2	1	1			1	3		1		14
Yellow Warbler	56	19	44	62	137	91	138	89	101	119	82	165	126	75	154	113	60	1631
Chestnut-sided Warbler	1						1				1	1			1		1	6
Magnolia Warbler	9	4	2	2	4	4	2	2	1	9	6	4	5	6	5	3		68
Cape May Warbler											2							2
Yellow-rumped Warbler	293	171	496	92	191	638	195	200	246	248	223	148	73	412	207	256	100	4189
Black-throated Green Warbler					1	1	1											3
Townsend's Warbler	1				1	2	3	1	2	2		1	2	2	1	1	1	20
Palm Warbler		3	7	4	3	8	7	1	6	4	1	2	1	4				51
Bay-breasted Warbler			1				1	1			1							4
Blackpoll Warbler	17	5	17	8	6	30	5	8	11	7	7	1	11	7	12	14	2	168
Black-and-white Warbler	4	1	1	2		3			2	3	3	1	2	1	2	3	2	30
American Redstart	19	4	3	6	4	20	5	3	16	27	18	19	7	16	14	7	8	196
Ovenbird	22	6	10	30	11	38	11	11	24	7	18	37	16	26	28	16	8	319

Table 2b. New Bandings at Inglewood Bird Sanctuary - Fall

Year	1992	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Total
Northern Waterthrush	22	8	23	56	46	26	41	34	44	33	29	78	67	43	53	39	50	692
Connecticut Warbler	2	2	4	4	1	3	3	3	4	1		6	1	5	4	2	1	46
Mourning Warbler	4	2	5	10	3	9	1	4	5	7	10	7	5	5	6	3	3	89
MacGillivray's Warbler	2		3	8	10	6	2	5	4	4	5	6	4	4	2	1	3	69
Common Yellowthroat		1	6	1	8	10	8	4	12	8	9	7	2	9	7	5	6	103
Wilson's Warbler	121	68	102	175	119	113	100	167	152	145	224	251	12	168	136	159	114	2326
Canada Warbler	1			2	1	3	1	1	1	2		8		1	4	2		27
Western Tanager	1	1	12	1	3	2	4	1	5	6	3	5	3		4	8	1	60
American Tree Sparrow			10	3	3	7	2	1	1	2	4	4	3	5	2	3	1	51
Chipping Sparrow	4	1	29	14	151	27	83	50	47	92	23	155	34	1	34	43	80	868
Clay-colored Sparrow		1	1	6	21	37	26	9	30	26	6	12	14	15	10	11	23	248
Brewer's Sparrow							1											1
Savannah Sparrow		1			2			1	1					1			3	9
Fox Sparrow	1	1	1			2	1		2	1	1	2			1	4		17
Song Sparrow		1	9	9	15	18	21	9	3	13	5	15	21	14	13	10	11	187
Lincoln's Sparrow	9	7	53	28	13	59	48	30	39	88	43	30	44	58	45	65	25	684
Swamp Sparrow				2		7	3		1	2	1	2		2	1	3		24
White-throated Sparrow	13	11	73	28	39	77	54	18	35	51	25	40	34	67	24	27	14	630
Harris' Sparrow			1						1			1	1					4
White-crowned Sparrow	5	4	20	24	22	21	22	23	27	30	18	31	36	17	11	14	20	345
Dark-eyed Junco	5	3	15	15	3	10	8	6	1	6	3	11	4	14		5	2	111
Rose-breasted Grosbeak	6				1	3	2	3	1	3	7	5	3	2	1	5		42
Red-winged Blackbird			4				2			3		1			1			11
Rusty Blackbird															1	1		2
Common Grackle			3								1		2	4		5	5	20
Brown-headed Cowbird			1	2	2	1		2	4	5	1	4	3			4	2	31
Baltimore Oriole	4		21	12	12	8	5	1	8	9	20	7	11	2	11	7	12	150
Purple Finch		1			2	1	1	2	6				2	1	1	2		19
House Finch													9	2	35	45	12	103
Pine Siskin					2							1			2	2	6	13
American Goldfinch	3			2	4	2	2	1	4	2		2	1	2	5		4	34
House Sparrow									3							4		7

*Note: Traill's Flycatcher includes both Willow and Alder

Table 3. Inglewood Bird Sanctuary MAPS New Bandings - 2009

	07-Jun	13-Jun	23-Jun	04-Jul	18-Jul	28-Jul	06-Aug	Total
Downy Woodpecker				2	2	1		**5**
Western Wood-Pewee							1	**1**
Traill's Flycatcher	1						1	**2**
Warbling Vireo	1	1					1	**3**
Black-capped Chickadee				1				**1**
White-Breasted Nuthatch					1			**1**
House Wren					2	6	1	**9**
Swainson's Thrush	1	1			1	1		**4**
American Robin				2	4	1		**7**
Gray Catbird	1	1	2			1		**5**
Cedar Waxwing			1	11	3	2	2	**19**
Tennessee Warbler					1		1	**2**
Yellow Warbler	1	2				2	3	**8**
American Redstart	1							**1**
Ovenbird					1			**1**
Clay-colored Sparrow					1			**1**
Lincoln's Sparrow					1		1	**2**
Baltimore Oriole							3	**3**
House Finch					1			**1**
Total birds	**6**	**5**	**3**	**16**	**18**	**14**	**14**	**76**
Total species	**6**	**4**	**2**	**4**	**11**	**7**	**9**	**19**

Table 4. Inglewood Bird Sanctuary MAPS Summary

Species	New Bandings																	Total
	1992	1993	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	
American Kestrel			1															1
Downy Woodpecker	1	3	1	5	4	1			1		1	3		5		6	5	36
Hairy Woodpecker	1	1	1			1												4
Northern Flicker	1	1	3	2			2							2	3	1		15
Western Wood-Pewee	6	1	1	1	1	2		1	3			3		2		1	1	23
Traill's Flycatcher				3	3		1	1	4	1	1	2	3	2		2	2	25
Least Flycatcher	14	8	3	2	3	4	2	1	2	1			1	5	9	3		58
Eastern Kingbird	2	1			3	1	3		2	1		3	1	1		1		19
Warbling Vireo	7	7	1	4	2		2	2	1	4	3		1	2	1	2	3	42
Red-eyed Vireo	1																	1
Black-billed Magpie				1	2							2						5
Tree Swallow	3						2					4		8		2		19
Northern Rough-winged Swallow																1		1
Bank Swallow	1																	1
Black-capped Chickadee	5	7	5	9	2	3	5	4	4	2	4	10	2	8	5	11	1	87
White-breasted Nuthatch	3	4		2						1		2		2	1		1	16
House Wren	5	11	9	9	13	8	9	18	11	2	11	9	1	15	30	26	9	196
Veery	2					1												3
Swainson's Thrush	10	8	6	4	3	1	4		3	1	1	4	1	4		7	4	61
Hermit Thrush								1										1
American Robin	21	6	26	25	23	10	8	14	20	19	19	21	1	45	18	21	7	304
Gray Catbird	3			1	1	4	8	1	6	16	9	12	1	4	8	6	5	85
European Starling			1															1
Cedar Waxwing	27	8		6	1	9	5	7	5	13	3	17	3	8	20	9	19	160
Tennessee Warbler	1	6		7	1	3	4	22	1	1	1	5		5	11	13	2	83
Orange-crowned Warbler						1						1						2
Yellow Warbler	20	14	7	2	6	9	24	13	4	7	9	4	2	10	26	6	8	171
Yellow-rumped Warbler	10					2		2	1		1	1			3	3		23

Table 4. Inglewood Bird Sanctuary MAPS Summary

Species	New Bandings																	Total
	1992	1993	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	
American Redstart		1									1			2		1	1	6
Ovenbird	3			1		1										1	1	7
Northern Waterthrush						1	1		1							1		4
Mourning Warbler	1																	1
Common Yellowthroat												1	1			1		3
Wilson's Warbler				2		1	1					1						5
Western Tanager		1	3	1	2		4					1						12
Chipping Sparrow		7			1							1		1	2			12
Clay-colored Sparrow		1				6	17	1	2						1	2	1	31
Song Sparrow		1		1		1	4				1		1		1	1		11
Lincoln's Sparrow		3	1	2	5	2		1				2				4	2	22
White-throated Sparrow				2						1		2				2		7
White-crowned Sparrow																1		1
Rose-breasted Grosbeak				1														1
Red-winged Blackbird															1			1
Common Grackle			1		2					1								4
Brown-headed Cowbird	6				3			1	1	2		2	1	2		3		21
Baltimore Oriole	3	7	2	8	9	1	2	1	5	9		2			3	1	3	56
Purple Finch		1						1										2
House Finch														5	4	6	1	16
American Goldfinch	2	2		1						1				1		1		8
House Sparrow	2					2												4
Total	**161**	**110**	**72**	**102**	**90**	**75**	**108**	**92**	**77**	**83**	**65**	**115**	**20**	**139**	**147**	**146**	**76**	**1678**
Species	**27**	**24**	**17**	**25**	**21**	**24**	**20**	**18**	**19**	**18**	**14**	**25**	**14**	**22**	**18**	**31**	**19**	**47**

Table 5. PopulationTrend Analysis of Species Monitored at Inglewood Bird Sanctuary 1995-2009

Species	Trend %/year	P
Fall		
Solitary Sandpiper	-3.2%	0.49
Western Wood-Pewee	-0.5%	.90
Traill's Flycatcher	6.6%	.32
Least Flycatcher	5.8%	.10
Warbling Vireo	1.9%	.54
Ruby-crowned Kinglet	1.7%	.56
Swainson's Thrush	-0.7%	.83
American Robin	-0.1%	.99
Tennessee Warbler	1.5%	0.63
Orange-crowned Warbler	-1.8%	.62
Yellow Warbler	0.6%	.79
Yellow-rumped Warbler	-3.7%	.38
Blackpoll Warbler	-4.6%	.31
American Redstart	-0.9%	.85
Ovenbird	0.6%	.86
Northern Waterthrush	2.7%	.20
Wilson's Warbler	2.0%	.28
Chipping Sparrow	-1.2%	.82
Clay-colored Sparrow	-0.2%	.94
Song Sparrow	0.5%	.89
Lincoln's Sparrow	2.9%	.32
White-throated Sparrow	-4.0%	.25
White-crowned Sparrow	0.3%	.86
Dark-eyed Junco	-5.4%	.251
Baltimore Oriole	-5.2%	.224
Spring		
House Wren	11.0%	0.06
Gray Catbird	5.8%	0.35
Swainson's Thrush	1.2%	0.77
American Robin	2.7%	0.56
Orange-crowned Warbler	-0.2%	0.99
Yellow Warbler	-6.2%	0.38
Yellow-rumped Warbler	-2.3%	0.87
Common Yellowthroat	-21.0%	0.05
Clay-colored Sparrow	24.3%	0.19
Lincoln's Sparrow	7.1%	0.53
White-crowned Sparrow	8.0%	0.11

<0.1
<0.05

Table 6. Bander-in-Charge and Volunteer Effort 2009

Member/Guest	Bander-in-Charge (days)			Volunteer (days)		
	Inglewood			Inglewood		
	Spring MM	MAPS	Fall MM	Spring MM	MAPS	Fall MM
Alderman, Lynda				1		7
Bennett, Christine				4		3
Brennan, Liz						4
Collister, Doug	3	1	13			
Cousins, David				1		3
Davis, Nancy				1		6
Foster, Dean				2		
Foster, Ken				6	2	9
Gahbauer, Marcel					1	
Ginn, Matt						14
Godwin-Sheppard, Christine				2	2	8
Gregg, Jim						11
Hachey, Carole				2		2
Herrero, Steve				1	1	2
Hornbeck, Garry						2
Lane, Stephen	10	4	24	2		
Lauff, Randy*						1
Macy, Chad				1		
McDonald, Christine				1		4
McFarlane, Kim				2		
McLeod, Shonna	7		2			
Meyer, Greg	11					1
Mulligan, Mike				5		2
Musto, David				2		
Patey-LeDrew, Susan						5
Peterson, El				9		1
Pinto, Maddy						3
Sipkens, Jen						13
Smiley, Gwen				2		
Stauffer, Dick						1
Stiles, Don				3		3
Taylor, Bill	5	2	27	3	1	1
Taylor, Colin						1
Trakalo, Barry				1		
Truch, Mike				2		
Visser, Gail				1		1
Watson, Catherine				2		2
Weerstra, Anne				3		4
Wiggins, Linda					1	2
Wilson, Bruce						12
Young, Colin						1
Total	**36**	**7**	**66**	**59**	**8**	**129**

* guest volunteer

Table 7. Injuries and Mortalities During 2009 CBBS Projects

Species	Captures	Injuries		Mortalities	
		Number	Type	Number	Cause
Tree Swallow	69	1	leg abrasion		
Least Flycatcher	45	1	wing strain (to rehab)		
Spotted Sandpiper	9	1	wing abrasion		
Solitary Sandpiper	15	2	wing abrasions		
		1	foot abrasion		
House Wren	273	4	wing abrasion	1	deer predation
Swainson's Thrush	89	1	wing abrasion	1	coyote predation
American Robin	129	1	cut leg	1	unknown predation
		1	cut tongue		
		1	wing abrasion		
Gray Catbird	54	1	leg abrasion		
		1	wing strain		
Cedar Waxwing	100	1	leg abrasion		
European Starling	16	1	wing abrasion		
Yellow-rumped Warbler	359	1	broken leg	1	dead in bag
		1	wing strain		
Northern Waterthrush	97			1	net shock
Rose-breasted Grosbeak	1	1	wing strain, bill abrasion		
Chipping Sparrow	118	1	wing strain		
Lincoln's Sparrow	152	1	broken leg	2	coyote predation
				1	deer predation
				1	dead in net
White-throated Sparrow	36			1	coyote predation
Total	**2507**	**23**	**0.92%**	**10**	**0.40%**

TABLE 8. CALGARY BIRD BANDING SOCIETY
2009 MEMBERSHIP LIST

Achuff, Peter
Alderman, Lynda
Bennett, Christine
Booth, Grahame
Brennan, Liz
Cole, Amanda
Collister, Doug
Cousins, David
Dann, Erin
Davis, Nancy
Day, Kelly
Dubrovna, Alexandra
Ebel, Rainer
Flynn, Lenora
Flynn, Richard
Foster, Dean
Foster, Ken
Gahbauer, Marcel
Ginn, Matt
Godwin-Sheppard, Christine
Gregg, Jim
Hachey, Carole
Herrero, Steve
Holmes, Greg
Hornbeck, Garry
Kissinger, Bev
Kissinger, Maryanne
Knox, Carol
Lamb, Tamara
Lane, Stephen
Macy, Chad
McDonald, Christine
McFarlane, Kim
McLeod, Shonna
Meyer, Greg
Mitchell, Pat
Mulligan, Mike
Musto, David
Patey Ledrew, Susan
Peckford, Mike
Peterson, El
Peterson, Kevin
Pinto, Madalena
Smiley, Gwen
Sipkens, Jennifer
Smith, Cyndi
Stauffer, Dick
Stiles, Don
Taylor, Bill
Taylor, Colin
Tietz, Gwen
Trakalo, Barry
Truch, Mike Turnbull, Amy
Visser, Gail
Watson, Catherine
Weerstra, Anne
Wiggins, Linda
Wilson, Amy
Wilson, Bruce
Wilson, Scott
Young, Colin

Executive

President – Doug Collister
Vice President – Amanda Cole
Treasurer – El Peterson
Secretary – Bill Taylor
Annual Report – Doug Collister
Director-at-Large – Christine Godwin-Sheppard
Director-at-Large – Marcel Gahbauer
Director-at-Large – Pat Mitchell

Appendix 1

Appendix 1a. New Bandings at Inglewood Bird Sanctuary - Spring 2009

Species	May													May												May					June						Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	
Solitary Sandpiper												1			1					1	1																	**4**
Spotted Sandpiper																													2									**2**
Downy Woodpecker									2	1																												**3**
Hairy Woodpecker																												1										**1**
Northern Flicker								1																	1														**2**
Western Wood-Pewee																			6	1	4	1	1															**13**
Alder Flycatcher																									1						1	8		1				**11**
Willow Flycatcher																												1										**1**
Least Flycatcher																			7	4		2	1	3	2	1	1	1			1	2						**25**
Warbling Vireo																		1	3																			**4**
Tree Swallow				2	3		1	2	4	4	1	5		3		1			5			1	1	2	1													**36**
N Rough-winged Swallow														5												1		1		2								**9**
Red-breasted Nuthatch																			1																			**1**
House Wren																						3	2	2	3	2	1			1	2	2						**18**
Ruby-crowned Kinglet																			1																			**1**
Swainson's Thrush														1				2	4	3	4	5	3	1	10	1	3	4		4	1	1	1	1	2	3		**54**
Hermit Thrush				1														1																			**2**
American Robin	2	2	1		2				2		1			2	2	1						1	1	1	3	2	2	2		6	2		2	3				**40**
Gray Catbird																										1		1		2		2	1		2	4		**13**
Brown Thrasher																									1													**1**
Cedar Waxwing																														2	1							**3**
Orange-crowned Warbler								1			2							1	4	1		2																	**11**
Yellow Warbler																			6	4		1	1	2	2	2						2	1		2			**23**
Yellow-rumped Warbler	2					2	3	4	12	6	4	11		12	4	1	16	4	74	31	10	14																	**210**
Blackpoll Warbler																			5						2													**7**
Black-and-white Warbler																													1									**1**
American Redstart																													1				1					**2**
Northern Waterthrush															1		1			1				1					1									**5**
Common Yellowthroat																	1			1	1	1																**4**
Wilson's Warbler																	1										1		1									**3**
Western Tanager																			1																			**1**
Chipping Sparrow																		1	14	2	8			3	1				1									**30**
Clay-colored Sparrow								2								1		1	3		8	3	7	9	2	3	3	2		1								**45**
Brewer's Sparrow																								1														**1**
Savannah Sparrow	1							1		1	2			1		1	1		3	4																		**15**
Song Sparrow												1																						2					**3**
Lincoln's Sparrow				1	1	1			1	2	4	5		5	2	1	2	6	7	3	4	5		3			2	3	1	3								**62**
White-throated Sparrow																		3									1	1		1		1						**7**
White-crowned Sparrow								1	1	1		1			1	1			2	1		1																**10**
Dark-eyed Junco								1						1																								**2**
Rose-breasted Grosbeak																					1																	**1**
Lazuli Bunting																																			1			**1**
Red-winged Blackbird														1																								**1**
Common Grackle																																	1					**1**
Brown-headed Cowbird																1				1					2													**4**
Baltimore Oriole																											2	2		2								**6**

Appendix 1b. New Bandings at Inglewood Bird Sanctuary - Fall 2009

Species	July				August																				
	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Sharp-shinned Hawk																									
Solitary Sandpiper				2																		1			1
Spotted Sandpiper																3	1			1			1		
Belted Kingfisher												2		1					1						
Downy Woodpecker		2		1	1		1					1			1	1			1			1			1
Northern Flicker																									
Olive-sided Flycatcher																				1					
Western Wood-Pewee										1						1			2	4					
Alder Flycatcher					1					1									5			1	2		
Least Flycatcher			1			2			1										1	3		3	1	1	
Dusky Flycatcher																									
Eastern Phoebe																									
Eastern Kingbird							1					1											2		
Warbling Vireo						2				1				1		2			2						
Philadelphia Vireo																								1	
Black-billed Magpie																									
Black-capped Chickadee		2		2	1	4							2		1					2	1				
Red-breasted Nuthatch																							1		
White-breasted Nuthatch						1													1						
House Wren	7	12	4	12	4	7	4			1	3	10	3	2		1	2			2		2	1		3
Ruby-crowned Kinglet																									
Swainson's Thrush	1	1																			1				
Hermit Thrush																									
American Robin	5	2		4		2					1	1	1	5	6	1			1	1					
Gray Catbird	1			1	2						1		1										1	2	
Cedar Waxwing	9	1	1	4		6	1			3		2		6	3	8	1		10	14					
Tennessee Warbler			1	1	1	2				1	2		2	9	4	8			2	3	1	2	3		2
Orange-crowned Warbler																									
Yellow Warbler	5				2	3	1		1	3	2		1	5	7	8		2	1	3	1	4			
Chestnut-sided Warbler																									
Yellow-rumped Warbler						3	1				1		1	1		1				4		3	3	1	1
Townsend's Warbler																			1						
Blackpoll Warbler																									
Black-and-white Warbler																				1					
American Redstart																				1		1	1	2	2
Ovenbird																						1	1		
Northern Waterthrush							1				2	1	4	1	3			1		2	2	1	8	5	2
Connecticut Warbler																									
Mourning Warbler																				1					
MacGillivray's Warbler																						1			1
Common Yellowthroat																									
Wilson's Warbler														1			2		2	3	2	9	4	1	3
Western Tanager																									
American Tree Sparrow																									
Chipping Sparrow														39	12	2		1	15	8		1			
Clay-colored Sparrow				1	3	3	3							4	1										2
Savannah Sparrow																									
Song Sparrow		2							1							1	1								
Lincoln's Sparrow									1																
White-throated Sparrow														1		1					1	1			
White-crowned Sparrow																									
Dark-eyed Junco																									
Common Grackle																									
Brown-headed Cowbird										1									1						
Baltimore Oriole										3				1	2	1				5					
House Finch	1					2	3		1		2		1			2									
Pine Siskin	1					2			1				1						1						
American Goldfinch				4																					

Species	August										September													
	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Sharp-shinned Hawk																		1						
Solitary Sandpiper					1				1		1						1							
Spotted Sandpiper					1																			
Belted Kingfisher							1		1															
Downy Woodpecker																								
Northern Flicker									1															
Olive-sided Flycatcher																								
Western Wood-Pewee					1																			
Alder Flycatcher	1				1	1			1		1													
Least Flycatcher			2							1														
Dusky Flycatcher		1																						
Eastern Phoebe											1													
Eastern Kingbird																								
Warbling Vireo			`		2																			
Philadelphia Vireo			1																					
Black-billed Magpie																			1	1				
Black-capped Chickadee		2							1									1						
Red-breasted Nuthatch																								
White-breasted Nuthatch										1														
House Wren	4	3			2	1	1	2	3		1		1			1					1	2		
Ruby-crowned Kinglet																								
Swainson's Thrush					1		1			1		1		1			1					1		1
Hermit Thrush																								
American Robin										3			1					1				4	2	12
Gray Catbird	2									1		1												
Cedar Waxwing	1				1																			
Tennessee Warbler	2	2		3		2				1														
Orange-crowned Warbler			1																3					
Yellow Warbler	1	1			1	1				2	2	1		2										
Chestnut-sided Warbler																					1			
Yellow-rumped Warbler	6	12	1	2	21	1		1	2		1			1		3			1	1				
Townsend's Warbler																								
Blackpoll Warbler					1																1			
Black-and-white Warbler										1														
American Redstart									1															
Ovenbird	1						1				1		1			1								
Northern Waterthrush	1	7			1		1			1	1	4												
Connecticut Warbler							1																	
Mourning Warbler									1			1												
MacGillivray's Warbler	1																							
Common Yellowthroat									1												2		1	
Wilson's Warbler	11	3			1	1				6	1	1	3	3		3	8	4	8	19	1	1	1	1
Western Tanager		1																						
American Tree Sparrow																								
Chipping Sparrow		1					1																	
Clay-colored Sparrow	1				2								1				1							
Savannah Sparrow																				1		1		
Song Sparrow	1							1	1													1	1	
Lincoln's Sparrow		1	1	1	1	1	1		1	1	1	3	1			2		1		1	1			
White-throated Sparrow																					2	1		
White-crowned Sparrow										1						1		2	2	2		2		1
Dark-eyed Junco																								
Common Grackle																						1		3
Brown-headed Cowbird																								
Baltimore Oriole																								
House Finch																								
Pine Siskin																								
American Goldfinch																								

Species	September																October							Total
	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7	
Sharp-shinned Hawk						2		1			2													6
Solitary Sandpiper																								8
Spotted Sandpiper																								7
Belted Kingfisher					1																			7
Downy Woodpecker																								11
Northern Flicker																								1
Olive-sided Flycatcher																								1
Western Wood-Pewee																								9
Alder Flycatcher																								15
Least Flycatcher																								16
Dusky Flycatcher																								1
Eastern Phoebe																								1
Eastern Kingbird																								4
Warbling Vireo																								10
Philadelphia Vireo																								2
Black-billed Magpie												1												3
Black-capped Chickadee																								19
Red-breasted Nuthatch																								1
White-breasted Nuthatch				1																		1		5
House Wren	2				1			1			1													107
Ruby-crowned Kinglet							2											1						3
Swainson's Thrush		1	2				1																	15
Hermit Thrush												1			2									3
American Robin	2								2															57
Gray Catbird		2																						15
Cedar Waxwing																								71
Tennessee Warbler				2																				56
Orange-crowned Warbler	3	1		3	2	2	8	3	2		2	1			1									32
Yellow Warbler																								60
Chestnut-sided Warbler																								1
Yellow-rumped Warbler	5	1		2		4	4	1							10									100
Townsend's Warbler																								1
Blackpoll Warbler																								2
Black-and-white Warbler																								2
American Redstart																								8
Ovenbird			1																					8
Northern Waterthrush			1																					50
Connecticut Warbler																								1
Mourning Warbler																								3
MacGillivray's Warbler																								3
Common Yellowthroat				1									1											6
Wilson's Warbler	1	1		4	1		2				1	1												114
Western Tanager																								1
American Tree Sparrow														1										1
Chipping Sparrow																								80
Clay-colored Sparrow						1																		23
Savannah Sparrow														1										3
Song Sparrow											1													11
Lincoln's Sparrow			1			1					1	3												25
White-throated Sparrow						2	1	1				1			1			1						14
White-crowned Sparrow						2	1		3		1		1				1							20
Dark-eyed Junco									1			1												2
Common Grackle	1																							5
Brown-headed Cowbird																								2
Baltimore Oriole																								12
House Finch																								12
Pine Siskin																								6
American Goldfinch																								4

Appendix 2

Appendix 2. Top 20 New Bandings at Inglewood Bird Sanctuary

Spring				
Species	Total 2002-2009		2009	
	Rank	Number	Rank	Number
Yellow-rumped Warbler	1	976	1	210
Swainson's Thrush	2	310	3	54
Lincoln's Sparrow	3	259	2	62
American Robin	4	240	5	40
Chipping Sparrow	5	168	7	30
Clay-colored Sparrow	6	156	4	45
Tree Swallow	7	140	6	36
Yellow Warbler	8	127	9	23
House Wren	9	123	10	18
White-crowned Sparrow	10	117	16	10
Orange-crowned Warbler	11	109	15	11
Least Flycatcher	12	101	8	25
Gray Catbird	13	94	12/13	13
Common Yellowthroat	14	62		
Traill's Flycatcher*	15	46	14	12
White-throated Sparrow	16	45	18/19	7
Brown-headed Cowbird	17	41		
Cedar Waxwing	18	39		
N Rough-winged Swallow	19	35	17	9
Western Wood-Pewee	20	33	12/13	13
Baltimore Oriole	20	33	20	6
Northern Waterthrush	20	33		
Savannah Sparrow			11	15
Blackpoll Warbler			18/19	7

Fall				
Species	Total 1995-2009		2009	
	Rank	Number	Rank	Number
Yellow-rumped Warbler	1	4189	3	100
Wilson's Warbler	2	2326	1	114
Yellow Warbler	3	1631	6	60
Orange-crowned Warbler	4	1627	10	32
Tennessee Warbler	5	1217	8	56
House Wren	7	1080	2	107
Traill's Flycatcher	6	948	16-18	15
American Robin	8	905	7	57
Chipping Sparrow	9	868	4	80
Northern Waterthrush	10	692	9	50
Lincoln's Sparrow	11	684	11	25
Cedar Waxwing	12	679	5	71
White-throated Sparrow	13	630	19	14
Swainson's Thrush	14	401	16-18	15
Least Flycatcher	15	387	15	16
White-crowned Sparrow	16	345	13	20
Ovenbird	17	319		
Black-capped Chickadee	18	271	14	19
Clay-colored Sparrow	19	248	12	23
Warbling Vireo	20	241		
Gray Catbird			16-18	15
Baltimore Oriole			20	12
House Finch			20	12

* includes Alder and Willow Flycatcher

Appendix 3

Appendix 3. Year-to-Year Recaptures at Inglewood Bird Sanctuary, Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park and De Wit Ranch

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Northern Saw-whet Owl	1204-23480	De Wit ranch													B	d		FD in next L-L N		
Northern Saw-whet Owl	1204-25371	De Wit ranch													B	x	r			
Northern Saw-whet Owl	0924-21506	De Wit ranch														B	r			
Northern Saw-whet Owl	0924-21813	De Wit ranch														B	x	x	r	
Northern Saw-whet Owl	1204-25383	De Wit ranch													B	x	x	r		
Belted Kingfisher	1283-88929	IBS															B	r		
Belted Kingfisher	1363-70918	IBS			B	r														
Belted Kingfisher	1363-70961	IBS												B	r					
Belted Kingfisher	1363-71000	IBS															B	r		
Yellow-bellied Sapsucker	8051-65119	Dunbow						B	r											
Yellow-bellied Sapsucker	8001-77959	DPP															B	r		
Yellow-bellied Sapsucker	8001-77960	DPP															B	r		
Red-naped Sapsucker	8041-54901	Dunbow							B	r										
Downy Woodpecker	1451-67033	IBS				B	r	r	x	x	x	r								
Downy Woodpecker	1461-02314	IBS					B	r	r	r										
Downy Woodpecker	1461-05307	Dunbow						B	x	r										
Downy Woodpecker	1461-50837	Cominco									B	r								
Downy Woodpecker	1461-63690	IBS			B	r														
Downy Woodpecker	1461-84563	Cominco									B	r								
Downy Woodpecker	1761-28014	Cominco									B	r								
Downy Woodpecker	1791-28009	IBS											B	r	r					
Downy Woodpecker	1791-28131	IBS										B	r	r	r					
Downy Woodpecker	1811-73700	IBS													B	x	r			
Downy Woodpecker	1871-73165	IBS														B	r			
Downy Woodpecker	1871-73196	IBS														B	r			
Downy Woodpecker	1871-73382	IBS														B	r			
Downy Woodpecker	1871-73457	IBS													B	r	r	r		
Downy Woodpecker	1901-94964	IBS																B	x	r
Downy Woodpecker	1901-94973	IBS																B	r	r

B year banded
r recaptured
d bird dead or remains found
x not detected but survival deduced from re-encounter in subsequent year

first record for each species
banding location different than recapture location

Appendix 3. Year-to-Year Recaptures at Inglewood Bird Sanctuary, Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park and De Wit Ranch

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Downy Woodpecker	2201-45482	IBS																	B	r
Downy Woodpecker	2291-32298	IBS																	B	r
Hairy Woodpecker	0962-90911	IBS				B	x	x	x	x	r	x	r							
Hairy Woodpecker	1152-38713	IBS							B	x	r	x	r							
Hairy Woodpecker	8041-83240	IBS													B	x	r			
Northern Flicker	1383-76804	IBS							B	x	x	r								
Northern Flicker	1383-76830	IBS											B	r	r	x	x	x	x	r
Northern Flicker	1453-31301	IBS				B	r													
Western Wood-Pewee	2160-19068	IBS							B	x	x	r								
Western Wood-Pewee	2160-19487	IBS								B	x	r								
Western Wood-Pewee	2190-10406	IBS										B	r							
Western Wood-Pewee	2200-47351	IBS										B	r	r	r	r				
Western Wood-Pewee	2290-37207	IBS															B	r		
Western Wood-Pewee	2290-88513	IBS													B	r				
Western Wood-Pewee	2500-72334	IBS																	B	r
Least Flycatcher	2050-70767	Dunbow						B	x	r										
Least Flycatcher	2290-37714	DPP															B	r		
Least Flycatcher	2290-37255	IBS															B	r		
Least Flycatcher	2430-31064	IBS															B	r		
Least Flycatcher	2490-22361	IBS																B	r	
Eastern Kingbird	1451-38640	IBS	B	x	x	r														
Eastern Kingbird	1461-31482	IBS							B	x	x	x	r							
Eastern Kingbird	1461-50853	Cominco									B	r			recaptured at IBS					
Eastern Kingbird	1461-50898	Cominco									B	r			recaptured at IBS					
Eastern Kingbird	1461-50899	Cominco									B	r								
Eastern Kingbird	1461-63719	IBS					B	r	x	r	x	x	r							
Eastern Kingbird	1461-63727	IBS					B	x	x	x	r									
Eastern Kingbird	1461-63750	IBS						B	r	r	x	x	r							
Eastern Kingbird	1761-28292	IBS										B	r							
Eastern Kingbird	1811-73189	IBS												B	x	x	r			
Eastern Kingbird	1871-73452	IBS													B	r				
Eastern Kingbird	1901-94517	IBS															B	r		
Warbling Vireo	1950-45045	IBS			B	r														

Appendix 3. Year-to-Year Recaptures at Inglewood Bird Sanctuary, Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park and De Wit Ranch

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Warbling Vireo	1950-45076	IBS			B	x	r	r	r											
Warbling Vireo	1950-48110	IBS		B	x	r														
Warbling Vireo	1990-57936	IBS									B	x	r	r						
Warbling Vireo	2050-70837	IBS						B	r											
Warbling Vireo	2050-70961	IBS					B	x	r											
Warbling Vireo	2091-55780	IBS														B	r	r		
Warbling Vireo	2161-14605	IBS				B	x	x	r											
Warbling Vireo	2171-56330	Cominco									B	r								
Warbling Vireo	2190-10445	IBS										B	r							
Warbling Vireo	2220-34455	Cominco									B	r								
Warbling Vireo	2270-23115	IBS											B	x	r	r				
Warbling Vireo	2270-80426	IBS												B	r					
Warbling Vireo	2290-22442	IBS																B	x	r
Warbling Vireo	2490-22596	IBS																B	r	
Warbling Vireo	2500-72037	IBS																	B	r
Warbling Vireo	2500-72125	IBS																	B	r
Warbling Vireo	3101-45254	IBS								B	r									
Warbling Vireo	3101-89999	IBS								B	x	x	r							
Warbling Vireo	3121-21265	Cominco									B	r								
Black-billed Magpie	0624-79522	IBS												B	x	x	x	r		
Black-billed Magpie	1363-70976	IBS													B	x	x	r		
Tree Swallow	1671-56106	IBS												B	r					
Tree Swallow	1671-56108	IBS												B	x	x	r			
Tree Swallow	1671-56126	IBS												B	r	r	x	x	r	
Tree Swallow	2161-08849	IBS													B	x	x	r		
Tree Swallow	2161-08859	IBS													B	r	r			
Tree Swallow	2161-08860	IBS													B	r				
Tree Swallow	2161-08869	IBS													B	r				
Tree Swallow	2161-08872	IBS													B	r				
Tree Swallow	2171-56486	IBS											B	x	r					
Tree Swallow	2171-56493	IBS											B	x	r					
Tree Swallow	2181-72921	IBS															B	r		
Tree Swallow	2181-72922	IBS															B	r		

Appendix 3. Year-to-Year Recaptures at Inglewood Bird Sanctuary, Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park and De Wit Ranch

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Tree Swallow	2181-72930	IBS															B	r		
Tree Swallow	2181-72931	IBS															B	x	x	r
Tree Swallow	2181-72952	IBS															B	r		
Tree Swallow	2181-72955	IBS															B	r		
Tree Swallow	2221-30533	IBS																B	r	r
Tree Swallow	2221-82420	IBS																	B	r
Tree Swallow	2221-82460	IBS																	B	r
Tree Swallow	2221-82471	IBS																	B	r
Northern Rough-winged Swallow	2290-88401	IBS													B	r				
Northern Rough-winged Swallow	2290-37070	IBS														B	x	r		
Northern Rough-winged Swallow	2290-37386	IBS														B	r			
Black-capped Chickadee	1950-45065	IBS			B	r														
Black-capped Chickadee	1950-45186	IBS			B	r	r	r												
Black-capped Chickadee	1950-45254	IBS			B	r	r	x	x	r	r	r								
Black-capped Chickadee	1950-45255	IBS			B	x	x	x	x	x	r	r								
Black-capped Chickadee	1950-45256	IBS			B	r	r													
Black-capped Chickadee	1950-45258	IBS			B	r	r	r	r											
Black-capped Chickadee	1950-45786	IBS					B	r												
Black-capped Chickadee	1980-79991	IBS				B	r	r	r	r	r	r								
Black-capped Chickadee	1990-57154	IBS						B	r											
Black-capped Chickadee	2050-70142	IBS				B	x	r												
Black-capped Chickadee	2050-70427	IBS					B	r												
Black-capped Chickadee	2050-70848	IBS						B	x	x	x	x	x	x	x	x	x	r		
Black-capped Chickadee	2050-70849	IBS						B	r											
Black-capped Chickadee	2120-00102	Dunbow						B	r	r										
Black-capped Chickadee	2120-00103	Dunbow						B	r											
Black-capped Chickadee	2120-00105	Dunbow						B	r	r										
Black-capped Chickadee	2120-00107	Dunbow						B	r	r										
Black-capped Chickadee	2120-00109	Dunbow						B	r	r										
Black-capped Chickadee	2120-00110	Dunbow						B	r											
Black-capped Chickadee	2120-00113	Dunbow						B	r											
Black-capped Chickadee	2120-00114	Dunbow						B	r											
Black-capped Chickadee	2120-00117	Dunbow						B	r	r										

Appendix 3. Year-to-Year Recaptures at Inglewood Bird Sanctuary, Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park and De Wit Ranch

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Black-capped Chickadee	2120-00124	Dunbow						B	x	r										
Black-capped Chickadee	2120-00125	Dunbow						B	r											
Black-capped Chickadee	2120-00128	Dunbow						B	r											
Black-capped Chickadee	2120-00197	Dunbow						B	r											
Black-capped Chickadee	2160-18085	Dunbow							B	r										
Black-capped Chickadee	2160-18119	IBS							B	x	x	x	x	x	x	x	x	r		
Black-capped Chickadee	2160-18180	IBS						B	r											
Black-capped Chickadee	2160-18704	IBS							B	r										
Black-capped Chickadee	2160-19059	IBS							B	r										
Black-capped Chickadee	2160-19120	IBS							B	r	r	r	r	r						
Black-capped Chickadee	2160-19174	IBS							B	r										
Black-capped Chickadee	2160-19522	IBS								B	r	r	r	r	r					
Black-capped Chickadee	2190-10126	IBS									B	r	r							
Black-capped Chickadee	2190-10128	IBS									B	x	r							
Black-capped Chickadee	2200-47365	IBS										B	r							
Black-capped Chickadee	2220-13397	IBS											B	x	x	x	x	x	r	
Black-capped Chickadee	2220-34017	Cominco									B	r								
Black-capped Chickadee	2220-34132	Cominco									B	r								
Black-capped Chickadee	2220-34593	Cominco									B	r								
Black-capped Chickadee	2270-23454	IBS											B	r	r	r	r			
Black-capped Chickadee	2270-80108	IBS											B	r	r	r				
Black-capped Chickadee	2270-80454	IBS												B	r	r	r	r		
Black-capped Chickadee	2270-80480	IBS												B	r					
Black-capped Chickadee	2270-80687	IBS												B	r					
Black-capped Chickadee	2270-80989	IBS													B	r				
Black-capped Chickadee	2270-81230	IBS														B	r			
Black-capped Chickadee	2270-81297	IBS														B	x	r		
Black-capped Chickadee	2270-81338	IBS															B	r		
Black-capped Chickadee	2290-37241	IBS															B	r		
Black-capped Chickadee	2290-37640	IBS															B	r		
Black-capped Chickadee	2290-37793	DPP															B	r		
Black-capped Chickadee	2290-88414	IBS													B	x	x	r		
Black-capped Chickadee	2290-92058	IBS												B	r					

Appendix 3. Year-to-Year Recaptures at Inglewood Bird Sanctuary, Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park and De Wit Ranch

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Black-capped Chickadee	2290-92141	IBS												B	r	r	r	x	r	
Black-capped Chickadee	2290-92174	IBS												B	r					
Black-capped Chickadee	2290-37242	IBS															B	r		
Black-capped Chickadee	2290-37348	IBS														B	r			
Black-capped Chickadee	2390-30780	IBS										B	r							
Black-capped Chickadee	2390-30780	IBS										B	x	r						
Black-capped Chickadee	2390-30962	IBS											B	r						
Black-capped Chickadee	2430-31003	IBS															B	r		
Black-capped Chickadee	2430-31738	IBS																B	x	r
Black-capped Chickadee	2490-22455	IBS																B	r	r
Black-capped Chickadee	2490-22713	IBS																B	r	
Black-capped Chickadee	2500-72065	IBS																	B	r
Black-capped Chickadee	2500-72501	IBS																B	r	r
Black-capped Chickadee	2500-72065	IBS																	B	r
Black-capped Chickadee	2500-72088	IBS																	B	r
Black-capped Chickadee	3500-89670	Dunbow						B	r	r										
White-breasted Nuthatch	1461-31479	IBS							B	r	r									
White-breasted Nuthatch	1461-84757	IBS				B	r	x	r											
White-breasted Nuthatch	1761-15767	IBS											B	r						
White-breasted Nuthatch	1761-28100	IBS																		
White-breasted Nuthatch	1791-28150	IBS										B	r							
White-breasted Nuthatch	1811-73193	IBS												B	x	r				
White-breasted Nuthatch	1901-94527	IBS															B	r	r	
White-breasted Nuthatch	2221-45958	IBS																B	r	
White-breasted Nuthatch	2291-32012	IBS																	B	r
House Wren	1910-52261	IBS	B	r	x	r	r	r	r											
House Wren	1950-45790	IBS					B	r												
House Wren	1950-45886	IBS					B	r												
House Wren	1950-48126	IBS		B	x	r														
House Wren	1990-57803	Cominco									B	r								
House Wren	1990-57943	IBS									B	r								
House Wren	1990-57981	IBS									B	r	r	r	r	r				
House Wren	2060-28447	IBS						B	r											

Appendix 3. Year-to-Year Recaptures at Inglewood Bird Sanctuary, Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park and De Wit Ranch

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
House Wren	2160-18063	Dunbow							B	r										
House Wren	2160-18082	Dunbow							B	r										
House Wren	2160-19002	Dunbow							B	r										
House Wren	2190-10308	IBS									B	r								
House Wren	2190-10325	IBS										B	r							
House Wren	2200-47352	IBS										B	r							
House Wren	2200-47377	IBS										B	r	r	r					
House Wren	2220-13252	IBS											B	x	r	x	r			
House Wren	2220-13258	IBS											B	x	r					
House Wren	2270-23312	IBS											B	r						
House Wren	2270-23375	IBS											B	r						
House Wren	2270-23485	IBS											B	r						
House Wren	2270-80132	IBS											B	r						
House Wren	2270-80192	IBS												B	r					
House Wren	2270-80296	IBS												B	x	x	r			
House Wren	2270-80297	IBS												B	r	r				
House Wren	2270-80314	IBS												B	x	r				
House Wren	2270-80336	IBS												B	r					
House Wren	2270-80346	IBS												B	r					
House Wren	2270-80400	IBS												B	r					
House Wren	2270-80454	IBS												B	r					
House Wren	2270-81375	IBS															B	r		
House Wren	2270-81418	IBS													B	x	r			
House Wren	2270-81468	IBS													B	x	x	x	x	r
House Wren	2290-37017	IBS														B	r			
House Wren	2290-37184	IBS														B	r			
House Wren	2290-37206	IBS															B	x	r	
House Wren	2290-37286	IBS															B	r		
House Wren	2290-37293	IBS															B	r		
House Wren	2290-37313	IBS														B	x	r		
House Wren	2290-37331	IBS														B	r			
House Wren	2290-37483	IBS														B	r			
House Wren	2290-37489	IBS														B	r	r		

Appendix 3. Year-to-Year Recaptures at Inglewood Bird Sanctuary, Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park and De Wit Ranch

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
House Wren	2290-37638	IBS																B	r	
House Wren	2290-37710	DPP															B	r		
House Wren	2290-37724	DPP															B	r		
House Wren	2290-37732	DPP															B	r		
House Wren	2290-37748	DPP															B	r		
House Wren	2290-37762	DPP															B	r		
House Wren	2290-37770	DPP															B	r		
House Wren	2290-88409	IBS													B	r				
House Wren	2290-88460	IBS													B	r				
House Wren	2290-88533	IBS													B	x	x	r	r	
House Wren	2290-92112	IBS												B	r					
House Wren	2290-92203	IBS												B	r					
House Wren	2430-31067	IBS															B	r	r	
House Wren	2490-22377	IBS																B	r	
House Wren	2490-22484	IBS																B	r	r
House Wren	2490-22526	IBS																B	r	
House Wren	2500-72030	IBS																	B	r
House Wren	2500-72047	IBS																	B	r
House Wren	2500-72097	IBS																	B	r
House Wren	2500-72525	IBS																B	r	r
House Wren	2500-72564	IBS																B	r	
House Wren	2500-72584	IBS																B	r	
Swainson's Thrush	1451-67159	IBS					B	x	r											
Swainson's Thrush	1461-63572	IBS						B	r											
Swainson's Thrush	1461-63682	IBS			B	x	r													
Swainson's Thrush	1461-63692	IBS			B	x	x	r												
Swainson's Thrush	1461-63741	IBS					B	r												
Swainson's Thrush	1461-69595	IBS					B	r												
Swainson's Thrush	1541-17673	IBS								B	r	x	r							
Swainson's Thrush	1871-73214	IBS														B	x	r		
American Robin	0942-93625	IBS											B	d						
American Robin	0942-93635	IBS											B	r						
American Robin	0942-93643	IBS											B	r						

Appendix 3. Year-to-Year Recaptures at Inglewood Bird Sanctuary, Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park and De Wit Ranch

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
American Robin	0942-93654	IBS												B	r					
American Robin	0942-93655	IBS												B	r	x	r			
American Robin	0942-93660	IBS												B	r					
American Robin	0942-93686	IBS												B	x	x	x	d		
American Robin	0942-93694	IBS												B	x	d				
American Robin	0942-93747	IBS												B	r					
American Robin	0942-93786	IBS												B	x	r				
American Robin	0962-90991	IBS				B	x	r												
American Robin	0972-30082	IBS										B	r							
American Robin	0972-30083	IBS										B	r	r						
American Robin	0972-30087	IBS										B	r							
American Robin	0972-30095	IBS										B	x	r						
American Robin	0972-30466	IBS				B	x	r												
American Robin	0942-93731	IBS												B	x	x	r			
American Robin	1142-49046	IBS						B	r											
American Robin	1142-49201	Dunbow						B	r											
American Robin	1142-49212	Dunbow						B	x	r										
American Robin	1142-49217	Dunbow						B	r											
American Robin	1142-49221	Dunbow						B	r											
American Robin	1142-49261	IBS											B	r		r				
American Robin	1142-49270	IBS											B	x	r					
American Robin	1142-49272	IBS											B	x	x	x	r			
American Robin	1142-55013	IBS										B	x	x	x	x	r			
American Robin	1142-55058	IBS										B	x	x	x	x	r	x	x	r
American Robin	1152-38703	Dunbow							B	r										
American Robin	1152-38721	IBS							B	x	x	x	x	x	r	r	r			
American Robin	1152-38740	IBS							B	r	x	r	x	r						
American Robin	1152-38773	IBS								B	x	x	x	x	x	x	x	x	x	r
American Robin	1152-38887	IBS									B	r								
American Robin	1202-13232	IBS													B	r				
American Robin	1202-13233	IBS														B	r			
American Robin	1202-13232	IBS													B	r				
American Robin	1202-13243	IBS													B	r				

Appendix 3. Year-to-Year Recaptures at Inglewood Bird Sanctuary, Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park and De Wit Ranch

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
American Robin	1202-13272	IBS													B	r	r			
American Robin	1202-13302	IBS														B	r	r	x	r
American Robin	1202-13308	IBS														B	r			
American Robin	1202-13333	IBS														B	r			
American Robin	1202-13337	IBS														B	r			
American Robin	1202-13338	IBS														B	r			
American Robin	1202-13340	IBS														B	x	r		
American Robin	1202-13345	IBS														B	r			
American Robin	1202-13368	IBS														B	r			
American Robin	1202-13384	IBS														B	r			
American Robin	1202-13386	IBS														B	r	r	r	
American Robin	1202-13475	IBS															B	r		
American Robin	1202-13476	IBS															B	r		
American Robin	1202-13520	IBS																B	r	
American Robin	1202-13521	IBS																B	r	
American Robin	1202-13524	IBS																B	r	
American Robin	1202-13528	IBS																B	r	
American Robin	1202-13571	IBS																B	r	
American Robin	1202-13572	IBS																B	r	
American Robin	1202-13576	IBS																B	r	
American Robin	1202-13581	IBS																B	r	
American Robin	1202-13634	IBS																	B	d
American Robin	1202-13649	IBS																	B	r
American Robin	1202-13656	IBS																	B	r
Gray Catbird	1681-67028	Cominco									B	r								
Gray Catbird	1681-67080	IBS										B	r							
Gray Catbird	1681-67087	IBS										B	r			r				
Gray Catbird	1871-73213	IBS														B	r			
Gray Catbird	2231-66314	IBS																	B	r
Gray Catbird	2231-66335	IBS																	B	r
Gray Catbird	8001-77934	DPP															B	r		
Gray Catbird	8001-77944	DPP															B	r		
Gray Catbird	8001-77952	DPP															B	r		

Appendix 3. Year-to-Year Recaptures at Inglewood Bird Sanctuary, Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park and De Wit Ranch

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Gray Catbird	8001-77955	DPP															B	r		
Gray Catbird	8041-54948	IBS							B	r										
Gray Catbird	8041-54987	IBS								B	x	r	x	r						
Gray Catbird	8041-59443	Cominco										B	x	x	x	x	r			
Gray Catbird	8041-83021	Cominco									B	r								
Gray Catbird	8041-83028	Cominco									B	r			recaptured at IBS					
Gray Catbird	8041-83041	Cominco									B	r								
Gray Catbird	8041-83086	IBS											B	r						
Gray Catbird	8041-83101	IBS												B	r					
Gray Catbird	8041-83211	IBS													B	x	x	r		
Gray Catbird	8041-83301	IBS														B	x	r	r	
Gray Catbird	8041-83314	IBS															B	x	r	r
Gray Catbird	8041-83348	IBS															B	x	x	r
Gray Catbird	8041-83381	IBS																B	r	r
Cedar Waxwing	1461-50802	Cominco									B	r								
Cedar Waxwing	1461-63733	IBS					B	r												
Tennessee Warbler	2300-06276	IBS														B	r			
Tennessee Warbler	2410-05077	IBS																B	x	r
Orange-crowned Warbler	2160-18542	IBS							B	r										
Yellow Warbler	1910-52230	IBS	B	x	x	r														
Yellow Warbler	1950-45519	IBS				B	r	x	r											
Yellow Warbler	1950-45878	IBS					B	r	r											
Yellow Warbler	1950-48086	IBS		B	x	r														
Yellow Warbler	1950-48129	IBS		B	x	r	r													
Yellow Warbler	1950-48133	IBS		B	x	r														
Yellow Warbler	1980-79983	IBS				B	r	r	r	r										
Yellow Warbler	1990-57104	Dunbow						B	r											
Yellow Warbler	1990-57734	Cominco									B	r								
Yellow Warbler	1990-57738	Cominco									B	r								
Yellow Warbler	1990-57802	Cominco									B	r								
Yellow Warbler	1990-57864	Cominco									B	r								
Yellow Warbler	1990-57898	Cominco									B	r								
Yellow Warbler	1990-57916	Cominco									B	r								

Appendix 3. Year-to-Year Recaptures at Inglewood Bird Sanctuary, Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park and De Wit Ranch

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Yellow Warbler	1990-57935	IBS									B	x	r							
Yellow Warbler	2050-70144	IBS				B	r													
Yellow Warbler	2070-42756	IBS						B	r											
Yellow Warbler	2120-00181	Dunbow						B	r											
Yellow Warbler	2160-19158	IBS							B	r										
Yellow Warbler	2160-18045	Dunbow							B	r										
Yellow Warbler	2160-18068	Dunbow							B	r										
Yellow Warbler	2160-18077	Dunbow							B	r										
Yellow Warbler	2160-19059	IBS							B	r										
Yellow Warbler	2160-19576	IBS								B	x	r								
Yellow Warbler	2160-19766	IBS								B	r	r								
Yellow Warbler	2190-10407	IBS										B	x	r						
Yellow Warbler	2200-47358	Cominco										B	x	r						
Yellow Warbler	2200-47371	IBS										B	x	x	r					
Yellow Warbler	2200-47400	IBS										B	r							
Yellow Warbler	2220-13037	IBS											B	r						
Yellow Warbler	2220-13250	IBS											B	r						
Yellow Warbler	2220-13252	IBS											B	x	x	x	r	r		
Yellow Warbler	2220-13258	IBS											B	r						
Yellow Warbler	2220-13262	IBS											B	r						
Yellow Warbler	2220-13397	IBS											B	r						
Yellow Warbler	2220-34098	Cominco									B	r								
Yellow Warbler	2220-34171	Cominco									B	r								
Yellow Warbler	2220-34293	Cominco									B	r								
Yellow Warbler	2220-34320	Cominco									B	r								
Yellow Warbler	2220-34370	Cominco									B	x	x	x	x	x	r			
Yellow Warbler	2220-34423	Cominco									B	r								
Yellow Warbler	2220-34438	Cominco									B	r								
Yellow Warbler	2270-23132	IBS											B	r						
Yellow Warbler	2270-23288	IBS											B	r						
Yellow Warbler	2270-23333	IBS											B	r						
Yellow Warbler	2270-23346	IBS											B	r						
Yellow Warbler	2270-23419	IBS											B	x	x	r	x	r	r	

Appendix 3. Year-to-Year Recaptures at Inglewood Bird Sanctuary, Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park and De Wit Ranch

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Yellow Warbler	2270-80288	IBS												B	r	r				
Yellow Warbler	2270-80303	IBS												B	x	x	r			
Yellow Warbler	2270-80307	IBS												B	r					
Yellow Warbler	2270-80319	IBS												B	x	x	x	r		
Yellow Warbler	2270-80347	IBS												B	x	r				
Yellow Warbler	2270-80421	IBS												B	r					
Yellow Warbler	2270-80447	IBS												B	x	x	r			
Yellow Warbler	2270-80596	IBS													B	x	r			
Yellow Warbler	2270-80777	IBS													B	r	r			
Yellow Warbler	2270-80781	IBS													B	r				
Yellow Warbler	2270-80785	IBS													B	x	r			
Yellow Warbler	2270-80861	IBS													B	r				
Yellow Warbler	2270-81400	IBS															B	r		
Yellow Warbler	2290-37023	IBS														B	r			
Yellow Warbler	2290-37050	IBS														B	r			
Yellow Warbler	2290-37231	IBS															B	r		
Yellow Warbler	2290-37253	IBS															B	r		
Yellow Warbler	2290-37258	IBS															B	r		
Yellow Warbler	2290-37297	IBS															B	r		
Yellow Warbler	2290-37311	IBS														B	r			
Yellow Warbler	2290-37383	IBS														B	r			
Yellow Warbler	2290-37757	DPP															B	r		
Yellow Warbler	2290-37761	DPP															B	r		
Yellow Warbler	2290-88365	IBS													B	x	r	r	r	r
Yellow Warbler	2290-88550	IBS													B	r	r	r		
Yellow Warbler	2290-92164	IBS												B	x	x	r			
Yellow Warbler	2290-92197	IBS												B	r	r				
Yellow Warbler	2390-30570	IBS										B	r	x	r	x	x	r		
Yellow Warbler	2430-31256	IBS															B	x	r	
Yellow Warbler	2490-22209	IBS																B	r	r
Yellow Warbler	2490-22320	IBS																B	x	r
Yellow Warbler	2490-22329	IBS																B	r	
Yellow Warbler	2490-22344	IBS																B	r	

Appendix 3. Year-to-Year Recaptures at Inglewood Bird Sanctuary, Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park and De Wit Ranch

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Yellow Warbler	2490-22349	IBS																B	r	
Yellow Warbler	2490-22356	IBS																B	r	r
Yellow Warbler	2490-22383	IBS																B	r	
Yellow Warbler	2490-22424	IBS																B	r	
Yellow Warbler	2500-72401	IBS																	B	r
Yellow Warbler	2500-72435	IBS																	B	r
Yellow Warbler	2500-72504	IBS																B	x	d
Yellow Warbler	2500-72656	IBS																B	r	
Yellow Warbler	2500-72604	IBS																B	r	r
Yellow Warbler	3500-89667	Dunbow						B	x	r										
Yellow-rumped Warbler	1910-52603	IBS	B	r																
Yellow-rumped Warbler	2290-37137	IBS														B	r			
Yellow-rumped Warbler	2490-22589	IBS																B	x	r
Spotted Towhee	8001-77974	DPP															B	r		
Clay-colored Sparrow	1990-57805	Cominco									B	x	x	r						
Clay-colored Sparrow	2050-70675	Dunbow						B	x	r										
Clay-colored Sparrow	2120-00157	Dunbow						B	r	r										
Clay-colored Sparrow	2120-00170	Dunbow						B	x	r										
Clay-colored Sparrow	2120-00176	Dunbow						B	r											
Clay-colored Sparrow	2160-18022	Dunbow							B	r										
Clay-colored Sparrow	2160-18028	Dunbow							B	r										
Clay-colored Sparrow	2160-18030	Dunbow							B	r										
Clay-colored Sparrow	2160-19504	IBS								B	x	x	r							
Clay-colored Sparrow	2220-34456	Cominco									B	r								
Clay-colored Sparrow	2220-34615	Cominco									B	r								
Clay-colored Sparrow	2270-23483	IBS									B	r								
Clay-colored Sparrow	2270-81350	IBS															B	r		
Clay-colored Sparrow	2390-30503	IBS										B	x	r						
Vesper Sparrow	1461-05331	Dunbow						B	r											
Vesper Sparrow	1461-31412	Dunbow							B	r										
Savannah Sparrow	2171-56304	Cominco									B	r								
Song Sparrow	1541-17836	Cominco									B	r								
Song Sparrow	1541-17895	Cominco									B	r								

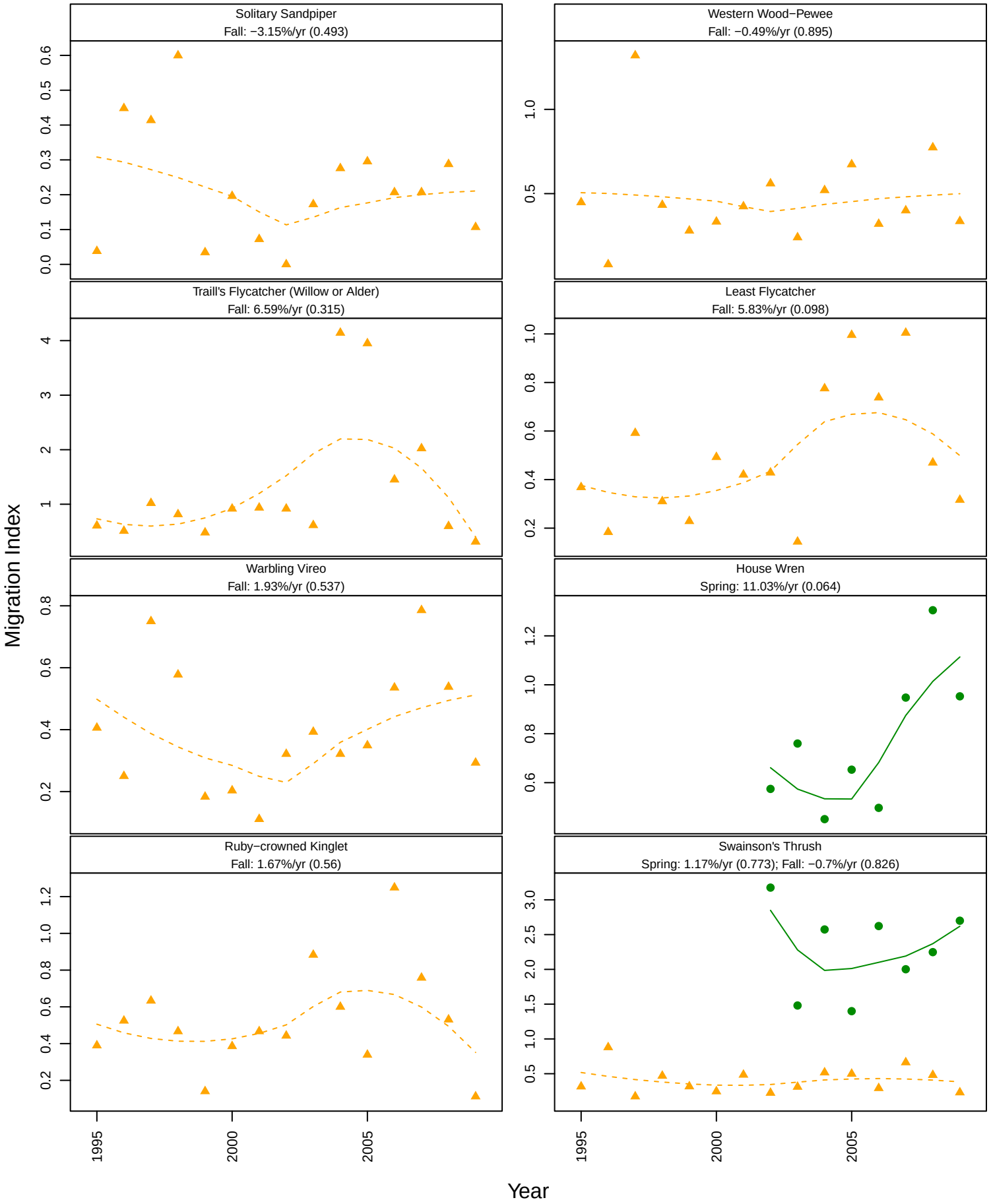
Appendix 3. Year-to-Year Recaptures at Inglewood Bird Sanctuary, Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park and De Wit Ranch

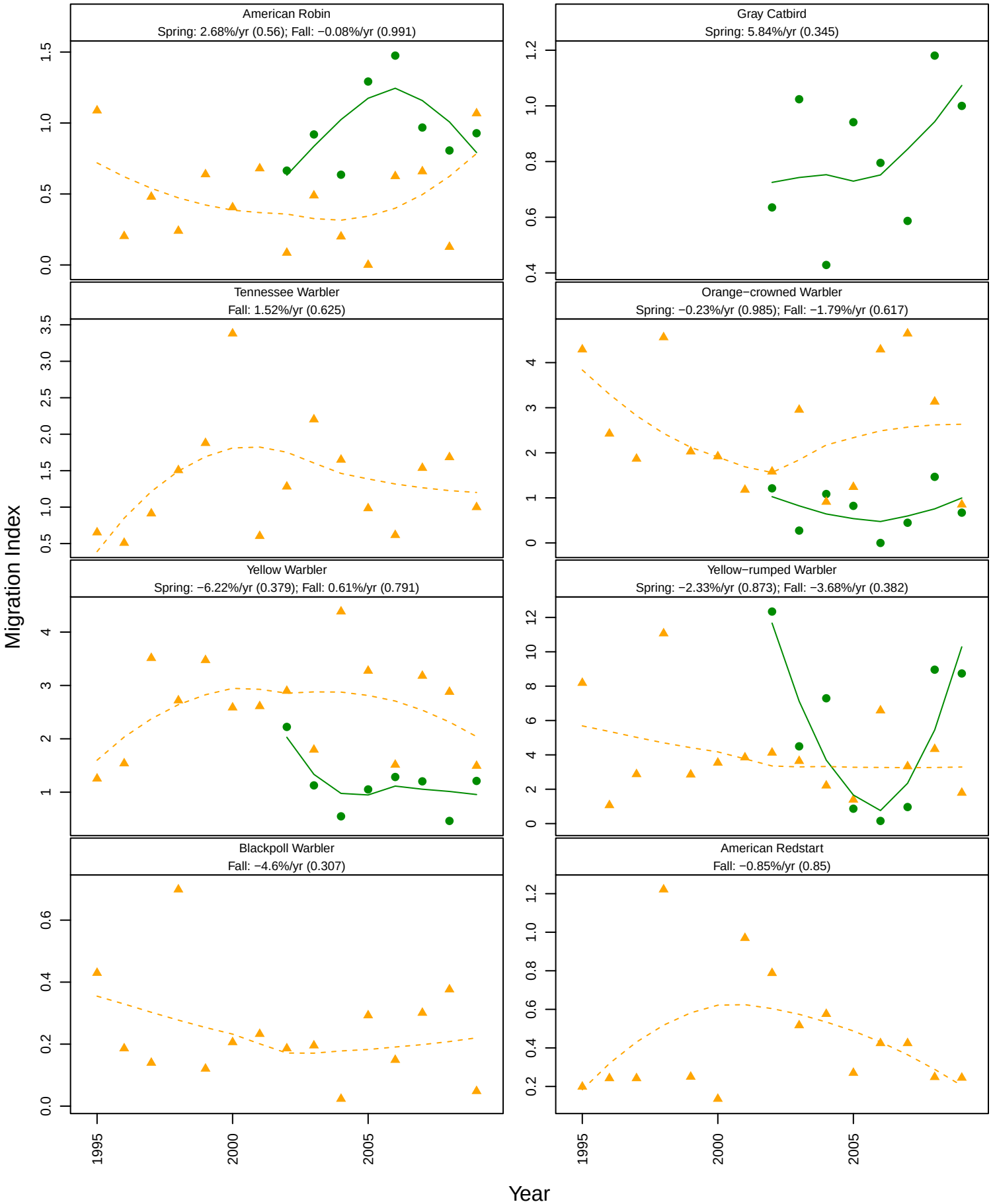
Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Song Sparrow	1861-68929	IBS													B	r				
Song Sparrow	1871-73157	IBS														B	r			
Song Sparrow	1871-73227	IBS														B	r			
Song Sparrow	1901-94717	IBS															B	r		
Lincoln's Sparrow	1671-56128	IBS												B	r					
Lincoln's Sparrow	2091-55732	IBS														B	r			
Lincoln's Sparrow	2161-14607	IBS				B	r													
Lincoln's Sparrow	2221-82428	IBS																	B	r
Lincoln's Sparrow	3121-21261	Cominco									B	r								
White-throated Sparrow	1791-28046	IBS											B	r						
White-throated Sparrow	1871-73465	IBS													B	r				
Red-winged Blackbird	8041-83032	Cominco									B	r								
Brown-headed Cowbird	1461-05333	Dunbow						B	r											
Brown-headed Cowbird	1461-31414	Dunbow							B	r										
Brown-headed Cowbird	1541-17842	Cominco									B	r								
Brown-headed Cowbird	1681-67124	IBS											B	x	x	x	x	r		
Brown-headed Cowbird	1761-28251	IBS										B	r							
Brown-headed Cowbird	1791-28013	IBS											B	r	r	r	r			
Brown-headed Cowbird	1811-73610	IBS													B	x	x	x	x	r
Brown-headed Cowbird	1811-73648	IBS													B	r				
Brown-headed Cowbird	1871-73167	IBS														B	r			
Brown-headed Cowbird	1871-73199	IBS														B	r			
Brown-headed Cowbird	1901-94903	IBS																B	r	r
Brown-headed Cowbird	1901-94914	IBS																B	r	
Brown-headed Cowbird	8041-54991	Cominco									B	r								
Brown-headed Cowbird	8041-54992	Cominco									B	r								
Brown-headed Cowbird	8041-83003	Cominco									B	r								
Brown-headed Cowbird	8041-83005	Cominco									B	r								
Brown-headed Cowbird	8041-83019	Cominco									B	r								
Brown-headed Cowbird	8041-83245	Cominco														B	x	r		
Baltimore Oriole	8041-54908	IBS							B	r										
Baltimore Oriole	8041-83030	Cominco									B	r								
Baltimore Oriole	8041-83090	IBS											B	r	r					

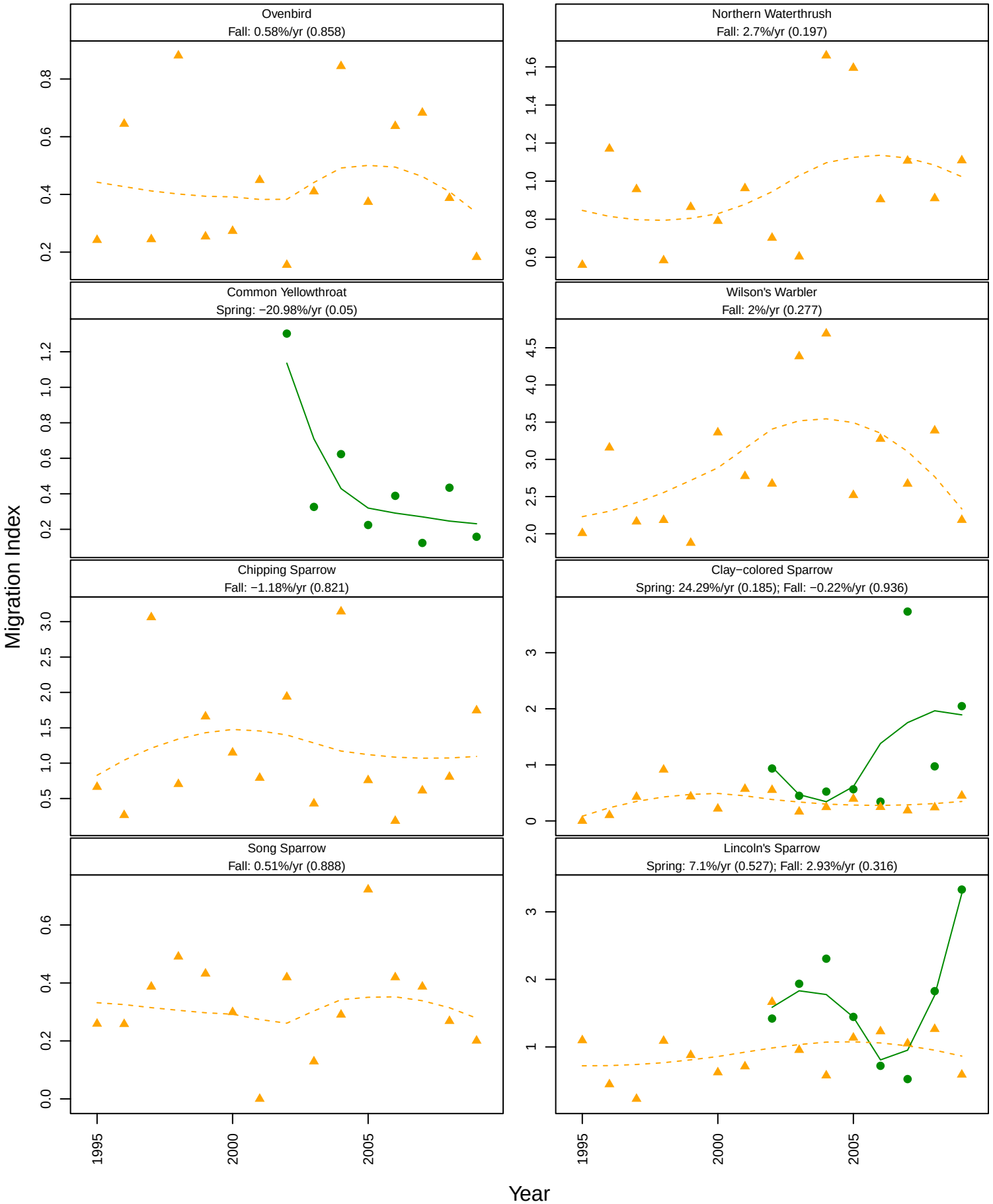
Appendix 3. Year-to-Year Recaptures at Inglewood Bird Sanctuary, Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park and De Wit Ranch

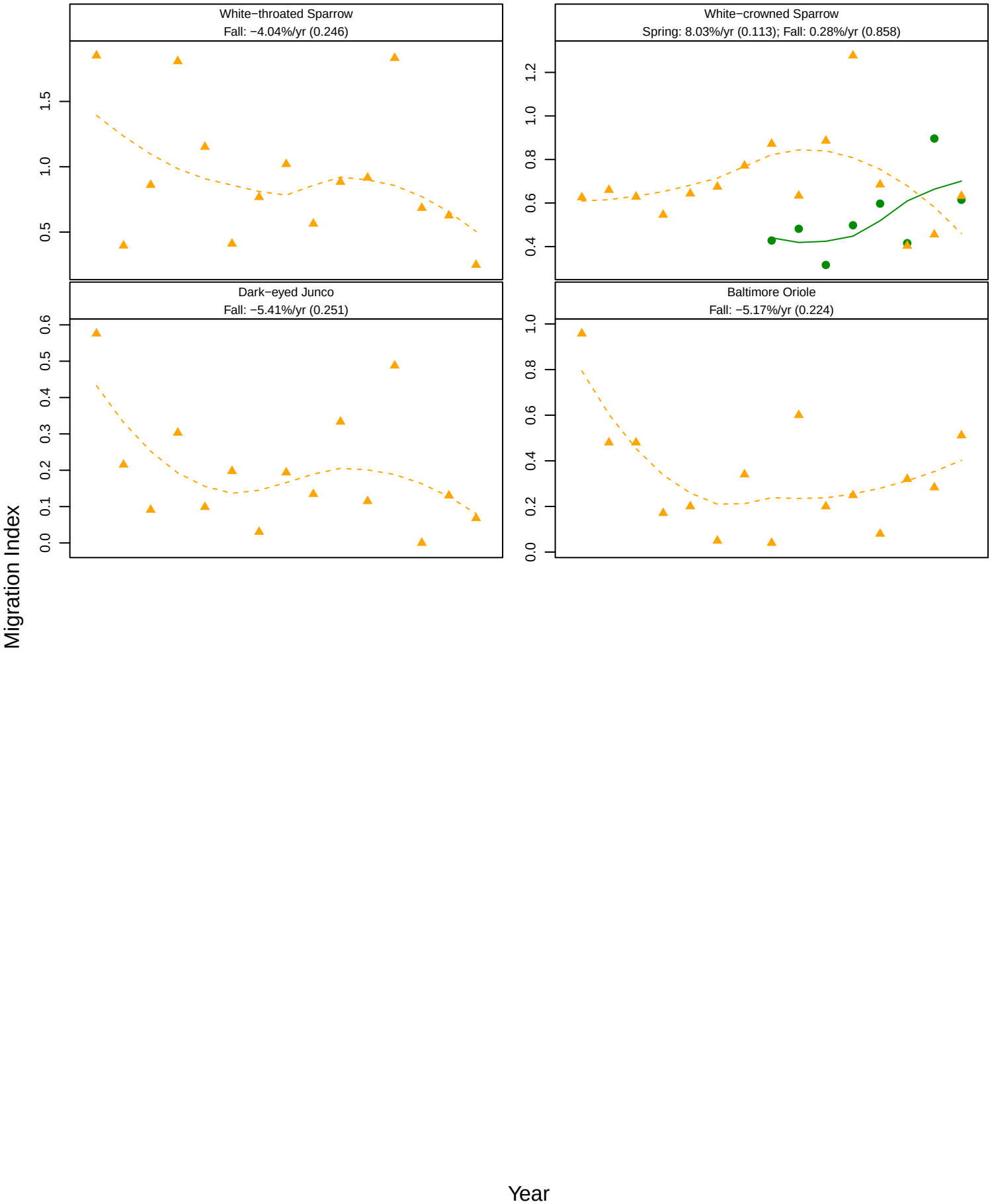
Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Baltimore Oriole	8041-83201	IBS													B	r				
Baltimore Oriole	8041-83221	IBS													B	r	x	x	r	r
Baltimore Oriole	8041-83222	IBS													B	x	r			
Baltimore Oriole	8041-83274	IBS														B	r	r		
Baltimore Oriole	8041-83326	IBS															B	x	r	r
Baltimore Oriole	8041-83384	IBS																B	x	r
Baltimore Oriole	8041-83388	IBS																B	r	
Baltimore Oriole	8051-65131	IBS						B	r											
American Goldfinch	1990-57875	Cominco									B	r								
American Goldfinch	2120-00188	Dunbow						B	x	r										
American Goldfinch	2190-10309	IBS										B	x	r	r	r				
American Goldfinch	2220-34131	Cominco									B	r								
American Goldfinch	2220-34245	Cominco									B	r								
American Goldfinch	2270-23364	IBS											B	x	r					
American Goldfinch	2270-80350	Cominco												B	r					
American Goldfinch	2270-80353	Cominco												B	r					
American Goldfinch	2290-37381	IBS														B	r			
American Goldfinch	2490-22598	IBS																B	x	r
American Goldfinch	2500-72519	IBS																B	r	r
American Goldfinch	2500-72588	IBS																B	r	

Appendix 4


Solitary Sandpiper
Fall: −3.15%/yr (0.493)
Western Wood−Pewee
Fall: −0.49%/yr (0.895)
Traill's Flycatcher (Willow or Alder)
Fall: 6.59%/yr (0.315)
Least Flycatcher
Fall: 5.83%/yr (0.098)
Warbling Vireo
Fall: 1.93%/yr (0.537)
House Wren
Spring: 11.03%/yr (0.064)
Ruby−crowned Kinglet
Fall: 1.67%/yr (0.56)
Swainson's Thrush
Spring: 1.17%/yr (0.773); Fall: −0.7%/yr (0.826)
Migration Index
Year
1995
2000
2005


American Robin
Spring: 2.68%/yr (0.56); Fall: −0.08%/yr (0.991)
Gray Catbird
Spring: 5.84%/yr (0.345)
Tennessee Warbler
Fall: 1.52%/yr (0.625)
Orange−crowned Warbler
Spring: −0.23%/yr (0.985); Fall: −1.79%/yr (0.617)
Yellow Warbler
Spring: −6.22%/yr (0.379); Fall: 0.61%/yr (0.791)
Yellow−rumped Warbler
Spring: −2.33%/yr (0.873); Fall: −3.68%/yr (0.382)
Blackpoll Warbler
Fall: −4.6%/yr (0.307)
American Redstart
Fall: −0.85%/yr (0.85)
Migration Index
Year
1995
2000
2005


Ovenbird
Fall: 0.58%/yr (0.858)
Northern Waterthrush
Fall: 2.7%/yr (0.197)
Common Yellowthroat
Spring: −20.98%/yr (0.05)
Wilson's Warbler
Fall: 2%/yr (0.277)
Chipping Sparrow
Fall: −1.18%/yr (0.821)
Clay−colored Sparrow
Spring: 24.29%/yr (0.185); Fall: −0.22%/yr (0.936)
Song Sparrow
Fall: 0.51%/yr (0.888)
Lincoln's Sparrow
Spring: 7.1%/yr (0.527); Fall: 2.93%/yr (0.316)
Migration Index
Year
1995
2000
2005


White−throated Sparrow
Fall: −4.04%/yr (0.246)
White−crowned Sparrow
Spring: 8.03%/yr (0.113); Fall: 0.28%/yr (0.858)
Dark−eyed Junco
Fall: −5.41%/yr (0.251)
Baltimore Oriole
Fall: −5.17%/yr (0.224)
Migration Index
Year