

**CALGARY BIRD BANDING SOCIETY**  
**2012 ANNUAL TECHNICAL REPORT**



Douglas M. Collister  
Garry Hornbeck  
Mike Potter  
and  
Bill Taylor

Published  
by

Calgary Bird Banding Society  
Calgary, Alberta

[www.calgarybirdbandingsociety.org](http://www.calgarybirdbandingsociety.org)

November 2017

***Custodire aves***

Keep watch on birds

© Calgary Bird Banding Society 2017

## Calgary Bird Banding Society Code of Ethics

**1. Members are responsible for the safety and welfare of the birds they capture and study. Stress, injuries and mortalities must be minimized. The following 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 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 member's work to help develop and maintain the highest standards possible. The following 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
- report any mistreatment of birds or improper conduct by a member to the BIC and/or a member of the CBBS executive



**Montezuma's Oropendula – La Selva Biological Station  
(Photo by Cyndi Smith)**

# TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY</b> .....	<b>III</b>
<b>INTRODUCTION</b> .....	<b>3</b>
<b>FUNDING AND ACKNOWLEDGEMENTS</b> .....	<b>2</b>
<b>PROGRAMS AT INGLEWOOD BIRD SANCTUARY</b> .....	<b>3</b>
Migration Monitoring .....	3
Background .....	3
Methods and Study Site.....	3
Schedule and Coverage .....	4
New Bandings.....	4
Insight from Mist-netting.....	5
Stable Isotope Ecology .....	6
Recaptures.....	6
Monitoring Avian Productivity and Survivorship (MAPS) .....	8
Background.....	8
Objectives.....	9
Methods.....	9
Schedule and Coverage .....	10
Results.....	10
Discussion .....	10
<b>NORTHERN SAW-WHET OWL MONITORING NEAR BRAGG CREEK</b> .....	<b>11</b>
Background .....	11
Methods.....	11
Results.....	11
Discussion .....	12
<b>PROGRAMS AT CYPRESS HILLS INTERPROVINCIAL PARK</b> .....	<b>13</b>
Migration Monitoring .....	13
Spring .....	13
Fall.....	13
Monitoring Avian Productivity and Survivorship (MAPS) .....	14
Northern Saw-whet Owl Migration Monitoring.....	14
<b>PILOT SPRING MM AT LA SELVA BIOLOGICAL STATION, COSTA RICA</b> .....	<b>15</b>
<b>SIGNIFICANT RE-ENCOUNTERS</b> .....	<b>16</b>
<b>TREND ANALYSES</b> .....	<b>17</b>
<b>PERSONNEL</b> .....	<b>19</b>
<b>MORTALITIES AND INJURIES</b> .....	<b>20</b>
<b>REFERENCES</b> .....	<b>21</b>

## **FIGURES**

1. Topographic maps showing location of IBS and NSWO migration monitoring stations
2. Location of net lanes at Inglewood Bird Sanctuary migration monitoring station
3. New bandings at Inglewood Bird Sanctuary
  - a. Spring 2012
  - b. Fall 2012
4. Graph of MAPS results 1992-2012
5. Northern Saw-whet Owl new captures SW of Calgary 2012
6. Northern Saw-whet Owl migration monitoring stations across North America
7. Cypress Hills Interprovincial Park monitoring sites
8. New bandings at Cypress Hills Interprovincial Park
  - a. Spring 2012
  - b. Fall 2012
9. Northern Saw-whet Owl new captures at CHIP 2012
10. Location of net lanes at La Selva Biological Station
11. CBBS casualty rates 1995-2012

## **TABLES**

1. Migration monitoring dates, net-hours and capture rates at Inglewood Bird Sanctuary
  - a. Spring 2012
  - b. Fall 2012
2. New bandings at Inglewood Bird Sanctuary
  - a. Spring 2002-2012
  - b. Fall 1992-2012
3. Inglewood Bird Sanctuary MAPS new bandings 2012
4. Inglewood Bird Sanctuary MAPS Summary
5. Migration monitoring dates, net-hours and capture rates at Cypress Hills Interprovincial Park
  - a. Spring 2012
  - b. Fall 2012
6. New bandings at Cypress Hills Interprovincial Park
  - a. Spring 2010-2012
  - b. Fall 2010-2012
7. Cypress Hills Interprovincial Park MAPS new bandings 2012
8. Trend analysis of monitored species at Inglewood Bird Sanctuary
  - a. Spring
  - b. Fall
9. Bander-in-Charge and volunteer effort 2012
10. Injuries and mortalities 2012
11. CBBS 2012 membership list



## APPENDICES

1. New bandings at Inglewood Bird Sanctuary
  - a. Spring 2012
  - b. Fall 2012
2. Top 20 new bandings at Inglewood Bird Sanctuary 1995-2012
3. Year-to-year recaptures in Alberta 1992-2012
4. New bandings at Cypress Hills Interprovincial Park
  - a. Spring 2012
  - b. Fall 2012
5. Trend analysis charts
6. La Selva Biological Station captures 2012



**Agouti – La Selva Biological Station  
(Photo by Barry Trakalo)**

## EXECUTIVE SUMMARY

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

During 2012, in addition to membership dues and member donations CBBS received support from the Alberta Gaming and Liquor Commission, a Community Spirit Grant, the Suncor Volunteer Grant Fund, the Alberta Conservation Association and the Baillie Birdathon.

Spring migration monitoring was undertaken at IBS for the 11<sup>th</sup> consecutive year since 2002. The 2012 fall program marks the 18<sup>th</sup> year of migration monitoring following pilot programs in 1992 and 1994. Mist-nets were operated on 36 of the 37 days between 1 May and 6 June (2406 net-hrs) and 64 of the 72 days between 28 July and 7 October (4442 net-hrs). Total new bandings of 394 (4<sup>th</sup> lowest) and 871 (2<sup>nd</sup> lowest) were achieved for the spring and fall programs, respectively.

The IBS Monitoring Avian Productivity and Survival (MAPS) site was operated again in 2012, the 20<sup>th</sup> replicate since 1992. An analysis of IBS MAPS results through 2008 was undertaken in 2009 (Smith et al. 2009 – see 2009 and 2010 Annual Technical Reports and website).

2012 marked the 9<sup>th</sup> year of full Northern Saw-whet Owl migration monitoring at our site in the foothills southwest of Calgary. A total of 158 Northern Saw-whet Owls were banded between 16 September and 29 October in 36 nights (720 net-hrs). Of these, 74% were HY and 65% were female. New owls per net-hour since inception are 0.25, 0.29, 0.27, 0.23, 0.21, 0.14, 0.24 and 0.22 in 2004, 2005, 2006, 2007, 2008, 2010, 2011 and 2012 respectively. Monitoring did not occur in 2009.

Pilot migration monitoring (Elkwater site), MAPS (3 sites) and Northern Saw-whet Owl monitoring (mostly at the Spring Creek site) was continued in 2012 at Cypress Hills Interprovincial Park. Mist-nets were operated on 21 of the 23 days between 18 May and 9 June (1277 net-hrs) and 62 of the 71 days between 2 August and 14 October (3776 net-hrs). Total new bandings of 374 and 1896 were achieved for the spring and fall programs, respectively. The three MAPS stations established in 2010 were continued. A total of 37 and 1 Northern Saw-whet Owls were captured and banded at the Spring Creek and Elkwater sites respectively between 28 September and 29 October. Capture rates were relatively low averaging approximately 5 NSWOs/100 net-hours.

CBBS continued pilot spring migration monitoring at La Selva Biological Station (LSBS) in northeastern Costa Rica during 2012. Banding occurred from 16 April to 15 May in the succession plots at LSBS and resulted in 612 new captures, including 133 Neotropical Migrants and 184 hummingbirds, in 3210 net-hrs.

Trend analysis was undertaken on all species occurring as migrants at IBS and captured in sufficient quantity to allow analysis. During both spring and fall Cedar Waxwing evidenced a significant positive trend both since inception (2002 spring – 1995 fall) of monitoring and the last 10 years. Two other species, Swainson’s Thrush and Chipping Sparrow, evidenced almost significant positive trends during spring since 2002. During fall four species (Traill’s Flycatcher, Tennessee Warbler, Yellow-rumped Warbler, White-crowned Sparrow) evidenced significant negative trends over the last 10 years and one species (American Robin) evidenced an almost significant negative trend during fall.

During 2012 membership in CBBS totaled 103. Banders-in-Charge and volunteers contributed 463 person-days or approximately 3704 hours to CBBS projects.

Both the number of mortalities during CBBS banding projects and the injury rate remained low at 0.39% and 0.97% respectively.



**Rufous-tailed Hummingbird – La Selva Biological Station  
(Photo by Anne Weerstra)**



## 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.

Although the primary project of the CBBS is monitoring of migratory birds at Inglewood Bird Sanctuary (IBS) in Calgary, other complementary 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 2006-2012;
- 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 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 spring migration monitoring was initiated in 2011 at La Selva Biological Station, Costa Rica and continued in 2012;
- spring migration monitoring, MAPS (3 sites), fall migration monitoring and Northern Saw-whet Owl migration monitoring (2 sites) were all initiated in 2010 and continued in 2011 and 2012 at Cypress Hills InterProvincial Park (CHIP);
- pilot Monitoreo de Sobrevivencia 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 Inglewood Bird Sanctuary in 2000;
- pilot Northern Saw-whet Owl migration monitoring was carried out in 2003 and full migration monitoring was initiated in 2004 and has continued through 2012 except for 2009 at the De Wit ranch in the foothills southwest of Calgary;
- pilot MAPS was undertaken at Dinosaur Provincial Park (DPP) in 2006; and
- pilot spring migration monitoring was undertaken at DPP in 2007.

As of 1998 the Calgary Bird Banding Society's Inglewood Bird Sanctuary site is a fully designated member of the Canadian Migration Monitoring Network (CMMN) a cooperative initiative of the member stations, Canadian Wildlife Service and Bird Studies Canada. This formal association of migrant 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 the initial face-to-face meeting of the CMMN Steering Committee in November 2006 as well as sending delegates to all other biennial national meetings.

### Canadian Migration Monitoring Network (CMMN)



- |   |   |
|---|---|
| 1 Rocky Point Bird Observatory                            | 14 Pelee Island Bird Observatory                |
| 2 Tatlayoko Lake Bird Observatory                         | 15 Long Point Bird Observatory                  |
| 3 Vaseux Lake Bird Observatory                            | 16 Haldimand Bird Observatory (Ruthven)         |
| 4 Mackenzie Nature Observatory                            | 17 Tommy Thompson Park Bird Research Station    |
| 5 Yukon Bird Observatories (Albert Creek and Teslin Lake) | 18 Prince Edward Point Bird Observatory         |
| 6 Lesser Slave Lake Bird Observatory                      | 19 Innis Point Bird Observatory                 |
| 7 Beaverhill Bird Observatory                             | 20 McGill Bird Observatory                      |
| 8 Inglewood Bird Observatory                              | 21 Observatoire d'oiseaux de Tadoussac          |
| 9 Last Mountain Bird Observatory                          | 22 Point Lepreau Bird Observatory               |
| 10 Delta Marsh Bird Observatory                           | 22 Greenlaw Mountain Hawk Watch                 |
| 11 Thunder Cape Bird Observatory                          | 23 St. Andrew's Bird Banding Station            |
| 12 Whitefish Point Bird Observatory                       | 24 Atlantic Bird Observatory                    |
| 13 Bruce Peninsula Bird Observatory                       | 25 Brier Island Bird Migration Research Station |

## FUNDING AND ACKNOWLEDGEMENTS

Funding sources other than membership dues and member donations during 2012:

- funds raised by the CBBS through participation in the Baillie Birdathon;
- proceeds from Alberta Gaming and Liquor Commission arising from CBBS sponsored casinos;
- a Community Spirit Grant;
- a grant from the Alberta Conservation Association and
- a grant from the Suncor Volunteer Grant Program.

Funds were used to provide a per diem to Banders-in-Charge (BICs), purchase mist-nets, produce the Annual Technical Report, support the pilot program at CHIP, support a pilot program at La Selva Biological Station in Costa Rica, cover procure migration monitoring equipment and cover other miscellaneous costs.

Thanks to West Canadian Digital Imaging Inc. for generous sharing of conference room facilities for CBBS Board meetings and *Introduction to Banding* seminars.

Sincere appreciation goes out to all CBBS members who made 2012 successful. In addition, many non-members helped by volunteering at our casinos, participating in the Baillie Birdathon and providing expertise such as carpentry and electrical as needed.



**Ameva Lizard – La Selva Biological Station  
(Photo by Cyndi Smith)**

## PROGRAMS AT INGLEWOOD BIRD SANCTUARY

### Migration Monitoring

#### *Background*

Neotropical Migrants are birds that breed in the Nearctic biogeographic realm and winter in the Neotropics. The Neotropical migratory bird system involves some 5-10 billion birds of over 150 species (Greenberg 1992). Trends in data from the Breeding Bird Survey 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 and is 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 have occurred since 2002 and 1995. Monitoring songbird population change based on fall mist-netting has been shown to be an effective technique (Dunn *et al.* 1997).

#### *Methods and Study Site*

Spring and fall migration of Neotropical Migrants were monitored in 2012 at 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 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 was carried out each day, weather permitting. 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.

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 are shown on Figure 2.

## ***Schedule and Coverage***

### Spring

Spring migration monitoring at IBS was conducted from 1 May to 6 June 2012. This was the 11<sup>th</sup> year of full spring migration monitoring at IBS. Mist-netting occurred on 36 of the 37 target days (97% coverage) for a total of 2406 net-hours (Table 1a, Figure 3a). Inclement weather precluded banding on one day. Nine other days had a reduced number of net-hours from the daily target of 72 due to weather and/or high water level in the Bow River.

### Fall

Fall migration monitoring at IBS was conducted from 28 July to 7 October 2012. In addition to standardized constant-effort mist-netting, observations of other birds present in the reserve were noted. Mist-netting occurred on 64 of the 72 target days (89% coverage) for a total of 4442 net-hours (Table 1b, Figure 3b). Inclement weather (5 days), ill BIC (1) and no volunteer (2 days) resulted in 8 days of the monitoring period without banding. Additionally, there were 10 days with a significantly reduced number of net-hours (primarily because of high water level in the Bow River) from the daily target of 72.

## ***New Bandings***

### Spring

A total of 394 new bands (4<sup>th</sup> lowest in 11 years) were placed on birds of 38 ) species (2<sup>nd</sup> lowest in 11 years) (Table 2a, Appendix 1a). Greater than 20 new bandings occurred on 5 days and greater than 30 new bandings occurred on 2 days (Figure 3a). New banding totals by species at IBS are presented in Table 2a.

The 20 most frequently banded species in spring over all years, and during 2012, are identified in Appendix 2. The top five in 2012 in descending order of abundance were Yellow-rumped Warbler, Chipping Sparrow, Swainson's Thrush, American Robin and Lincoln's Sparrow. The same species were also the top five since 2002 but in a different order of abundance - Yellow-rumped Warbler, Swainson's Thrush, Lincoln's Sparrow, American Robin, and Clay-colored Sparrow.

### Fall

A total of 871 (2<sup>nd</sup> lowest since inception in 1995, 2011 was lowest) new bands were placed on birds of 56 species (lowest since 1995) (Table 2b, Appendix 1b). At least 30, 40 and 50 new bandings occurred on 5, 4 and 1 day(s), respectively (Figure 3b). Approximately 51% of new bandings occurred in August and 42% in September. The level of new bandings that occur in August versus September at IBS varies from year to year. For example, during 2006 new bandings were equally weighted between August and September (44% in each month) compared to the heavy weighting in August 2009 (69%) and the heavy weighting in September 2011 (59%). New bandings at IBS from 1992-2012 are presented in Table 2b.

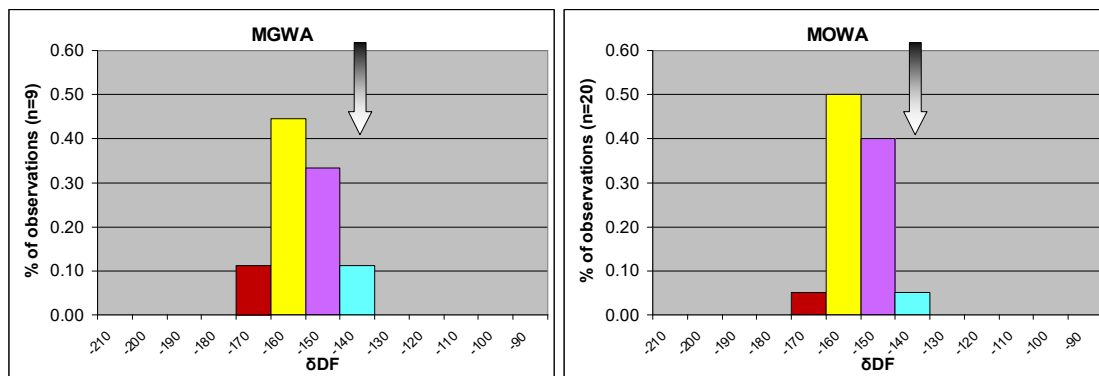


The 20 most frequently banded species in fall over all years, and during 2012, are identified in Appendix 2. The top five during fall 2012 in descending order were Wilson’s Warbler, Cedar Waxwing, Yellow-rumped Warbler, Yellow Warbler and Orange-crowned Warbler. Yellow-rumped Warbler, Wilson’s Warbler, Orange-crowned Warbler, Yellow Warbler and Tennessee Warbler are the top five species since 1995.

***Insight from Mist-netting***

Mist-netting can substantially add to an understanding of the avifauna at a site particularly through detection of rare or elusive species. The second spring banding at IBS of a Palm Warbler occurred during 2012.

Some warbler species are difficult to detect and identify in the field, particularly in fall. Although during 2012 only 2 Connecticut Warblers were banded at IBS (both in fall) a total of 52 Connecticut Warblers, 76 Mourning Warblers and 99 MacGillivray’s Warblers have been banded to date at IBS – all but 4 during FMM. Although the expectation might be that Mourning Warblers banded at IBS would be 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) suggested that IBS is an important refueling stop for Neotropical Migrants. A copy of this paper appeared in Appendix 4 of the 2003 ATR and is available on the CBBS website.

### ***Stable Isotope Ecology***

Stable isotope ecology, 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 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. These samples have been analyzed and interpretation is underway to characterize the breeding and natal geographic areas of origin for species monitored at IBS.

### ***Recaptures***

Recaptures at IBS during migration monitoring totaled 274 of at least 190 different birds of 34 species (see table on following page). Recapture numbers were highest in three resident species, House Wren, Black-capped Chickadee and Yellow Warbler and two migrants, Northern Waterthrush and Lincoln's Sparrow. Migrants with high recapture rates may be using IBS for moulting or extended "re-fuelling".

Twenty-seven (27) birds banded at IBS in previous years were recaptured in 2012. Year-to-year recaptures from 1992-2012 are presented in Appendix 3. 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 only several number of years after banding. For example, a Black-capped Chickadee and a Brown-headed Cowbird, both banded in 2007 were recaptured again in 2012 after having been recaptured in every intervening year. An American Robin banded in 2008 and a Tree Swallow banded in 2009 were both recaptured in 2012 for the first time. The most impressive was an Eastern Kingbird banded in 2005 and recaptured in 2012 after having been recaptured in all but one of the intervening years.



**Iguana – La Selva Biological Station  
(Photo by Barry Trakalo)**

Individuals Recaptured at Inglewood Bird Sanctuary during Spring and Fall MM 2012					
Species	Recap	Banded	Species	Recap	Banded
Belted Kingfisher	1	4	Tennessee Warbler	4	26
Downy Woodpecker	11	13	Orange-crowned Warbler	3	53
Traill's Flycatcher	3	32	Common Yellowthroat	2	7
Least Flycatcher	1	28	Magnolia Warbler	1	5
Eastern Kingbird	3	4	Yellow Warbler	23	67
Warbling Vireo	5	21	Palm Warbler	2	7
Tree Swallow	4	9	Yellow-rumped Warbler	3	134
Black-capped Chickadee	36	15	Wilson's Warbler	10	118
House Wren	49	40	American Tree Sparrow	1	4
Ruby-crowned Kinglet	2	7	Chipping Sparrow	7	69
Swainson's Thrush	7	54	Clay-colored Sparrow	6	28
Hermit Thrush	8	33	Song Sparrow	2	3
American Robin	13	64	Lincoln's Sparrow	20	66
Gray Catbird	2	22	Swamp Sparrow	1	6
Cedar Waxwing	10	117	White-throated Sparrow	13	48
Ovenbird	1	7	Baltimore Oriole	1	7
Northern Waterthrush	16	42	House Finch	1	7

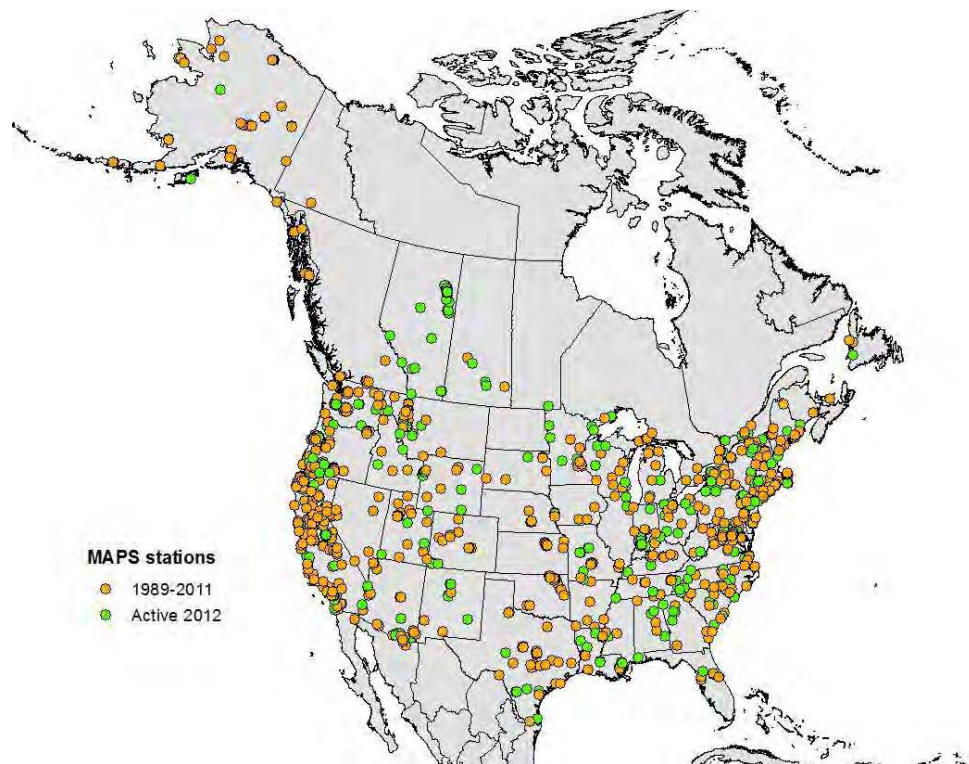


**Spotted Antbird – La Selva Biological Station  
(Photo by Kathryn Manry)**

## 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 2012 field season was MAPS 24<sup>th</sup> year of operation in North American.



The MAPS program utilizes standardized, constant-effort mist-netting during the breeding season at a continent-wide network of banding 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 these species have been captured at IBS although only American Robin, Warbling Vireo, Yellow Warbler, Song Sparrow, and Lincoln's Sparrow are local breeders. IBS 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 land-birds. 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-variables 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 most 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-nets 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 replicates in 2007 and 2012.

### ***Schedule and Coverage***

2012 marked the 19<sup>th</sup> year of the MAPS Program 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 MAPS during 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 2012 are summarized in Table 3. The number of each species that was banded is presented in Table 4 and Figure 4 for 2012 as well as the 18 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 in this report for both projects.

New MAPS bandings totaled 83 individuals of 16 species, the 8<sup>th</sup> lowest and 4<sup>th</sup> lowest total respectively since inception. Year-to-year recaptures are an important part of MAPS. In 2012 there were a total of 25 recaptures many of which were birds banded in previous years (see Appendix 3).

### ***Discussion***

Lack of regeneration of balsam poplar is an ongoing issue at IBS. The heavy flooding that occurred during 2005 stimulated some poplar seedling recruitment and may have helped to alleviate this issue. The habitat assessment in 2012 identified no reduction in poplar regeneration since 2007 and perhaps an increase in the percent cover of this species in Habitat B which is the regeneration area east of the regional pathway.

An analysis of IBS MAPS results through 2008 was undertaken in 2009 (Smith et al. 2009 – see 2009 and 2010 ATRs and website). The objective of the analysis was to detect and compare trends in populations, productivity and survival of target species.

## NORTHERN SAW-WHET OWL MONITORING NEAR BRAGG CREEK

### *Background*

During 2003, a site in the foothills southwest of Calgary near Bragg Creek was identified as having potential for monitoring migrating Northern Saw-whet Owls (Figure 1). After disappointing results at Inglewood Bird Sanctuary in 2000, the CBBS was pleased to have another opportunity to initiate a Northern Saw-whet Owl migration monitoring program. Pilot monitoring was undertaken in 2003 from 7 October to 18 November with encouraging results. A full monitoring program was implemented in 2004 and has continued in each year since excluding 2009.

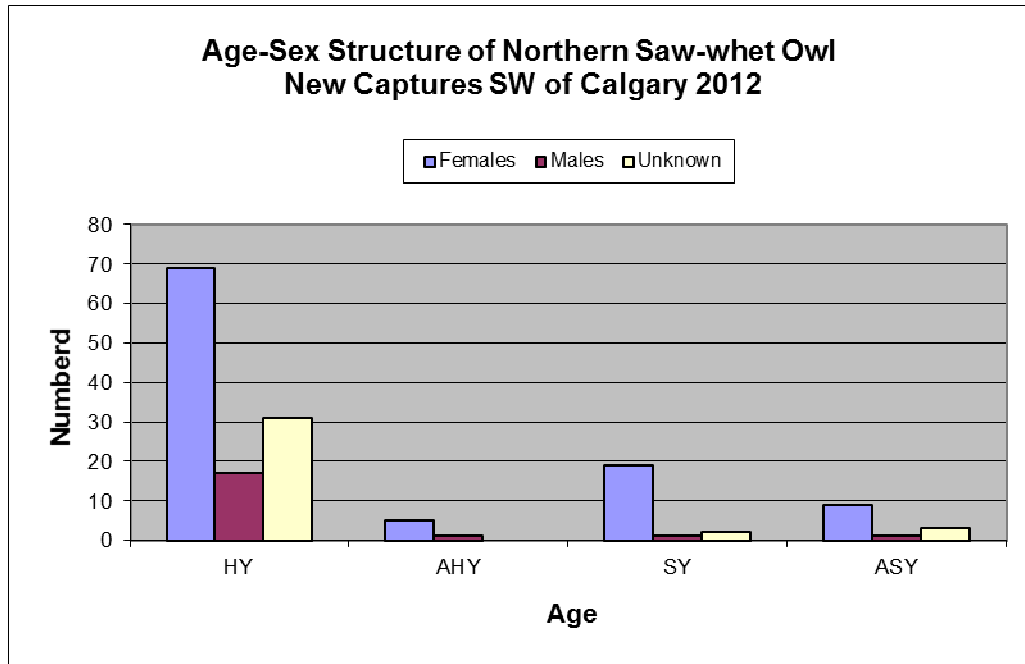
### *Methods*

Monitoring began 16 September and continued through 29 October when the majority of Northern Saw-whet Owl movement occurs. A continuous recording of Northern Saw-whet Owl calls was played at 80% volume in a portable CD “boom box” from the center of an array (double H) of five 12-m long x 2.6-m high x 60-mm mesh mist-nets. The array was placed beneath a thick canopy of mature spruce trees. The area has been subject to cattle grazing and the understory and tree branches as high as a cow can rub are absent. Call playback commenced approximately 0.5-hrs after sunset and continued for 4-hrs, weather and other factors permitting. Nets were checked at least every 0.75-hrs by a Bander-in-Charge (BIC) and one or more volunteers. Sex, age and morphometric data were collected on all owls captured. Basic weather data (wind direction and speed, sky conditions and temperature) were noted at start and finish each evening.

### *Results*

A total of 158 Northern Saw-whet Owls were captured and banded during 720 luring hours on 36 of 44 possible evenings between 16 September and 29 October (Figure 5). Of the 8 evenings when monitoring did not occur 5 were due to access being denied by the landowner and 3 were due to weather. Good movement occurred from 16 September to 19 October although owls were captured throughout the monitoring period including 29 October.

Of the 158 new Northern Saw-whet Owl bandings, HY, AHY, SY and ASY age birds comprised 74%, 4%, 14% and 8%, respectively (see histogram below). Females comprised 65% and males 13%, while 23% could not be sexed with confidence. The number of Northern Saw-whet Owls per net-hour since inception is **0.25, 0.29, 0.27, 0.23, 0.21, 0.14, 0.24** and **0.22** in 2004, 2005, 2006, 2007, 2008, 2010, 2011 and 2012 respectively. Monitoring did not occur in 2009. The low per net-hour in 2010 likely reflects a poor breeding season as evidenced by the low numbers of HY birds encountered.



One owl that was originally banded on 4 October was recaptured on 14 October.

***Discussion***

This site has proven to be a good location for monitoring migration of Northern Saw-whet Owls. Monitoring sites for this species are well established in eastern North America but sparse in western North America (Figure 6). CBBS intends to continue a full monitoring program at this location and strive for full coverage during the monitoring period subject to restrictions by the landowner.



**Green Basilisk – La Selva Biological Station  
(Photo by Cyndi Smith)**

## PROGRAMS AT CYPRESS HILLS INTERPROVINCIAL PARK

Cypress Hills Interprovincial Park (CHIP) is strategically located to compliment the array of migration monitoring member stations across Canada. During 2010, 2011 and again in 2012 CBBS supported several bird monitoring programs within CHIP.

### Migration Monitoring

#### *Spring*

Spring Migration at CHIP occurred from 18 May to 9 June at the Elkwater Lake location (Figure 8a) for 21 mornings of coverage (91%) with 2 mornings lost because of inclement weather (Table 5a, Figure 8a). Net-hours were significantly reduced ( $\leq 66$ ) on another 6 days. Up to 12 nets open each day resulted in 1277 net hours and 374 new birds banded of 41 species and forms (Table 5a, Appendix 4a). There were 130 recaptures of 76 different birds. Two days experienced at least 30 new bandings while 8 days experienced at least 20 new bandings. The top 5 most frequently banded species were Cedar Waxwing (46), Bank Swallow (43), Least Flycatcher (29), Pine Siskin (27) and Brown-headed Cowbird (24).

#### *Fall*

Fall migration monitoring began on 2 August and continued through 14 October at the Elkwater Lake site (Figure 8b) for 65 (88%) days of coverage with 1 day lost because of a lack of a qualified bander, 3 days without banding and 5 days lost because of inclement weather. Wind is an issue at this site and resulted in 32 of the 65 days with significantly reduced ( $\leq 66$ ) net-hours.

Up to 12 nets open each day resulted in 1896 birds of 73 species/forms being banded in 3776 net-hrs (Figure 8b Tables 5b, 6b Appendix 4b). A Field Sparrow (< 8 Alberta records) on 30 August was a rare capture. There were 280 recaptures of 192 different birds. Approximately 53%, 39% and 8% of new bandings occurred in August, September and October respectively. As in 2010 and 2011 there appears to be a pulse of birds in early October at this location. The top 5 most frequently banded species were Myrtle Warbler (406), Pine Siskin (179), Red Crossbill (171), Yellow Warbler (155) and Least Flycatcher (140).

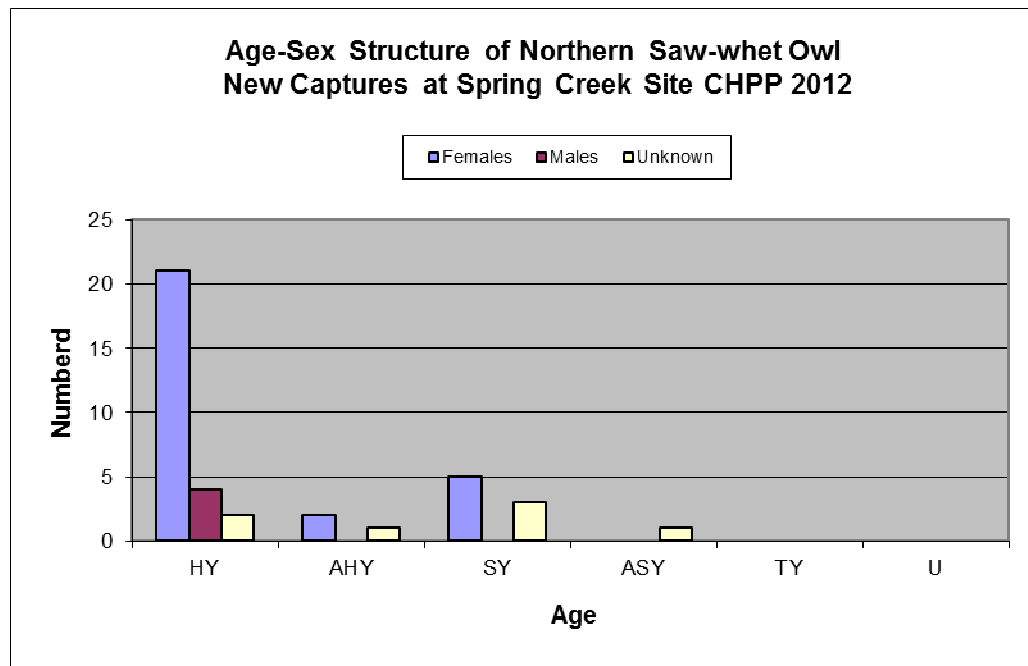
## Monitoring Avian Productivity and Survivorship (MAPS)

Three locations along the north slope of the Cypress Hills were selected in 2010 for MAPS with 7 nets being used at each site (Figure 7). The Rodeo Grounds and Old Baldy location are situated at approximately 1200-m. The Spruce Coulee site is at 1300-m with a similar habitat to Old Baldy but receives more moisture. Total new bandings at each site by species is presented in Table 7. Recaptures were 72, 38 and 61 at Old Baldy, Rodeo Grounds and Spruce Coulee respectively totaling 171 of 119 different birds.

## Northern Saw-whet Owl Migration Monitoring

Northern Saw-whet Owl Monitoring was undertaken from 28 September through 29 October at the Spring Creek site. A total of 37 Northern Saw-whet Owls were captured in 8 nets and 715 net-hours at Spring Creek (5.2 NSWOs/100 net-hours compared to 8.2 and 7.4 in 2010 and 2011 respectively). Percentage of HYs, AHYs, SYs and ASYs totaled 69, 8, 21, and 3, respectively. Percentage of Females, Males, and Unknowns totaled 72, 10, and 18, respectively.

Only one HY-F NSWOW was banded (4 October) at the Elkwater site in 23.5 net-hours. One same night recapture occurred at Spring Creek on 17 October.





## PILOT SPRING MM AT LA SELVA BIOLOGICAL STATION, COSTA RICA

After a two-year absence from conducting migration studies in Central America, CBBS initiated pilot spring migration monitoring at La Selva Biological Station (LSBS) in northeastern Costa Rica in 2011 and a second pilot effort was undertaken in 2012. LSBS is operated by the Organization for Tropical Studies (OTS) and caters to biological research of all kinds. The accommodation, wide selection of study sites, stable land tenure and security make LSBS a very good candidate migration monitoring site.

Ken Foster and Doug Collister visited LSBS 28-30 April 2010 to investigate the potential for a suitable site for migration monitoring within La Selva Biological Station. With the help of LSBS staff a number of sites were examined with the final site chosen being an area referred to as the succession plots. This area is a set of five similar sized adjacent patches which are clear-cut every fifth year. During the reconnaissance visit by Collister and Foster the plots were active with migrants and appeared to be good migrant habitat. Local birders confirmed that the succession plots are a good place to observe Neotropical Migrants. Although each plot is in a different 5-year successional status each year the area contains habitat in each of the successional states each year and therefore can be considered to be stable – in a condition of “dynamic equilibrium”. In any event we were confident that the data could be handled statistically to calculate trends over time.

Monitoring at LSBS occurred every morning from 16 April to 15 May, later than in 2011 but with a 9-day overlap (16-24 April). Up to twenty 30-mm nets (Figure 10), opened from dawn for 6 hours weather permitting, contributed a total of 3210 net hours and resulted in 408 new bandings, 204 captures that were not banded (primarily hummingbirds) and 137 recaptures (Appendices 6a, 6b). Of the new captures (new bandings and unbanded), comprised of 78 species, 133 were Neotropical Migrants, 295 were residents other than hummingbirds and 184 were hummingbirds. Neotropical Migrant new captures included:

Acadian Flycatcher	2	Veery	1
Alder Flycatcher	13	Gray-cheeked Thrush	4
Traill's Flycatcher	9	Chestnut-sided Warbler	4
Willow Flycatcher	9	Ovenbird	1
Red-eyed Vireo	16	Northern Waterthrush	1
Yellow-green Vireo	2	Mourning Warbler	8
Swainson's Thrush	29	Canada Warbler	33

Combining 2011 and 2012 data and reducing by the average new captures during the 9 day overlap results in 7 species exceeding the minimum requirement for trend analysis ( $\geq 10$ /year) – Alder Flycatcher (13), Willow Flycatcher (10), Red-eyed Vireo (20), Wood Thrush (11), Swainson's Thrush (57), Chestnut-sided Warbler (11), and Canada Warbler (31). Of these only 3 were captured in sufficient numbers to support statistically robust trend analysis. Although it is tempting to monitor Canada Warbler, a species designated Threatened in Canada, CBBS has decided that doing so at this site is not an efficient use of our resources.

## SIGNIFICANT RE-ENCOUNTERS

All recaptures of birds at CBBS study sites and banded prior to 2012 are indicated in Appendix 3. No recaptures of migrants suggesting 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 are lacking may be included even if inferred age is < 5 years.

**Northern Saw-whet Owl** 924-69037 Banded as HY-F at Millet, AB by Hardy Pletz on 24 September 2010. Recaptured SW of Calgary on 11 October 2011. 256-km SSW (196°) 2 years old.

... 1014-24619 Banded as AHY-F at Elkwater Lake in Cypress Hills Interprovincial Park by Leena Tirrul on 28 September 2011. Recaptured 5-km SW of Orchard Homes, Missoula County, MT by Denver Holt on 20 October 2012. 417-km SW (224°).

... 1014-24639 Banded as HY-F at Elkwater Lake in Cypress Hills Interprovincial Park by Leena Tirrul on 8 October 2011. Recaptured as SY-F near Prince Albert, SK by Harold Fisher on 9 May 2012 in a nest box 18-ft up in an aspen with 3 eggs and 3 nestlings. 659-km ENE (63°). Banded 144-mm and 97-gm, recaptured 139-mm and 133-gm.

... 1014-24744 Banded as HY-F at Elkwater Lake in Cypress Hills Interprovincial Park by Leena Tirrul on 31 October 2011. Found dead in a semi-truck sometime in 2012 by a Michigan wildlife officer.

**Eastern Kingbird** 1871-73181 Banded as SY-M by Pat Mitchell at Inglewood Bird Sanctuary on 30 May 2005. Recaptured there in 2006, 2007, 2008, 2010, 2011 and 14 August 2012. At least 8-years old.

**Black-capped Chickadee** 2490-22455 Banded as HY-U by Shonna McLeod at Inglewood Bird Sanctuary on 29 July 2007. Recaptured there every year since including 7 August 2012. 5-years 2-months old.

**Cedar Waxwing** 2291-34847 Banded as SY-M by Jeremiah Kennedy at Elkwater in Cypress Hills Interprovincial Park on 6 June 2011. Found window-killed near Three Hills, AB on 25 June 2012. 2-years old. ~300-km NW (319°).

**Brown-headed Cowbird** 1901-94903 Banded as AHY-F by Doug Collister at Inglewood Bird Sanctuary on 31 May 2007. Recaptured there every year since including 19 June 2012. At least 6-years old.

## TREND ANALYSES

Table 8a, Appendix 5a and Table 8b, Appendix 5b provide the results of trend analysis on species monitored at Inglewood Bird Sanctuary during spring and fall respectively.

During both spring and fall Cedar Waxwing was evidencing a significant positive trend both since inception (2002 spring – 1995 fall) of monitoring and the last 10 years. Two other species, Swainson's Thrush and Chipping Sparrow, were evidencing almost significant positive trends during spring since 2002.

During fall four species (Traill's Flycatcher, Tennessee Warbler, Yellow-rumped Warbler, White-crowned Sparrow) were evidencing significant negative trends over the last 10 years and one species (American Robin) was evidencing an almost significant negative trend during fall.

Although the trends with  $P < 0.05$  and even  $< 0.10$  are likely real, the cause behind them is open to interpretation. 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 or local habitat change.

Trend analysis is based on total captures from 1995-2012 for fall migration and 2002-2012 for spring migration and was performed by contract biostatistician Mathias Fenton. In addition to trend analyses since inception Mathias has calculated trends over the last 10 years a time period frequently used by conservation regulators and managers.

95%-migration windows were determined for each season (spring/fall) based on all new capture records for the respective species. A 95%-migration window describes the period in a specific season within which 95% of all individuals of a species were caught historically. Trend analyses were restricted to these windows This technique reduces the amount of days with zero captures and avoids disproportional impact of unusually early or late captures on the analyses.

Daily captures were first standardized with respect to daily net hours to account for variation in net opening times. Net hour totals only included focal nets, which were defined as nets with at least one historic capture. After standardization the captures were normalized to represent the expected number of captures for each day under the condition that all focal nets were open for exactly six hours. For days where all focal nets remained closed, no capture data was provided to the subsequent model to reduce false negatives.

Normalized captures from all years were used in a single hierarchical model that modelled the daily captures as a function of year, day, and day<sup>2</sup>. The model was implemented in R using the library for Integrated Nested Laplace Approximation (INLA). The observation error distribution was specified as 'negative binomial' and auto-regressive process error terms were included for day and year. To obtain mean estimates for the trend associated with year as well as for the average daily abundance within a season (annual abundance index), the posterior probability distributions produced by the model were sampled 10000 times. Confidence limits and significance levels for each estimate were calculated based on the distribution of samples. Because the model provides linear trend estimates for the logarithm of captures, percent

population changes per year were obtained through back-transformation.

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 in 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 may effectively monitor the status of boreal/northern breeding birds where BBS coverage is minimal.

## PERSONNEL

### Volunteers

Volunteer participation in CBBS projects continues to be important for the success of 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, to minimize impact. Thus, on any given day, a Bander-in-Charge and from 1-4 volunteers carry out the banding. CBBS projects not based in IBS are not subject to this restriction. All participants in CBBS projects at IBS are required to complete the IBS (City) orientation each year as well as the CBBS orientation each year before participating in any CBBS project including those at IBS.

Without donated time by members the success of CBBS projects would not have been possible. Sincere appreciation is extended to the volunteers listed in Table 9 who contributed approximately 8 hours in the field on each day indicated (351 person-days or 3704 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 (a contract bander and assistant were hired to carry out pilot migration monitoring at CHIP). 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 or the final payment due on a contract are paid until all duties of the BIC, including data entry, have been completed. Banders-in-Charge and contract banders and assistants contributed approximately 8 hours in the field on each day indicated (463 person-days or 3704 hours).



**Hog-nosed Viper – La Selva Biological Station  
(Photo by Barry Trakalo)**



## 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, of course, is to come as close to zero as possible.

Table 10 presents all casualties during 2012 for all programs, including IBS, Northern Saw-whet Owl, MAPS and LSBS but without CHIP. Note that the number captured, by species, is only given where that species experienced injury or mortality. The rate of mortalities during CBBS banding projects was 0.39% and the injury rate was 0.97% (Figure 11).

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 endeavor to identify the potential for reduction or avoidance of similar occurrences in the future.



**Rufous Motmot – La Selva Biological Station  
(Photo by Cyndi Smith)**

## 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.
- Collister, D., B. Taylor and G. Hornbeck. 2011. Calgary Bird Banding Society 2009 Annual Technical Report. Calgary Bird Banding Society, Calgary, AB. 27 pp plus figures, tables and appendices.
- Collister, D., Y. Attia and B. Taylor. 2012. Calgary Bird Banding Society 2010 Annual Technical Report. Calgary Bird Banding Society, Calgary, AB. 28 pp plus figures, tables and appendices.

Collister, D., Y. Attia, M. Potter and B. Taylor. 2014. Calgary Bird Banding Society 2011 Annual Technical Report. Calgary Bird Banding Society, Calgary, AB. 30 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 Scientific Technical 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.
- Priestley, L., C Priestley, D.M. Collister, D. Zazelenchuk and M. Hanneman. 2010. Encounters of Northern Saw-whet Owls (*Aegolius Acadicus*) from banding stations in Alberta and Saskatchewan, Canada. *J. Raptor Res.* 44(4):300–310.
- 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.
- Wilson, S., D.M. Collister and A.G. Wilson. 2011. Community composition and annual survival of lowland tropical forest birds on the Osa Peninsula, Costa Rica. *Ornitologica Neotropical* 22:421-436.
- 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.

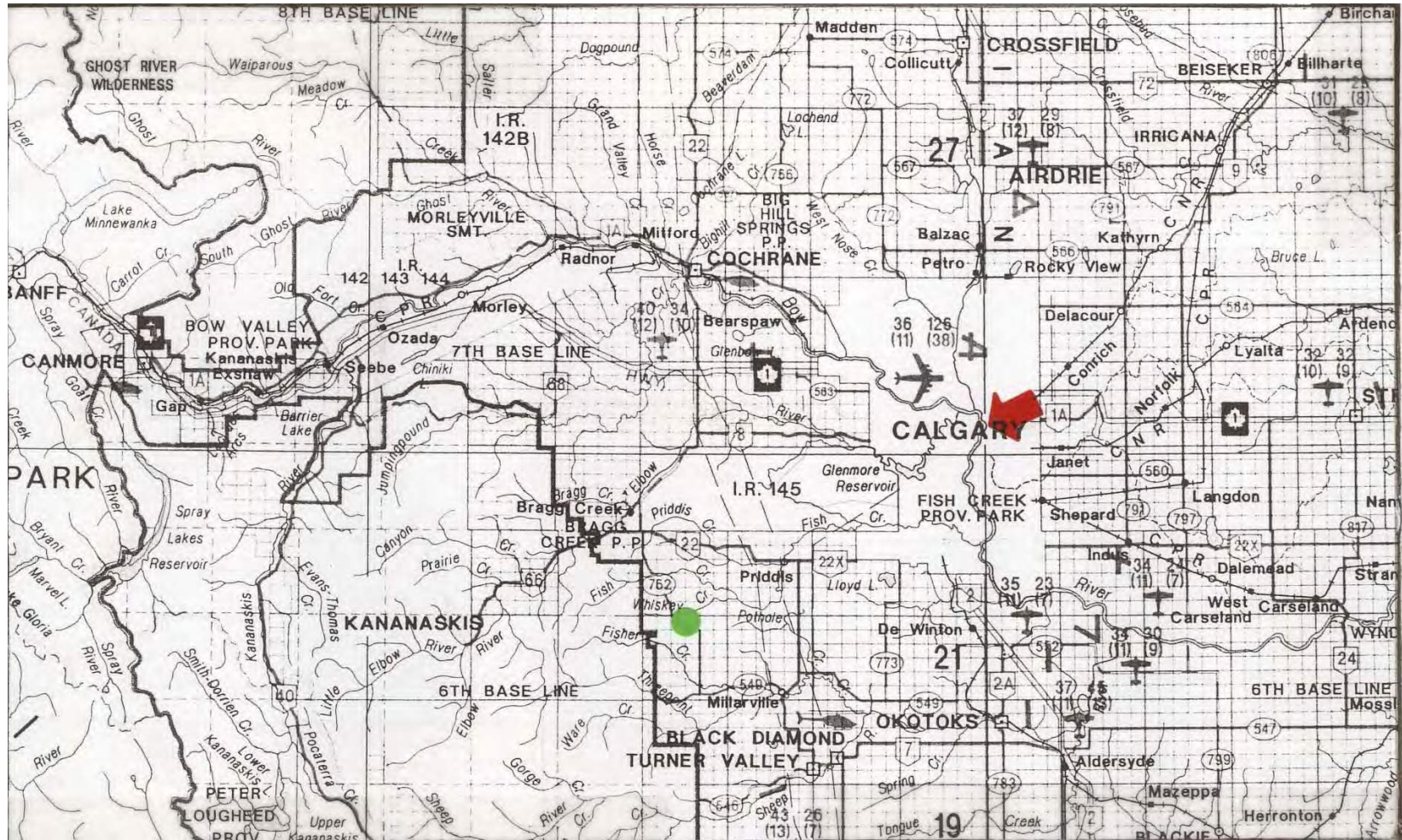
See website

[www.calgarybirdbandingsociety.org](http://www.calgarybirdbandingsociety.org)



**Unidentified Spider – La Selva Biological Station  
(Photo by Kathryn Manry)**





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





Figure 10. Net lane locations within succession plots at La Selva Biological Station, Costa Rica 2011 (red circle is banding station)



Figure 11. Casualty Rates for all CBBS Projects

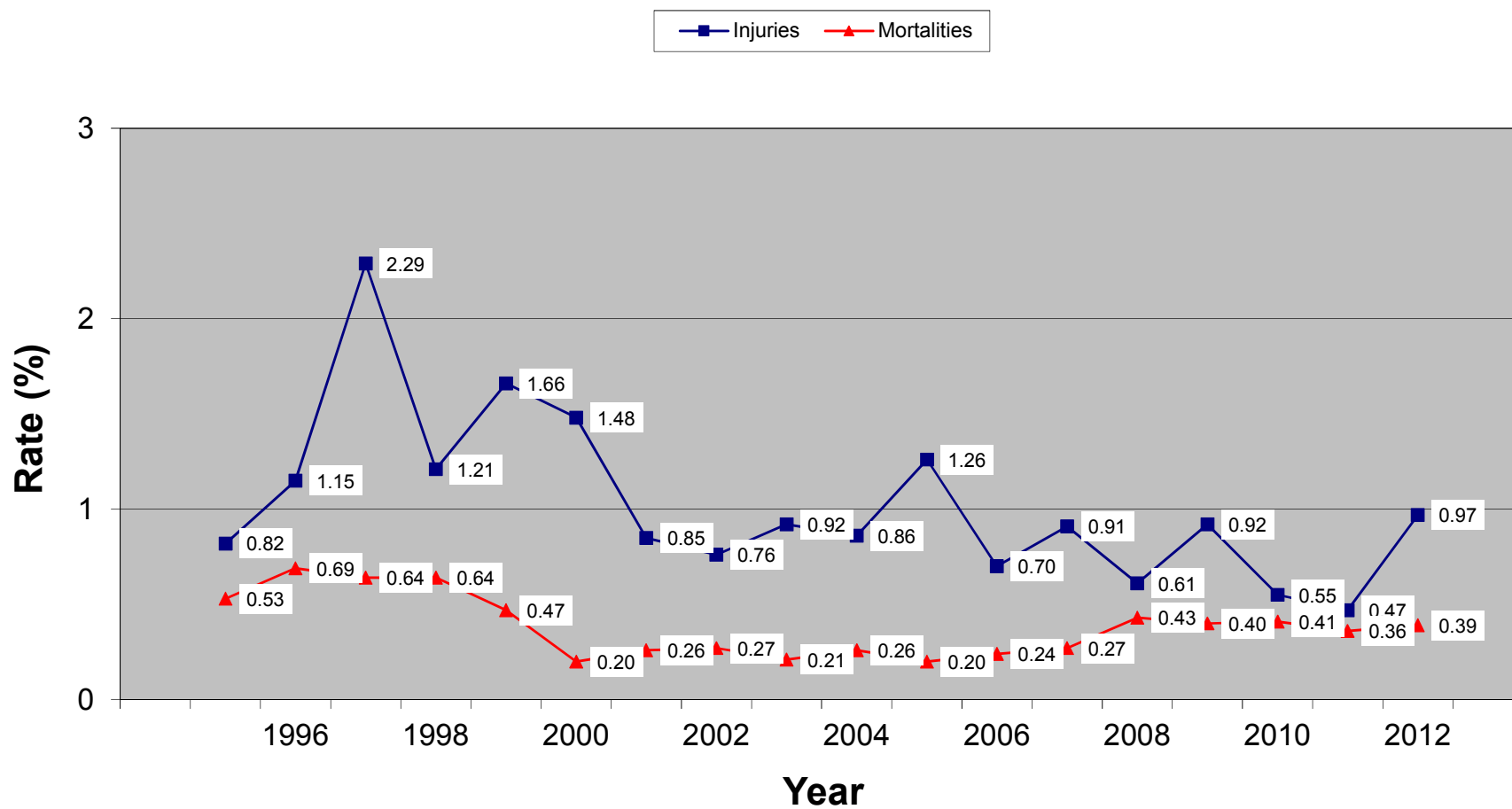




Figure 2. Location of net locations (see legend) and banding area (X) in the southern reserve area of Inglewood Bird Sanctuary.

Figure 3a. New bandings at Inglewood Bird Sanctuary - Spring 2012

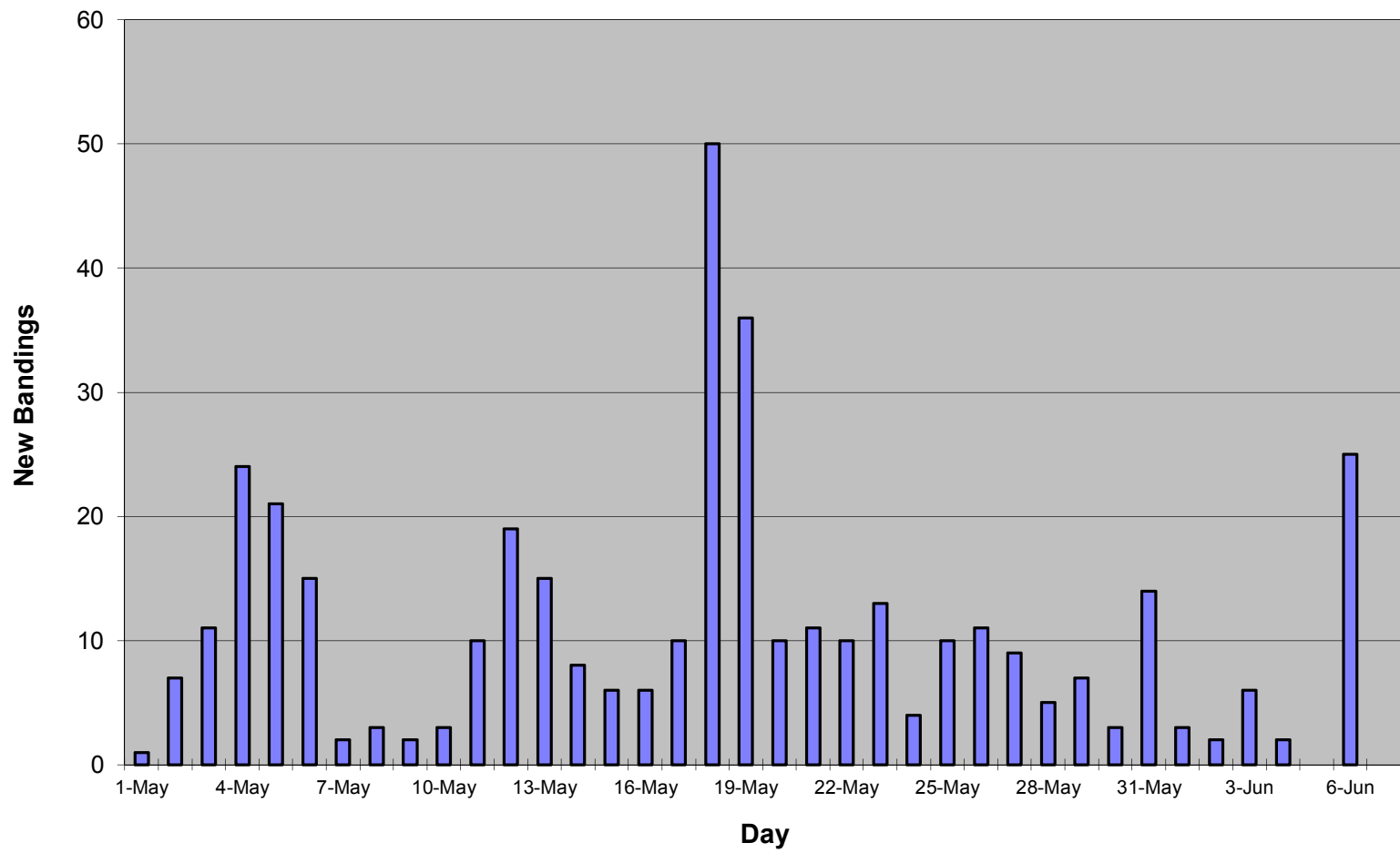


Figure 3b. New Bandings at Inglewood Bird Sanctuary - Fall 2012

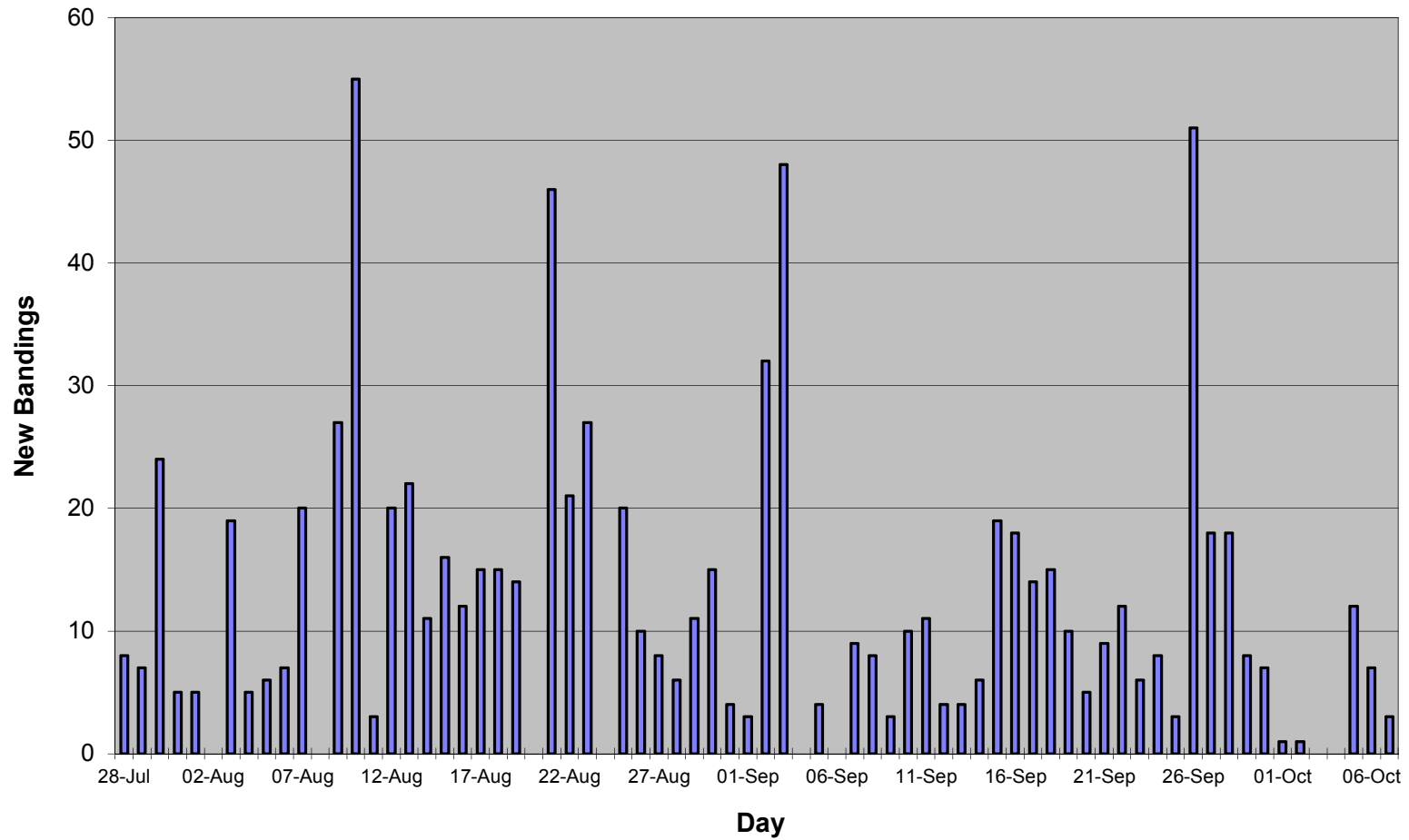
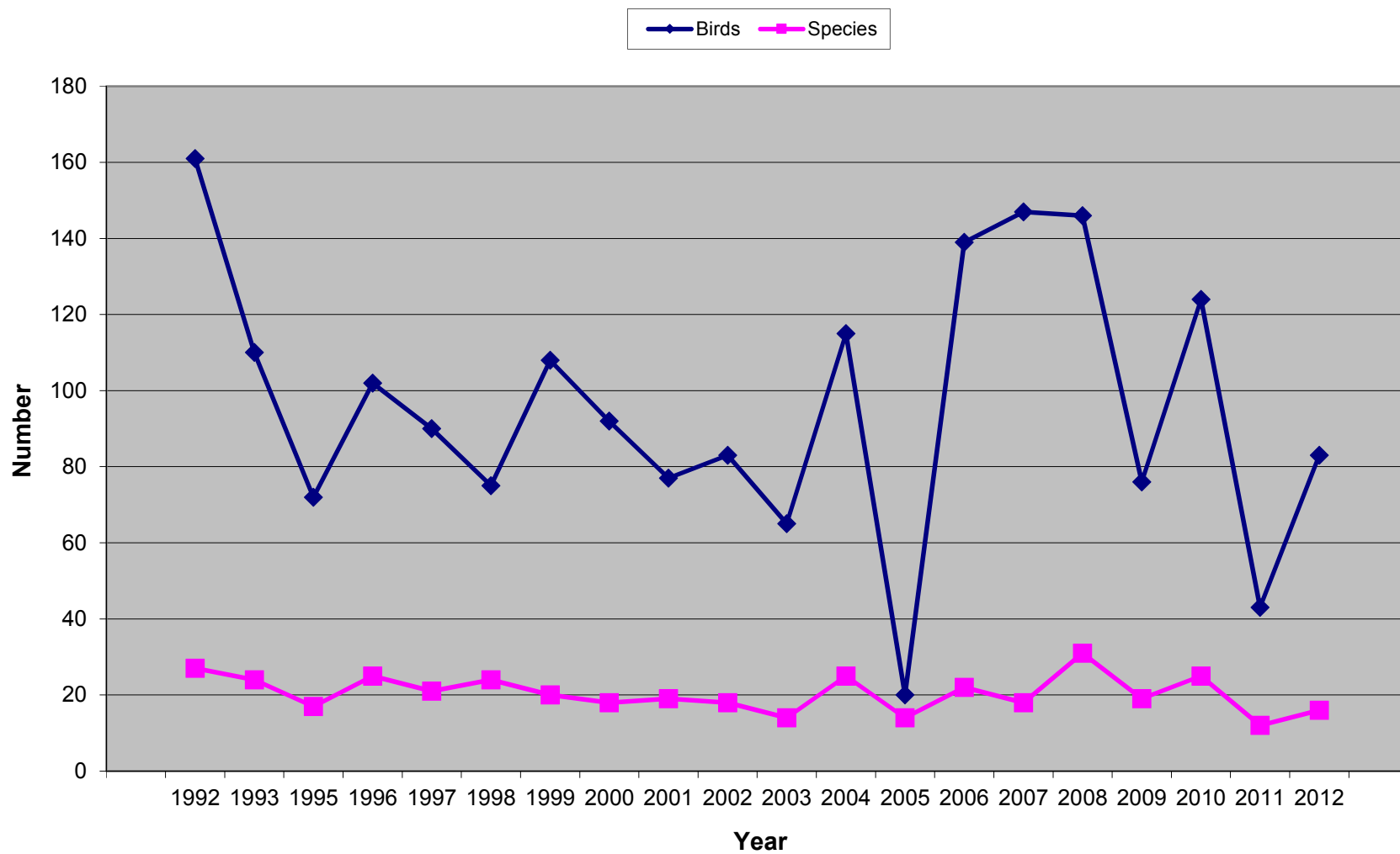
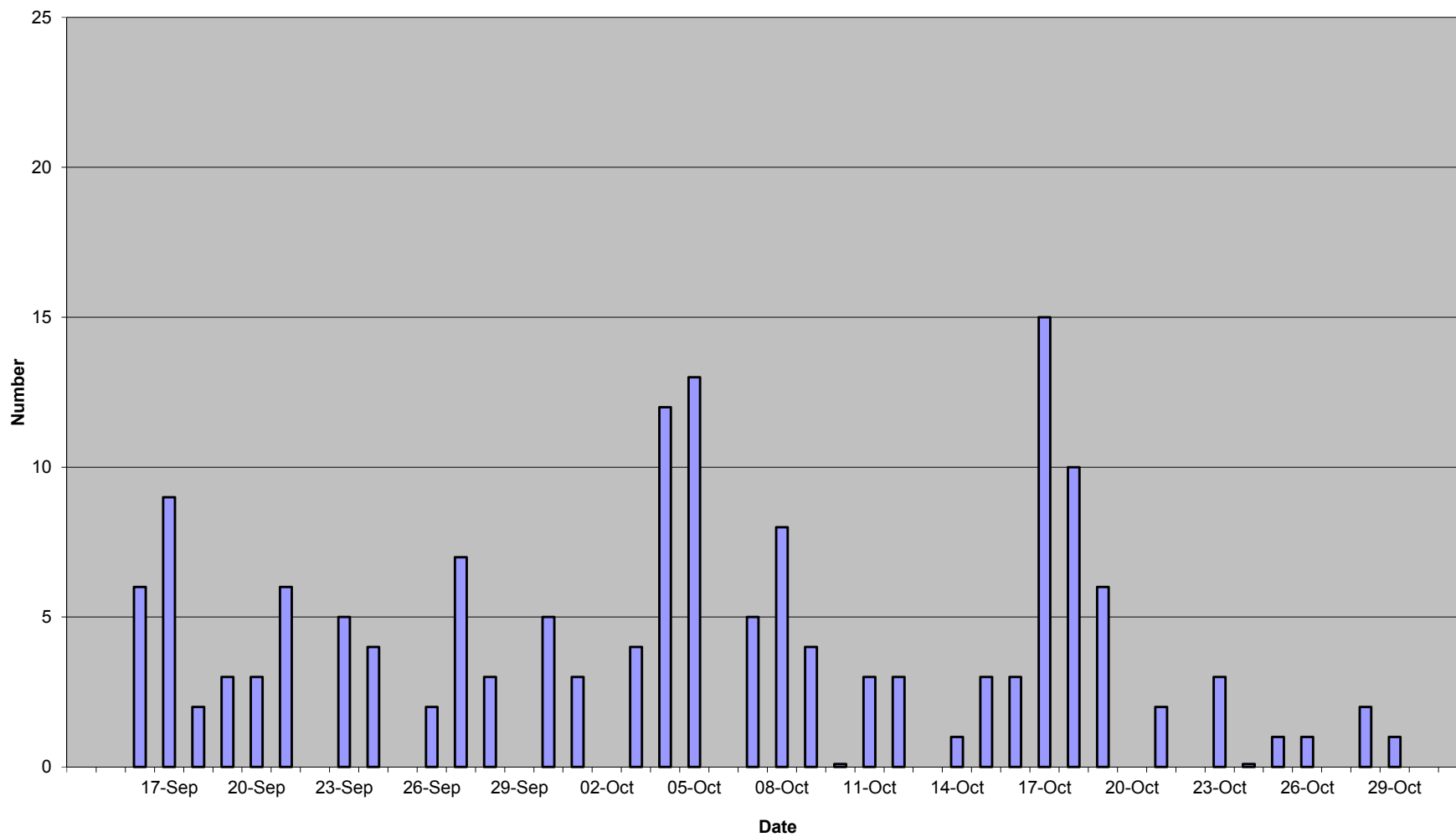


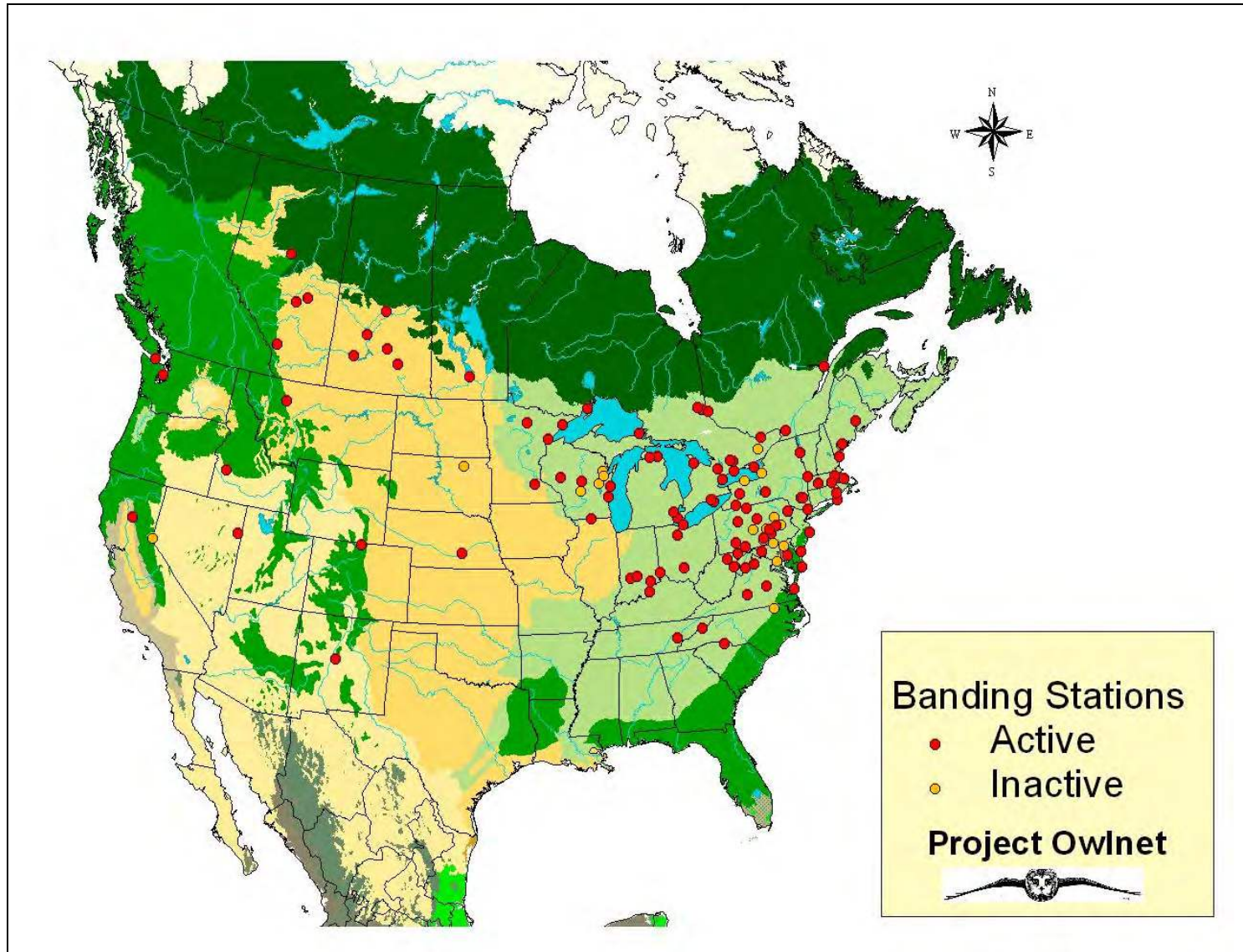
Figure 4. MAPS at Inglewood Bird Sanctuary



**Figure 5. Northern Saw-whet Owl New Captures 2012**  
(new bands=158, foreign recapture=0)  
Number = 0.1 indicates nets up but no owls captured







**Figure 6. Northern Saw-whet Owl Migration Monitoring Stations Across North America**



Figure 7. Cypress Hills Interprovincial Park Monitoring Locations

**Figure 8a. New bandings at Cypress Hills Interprovincial Park - Spring 2012**

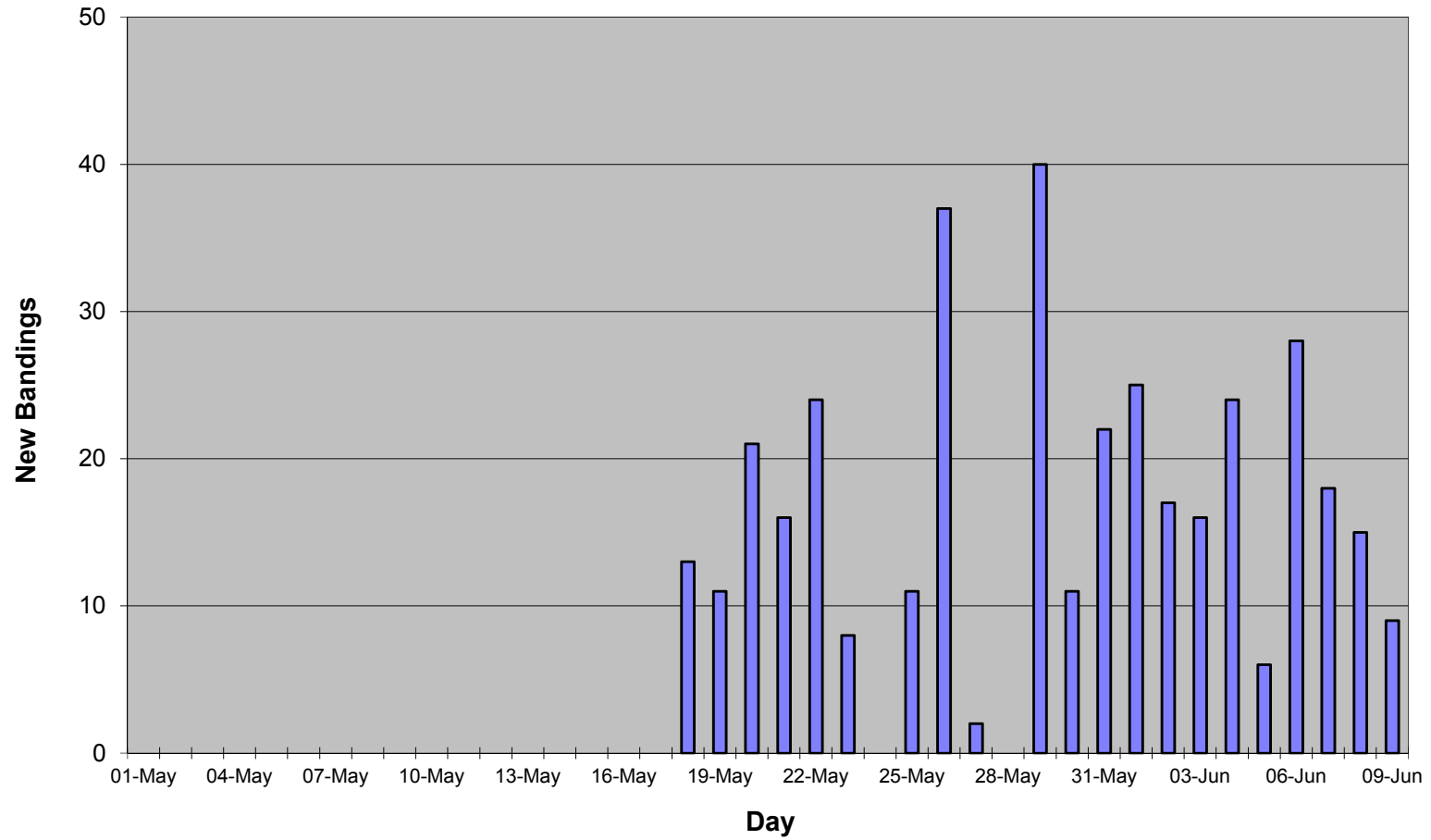
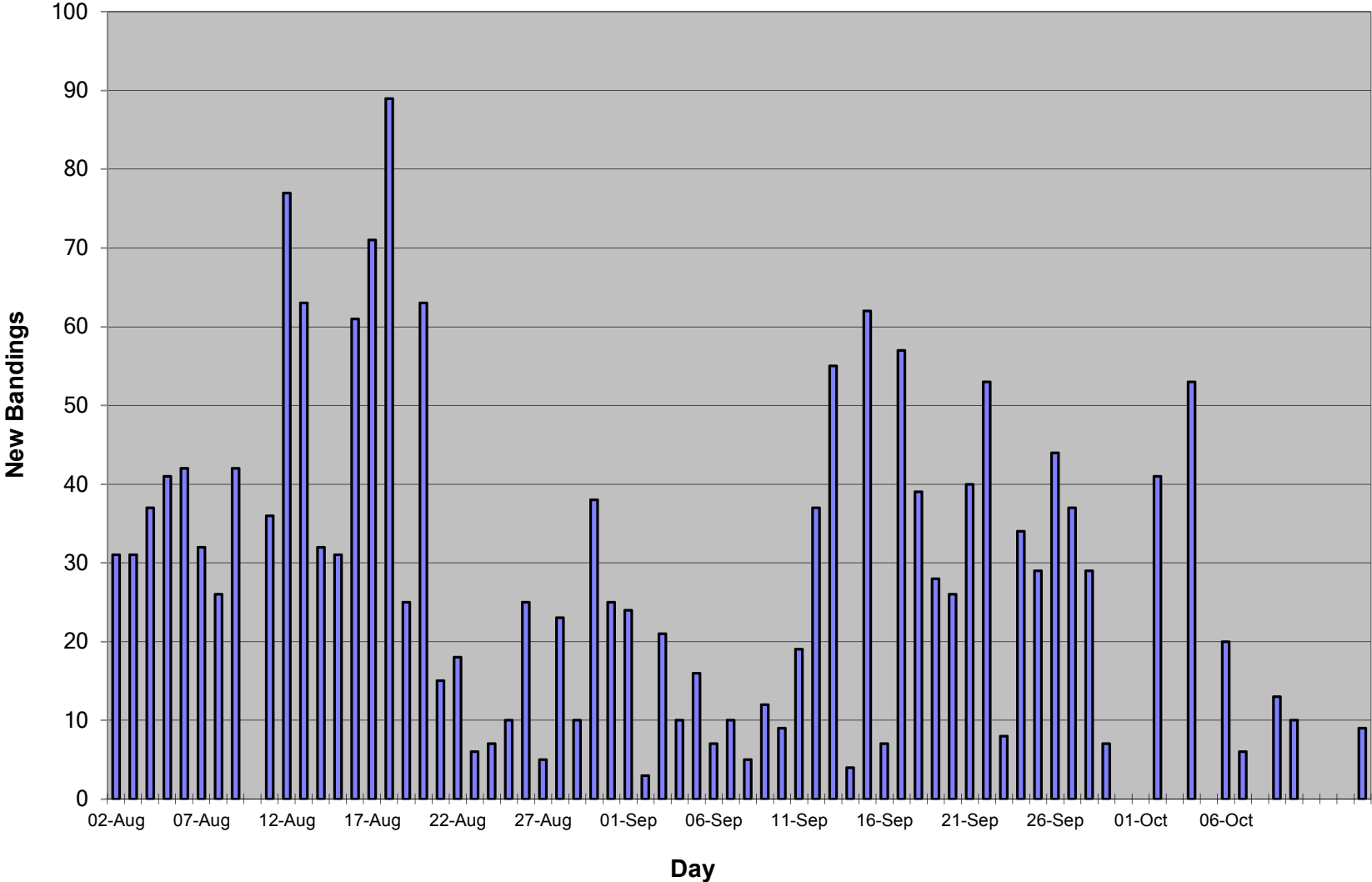
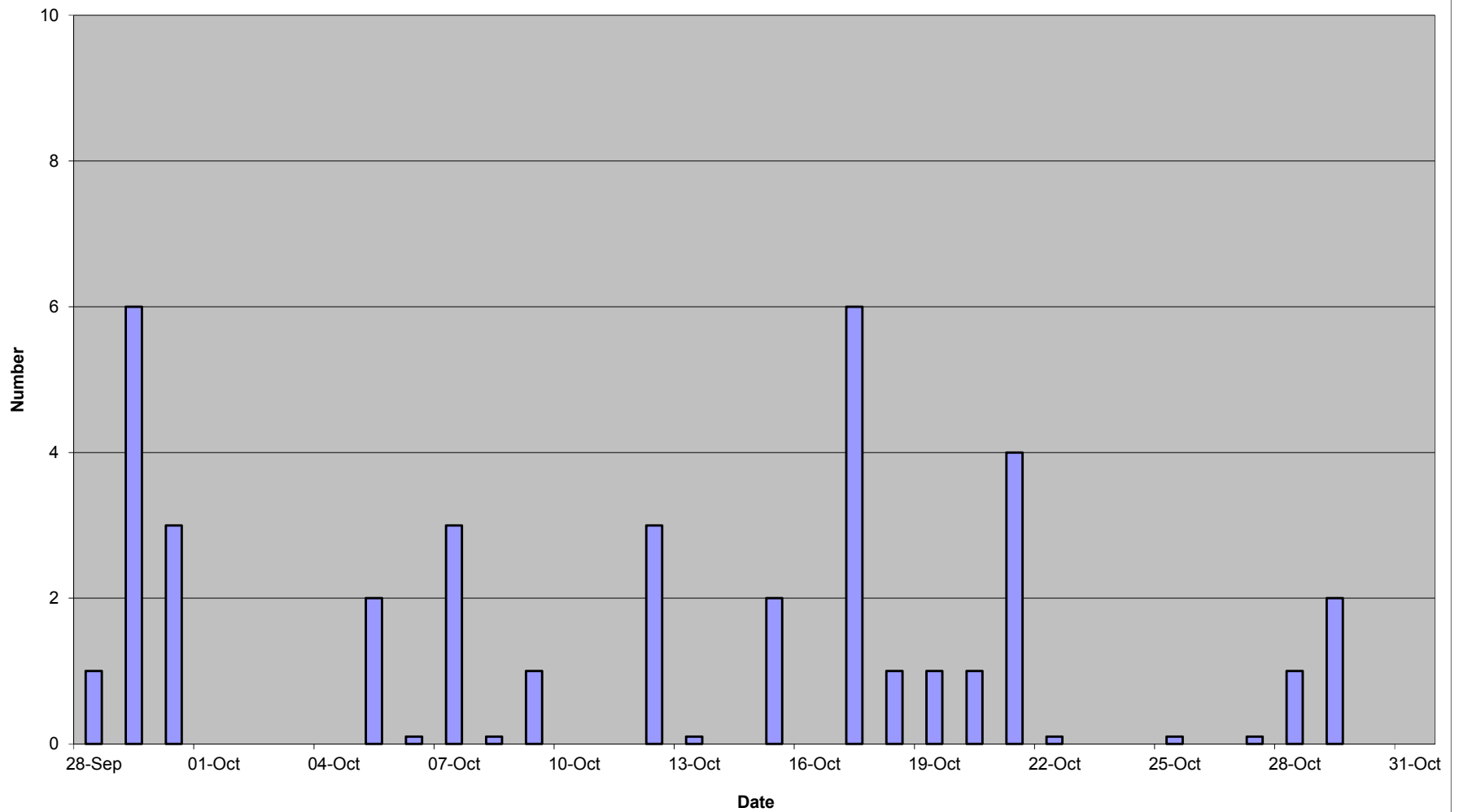


Figure 8b. New Bandings at Cypress Hills Interprovincial Park- Fall 2012



**Figure 9. Northern Saw-whet Owl New Captures at Spring Creek Site  
Cypress Hills PP 2012  
(new bands=37)  
Number = 0.1 indicates nets up but no owls captured**



**Table 10. Injuries and Mortalities During 2012 CBBS Projects**

Species	Captures	Injuries		Mortalities	
		Number	Type	Number	Cause
Cocoa Woodcreeper		1	cut tongue		
Western Wood-Pewee				1	dead in net
Least Flycatcher		1	wing strain		
Red-eyed Vireo		1	cut tongue		
Bay Wren		1	cut tongue		
		1	wing strain		
Swainson's Thrush		1	wing abrasion		
American Robin		5	wing abrasion		
		2	broken rectrices		
		1	cut tongue		
Cedar Waxwing		1	wing strain	1	deer predation
Orange-crowned Warbler		1	cut foot	1	dead in net
Mourning Warbler				1	dead in net
Yellow Warbler				1	deer predation
Clay-colored Sparrow		1	shock		
Lincoln's Sparrow		1	wing strain		
White-throasted Sparrow				1	Black-billed Magpie predation
				1	died during banding
Western Tanager		1	lost rectrices		
Blue-black Grassquit		1	heat exhaustion		
Thick-billed Seed-Finch		1	wing strain		
Variable Seedeater		1	wing strain		
Blue-black Grosbeak				3	heat stress
Red-winged Blackbird		1	cut tongue		
Common Grackle		1	cut tongue		
House Finch		1	wing abrasion		
<b>Total</b>	<b>2590</b>	<b>25</b>	<b>0.97%</b>	<b>10</b>	<b>0.39%</b>

**TABLE 11. CALGARY BIRD BANDING SOCIETY  
2012 MEMBERSHIP LIST**

Achuff, Peter	Hornbeck, Garry
Alderman, Lynda	Hunter, Mary Jane
Attia, Yousif	Kissinger, Bev
Bartok, Nick	Kissinger, Maryanne
Bennett, Christine	Klassen, Henry
Brennan, Liz	Knox, Carol
Collister, Doug	Konopnicki, Sue
Cooper, Pat	Koszler, Bianca
Cooper, Bob	<b>Lane, Stephen*</b>
Coulombe, Gabrielle	Langille, Jennifer
Cousins, David	Lanning, Ryan
Dann, Erin	Lapka, Stephanie
Darling, Amy	Laverty, Jolene
Davis Jim	Maidment, Susanne
Davis, Nancy	Manry, Kathryn
Day, Kelly	McDonald, Christine
Donohue, Katie	McKenzie-Brown, Peter
Donohue, Charlene	McKenzie-Brown, Bernie
Donohue, Jim	<b>McLeod, Shonna*</b>
Donohue, Marie	<b>Meyer, Greg*</b>
Drut, Marty	<b>Mitchell, Pat*</b>
Dubrovna, Alexandra	Moores, Amy
Duncan, Paula	Mulligan, Mike
Ebel, Rainer	Musto, David
Flynn, Lenora	O'Connell, Kristin
Flynn, Richard	Oberle, Kathleen
Foster, Danusha	Olaya, Francisca
Foster, Ken	Pasemko, Sarah
Gahbauer, Marcel	Patey Ledrew, Susan
Ginn, Matt	Pengelly, Chris
Godwin-Sheppard, Christine	Peterson, El
Gratz, Lynn	Pinto, Madalena
Gregg, Jim	Potter, Jane
Gregg, Hilary	Potter, Michael
Gregg, Michael	Prins, Colton
Hachey, Carole	Reist, Ron
Hawes, David	Risely, Mike
Herrero, Steve	Routledge, Allison
Holmes, Greg	Rowlands, Jane
Hope, Tanya	Russum, Dave



Szabo, Tamas  
Shakibaei, Simon  
Sipkens, Jennifer  
Smiley, Gwen  
Smith, Cyndi  
Stauffer, Dick  
Stiles, Don  
Storms, Bob  
Stroh, Jennifer  
**Taylor, Bill\***  
Teruel-Diez, Andrea  
Tietz, Gwen  
Thorsteinsson, Tommy  
Tigchelaar, Samantha  
Trakalo, Barry  
Truch, Mike  
Weerstra, Anne  
Wieckowski, Donna  
Wieckowski, Arthur  
Wiggins, Linda  
Wilson, Bruce  
Wilson, Scott  
Young, Colin

## **Executive**

President – Doug Collister  
Vice President – Ken Foster  
Treasurer – Jennifer Sipkens  
Secretary – Garry Hornbeck  
Director-at-Large – Christine Godwin  
Director-at-Large – Marcel Gahbauer  
Director-at-Large – El Peterson  
Director-at-Large – Yousif Attia  
Director-at-Large – Stephanie Lapka  
Director-at-Large – Nick Bartok

**\* non-voting member**

**Table 1a. Coverage and Capture Rates During 2012 Spring MM at IBS**

Date	Net-hours	Captures				Total	Captures/100 Net-hours
		New Bandings	Recaptures	Escapes/unbanded	Mortalities		
01-May	33.8	1		2		3	8.9
02-May	52.4	7		1		8	15.3
03-May	58.1	11				11	18.9
04-May	72.2	24	1	1		26	36.0
05-May	27.9	21	1			22	78.9
06-May	73.5	15	2	1		18	24.5
07-May	72.2	2	2			4	5.5
08-May	72.2	3	1	2		6	8.3
09-May	72.7	2				2	2.8
10-May	68.4	3	1	1		5	7.3
11-May	72.2	10	4			14	19.4
12-May	73.2	19				19	26.0
13-May	73.0	15	2			17	23.3
14-May	71.9	8	1			9	12.5
15-May	66.1	6				6	9.1
16-May	72.2	6	1			7	9.7
17-May	73.9	10	4			14	18.9
18-May	73.9	50	4	2		56	75.8
19-May	75.0	36	5	3		44	58.7
20-May	72.3	10	3			13	18.0
21-May	71.7	11	4			15	20.9
22-May	72.3	10	4	1		15	20.7
23-May	73.9	13	8	3		24	32.5
24-May	28.7	4	1			5	17.4
25-May	72.1	10	2	1		13	18.0
26-May	72.0	11	3		1	15	20.8
27-May	72.3	9	3	1		13	18.0
28-May	68.1	5	2	1		8	11.7
29-May	70.9	7	3			10	14.1
30-May	72.0	3	4	1		8	11.1
31-May	73.2	14	3			17	23.2
01-Jun	72.1	3	2			5	6.9
02-Jun	72.0	2				2	2.8
03-Jun	72.3	6	2			8	11.1
04-Jun	72.4	2	2	1		5	6.9
05-Jun						0	
06-Jun	43.3	25	3			28	64.7
<b>Total</b>	<b>2406</b>	<b>394</b>	<b>78</b>	<b>22</b>	<b>1</b>	<b>495</b>	<b>20.6</b>

< 72 net-hrs

**Table 1b. Coverage and Capture Rates During 2012 Fall MM at IBS**

Date	Net-hours	Captures				Total	Captures/100 Net-hours
		New Bandings	Recaptures	Escapes	Mortalities		
28-Jul	51	8	2	1		11	21.7
29-Jul	60	7	2			9	14.9
30-Jul	62	24	5	1		30	48.4
31-Jul	58	5	6			11	18.9
01-Aug	60	5	2			7	11.7
02-Aug	weather and no BIC					0	
03-Aug	61	19	4	2		25	41.3
04-Aug	71	5	1			6	8.4
05-Aug	72	7	5			12	16.6
06-Aug	71	6	3	1		10	14.0
07-Aug	72	20	7	1		28	38.9
08-Aug	BIC ill					0	
09-Aug	72	27	3		1	31	43.1
10-Aug	73	55	6			61	84.0
11-Aug	72	3	1			4	5.6
12-Aug	72	20	7			27	37.3
13-Aug	73	22	2	2		26	35.8
14-Aug	73	11	6			17	23.3
15-Aug	72	16	7	7		30	41.8
16-Aug	72	12	4	1		17	23.5
17-Aug	73	15	4			19	26.2
18-Aug	72	15	2			17	23.5
19-Aug	72	14	4			18	24.9
20-Aug	no volunteer					0	
21-Aug	73	46	5	2		53	73.0
22-Aug	71	21	3			24	33.9
23-Aug	71	27	3	1		31	43.4
24-Aug	weather					0	
25-Aug	72	20	4	1		25	34.7
26-Aug	69	10	2			12	17.5
27-Aug	73	8	8	1		17	23.4
28-Aug	72	6		2		8	11.1
29-Aug	72	11				11	15.2
30-Aug	72	15	1	1		17	23.5
31-Aug	72	4	2			6	8.3
01-Sep	72	3	2			5	6.9
02-Sep	61	32	1			33	54.2
03-Sep	68	48	10			58	85.8
04-Sep	rain					0	
05-Sep	72	4	3			7	9.7

**Table 1b. Coverage and Capture Rates During 2012 Fall MM at IBS**

Date	Net-hours	Captures				Total	Captures/100 Net-hours
		New Bandings	Recaptures	Escapes	Mortalities		
06-Sep	no volunteer					0	
07-Sep	73	9	3		1	13	17.9
08-Sep	72	8	1			9	12.5
09-Sep	72	3				3	4.2
10-Sep	69	10				10	14.4
11-Sep	55	11	1	1	1	14	25.6
12-Sep	72	4				4	5.6
13-Sep	73	4	1			5	6.9
14-Sep	72	6	2			8	11.1
15-Sep	72	19	4	1		24	33.2
16-Sep	72	18	2			20	27.8
17-Sep	72	14	3			17	23.5
18-Sep	73	15	1	1		17	23.4
19-Sep	73	10	1	1		12	16.4
20-Sep	73	5	2			7	9.6
21-Sep	72	9	4			13	18.1
22-Sep	72	12	3			15	20.8
23-Sep	72	6	3			9	12.5
24-Sep	72	8	1	1		10	13.8
25-Sep	51	3	1	1		5	9.8
26-Sep	74	51	3			54	72.7
27-Sep	72	18	5	1	1	25	34.9
28-Sep	71	18	9	1		28	39.4
29-Sep	72	8	2			10	13.9
30-Sep	72	7	3			10	13.9
01-Oct	73	1	3			4	5.5
02-Oct	39	1				1	2.6
03-Oct	weather					0	
04-Oct	cold					0	
05-Oct	72	12	6			18	25.0
06-Oct	71	7	2			9	12.7
07-Oct	72	3	2			5	6.9
<b>Total</b>	<b>4442</b>	<b>871</b>	<b>195</b>	<b>32</b>	<b>4</b>	<b>1102</b>	<b>25</b>

<< 72 net-hrs

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

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
Start	01-May	01-May	01-May	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	06-Jun	06-Jun	06-Jun	
# Days	27	31	31	31	33	32	30	33	32	32	36	
Total	597	230	440	370	311	528	589	700	573	500	394	5232
Species	46	36	41	40	41	43	46	44	40	46	38	77
Net-hours	1884	2138	2177	2248	2273	2113	1744	2374	2655	1988	2406	24000
Bandings/100 Net-hours	31.7	10.8	20.2	16.5	13.7	25.0	33.8	29.5	21.6	25.2	16.4	21.8
Wilson's Snipe									1			1
Sharp-shinned Hawk			1	1	1							2
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	2	1		10
Belted Kingfisher	1			1	3	1	3			1	2	12
Red-naped Sapsucker				1								1
Downy Woodpecker	5	1	1	4	1	4	1	3	4	2	4	30
Hairy Woodpecker							1	1				2
Northern Flicker	1		1	1			2	2		1	1	9
Olive-sided Flycatcher			1									1
Western Wood-Pewee	5	1	5		4	4	1	13	1	1		35
Trail's Flycatcher	6	4	6	6	1	9	5	12	35	14	7	105
Least Flycatcher	16	6	6	7	5	16	20	25	13	11	7	132
Eastern Phoebe	1											1
Eastern Kingbird		3	1	2	3	2			1	1		13
Blue-headed Vireo	2	1										3
Warbling Vireo	4	2			1	3	3	4	5	1	1	24
Red-eyed Vireo		1										1
Black-billed Magpie			2	1		2	1		1			8
Tree Swallow	18	6	11	18	14	12	25	36	19	11	9	179
N Rough-winged Swallow	5		4	5	4	3	5	9	6	4		45

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

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
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			1	2	1	9
House Wren	13	15	8	13	10	18	28	18	21	10	5	159
Ruby-crowned Kinglet		2			3	1	3	1		4		14
Golden-crowned Kinglet					1							1
Gray-cheeked Thrush					1	2	1					4
Swainson's Thrush	54	38	5	25	46	44	44	54	80	60	43	493
Hermit Thrush	2	2	1	2		2		2	2	1	1	15
Veery		1						1				2
American Robin	28	35	32	4	37	38	26	40	27	34	35	336
Varied Thrush							1			1		2
Gray Catbird	13	13	11	1	15	9	19	13	6	8	14	122
Brown Thrasher					1			1	1			3
Cedar Waxwing	3		12	8	8	1	4	3	59	1	25	124
Ovenbird			1	1	1		1			1	2	7
Northern Waterthrush	8	3	7	2	3	4	1	5	3	3	4	43
Black-and-white Warbler								1				1
Tennessee Warbler									3	1	2	6
Orange-crowned Warbler	19	6	12	18	1	18	24	11	10	21	6	146
Connecticut Warbler									1			1
MacGillivray's Warbler			1		1	1						3
Mourning Warbler										1		1
Common Yellowthroat	21	6	12	4	6	2	7	4	17	2	3	84
American Redstart	2	1			2	2	7	2	3	1	1	21
Magnolia Warbler						1						1
Yellow Warbler	33	2	13	2	21	23	10	23	44	12	14	197
Blackpoll Warbler	3	2	1	1			4	7	6	4	3	31
Palm Warbler										1	1	2
Yellow-rumped Warbler	249	1	136	43	45	61	231	210	32	203	81	1292

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

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
Wilson's Warbler	4	1	3		3	3	2	3	3		1	23
Spotted Towhee										1		1
Chipping Sparrow	3	6	1		6	108	14	30	26	4	52	250
Clay-colored Sparrow	15	9	1	1	6	63	16	45	57	15	18	246
Brewer's Sparrow								1				1
Savannah Sparrow	3		2	2	2		5	15	3	5	1	38
Fox Sparrow		1										1
Song Sparrow	3	1	8	7		2	1	3	6	2		33
Lincoln's Sparrow	19	31	37	42	16	20	32	62	49	36	26	370
White-throated Sparrow	5	2	7	7	2	2	13	7	6	1	4	56
White-crowned Sparrow	6	7	7	42	16	17	12	10	9	4	5	135
Dark-eyed Junco	1						1	2		1		5
Western Tanager	1		6	1		4	3	1	1	1		18
Rose-breasted Grosbeak	1					1	1	1	2	1		7
Lazuli Bunting				1				1				2
Red-winged Blackbird	3	5	1	8	5	4	1	1	1	3	6	38
Brewer's Blackbird									1			1
Common Grackle				1	2	3		1			2	9
Brown-headed Cowbird	5	3	7	8	4	8	2	4	5	4	1	51
Baltimore Oriole	4	7	6		6	3	1	6		1	2	36
American Goldfinch	1	4		2		2				2		11

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



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	2010	2011	2012	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	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	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	68	66	64	1221
Total	841	466	1549	1121	1455	1898	1276	1262	1402	1466	1452	1872	1335	1625	1670	1679	1066	1949	860	871	27115
Species	52	48	61	59	64	64	66	68	64	66	60	73	67	64	68	69	58	60	62	56	106
Net-hours	934	1078	3456	4547	4608	4371	4426	3842	5152	4838	4928	4944	4387	4509	4665	4789	4662	4682	4711	4442	83972
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	41.6	18.3	19.6	32.3
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	2	1	3	44
Cooper's Hawk				1	1			1		1											4
Northern Goshawk				1																	1
Broad-winged Hawk						1									1						2
Swainson's Hawk																			1		
Spotted Sandpiper		1	2		3	3	2			5	1	4	4	3	6	1	7		6	2	50
Solitary Sandpiper	3	2	3	14	13	14	2	8	4	12	5	8	11	7	7	8	8	3	4	1	137
Common Snipe								1		1									1		3
Mourning Dove												1									1
Belted Kingfisher	2	2	8	8	6	8	10	7	2	5	6	7	4	15	7	11	7	7	8	2	132
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	15	6	9	168
Hairy Woodpecker								1		1		2		1		1		1	1		8
Northern Flicker	2	1	4	8	7	3	11	2		4	7	6	3	3	1	2	1	2	5	5	77
Olive-sided Flycatcher	3		3		5	2		2		2		2	3	1	3	1	1	1	1	3	32
Western Wood-Pewee	6	4	11	2	33	8	10	7	14	14	11	16	17	11	18	19	9	11	2	3	226
Yellow-bellied Flycatcher			1				1					2			2			1			7
Trail's Flycatcher*	24	16	29	25	50	36	24	40	46	45	32	197	173	71	99	26	15	35	18	25	1026
Least Flycatcher	16	5	16	9	30	14	11	21	20	21	9	40	45	43	51	20	16	44	12	21	464
Hammond's Flycatcher																1		1			2

**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	2010	2011	2012	Total	
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	4	4	4	195	
Yellow-throated Vireo											1										1	
Blue-headed Vireo	1		1	1	2			1		2		2		1	1	1			2		15	
Warbling Vireo	8	15	13	18	27	18	8	7	12	9	17	12	1	17	25	24	10	18	6	20	285	
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			2	1	2	58
Blue Jay				1				1													2	
Black-billed Magpie			2	1	8	2	2	1	3	1	3	3	3		2	3	3	1	4	4	46	
Tree Swallow										1			7		5	7					20	
N Rough-winged Swallow					2							1	2		2	3					1	11
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	10	8	15	304	
Red-breasted Nuthatch		3		2		4	2	20	7	1	2	4	2	3	3	15	1	3	1	2	75	
White-breasted Nuthatch	1	1	6		4	4	4	5	5	5	7	5	2	2	5	6	5	3	2	4	76	
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	67	60	35	1242	
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	11	7	7	254	
Townsend's Solitaire				1					1		1			1					1	1	1	7
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	37	9	11	458	
Hermit Thrush	4		3	14	6	9	9	4	11	11	5	8	4	3	4	9	3	7	7	32	153	
American Robin	5	11	114	81	81	31	60	32	105	37	89	28	43	29	46	56	57	26	20	29	980	
Varied Thrush									1			5									6	
Gray Catbird		1		5	7	6	5	4	14	8	19	14	14	13	12	14	15	15	4	8	178	

**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	2010	2011	2012	Total
<b>Brown Thrasher</b>					3						1		1								5
<b>European Starling</b>			2						4						1						7
<b>Bohemian Waxwing</b>							1														1
<b>Cedar Waxwing</b>	12	1	42	14	67	11	25	26	49	27	21	43	22	24	71	153	71	124	63	92	958
<b>Ovenbird</b>	22	6	10	30	11	38	11	11	24	7	18	37	16	26	28	16	8	18	15	5	357
<b>Northern Waterthrush</b>	22	8	23	56	46	26	41	34	44	33	29	78	67	43	53	39	50	44	37	38	811
<b>Black-and-white Warbler</b>	4	1	1	2		3			2	3	3	1	2	1	2	3	2	1			31
<b>Tennessee Warbler</b>	43	5	33	30	52	74	106	167	46	76	147	98	58	43	87	96	56	56	23	24	1320
<b>Orange-crowned Warbler</b>	24	36	177	116	86	207	91	84	58	71	115	45	45	154	163	123	32	407	76	47	2157
<b>Nashville Warbler</b>				1	2	1	1	2	1	1			1	3		1				1	15
<b>Connecticut Warbler</b>	2	2	4	4	1	3	3	3	4	1		6	1	5	4	2	1	1	2	2	51
<b>MacGillivray's Warbler</b>	2		3	8	10	6	2	5	4	4	5	6	4	4	2	1	3	5	2		76
<b>Mourning Warbler</b>	4	2	5	10	3	9	1	4	5	7	10	7	5	5	6	3	3	3	4		96
<b>Common Yellowthroat</b>		1	6	1	8	10	8	4	12	8	9	7	2	9	7	5	6	13	3	4	123
<b>American Redstart</b>	19	4	3	6	4	20	5	3	16	27	18	19	7	16	14	7	8	19	3	9	227
<b>Cape May Warbler</b>											2										2
<b>Magnolia Warbler</b>	9	4	2	2	4	4	2	2	1	9	6	4	5	6	5	3		3	2	5	78
<b>Bay-breasted Warbler</b>			1				1	1			1										4
<b>Yellow Warbler</b>	56	19	44	62	137	91	138	89	101	119	82	165	126	75	154	113	60	154	48	53	1886
<b>Chestnut-sided Warbler</b>	1						1				1	1			1		1				6
<b>Blackpoll Warbler</b>	17	5	17	8	6	30	5	8	11	7	7	1	11	7	12	14	2	16	6	3	193
<b>Palm Warbler</b>		3	7	4	3	8	7	1	6	4	1	2	1	4				3	3	6	63
<b>Yellow-rumped Warbler</b>	293	171	496	92	191	638	195	200	246	248	223	148	73	412	207	256	100	200	169	53	4611
<b>Townsend's Warbler</b>	1				1	2	3	1	2	2		1	2	2	1	1	1	3			23
<b>Black-throated Green Warbler</b>					1	1	1														3
<b>Canada Warbler</b>	1			2	1	3	1	1	1	2		8		1	4	2		2	1		30
<b>Wilson's Warbler</b>	121	68	102	175	119	113	100	167	152	145	224	251	12	168	136	159	114	339	53	117	2835
<b>American Tree Sparrow</b>			10	3	3	7	2	1	1	2	4	4	3	5	2	3	1	2	2	4	59
<b>Chipping Sparrow</b>	4	1	29	14	151	27	83	50	47	92	23	155	34	1	34	43	80	60	9	17	954
<b>Clay-colored Sparrow</b>		1	1	6	21	37	26	9	30	26	6	12	14	15	10	11	23	12	5	10	275
<b>Brewer's Sparrow</b>							1														1

**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	2010	2011	2012	Total
Savannah Sparrow		1			2			1	1					1			3		1		10
Fox Sparrow	1	1	1			2	1		2	1	1	2			1	4			2	1	20
Song Sparrow		1	9	9	15	18	21	9	3	13	5	15	21	14	13	10	11	16	5	3	211
Lincoln's Sparrow	9	7	53	28	13	59	48	30	39	88	43	30	44	58	45	65	25	29	34	40	787
Swamp Sparrow				2		7	3		1	2	1	2		2	1	3			8	6	38
White-throated Sparrow	13	11	73	28	39	77	54	18	35	51	25	40	34	67	24	27	14	27	34	34	725
Harris's 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	23	15	6	389
Dark-eyed Junco	5	3	15	15	3	10	8	6	1	6	3	11	4	14		5	2	6	1	3	121
Western Tanager	1	1	12	1	3	2	4	1	5	6	3	5	3		4	8	1	9	4	2	75
Rose-breasted Grosbeak	6				1	3	2	3	1	3	7	5	3	2	1	5		5	1		48
Red-winged Blackbird			4				2			3		1			1				2		13
Rusty Blackbird															1	1					2
Common Grackle			3								1		2	4		5	5		14	16	50
Brown-headed Cowbird			1	2	2	1		2	4	5	1	4	3			4	2	4	1		36
Baltimore Oriole	4		21	12	12	8	5	1	8	9	20	7	11	2	11	7	12	3	3	5	161
Purple Finch		1			2	1	1	2	6				2	1	1	2				1	20
House Finch													9	2	35	45	12	11		7	121
Red Crossbill																					2
Pine Siskin					2							1			2	2	6		8	7	28
American Goldfinch	3			2	4	2	2	1	4	2		2	1	2	5		4		2		36
House Sparrow									3							4					7

New species

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

**Table 3. Inglewood Bird Sanctuary MAPS New Bandings - 2012**

<b>Species</b>	<b>09-Jun</b>	<b>19-Jun</b>	<b>29-Jun</b>	<b>08-Jul</b>	<b>17-Jul</b>	<b>26-Jul</b>	<b>05-Aug</b>	<b>Total</b>
Alder Flycatcher	3							3
Eastern Kingbird						1		1
Red-eyed Vireo	1							1
Black-billed Magpie					1			1
Bank Swallow						1		1
Black-capped Chickadee			5	2				7
House Wren		1			1	17	1	20
Swainson's Thrush						1		1
American Robin			1	1		2		4
Gray Catbird	2	1						3
Cedar Waxwing		2	6	2	2	6	4	22
Yellow Warbler	3	1			1	2	1	8
Chipping Sparrow						1		1
Clay-Colored Sparrow						1		1
House Finch						8		8
American Goldfinch	1							1
<b>Total birds</b>	<b>10</b>	<b>5</b>	<b>12</b>	<b>5</b>	<b>5</b>	<b>40</b>	<b>6</b>	<b>83</b>
<b>Total species</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>3</b>	<b>4</b>	<b>10</b>	<b>3</b>	<b>16</b>

**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	2010	2011	2012	
American Kestrel			1																		1
Downy Woodpecker	1	3	1	5	4	1			1		1	3		5		6	5	6			42
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	1		3	29
Least Flycatcher	14	8	3	2	3	4	2	1	2	1			1	5	9	3		3	1		62
Eastern Kingbird	2	1			3	1	3		2	1		3	1	1		1		1		1	21
Warbling Vireo	7	7	1	4	2		2	2	1	4	3		1	2	1	2	3	1	3		46
Philadelphia Vireo																		1			1
Red-eyed Vireo	1																				2
Black-billed Magpie				1	2							2									6
Tree Swallow	3						2					4		8		2		3			22
Northern Rough-winged Swallow																1		1			2
Bank Swallow	1																				2
Black-capped Chickadee	5	7	5	9	2	3	5	4	4	2	4	10	2	8	5	11	1			7	94
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	23	8	20	247
Veery	2					1															3
Swainson's Thrush	10	8	6	4	3	1	4		3	1	1	4	1	4		7	4	1	1	1	64
Hermit Thrush								1													1
American Robin	21	6	26	25	23	10	8	14	20	19	19	21	1	45	18	21	7	7	6	4	321
Gray Catbird	3			1	1	4	8	1	6	16	9	12	1	4	8	6	5	7	4	3	99
European Starling			1																		1
Cedar Waxwing	27	8		6	1	9	5	7	5	13	3	17	3	8	20	9	19	35	9	22	226
Tennessee Warbler	1	6		7	1	3	4	22	1	1	1	5		5	11	13	2	2			85
Orange-crowned Warbler						1						1									2

**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	2010	2011	2012	
Yellow Warbler	20	14	7	2	6	9	24	13	4	7	9	4	2	10	26	6	8	13	5	8	197
Yellow-rumped Warbler	10					2		2	1		1	1			3	3		1			24
American Redstart		1									1			2		1	1				6
Ovenbird	3			1		1										1	1				7
Northern Waterthrush						1	1		1							1		1			5
Mourning Warbler	1																				1
Common Yellowthroat												1	1			1		2			5
Wilson's Warbler				2		1	1					1							1		6
Chipping Sparrow		7			1							1		1	2			1		1	14
Clay-colored Sparrow		1				6	17	1	2						1	2	1	4	2	1	38
Song Sparrow		1		1		1	4				1		1		1	1		1	2		14
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
Western Tanager		1	3	1	2		4					1							1		13
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		1			22
Baltimore Oriole	3	7	2	8	9	1	2	1	5	9		2			3	1	3	1	1		58
Purple Finch		1						1													2
House Finch														5	4	6	1	6		8	30
American Goldfinch	2	2		1						1				1		1				1	9
House Sparrow	2					2															4
<b>Total</b>	<b>161</b>	<b>110</b>	<b>72</b>	<b>102</b>	<b>90</b>	<b>75</b>	<b>108</b>	<b>92</b>	<b>77</b>	<b>83</b>	<b>65</b>	<b>115</b>	<b>20</b>	<b>139</b>	<b>147</b>	<b>146</b>	<b>76</b>	<b>124</b>	<b>43</b>	<b>83</b>	<b>1928</b>
<b>Species</b>	<b>27</b>	<b>24</b>	<b>17</b>	<b>25</b>	<b>21</b>	<b>24</b>	<b>20</b>	<b>18</b>	<b>19</b>	<b>18</b>	<b>14</b>	<b>25</b>	<b>14</b>	<b>22</b>	<b>18</b>	<b>31</b>	<b>19</b>	<b>25</b>	<b>12</b>	<b>16</b>	<b>47</b>



**Table 5a. Coverage and Capture Rates During 2012 Spring MM at CHIP**

Date	Net-hours	Captures				Total	Captures/100 Net-hours
		New Bandings	Recaptures	Escapes/unbanded	Mortalities		
01-May		no monitoring					
02-May		no monitoring					
03-May		no monitoring					
04-May		no monitoring					
05-May		no monitoring					
06-May		no monitoring					
07-May		no monitoring					
08-May		no monitoring					
09-May		no monitoring					
10-May		no monitoring					
11-May		no monitoring					
12-May		no monitoring					
13-May		no monitoring					
14-May		no monitoring					
15-May		no BIC					
16-May		no BIC					
17-May		no BIC					
18-May	35.5	13	2		15	42	
19-May	72.0	11	5		16	22	
20-May	69.0	21	6	4	31	45	
21-May	72.0	16	8	4	28	39	
22-May	66.0	24	6		30	45	
23-May	21.5	8	1		9	42	
24-May		weather				0	
25-May	65.0	11	7	1	19	29	
26-May	68.0	37	9	1	47	69	
27-May	6.0	2	2		4	67	
28-May		weather				0	
29-May	70.0	40	10	1	51	73	
30-May	62.0	11	6		17	27	
31-May	69.5	22	14	2	38	55	
01-Jun	72.0	25	5		30	42	
02-Jun	72.0	17	8		25	35	
03-Jun	72.0	16	10		26	36	
04-Jun	72.0	24	7	1	32	44	
05-Jun	45.5	6	3		9	20	
06-Jun	72.0	28	9		37	51	
07-Jun	70.0	18	4		22	31	
08-Jun	57.0	15	5		20	35	
09-Jun	68.0	9	3	1	13	19	
<b>Total</b>	<b>1277</b>	<b>374</b>	<b>130</b>	<b>15</b>	<b>0</b>	<b>519</b>	<b>41</b>

<< 72 net-hrs

**Table 5b. Coverage and Capture Rates During 2012 Fall MM at CHIP**

Date	Net-hours	Captures				Total	Captures/100 Net-hours
		New Bandings	Recaptures	Escapes	Mortalities		
02-Aug	60.5	31	2			33	55
03-Aug	72.0	31	5			36	50
04-Aug	72.0	37	4	1		42	58
05-Aug	71.0	41	5			46	65
06-Aug	72.0	42	9			51	71
07-Aug	72.0	32	3			35	49
08-Aug	72.0	26				26	36
09-Aug	72.0	42	6			48	67
10-Aug	no BIC					0	
11-Aug	66.0	36	2	2		40	61
12-Aug	42.0	77	1			78	186
13-Aug	30.0	63	4	1		68	227
14-Aug	69.0	32	6	2		40	58
15-Aug	36.0	31	6	1		38	106
16-Aug	72.0	61	4	2		67	93
17-Aug	72.0	71	4	1		76	106
18-Aug	66.0	89	5			94	142
19-Aug	69.0	25	6			31	45
20-Aug	72.0	63	7			70	97
21-Aug	72.0	15	5			20	28
22-Aug	71.0	18	6	1		25	35
23-Aug	66.0	6	1			7	11
24-Aug	60.0	7	5			12	20
25-Aug	60.0	10	5			15	25
26-Aug	72.0	25	5			30	42
27-Aug	69.0	5	2			7	10
28-Aug	68.0	23	15			38	56
29-Aug	46.0	10	2			12	26
30-Aug	71.5	38	8			46	64
31-Aug	72.0	25	5	1		31	43
01-Sep	70.0	24	10			34	49
02-Sep	39.0	3				3	8
03-Sep	71.0	21	2	1		24	34
04-Sep	47.5	10	1	2		13	27
05-Sep	71.5	16	4			20	28
06-Sep	64.0	7	2			9	14
07-Sep	72.0	10	1			11	15
08-Sep	72.0	5	2			7	10
09-Sep	72.0	12	6			18	25
10-Sep	51.0	9	3			12	24

**Table 5b. Coverage and Capture Rates During 2012 Fall MM at CHIP**

Date	Net-hours	Captures				Total	Captures/100 Net-hours
		New Bandings	Recaptures	Escapes	Mortalities		
11-Sep	46.0	19	6			25	54
12-Sep	65.5	37	16	6		59	90
13-Sep	71.0	55	8	2		65	92
14-Sep	26.0	4				4	15
15-Sep	42.0	62	8			70	167
16-Sep	24.0	7	5			12	50
17-Sep	51.5	57	3	1		61	118
18-Sep	67.0	39	6	1		46	69
19-Sep	69.0	28	7			35	51
20-Sep	43.0	26	3	1		30	70
21-Sep	70.0	40	15			55	79
22-Sep	65.0	53	10	2		65	100
23-Sep	36.0	8	1			9	25
24-Sep	72.0	34	4	1		39	54
25-Sep	72.0	29	5			34	47
26-Sep	53.0	44	4			48	91
27-Sep	72.0	37	1			38	53
28-Sep	48.0	29	2			31	65
29-Sep	44.0	7				7	16
30-Sep		wind				0	
01-Oct		wind				0	
02-Oct	48.0	41	2			43	90
03-Oct		snow, fog, cold				0	
04-Oct	27.5	53	1	2		56	204
05-Oct		cold				0	
06-Oct	22.0	20	2	1		23	105
07-Oct	39.0	6	1			7	18
08-Oct		wind, cold				0	
09-Oct	36.0	13	1	1		15	42
10-Oct	27.0	10		2		12	44
		no banding					
		no banding					
		no banding					
14-Oct	24.0	9				9	38
<b>Total</b>	<b>3776</b>	<b>1896</b>	<b>280</b>	<b>35</b>	<b>0</b>	<b>2211</b>	<b>59</b>

<<72 net-hrs

**Table 6a. New Bandings at Cypress Hills Interprovincial Park - Spring**

Year	2010	2011	2012	Total
Start	01-May	01-May	18-May	
Finish	10-Jun	12-Jun	09-Jun	
# Days	30	36	21	
Total	839	948	370	2157
Species & Forms	60	56	44	80
Net-hours	1671	2052	1277	5000
Bandings/100 Net-hours	50.2	46.2	29.0	43.1
Mallard		1		1
Sora			1	1
Spotted Sandpiper		2		2
Belted Kingfisher		2		2
Red-naped Sapsucker	17	5	6	28
Downy Woodpecker	1		2	3
Hairy Woodpecker	2	1		3
"Yellow-shafted" Flicker			1	1
"Red-shafted" Flicker	1			1
"Unidentified" Flicker			1	1
Olive-sided Flycatcher	1	2		3
Western Wood-Pewee	9		4	13
Yellow-bellied Flycatcher	1			1
"Traill's" Flycatcher	44	33	18	95
Least Flycatcher	125	76	29	230
Dusky Flycatcher	13	1	1	15
Western Kingbird	1	1		2
Eastern Kingbird	3			3
Warbling Vireo	1	5	1	7
Red-eyed Vireo	8	11	1	20
Black-billed Magpie		2		2
American Crow		1		1
Tree Swallow	1	3	4	8
Bank Swallow		1	43	44
Black-capped Chickadee	5	1		6
House Wren	8	12	5	25
Ruby-crowned Kinglet	7	2		9
Mountain Bluebird	1			1
Veery	3	7	3	13
Gray-cheeked Thrush		1		1
Swainson's Thrush	25	18	18	61
Hermit Thrush	1			1
American Robin	26	29	14	69
Gray Catbird	22	12	14	48
Brown Thrasher		2		2
Cedar Waxwing	44	271	46	361
Ovenbird	3	1	1	5

**Table 6a. New Bandings at Cypress Hills Interprovincial Park - Spring**

Year	2010	2011	2012	Total
Northern Waterthrush	1	4	1	6
Black-and-white Warbler		2		2
Tennessee Warbler	6	18	1	25
Orange-crowned Warbler	30	23	2	55
MacGillivray's Warbler	17	4	3	24
Mourning Warbler	4			4
Common Yellowthroat	25	12	11	48
American Redstart	30	3	3	36
Cape May Warbler	1			1
Magnolia Warbler	1			1
Bay-breasted Warbler	1			1
Yellow Warbler	84	87	19	190
Blackpoll Warbler	16	25	9	50
Palm Warbler		1	1	2
"Myrtle" Warbler	15	23	3	41
"Audubon's" Warbler	45	11	3	59
"Unidentified" Yellow-rumped Warbler	2	3		5
Townsend's Warbler	1			1
Wilson's Warbler	1			1
Yellow-breasted Chat	1			1
Spotted Towhee	5			5
Chipping Sparrow	44	106	7	157
Clay-colored Sparrow	16	15	5	36
Brewer's Sparrow		1		1
Savannah Sparrow	7	1		8
Song Sparrow	4	2	4	10
Lincoln's Sparrow	12	1		13
White-throated Sparrow	8			8
"Eastern" White-crowned Sparrow	30	15	3	48
"Gambel's" White-crowned Sparrow	2	3		5
"Pink-sided" Junco	5	1		6
"Unidentified" Dark-eyed Junco	1			1
Western Tanager	7	3	2	12
Rose-breasted Grosbeak	3	6		9
Black-headed Grosbeak	2	1	2	5
Lazuli Bunting		1	1	2
Red-winged Blackbird	11	14	22	47
<b>Yellow-headed Blackbird</b>			1	1
Common Grackle		5		5
Brown-headed Cowbird	15	28	24	67
Baltimore Oriole		14	3	17
Pine Siskin	4	5	27	36
American Goldfinch	9	7	4	20

**New Species**

Table 6b. New Bandings at Cypress Hills Interprovincial Park - Fall

Species/Form	Year	2010	2011	2012	Total	
	Start	29-Jul	04-Aug	02-Aug		
	Finish	16-Oct	13-Oct	14-Oct		
	# Days	68	62	64		
<b>Total</b>		<b>1390</b>	<b>1550</b>	<b>1896</b>	<b>4836</b>	
<b>Species and forms</b>		<b>64</b>	<b>71</b>	<b>73</b>	<b>88</b>	
<b>Net-hours</b>		<b>3377</b>	<b>3743</b>	<b>3776</b>	<b>10895</b>	
<b>Bandings/100 Net-hours</b>		<b>41.2</b>	<b>41.4</b>	<b>50.2</b>	<b>44.4</b>	
<b>Northern Harrier</b>				1	1	
Sharp-shinned Hawk		3	2	4	9	
Cooper's Hawk			1		1	
Spotted Sandpiper		1		2	3	
<b>Wilson's Snipe</b>				1	1	
Belted Kingfisher		2	6	2	10	
Yellow-bellied Sapsucker		1			1	
Red-naped Sapsucker		11	25	19	55	
Downy Woodpecker		5		10	15	
Hairy Woodpecker			3	1	4	
"Yellow-shafted" Flicker		1	2		3	
"Red-shafted" Flicker		1			1	
<i>Flicker Intergrade</i>		1		2	3	
Western Wood-Pewee		14	18	11	43	
<b>Alder Flycatcher</b>				1	1	
"Traill's" Flycatcher		151	52	127	330	
Least Flycatcher		155	188	140	483	
Dusky Flycatcher		8		1	9	
<b>Unidentified Flycatcher</b>				1	1	
Eastern Kingbird			2	3	5	
Northern Shrike		1			1	
Warbling Vireo		6	15	9	30	
Philadelphia Vireo			3		3	
Red-eyed Vireo		6	8	14	28	
Black-billed Magpie			1		1	
Black-capped Chickadee		85	13	27	125	
Red-breasted Nuthatch		4	2	13	19	
<b>Brown Creeper</b>				1	1	

**Table 6b. New Bandings at Cypress Hills Interprovincial Park - Fall**

Species/Form	Year	2010	2011	2012	
House Wren		32	39	34	105
Marsh Wren			1	1	2
Blue-gray Gnatcatcher			1		1
Ruby-crowned Kinglet		6	21	16	43
Veery		3	10	2	15
Gray-cheeked Thrush			1	1	2
Swainson's Thrush		21	8	12	41
Hermit Thrush			1	4	5
American Robin		41	11	16	68
Gray Catbird		31	19	40	90
Brown Thrasher		1	1		2
Cedar Waxwing		29	25	25	79
Ovenbird		4	4	6	14
Northern Waterthrush		9	7	5	21
Black-and-white Warbler		3	5	3	11
Tennessee Warbler		6	18	2	26
Orange-crowned Warbler		203	134	66	403
Nashville Warbler			2	1	3
MacGillivray's Warbler		4	11	8	23
Mourning Warbler		4	2	1	7
Common Yellowthroat		21	48	43	112
American Redstart		5	15	11	31
Magnolia Warbler		1	3	1	5
Yellow Warbler		124	259	155	538
Chestnut-sided Warbler			1		1
Blackpoll Warbler		6	7	5	18
"Western" Palm Warbler		1	1	4	6
"Myrtle" Warbler		108	220	406	734
"Audubon's" Warbler		3	9	2	14
"Unidentified" Yellow-rumped Warbler		2	5	13	20
Canada Warbler		1	3	1	5
Wilson's Warbler		51	46	26	123
Yellow-breasted Chat			1		1
Spotted Towhee			1		1
American Tree Sparrow		6	16	6	28
Chipping Sparrow		19	14	10	43
Clay-colored Sparrow		21	54	22	97
Field Sparrow				1	1



**Table 6b. New Bandings at Cypress Hills Interprovincial Park - Fall**

Species/Form	Year	2010	2011	2012	
Savannah Sparrow		2	3		5
Song Sparrow		20	39	40	99
Lincoln's Sparrow		13	14	18	45
Swamp Sparrow			1	6	7
White-throated Sparrow		10	9	16	35
"Eastern" White-crowned Sparrow		9	9	2	20
"Gambel's" White-crowned Sparrow		2	3	1	6
"Unidentified" White-crowned Sparrow		53	35	52	140
"Slate-colored" Junco		7	16	8	31
"Pink-sided" Junco		3	3		6
"Unidentified" Dark-eyed Junco		16	7	1	24
Western Tanager			1	1	2
Rose-breasted Grosbeak		1			1
<b>Black-headed Grosbeak</b>				3	3
Red-winged Blackbird		4	3	6	13
Brown-headed Cowbird			1	4	5
Baltimore Oriole		1		2	3
Purple Finch		1	2	2	5
Red Crossbill			11	171	182
White-winged Crossbill		4	23	40	67
Pine Siskin		14	5	179	198
American Goldfinch		8		5	13

**New species/form**

**Table 7. New Bandings During MAPS at  
Cypress Hills Interprovincial Park 2012**

Species/Forms	Locations			Total
	Rodeo Grounds	Old Baldy	Spruce Coulee	
Red-naped Sapsucker	9	1	4	14
Downy Woodpecker			2	2
Hairy Woodpecker	1			1
Western Wood-Pewee		1	3	4
Least Flycatcher	12	21	37	70
Dusky Flycatcher	2	2	17	21
Warbling Vireo	3		10	13
Red-eyed Vireo			2	2
Black-billed Magpie	1			1
Tree Swallow		1		1
Black-capped Chickadee	9	1	21	31
House Wren	2	15	14	31
Ruby-crowned Kinglet			1	1
Veery	1		6	7
Swainson's Thrush	4	2	1	7
American Robin	1	10	1	12
Gray Catbird	3	4	5	12
Cedar Waxwing	3	23	15	41
Tennessee Warbler	3	3	1	7
Orange-crowned Warbler		4	1	5
Yellow Warbler	6	14	10	30
Chestnut-sided Warbler			1	1
American Redstart	17	3	10	30
Ovenbird	2		3	5
MacGillivray's Warbler	1	3	1	5
Common Yellowthroat	6			6
Clay-colored Sparrow	2	10	5	17
Song Sparrow	3	1	1	5
Eastern White-crowned Sparrow	1	10	3	14
White-crowned Sparrow	1	14	2	17
Unidentified Junco			2	2
Black-headed Grosbeak		2		2
Brown-headed Cowbird	2		4	6
White-winged Crossbill	1			1
Pine Siskin	7	4	4	15
American Goldfinch	3	2	2	7
<b>Totals</b>	<b>106</b>	<b>151</b>	<b>189</b>	<b>446</b>

**Table 8a. Population Trends for Species Monitored at Inglewood Bird Sanctuary Spring 2012**

Spring migration trends Species	2002-2012			2003-2012		
	Trend (%/year)	p	# captures	Trend (%/year)	p	# captures
Belted Kingfisher	<b>11.38</b>	0.54	18	<b>23.41</b>	0.46	17
Western Wood-Pewee	<b>-23.60</b>	0.24	37	<b>-12.08</b>	0.69	32
Traill's Flycatcher	<b>12.11</b>	0.33	104	<b>18.80</b>	0.21	98
Least Flycatcher	<b>3.29</b>	0.66	143	<b>8.86</b>	0.39	126
Eastern Kingbird	<b>-14.02</b>	0.41	23	-	-	20
Warbling Vireo	<b>-10.02</b>	0.67	30	<b>5.45</b>	0.78	24
N Rough-winged Swallow	<b>-3.47</b>	0.87	49	<b>1.98</b>	0.89	44
Tree Swallow	<b>0.27</b>	0.90	213	<b>3.08</b>	0.65	195
House Wren	<b>2.85</b>	0.40	232	<b>-0.30</b>	0.94	215
Ruby-crowned Kinglet	<b>3.11</b>	0.91	15	<b>-8.29</b>	0.84	15
Swainson's Thrush	<b>7.47</b>	0.11	550	<b>10.64</b>	0.06	496
Hermit Thrush	<b>-5.81</b>	0.70	15	<b>-4.38</b>	0.81	13
American Robin	<b>-0.88</b>	0.73	442	<b>-1.70</b>	0.58	410
Gray Catbird	<b>3.31</b>	0.37	147	<b>3.08</b>	0.49	133
Cedar Waxwing	<b>28.20</b>	<b>&lt;0.01</b>	133	<b>23.21</b>	<b>0.01</b>	130
Northern Waterthrush	<b>-5.79</b>	0.51	44	<b>-0.32</b>	0.97	36
Orange-crowned Warbler	<b>-0.05</b>	1.00	146	<b>4.43</b>	0.60	128
Common Yellowthroat	<b>-13.62</b>	0.35	87	<b>-5.94</b>	0.76	65
American Redstart	<b>10.38</b>	0.56	21	<b>16.43</b>	0.44	19
Yellow Warbler	<b>-1.99</b>	0.77	294	<b>5.30</b>	0.34	256
Blackpoll Warbler	<b>-14.71</b>	0.50	59	<b>15.66</b>	0.46	28
Yellow-rumped Warbler	<b>-7.64</b>	0.41	1400	<b>4.37</b>	0.69	1158
Wilson's Warbler	<b>-5.71</b>	0.69	23	<b>-2.41</b>	0.88	19
Chipping Sparrow	<b>19.75</b>	0.13	265	<b>17.94</b>	0.24	261
Clay-colored Sparrow	<b>9.44</b>	0.21	279	<b>10.75</b>	0.23	264
Savannah Sparrow	<b>0.17</b>	0.98	40	<b>10.01</b>	0.72	37
Song Sparrow	<b>-12.36</b>	0.37	40	<b>-13.03</b>	0.40	37
Lincoln's Sparrow	<b>3.96</b>	0.35	403	<b>0.34</b>	0.90	382
White-throated Sparrow	<b>-1.84</b>	0.90	57	<b>0.73</b>	0.99	52
White-crowned Sparrow	<b>-7.80</b>	0.43	139	<b>-12.25</b>	0.21	133
Western Tanager	<b>-9.74</b>	0.66	18	<b>-12.83</b>	0.56	17
Brown-headed Cowbird	<b>-6.8</b>	0.49	67	<b>-6.14</b>	0.57	61
Red-winged Blackbird	<b>-0.87</b>	0.92	39	<b>-3.32</b>	0.80	36
Baltimore Oriole	<b>-8.13</b>	0.40	50	<b>-11.66</b>	0.27	46

**Table 8b. Population Trends for Species Monitored At Inglewood Bird Sanctuary Fall 2012**

Fall migration trends Species	1995-2012			2003-2012		
	Trend (%/year)	p	# captures	Trend (%/year)	p	# captures
Sharp-shinned Hawk	<b>4.31</b>	0.71	43	<b>16.34</b>	0.46	22
Solitary Sandpiper	<b>-9.54</b>	0.19	133	<b>-13.69</b>	0.30	62
Belted Kingfisher	<b>-3.17</b>	0.63	132	<b>-4.30</b>	0.75	76
Olive-sided Flycatcher	<b>-1.75</b>	0.82	29	<b>6.53</b>	0.82	15
Western Wood-Pewee	<b>-5.84</b>	0.49	221	<b>-13.22</b>	0.29	121
Traill's Flycatcher	<b>-3.14</b>	0.44	1005	<b>-18.20</b>	<b>0.01</b>	704
Least Flycatcher	<b>1.90</b>	0.71	448	<b>2.03</b>	0.90	302
Eastern Kingbird	<b>-5.33</b>	0.37	213	<b>-13.82</b>	0.10	106
Blue-headed Vireo	<b>1.37</b>	0.90	12	<b>-7.44</b>	0.78	7
Warbling Vireo	<b>-1.97</b>	0.70	294	<b>2.36</b>	0.82	167
Red-eyed Vireo	<b>-3.99</b>	0.61	56	<b>-5.21</b>	0.76	23
House Wren	<b>0.78</b>	0.60	1430	<b>-3.91</b>	0.27	922
Ruby-crowned Kinglet	<b>-3.84</b>	0.42	251	<b>-11.97</b>	0.20	145
Swainson's Thrush	<b>-2.66</b>	0.60	430	<b>-5.74</b>	0.52	233
Hermit Thrush	<b>3.78</b>	0.62	154	<b>16.83</b>	0.18	85
American Robin	<b>-6.38</b>	0.11	1022	<b>-4.53</b>	0.58	445
Gray Catbird	<b>6.53</b>	0.42	190	<b>-8.42</b>	0.26	138
Cedar Waxwing	<b>10.78</b>	<b>&lt;0.001</b>	962	<b>21.27</b>	<b>0.01</b>	695
Ovenbird	<b>-3.97</b>	0.61	342	<b>-11.78</b>	0.26	192
Northern Waterthrush	<b>0.60</b>	0.74	793	<b>-2.85</b>	0.51	484
Black-and-white Warbler	<b>-4.10</b>	0.70	27	<b>-16.14</b>	0.40	16
Tennessee Warbler	<b>-1.85</b>	0.43	1268	<b>-11.39</b>	<b>0.03</b>	707
Orange-crowned Warbler	<b>-5.26</b>	0.16	2156	<b>-6.81</b>	0.46	1242
Connecticut Warbler	<b>-5.85</b>	0.52	52	<b>3.35</b>	0.94	26
MacGillivray's Warbler	<b>-6.47</b>	0.30	75	<b>-13.82</b>	0.33	32
Mourning Warbler	<b>-5.67</b>	0.30	92	<b>-13.89</b>	0.17	46
Common Yellowthroat	<b>-1.17</b>	0.82	125	<b>-9.26</b>	0.45	65
American Redstart	<b>4.17</b>	0.69	206	<b>-9.16</b>	0.34	122
Magnolia Warbler	<b>2.55</b>	0.77	65	<b>-5.49</b>	0.64	39
Yellow Warbler	<b>-0.89</b>	0.81	1909	<b>-7.68</b>	0.39	1090
Blackpoll Warbler	<b>-6.53</b>	0.49	173	<b>-4.51</b>	0.86	80
Palm Warbler	<b>-2.44</b>	0.78	61	<b>21.68</b>	0.40	21
Yellow-rumped Warbler	<b>-5.38</b>	0.26	4359	<b>-17.36</b>	<b>0.03</b>	1882
Canada Warbler	<b>-1.70</b>	0.92	30	<b>-10.30</b>	0.74	19
Wilson's Warbler	<b>-1.40</b>	0.74	2819	<b>-11.21</b>	0.16	1714
American Tree Sparrow	<b>-8.91</b>	0.28	63	<b>-4.28</b>	0.75	31
Chipping Sparrow	<b>-4.72</b>	0.14	998	<b>-3.68</b>	0.66	483
Clay-colored Sparrow	<b>4.95</b>	0.68	293	<b>-1.89</b>	0.81	127
Song Sparrow	<b>-5.88</b>	0.56	222	<b>-6.97</b>	0.66	116
Lincoln's Sparrow	<b>-1.27</b>	0.81	840	<b>-1.87</b>	0.75	448
Swamp Sparrow	<b>9.18</b>	0.60	34	<b>14.05</b>	0.52	18
White-throated Sparrow	<b>-2.97</b>	0.44	731	<b>-3.89</b>	0.64	339
White-crowned Sparrow	<b>-3.49</b>	0.15	407	<b>-10.85</b>	<b>0.05</b>	203
Western Tanager	<b>-5.61</b>	0.51	79	<b>-2.43</b>	0.91	38
Rose-breasted Grosbeak	<b>1.98</b>	0.88	42	<b>-19.76</b>	0.25	29
Baltimore Oriole	<b>-7.20</b>	0.15	164	<b>-11.46</b>	0.21	84



**Table 9. Bander-in-Charge and Volunteer Effort 2012**

Member/Guest	Bander-in-Charge (days)						Volunteer (days)					
	Inglewood			NSWO	LSBS	CHIP	Inglewood			NSWO	LSBS	CHIP
	Spring MM	MAPS	Fall MM				Spring MM	MAPS	Fall MM			
<b>Mike Gregg*</b>										1		
Carole Hachey							1		3			
Dave Hawes									3			
Steve Herrero										1		
Greg Holmes							5	2	6			
Hank Klassen							1		7	4		
Carol Knox							7	1	2			
Susan Konopnicki									6	1		
Stephen Lane	10	2	18						1			
<b>Lea Lapka*</b>										1		
Stephanie Lapka							2			5		
Jolene Laverty									1	2		
Susanne Maidment							6		1			
<b>Kristen Mancuso***</b>						81						
Kathryn Manry							1				10	
Christine McDonald									1			
<b>Teresa McLeod*</b>										1		
Shonna McLeod	5		6	26								
Greg Meyer	10	3	25				1	1				
Pat Mitchell	6	2	7	9								
Amy Moores							1			1		
Kathleen Oberle									3			
Francisca Olaya							2					
El Peterson									2			
Mike Potter							4	1	6			10
Colton Prins												3
Ron Reist							3					

**Table 9. Bander-in-Charge and Volunteer Effort 2012**

Member/Guest	Bander-in-Charge (days)						Volunteer (days)					
	Inglewood			NSWO	LSBS	CHIP	Inglewood			NSWO	LSBS	CHIP
	Spring MM	MAPS	Fall MM				Spring MM	MAPS	Fall MM			
Alison Routledge							2	1	1			
Jane Rowlands							2	2	2	5		
David Russum							3	1	2			
Simon Shakibaei							3		1	3		
Jen Sipkens							2		1			
Gwen Smiley							1					
Cyndi Smith					2						8	
Dick Stauffer							1					
Don Stiles							2		6			
Jen Stroh												1
Bill Taylor	5											
Andrea Teruel-Diez									1			
Tommy Thorsteinsson									4	2		
Gwen Tietz											9	
Samantha Tigchelaar								1				
Leena Tirrul**						129						
Barry Trakalo									1		10	
Morganne Wall***						75						
Anne Weerstra							3		1	2	9	
Linda Wiggins										1		
Bruce Wilson							1		6			
<b>Total</b>	<b>36</b>	<b>8</b>	<b>63</b>	<b>36</b>	<b>30</b>	<b>290</b>	<b>75</b>	<b>11</b>	<b>89</b>	<b>53</b>	<b>88</b>	<b>35</b>

\* guest volunteer  
 \*\* contract BIC  
 \*\*\* contract assistant









## Appendix 2. Top 20 New Bandings at Inglewood Bird Sanctuary

Spring				
Species	2002-2012		2012	2012
	Rank	Number	Rank	Number
Yellow-rumped Warbler	1	1292	1	81
Swainson's Thrush	2	493	3	43
Lincoln's Sparrow	3	370	5	26
American Robin	4	336	4	35
Chipping Sparrow	5	250	2	52
Clay-colored Sparrow	6	246	7	18
Yellow Warbler	7	197	8-9	14
Tree Swallow	8	179	10	9
House Wren	9	159	15-16	5
Orange-crowned Warbler	10	146	13-14	6
White-crowned Sparrow	11	135	15-16	5
Least Flycatcher	12	132	11-12	7
Cedar Waxwing	13	124	6	25
Gray Catbird	14	122	8-9	14
Traill's Flycatcher*	15	98	11-12	7
Common Yellowthroat	16	84	20	3
White-throated Sparrow	17	56	17-19	4
Brown-headed Cowbird	18	51		1
N Rough-winged Swallow	19	45		
Northern Waterthrush	20	43	17-19	4
Downy Woodpecker		30	17-19	4
Blackpoll Warbler		31	20	3
Red-winged Blackbird		38	13-14	6

Fall				
Species	2002-2012		2012	2012
	Rank	Number	Rank	Number
Yellow-rumped Warbler	1	4611	3-4	53
Wilson's Warbler	2	2835	1	117
Orange-crowned Warbler	3	2157	5	47
Yellow Warbler	4	1886	3-4	53
Tennessee Warbler	5	1320	13	24
House Wren	6	1242	8	35
Traill's Flycatcher	7	1026	12	25
American Robin	8	980	11	29
Cedar Waxwing	9	958	2	92
Chipping Sparrow	10	954	16	17
Northern Waterthrush	11	811	7	38
Lincoln's Sparrow	12	787	6	40
White-throated Sparrow	13	725	9	34
Least Flycatcher	14	464	14	21
Swainson's Thrush	15	458	19	11
White-crowned Sparrow	16	389		6
Ovenbird	17	357		5
Black-capped Chickadee	18	304	18	15
Warbling Vireo	19	285	15	20
Clay-colored Sparrow	20	275	20	10
Hermit Thrush			10	32
Common Grackle			17	16

\* includes Alder and Willow Flycatcher

**Appendix 3. Year-to-Year Recaptures at Inglewood Bird Sanctuary, Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park, De Wit Ranch and Costa Rica (Neotropical Migrants only)**

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
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																				
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	0924-45655	De Wit ranch																	B	x	r		
Northern Saw-whet Owl	1204-25371	De Wit ranch													B	x	r						
Northern Saw-whet Owl	1204-25383	De Wit ranch													B	x	x	r					
Northern Saw-whet Owl	1204-23480	De Wit ranch													B	d	FD in next L-L N						
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							
Belted Kingfisher	200346139	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								

**Appendix 3. Year-to-Year Recaptures at Inglewood Bird Sanctuary, Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park, De Wit Ranch and Costa Rica (Neotropical Migrants only)**

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
Downy Woodpecker	1871-73457	IBS													B	r	r	r	r					
Downy Woodpecker	1901-94964	IBS																B	x	r				
Downy Woodpecker	1901-94973	IBS																B	r	r				
Downy Woodpecker	2201-45482	IBS																	B	r				
Downy Woodpecker	2291-32298	IBS																	B	r				
Downy Woodpecker	2291-32764	IBS																			B	r	r	
Downy Woodpecker	2291-33295	IBS																				B	r	
Downy Woodpecker	2291-33248	IBS																				B	r	
Downy Woodpecker	2291-33375	IBS																					B	
Downy Woodpecker	2291-33379	IBS																					B	
Downy Woodpecker	2291-33395	IBS																					B	
Downy Woodpecker	2291-33510	IBS																					B	
Hairy Woodpecker	0922-89596	IBS																		B	x	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	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				
Yellow-bellied Flycatcher	2300-06703	Las Caletas											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	2340-94532	IBS																			B	r		
Least Flycatcher	2410-05519	IBS																			B	x	r	
Least Flycatcher	2430-31064	IBS															B	r						

**Appendix 3. Year-to-Year Recaptures at Inglewood Bird Sanctuary, Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park, De Wit Ranch and Costa Rica (Neotropical Migrants only)**

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Least Flycatcher	2490-22361	IBS																B	r				
Least Flycatcher	2490-22502	IBS																B	x	x	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	1791-21021	IBS										B	x	r	r	x	x	x	r	x	r		
Eastern Kingbird	1811-73189	IBS												B	x	x	r						
Eastern Kingbird	1871-73181	IBS														B	r	r	r	x	r	r	r
Eastern Kingbird	1871-73452	IBS													B	r							
Eastern Kingbird	1901-94517	IBS															B	r					
Eastern Kingbird	2291-32788	IBS																			B	x	r
Warbling Vireo	1950-45045	IBS			B	r																	
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			

**Appendix 3. Year-to-Year Recaptures at Inglewood Bird Sanctuary, Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park, De Wit Ranch and Costa Rica (Neotropical Migrants only)**

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Warbling Vireo	2500-72125	IBS																	B	r	r		
Warbling Vireo	2511-88607	IBS																					
Warbling Vireo	2580-26745	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					
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			
Tree Swallow	2221-82529	IBS																		B	x	x	r
Tree Swallow	2221-82530	IBS																			B	r	
Tree Swallow	2221-82531	IBS																		B	x	r	
Tree Swallow	2221-82545	IBS																		B	r		
Tree Swallow	2321-24749	IBS																			B	r	

**Appendix 3. Year-to-Year Recaptures at Inglewood Bird Sanctuary, Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park, De Wit Ranch and Costa Rica (Neotropical Migrants only)**

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Tree Swallow	2321-24754	IBS																			B	r	
Tree Swallow	2321-24749	IBS																			B	x	r
Tree Swallow	2321-24761	IBS																			B	r	
Tree Swallow	2430-31969	IBS																B	x	x		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							
Northern Rough-winged Swallow	2580-26717	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	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					recaptured at Pearce Estate
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													
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														

**Appendix 3. Year-to-Year Recaptures at Inglewood Bird Sanctuary, Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park, De Wit Ranch and Costa Rica (Neotropical Migrants only)**

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
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		recaptured at Stanley Park			
Black-capped Chickadee	2160-18180	IBS						B	r														
Black-capped Chickadee	2160-18704	IBS							B	r													
Black-capped Chickadee	2160-19095	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	recaptured in Ogden			
Black-capped Chickadee	2270-81338	IBS															B	r					
Black-capped Chickadee	2290-37241	IBS															B	r	recaptured in Ogden				
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	recaptured on St Patrick's Island				
Black-capped Chickadee	2290-88658	IBS													B	r	r	r	r	x	r	r	
Black-capped Chickadee	2290-92058	IBS												B	r								
Black-capped Chickadee	2290-92141	IBS												B	r	r	r	x	r				
Black-capped Chickadee	2290-92174	IBS												B	r								



**Appendix 3. Year-to-Year Recaptures at Inglewood Bird Sanctuary, Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park, De Wit Ranch and Costa Rica (Neotropical Migrants only)**

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Black-capped Chickadee	2290-37242	IBS															B	r					
Black-capped Chickadee	2290-37348	IBS														B	r						
Black-capped Chickadee	2340-94549	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	2490-22420	IBS																B	x	x	x	r	
Black-capped Chickadee	2490-22455	IBS																B	r	r	r	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	r	r	
Black-capped Chickadee	2500-72065	IBS																	B	r			
Black-capped Chickadee	2500-72088	IBS																	B	r			
Black-capped Chickadee	2580-26801	IBS																		B	r	r	
Black-capped Chickadee	2580-26827	IBS																		B	r	r	
Black-capped Chickadee	2580-26831	IBS																		B	r		
Black-capped Chickadee	2580-26934	IBS																		B	r		
Black-capped Chickadee	2640-21086	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	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	x	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																	

**Appendix 3. Year-to-Year Recaptures at Inglewood Bird Sanctuary, Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park, De Wit Ranch and Costa Rica (Neotropical Migrants only)**

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
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														
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					

**Appendix 3. Year-to-Year Recaptures at Inglewood Bird Sanctuary, Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park, De Wit Ranch and Costa Rica (Neotropical Migrants only)**

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
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					
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	2290-37962	IBS															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	2290-91805	IBS																			B	r	
House Wren	2290-91869	IBS																			B	r	
House Wren	2290-92112	IBS												B	r								
House Wren	2290-92203	IBS												B	r								
House Wren	2340-94544	IBS																			B	r	r
House Wren	2340-94564	IBS																			B	r	
House Wren	2340-94573	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			
House Wren	2580-26681	IBS																		B	r		

**Appendix 3. Year-to-Year Recaptures at Inglewood Bird Sanctuary, Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park, De Wit Ranch and Costa Rica (Neotropical Migrants only)**

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
House Wren	2580-26683	IBS																			B	r		
House Wren	2580-26700	IBS																			B	x	r	
House Wren	2580-26759	IBS																			B	r		
House Wren	2580-26760	IBS																			B	x	r	
House Wren	2580-26768	IBS																			B	r		
House Wren	2580-26841	IBS																			B	r		
House Wren	2580-26881	IBS																			B	r		
House Wren	2640-21003	IBS																					B	r
House Wren	2640-21013	IBS																					B	r
House Wren	2640-21065	IBS																					B	r
House Wren	2640-21440	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	0922-89575	IBS																			B	r		
American Robin	0942-93625	IBS											B	d										
American Robin	0942-93635	IBS											B	r										
American Robin	0942-93643	IBS											B	r										
American Robin	0942-93654	IBS												B	r	x	x	x	x	x	x	x	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										

**Appendix 3. Year-to-Year Recaptures at Inglewood Bird Sanctuary, Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park, De Wit Ranch and Costa Rica (Neotropical Migrants only)**

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
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	1142-10240	IBS																				B	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	x	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	x	r				found injured and released
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								
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							

**Appendix 3. Year-to-Year Recaptures at Inglewood Bird Sanctuary, Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park, De Wit Ranch and Costa Rica (Neotropical Migrants only)**

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
American Robin	1202-13384	IBS														B	r							
American Robin	1202-13386	IBS														B	r	r	r					
American Robin	1202-13389	IBS														B	x	x	x	x	r			
American Robin	1202-13431	IBS															B	r	x	x	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	1202-13530	IBS																B	x	x	r			
American Robin	1202-13570	IBS																B	x	x	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	1202-13617	IBS																	B	x	r			
American Robin	1202-13634	IBS																	B	d				
American Robin	1202-13649	IBS																	B	r				
American Robin	1202-13656	IBS																	B	r	r			
American Robin	1202-13693	IBS																	B	x	x	x	r	
American Robin	1232-09027	IBS																			B	r		
American Robin	1232-09028	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	r	r		
Gray Catbird	2231-66335	IBS																	B	r				
Gray Catbird	2231-66398	IBS																		B	r	r		
Gray Catbird	2421-71258	IBS																				B	r	
Gray Catbird	8001-77934	DPP															B	r						
Gray Catbird	8001-77944	DPP															B	r						

**Appendix 3. Year-to-Year Recaptures at Inglewood Bird Sanctuary, Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park, De Wit Ranch and Costa Rica (Neotropical Migrants only)**

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Gray Catbird	8001-77952	DPP															B	r					
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	r	x	x	x	x	r		recaptured at IBS				
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			
Gray Catbird	8041-83383	IBS																		B	r		
Gray Catbird	8041-83447	IBS																		B	r		
Gray Catbird	8041-83452	IBS																		B	x	r	
Cedar Waxwing	1461-50802	Cominco									B	r											
Cedar Waxwing	1461-63733	IBS					B	r															
Cedar Waxwing	2291-32386	IBS																		B	r		
Cedar Waxwing	2291-32417	IBS																		B	r		
Cedar Waxwing	2291-32423	IBS																		B	r		
Cedar Waxwing	2291-32871	IBS																			B	r	
Cedar Waxwing	2291-32938	IBS																			B	x	r
Cedar Waxwing	2291-33215	IBS																				B	r
Northern Waterthrush	2270-80501	Las Caletas												B	x	x	x	r	r				
Northern Waterthrush	2290-37603	Las Caletas														B	r						
Northern Waterthrush	2401-76353	LSBS																				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																	

**Appendix 3. Year-to-Year Recaptures at Inglewood Bird Sanctuary, Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park, De Wit Ranch and Costa Rica (Neotropical Migrants only)**

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
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											
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										



**Appendix 3. Year-to-Year Recaptures at Inglewood Bird Sanctuary, Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park, De Wit Ranch and Costa Rica (Neotropical Migrants only)**

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
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		recaptured in same L-L but different location (Carburn)				
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				
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		recaptured in same L-L but different location (Pearce Estate)				
Yellow Warbler	2270-80596	IBS												B	x	r							
Yellow Warbler	2270-80777	IBS												B	r	r							
Yellow Warbler	2270-80781	IBS												B	r			banded as HOWR!					
Yellow Warbler	2270-80785	IBS												B	x	r		recaptured in same L-L but different location (Lowrey Gardens)					
Yellow Warbler	2270-80861	IBS												B	r								
Yellow Warbler	2270-81400	IBS														B	r		recaptured on St Patrick's Island				
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						

**Appendix 3. Year-to-Year Recaptures at Inglewood Bird Sanctuary, Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park, De Wit Ranch and Costa Rica (Neotropical Migrants only)**

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Yellow Warbler	2290-37383	IBS														B	r		recaptured in next L-L S (Fish CreekPP)				
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	2290-91931	IBS																			B	r	
Yellow Warbler	2290-91971	IBS																			B	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	2340-94619	IBS																			B	r	
Yellow Warbler	2340-94757	IBS																			B	r	
Yellow Warbler	2340-94555	IBS																			B	r	
Yellow Warbler	2340-94904	IBS																			B	r	
Yellow Warbler	2340-94965	IBS																			B	r	r
Yellow Warbler	2430-31256	IBS															B	x	r				
Yellow Warbler	2440-33222	Cominco															B	x	x	x	r		recaptured at IBS
Yellow Warbler	2490-22209	IBS																B	r	r	r		
Yellow Warbler	2490-22320	IBS																B	x	r			
Yellow Warbler	2490-22329	IBS																B	r				
Yellow Warbler	2490-22344	IBS																B	r				
Yellow Warbler	2490-22349	IBS																B	r				
Yellow Warbler	2490-22356	IBS																B	r	r			
Yellow Warbler	2490-22383	IBS																B	r	x	x	d	
Yellow Warbler	2490-22424	IBS																B	r				
Yellow Warbler	2500-72382	IBS																B	x	x	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	2580-26816	IBS																B	r				
Yellow Warbler	2580-26883	IBS																B	r				

**Appendix 3. Year-to-Year Recaptures at Inglewood Bird Sanctuary, Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park, De Wit Ranch and Costa Rica (Neotropical Migrants only)**

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Yellow Warbler	2591-82821	IBS																					
Yellow Warbler	2640-19977	IBS																				B	r
Yellow Warbler	2640-19995	IBS																			B	r	
Yellow Warbler	2640-21002	IBS																			B	r	
Yellow Warbler	2640-21075	IBS																				B	r
Yellow Warbler	3500-89667	Dunbow						B	x	r													
Chestnut-sided Warbler	2300-06803	Las Caletas														B	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	2340-94532	IBS																			B	r	
Clay-colored Sparrow	2390-30503	IBS										B	x	r									
Clay-colored Sparrow	2500-72705	IBS																B	x	x	r		
Clay-colored Sparrow	2640-21032	IBS																				B	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, De Wit Ranch and Costa Rica (Neotropical Migrants only)**

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
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						
Song Sparrow	2291-32829	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	2221-82466	IBS																	B	x	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								
White-throated Sparrow	1461-79092	IBS				B	x	x	x	x	x	x	x	x	x	x	x	x	x	x	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	r	r	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						

**Appendix 3. Year-to-Year Recaptures at Inglewood Bird Sanctuary, Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park, De Wit Ranch and Costa Rica (Neotropical Migrants only)**

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Baltimore Oriole	8041-54908	IBS							B	r													
Baltimore Oriole	8041-83030	Cominco									B	r											
Baltimore Oriole	8041-83090	IBS											B	r	r								
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	8041-83312	IBS															B	x	x	x	r		
Baltimore Oriole	8041-83326	IBS															B	x	r	r			
Baltimore Oriole	8041-83383	IBS																B	x	x	r		
Baltimore Oriole	8041-83384	IBS																B	x	r			
Baltimore Oriole	8041-83388	IBS																B	r				
Baltimore Oriole	8051-65131	IBS						B	r														
House Finch	2291-32198	IBS																	B	x	d		found
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				

dead in same L-L

**Table 4a. New Bandings at Cypress Hills InterProvincial Park - Spring 2012**

Species/Forms	May											June									Total			
	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6		7	8	9
<b>Sora</b>													1											1
Red-naped Sapsucker			1	2	1							1					1							6
Downy Woodpecker						1		1																2
"Yellow-shafted" Flicker				1																				1
"Unidentified" Flicker								1																1
Western Wood-Pewee																		1	3					4
"Trail's" Flycatcher	1		1	2	1							2	3	3		3			2					18
Least Flycatcher		1	2	1				1	2			6	4	3	1	1	1	1	3	1		1		29
Dusky Flycatcher												1												1
Warbling Vireo																1								1
Red-eyed Vireo																						1		1
Tree Swallow			1		1							2												4
Bank Swallow					2							17				3			11	9		1		43
House Wren														2		1	1			1				5
Veery							1		1										1					3
Swainson's Thrush				1	1		2	1			3	2		2	4	1						1		18
American Robin	1	2		1			2	2					2	2					1			1		14
Gray Catbird												1	2	2	2	1		2	3			1		14
Cedar Waxwing			5	1	13				14								8		2			3		46
Ovenbird																						1		1
Northern Waterthrush	1																							1
Tennessee Warbler															1									1
Orange-crowned Warbler		1	1																					2
MacGillivray's Warbler														1							2			3
Common Yellowthroat								1							2	1	4	2					1	11
American Redstart																1		2						3
Yellow Warbler		3	5		1			1					3	4	1					1				19
Blackpoll Warbler		1		4				2			1					1								9
Palm Warbler				1																				1
"Myrtle" Warbler				1	1								1											3
"Audubon's" Warbler	1					1						1												3

**Table 4a. New Bandings at Cypress Hills InterProvincial Park - Spring 2012**

Species/Forms	May											June									Total			
	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6		7	8	9
<b>Sora</b>													1											1
Red-naped Sapsucker			1	2	1							1					1							6
Downy Woodpecker						1			1															2
<b>"Yellow-shafted" Flicker</b>				1																				1
<b>"Unidentified" Flicker</b>									1															1
Western Wood-Pewee																		1	3					4
"Trail's" Flycatcher	1		1	2	1							2		3	3		3			2				18
Least Flycatcher		1	2	1				1	2			6		4	3	1	1	1	1	3	1		1	29
Dusky Flycatcher												1												1
Chipping Sparrow					1	1		1					2	1	1									7
Clay-colored Sparrow	1		1					1					1				1							5
Song Sparrow		1											1				1		1					4
"Eastern" White-crowned Sparrow									1					2										3
Western Tanager			1		1																			2
Black-headed Grosbeak																		2						2
Lazuli Bunting																			1					1
Red-winged Blackbird	4	2		2		1		3	2	1		4	1				1			1			22	
<b>Yellow-headed Blackbird</b>																	1							1
Brown-headed Cowbird	4		2		1	3			7			3	2			1	1							24
Baltimore Oriole			1												2									3
Pine Siskin									1					2		2	1	7			3	10	1	27
American Goldfinch									1					1							2			4

**New species**

**374**





**Appendix 5a - Trend Analysis Charts – Spring 2012**

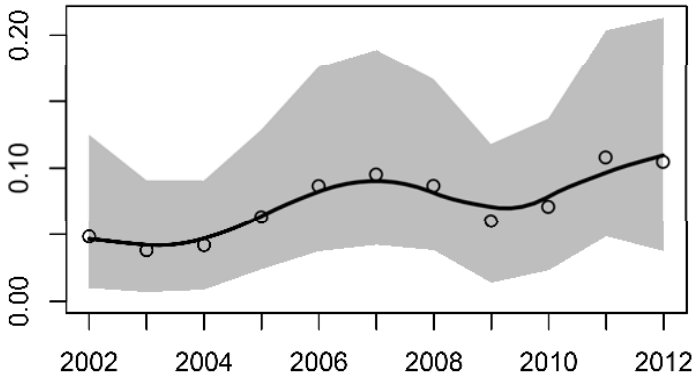
**Open circles represent annual abundance index estimates,**

**Line represents smooth Loess-curve,**

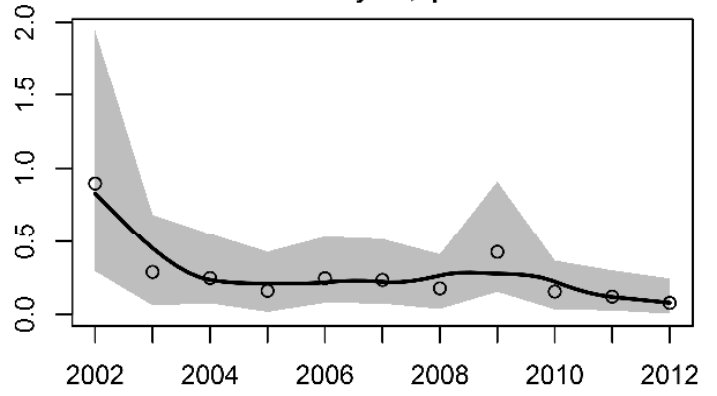
**Gray area indicates 95% confidence interval**

Annual abundance index (average captures p. day)

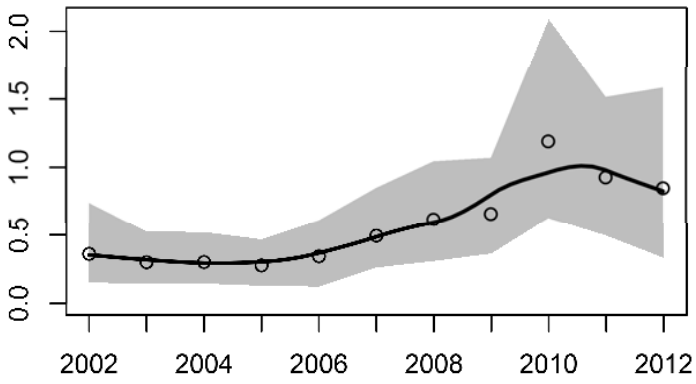
**Belted Kingfisher**  
11.38%/year,  $p=0.54$



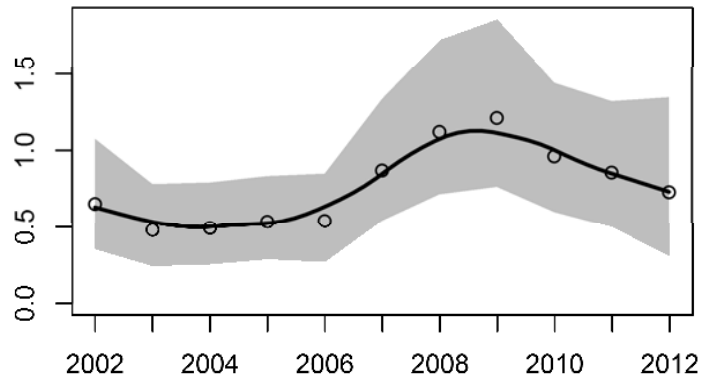
**Western Wood-Pewee**  
-23.60%/year,  $p=0.24$



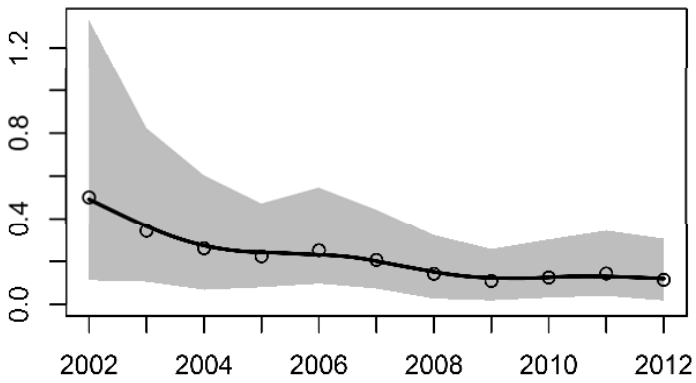
**Trail's Flycatcher**  
12.11%/year,  $p=0.33$



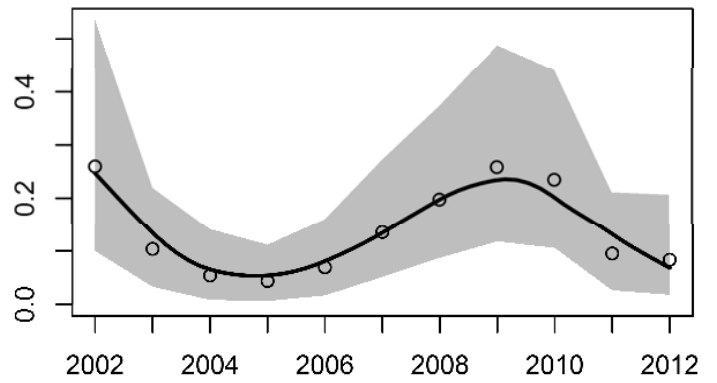
**Least Flycatcher**  
3.29%/year,  $p=0.66$



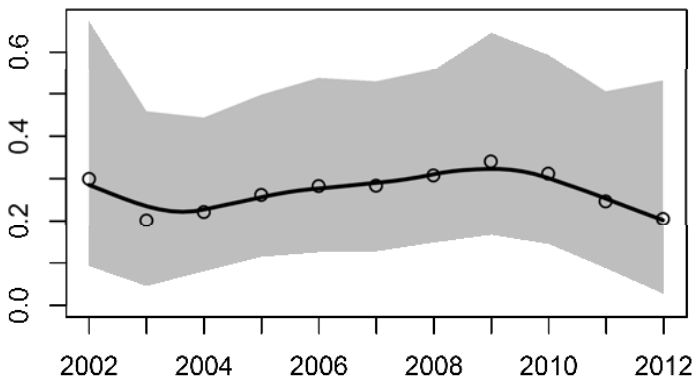
**Eastern Kingbird**  
-14.02%/year,  $p=0.41$



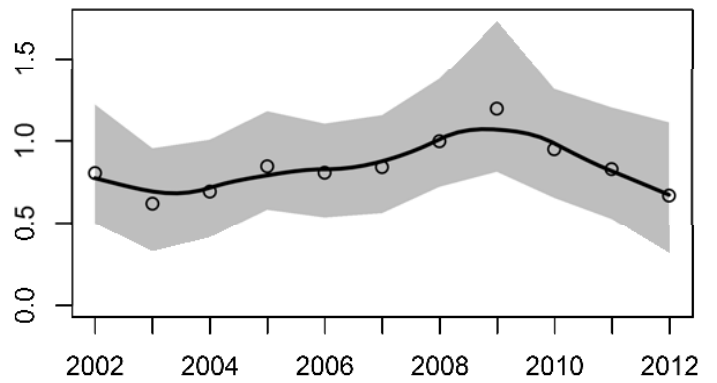
**Warbling Vireo**  
-10.02%/year,  $p=0.67$



**Northern Rough-winged Swallow**  
-3.47%/year,  $p=0.87$



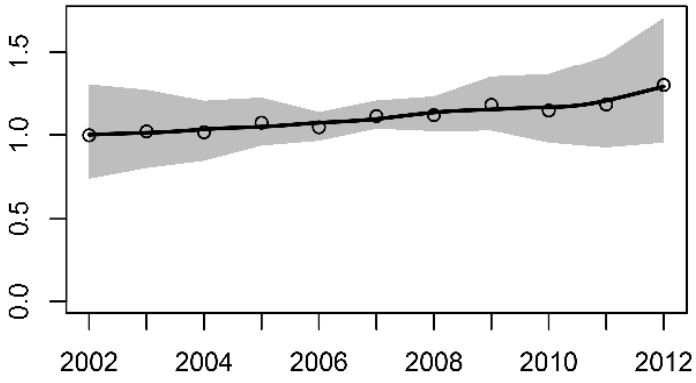
**Tree Swallow**  
0.27%/year,  $p=0.90$



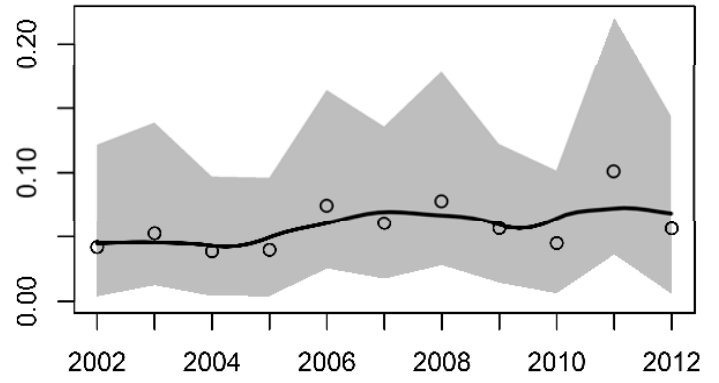
Year

Annual abundance index (average captures p. day)

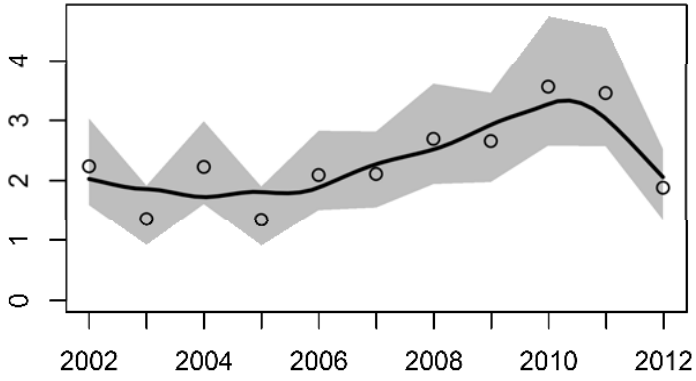
**House Wren**  
2.85%/year,  $p=0.40$



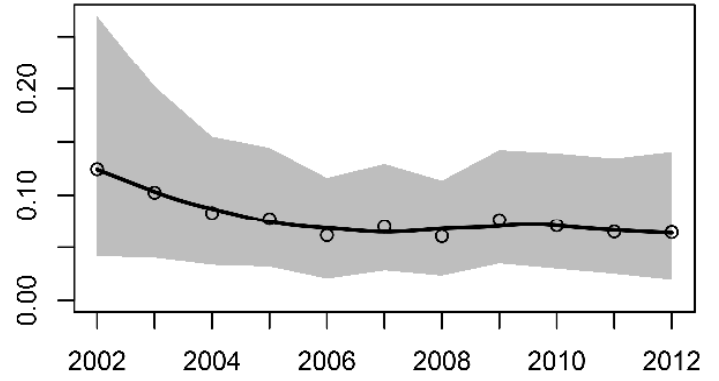
**Ruby-crowned Kinglet**  
3.11%/year,  $p=0.91$



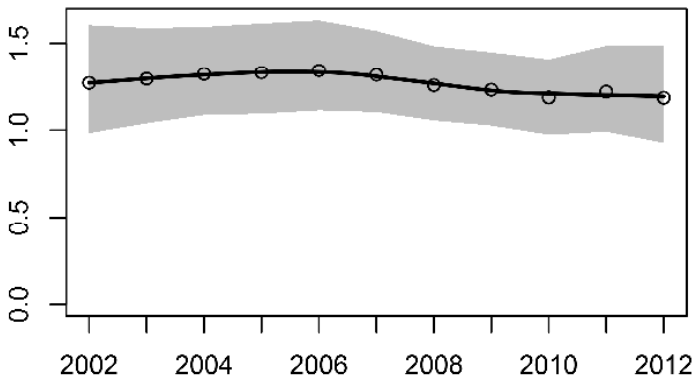
**Swainson's Thrush**  
7.47%/year,  $p=0.11$



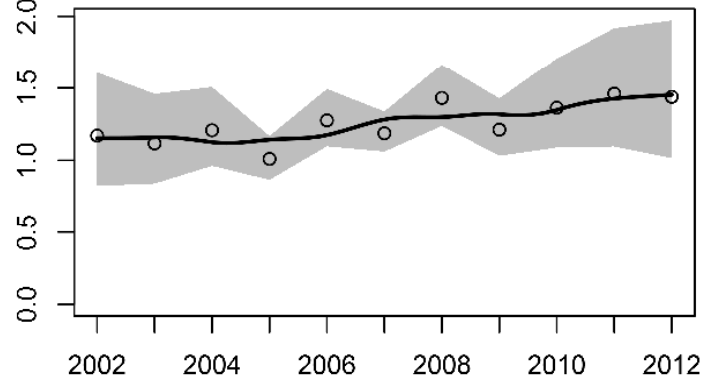
**Hermit Thrush**  
-5.81%/year,  $p=0.70$



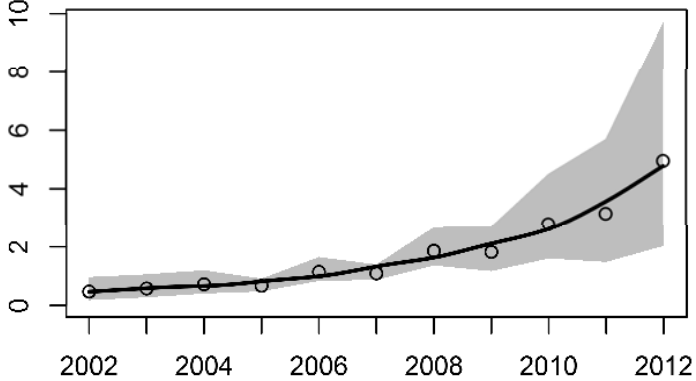
**American Robin**  
-0.88%/year,  $p=0.73$



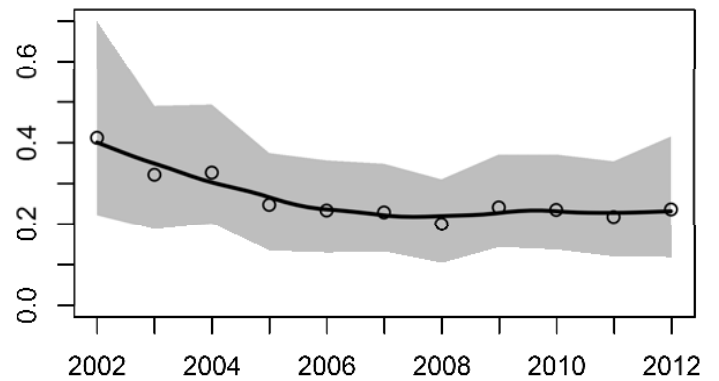
**Gray Catbird**  
3.31%/year,  $p=0.37$



**Cedar Waxwing**  
28.20%/year,  $p<0.01$



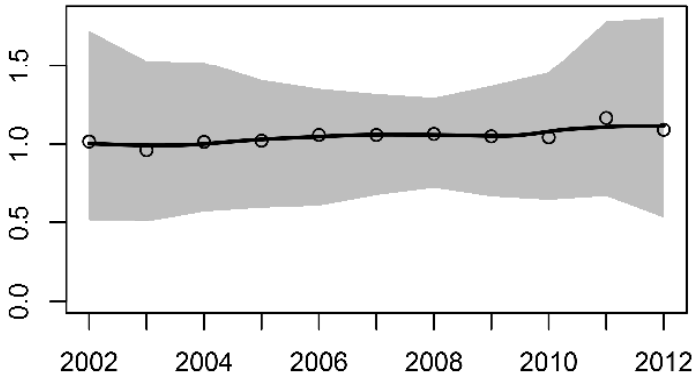
**Northern Waterthrush**  
-5.79%/year,  $p=0.51$



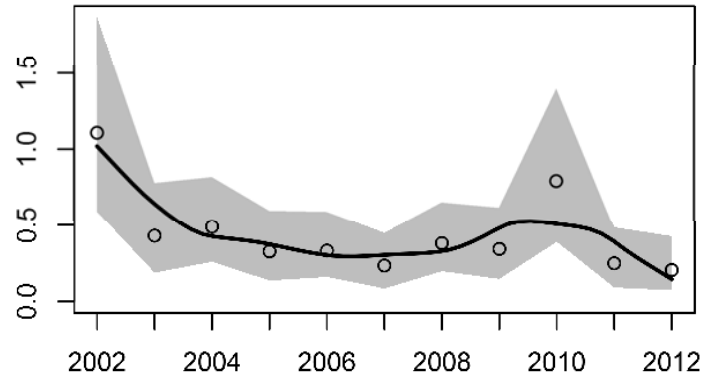
Year

Annual abundance index (average captures p. day)

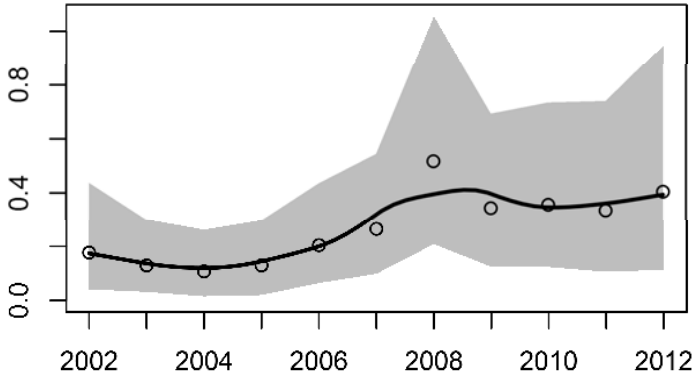
**Orange-crowned Warbler**  
-0.05%/year,  $p=1.00$



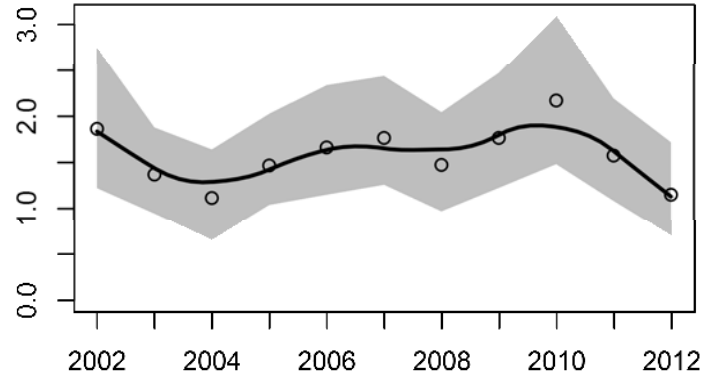
**Common Yellowthroat**  
-13.62%/year,  $p=0.35$



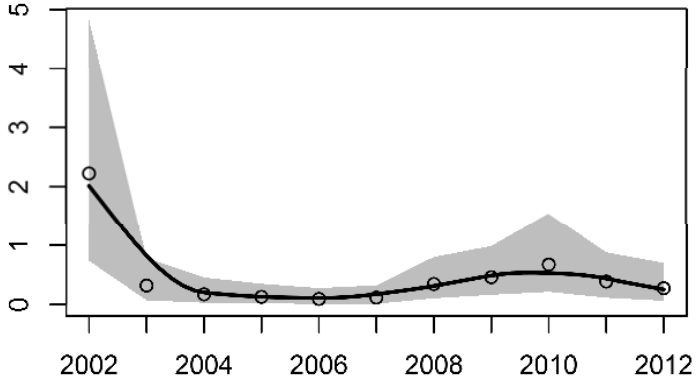
**American Redstart**  
10.38%/year,  $p=0.56$



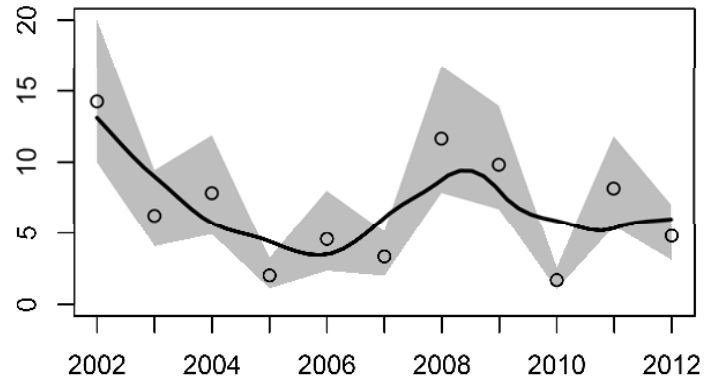
**Yellow Warbler**  
-1.99%/year,  $p=0.77$



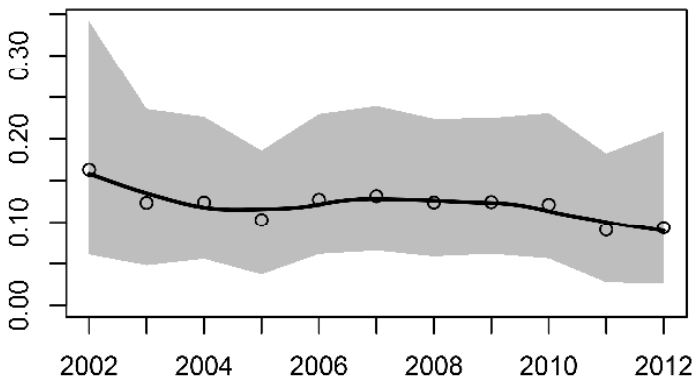
**Blackpoll Warbler**  
-14.71%/year,  $p=0.50$



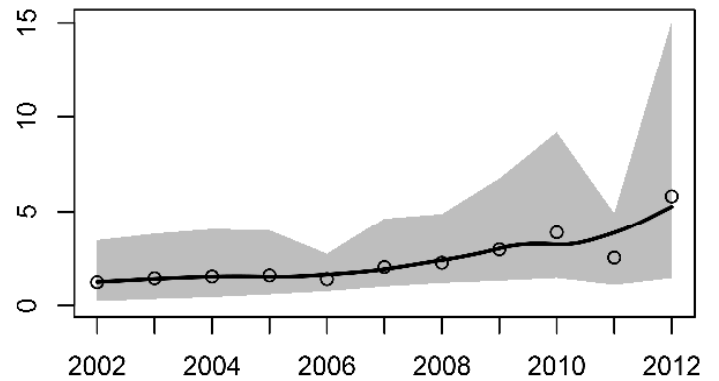
**Yellow-rumped Warbler**  
-7.64%/year,  $p=0.41$



**Wilson's Warbler**  
-5.71%/year,  $p=0.69$



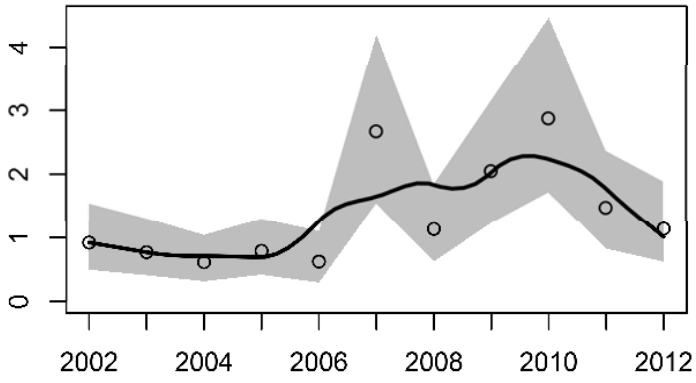
**Chipping Sparrow**  
19.75%/year,  $p=0.13$



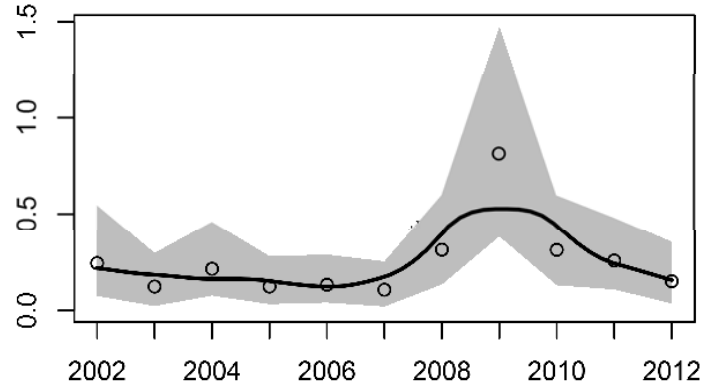
Year

Annual abundance index (average captures p. day)

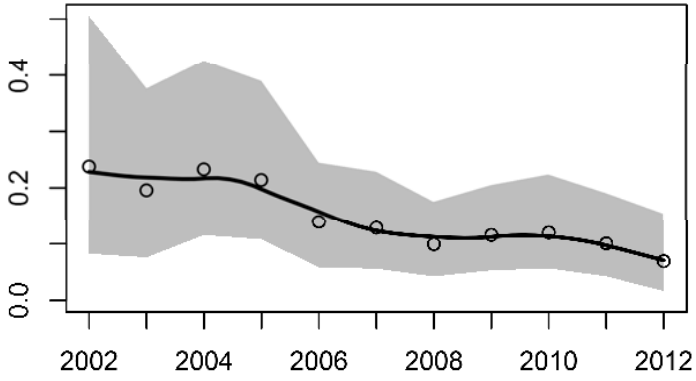
**Clay-colored Sparrow**  
9.44%/year,  $p=0.21$



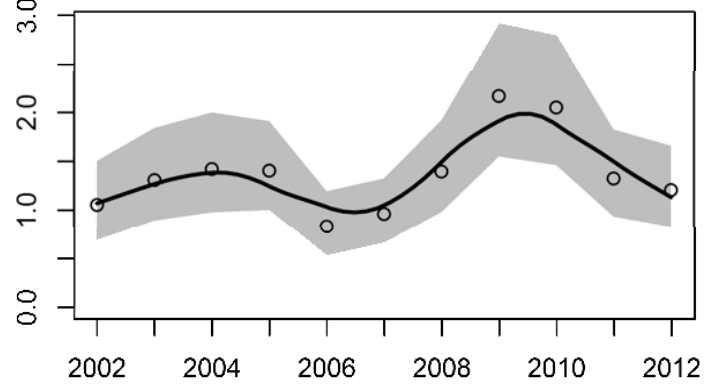
**Savannah Sparrow**  
0.17%/year,  $p=0.98$



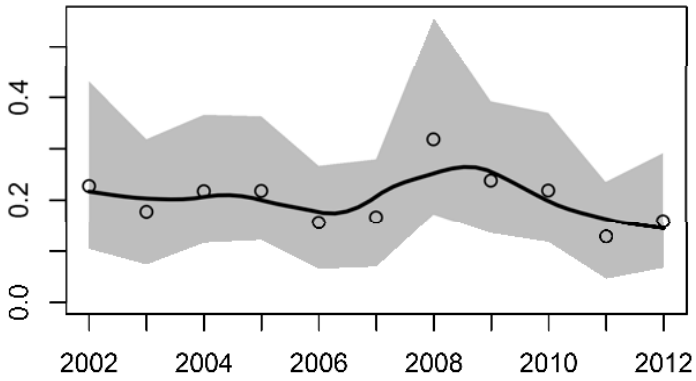
**Song Sparrow**  
-12.36%/year,  $p=0.37$



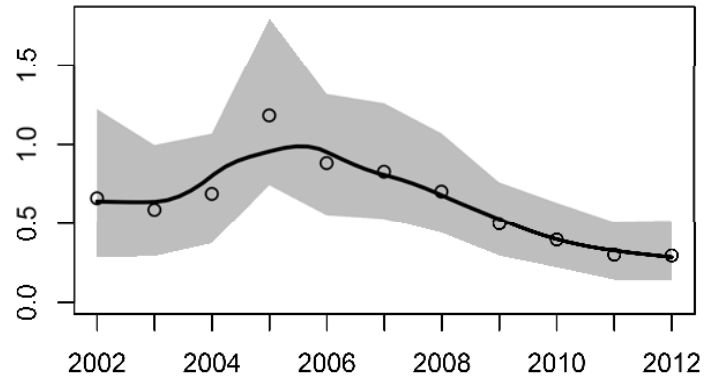
**Lincoln's Sparrow**  
3.96%/year,  $p=0.35$



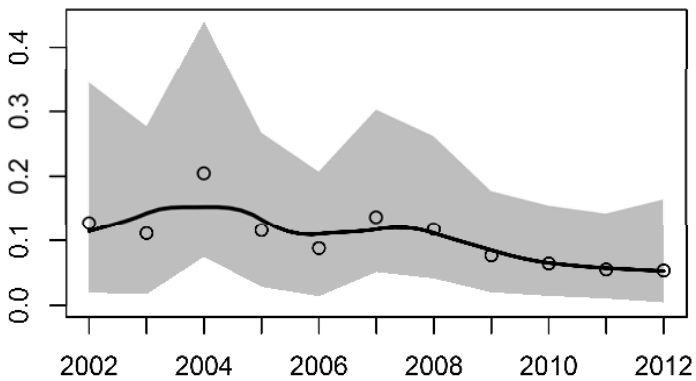
**White-throated Sparrow**  
-1.84%/year,  $p=0.90$



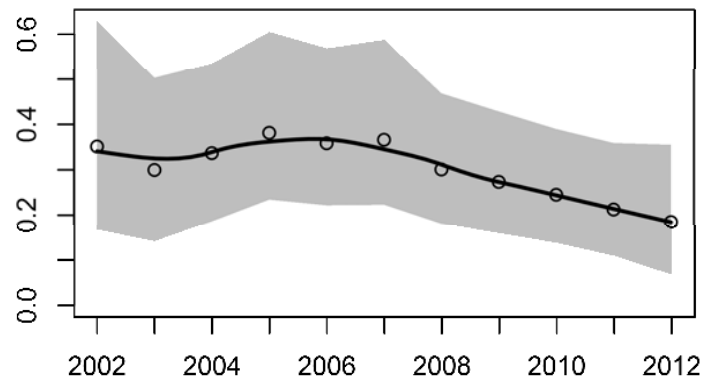
**White-crowned Sparrow**  
-7.80%/year,  $p=0.43$



**Western Tanager**  
-9.74%/year,  $p=0.66$

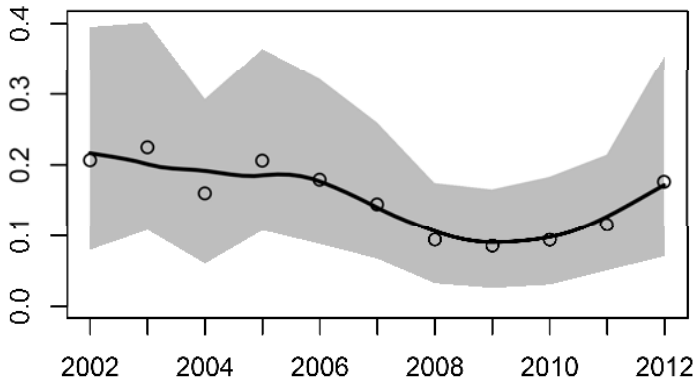


**Brown-headed Cowbird**  
-6.80%/year,  $p=0.49$

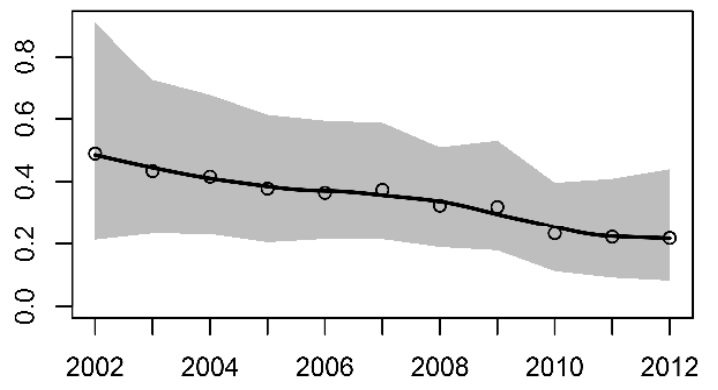


Year

**Red-winged Blackbird**  
-0.87%/year, p=0.92



**Baltimore Oriole**  
-8.13%/year, p=0.40



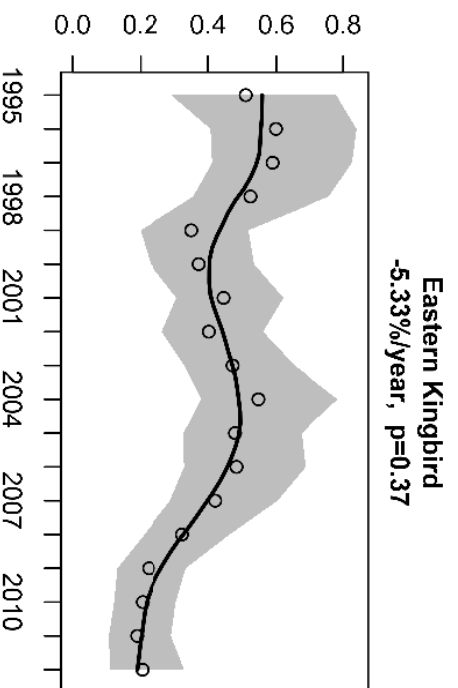
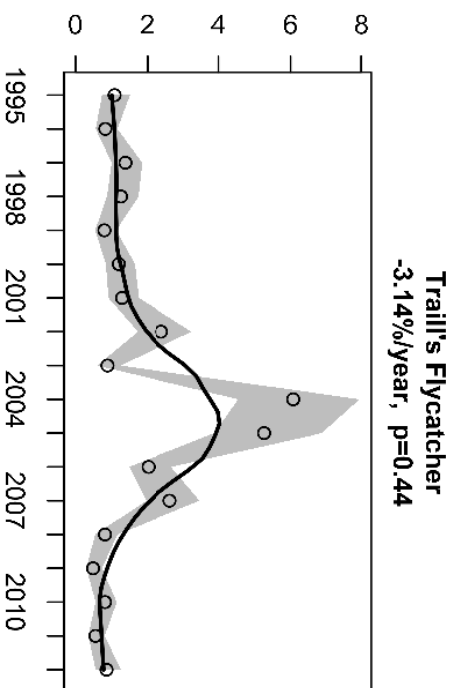
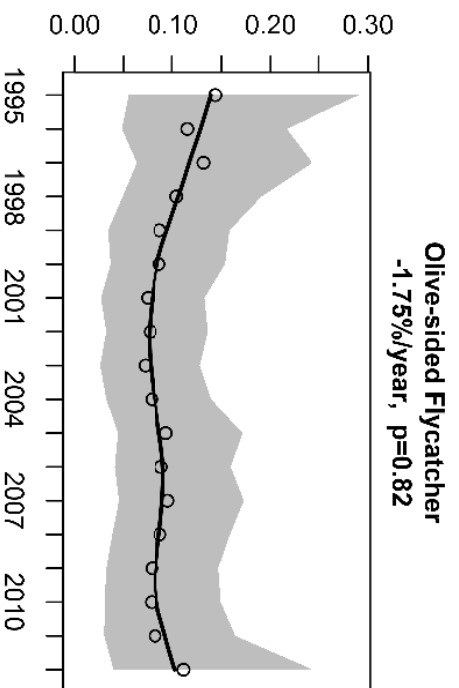
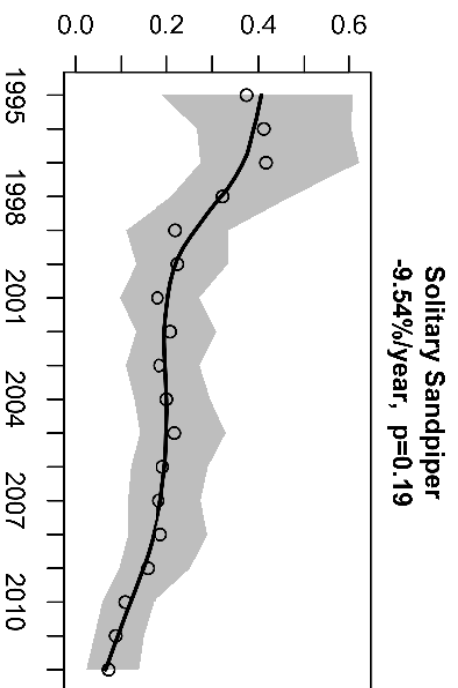
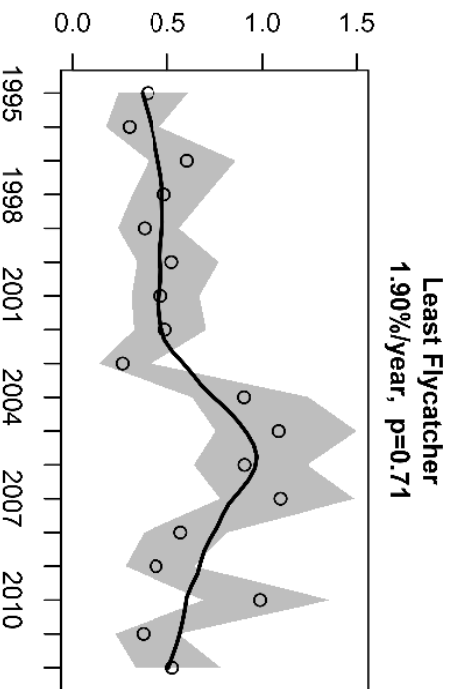
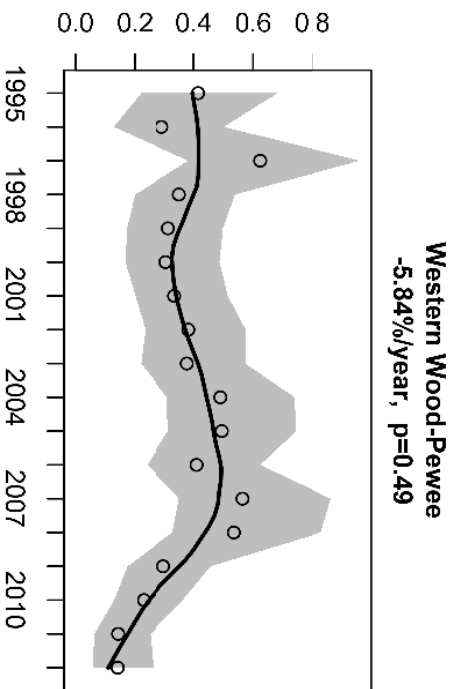
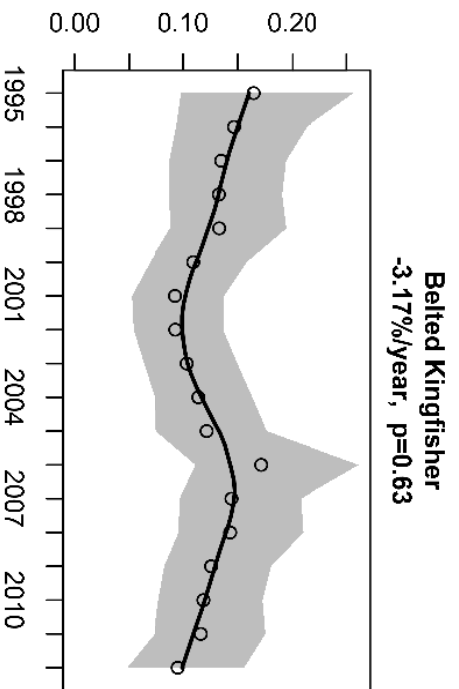
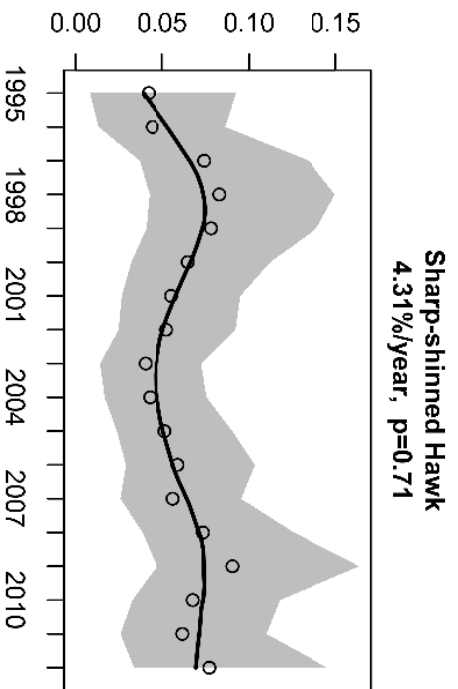
Annual abundance index (average captures p. day)

Year

**Appendix 5b - Trend Analysis Charts – Fall 2012**

**Open circles represent annual abundance index estimates,  
Line represents smooth Loess-curve,  
Gray area indicates 95% confidence interval**

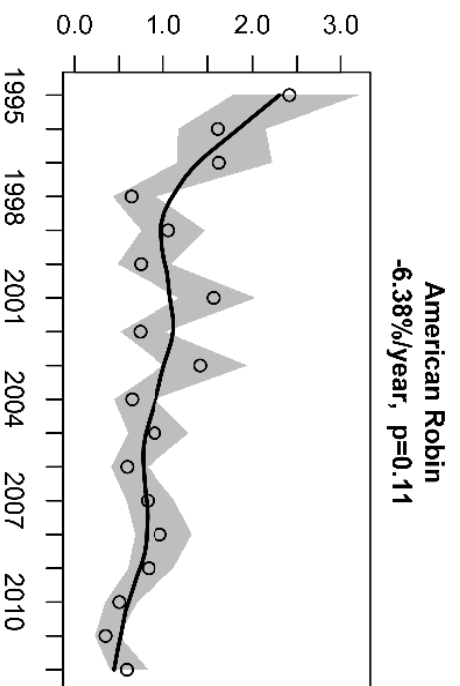
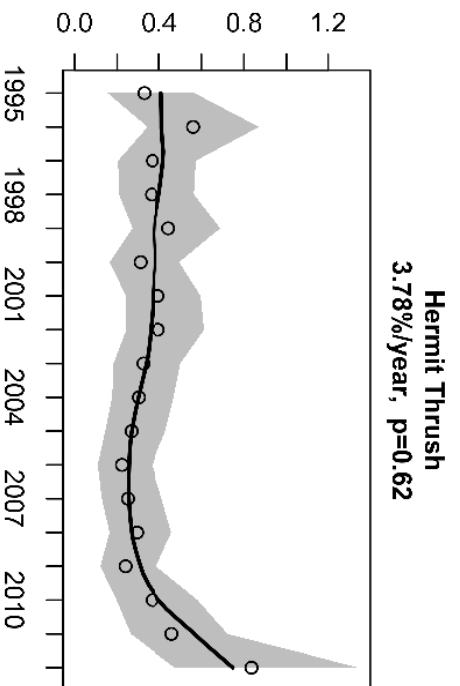
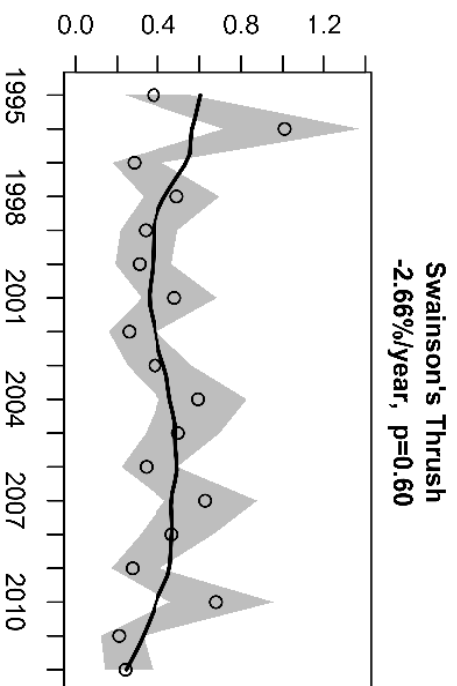
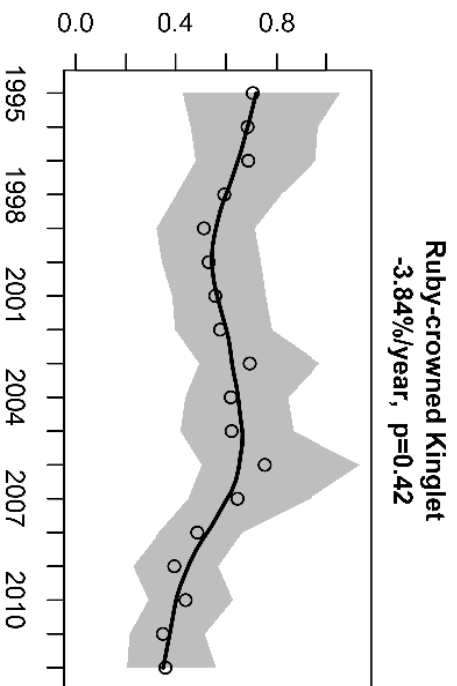
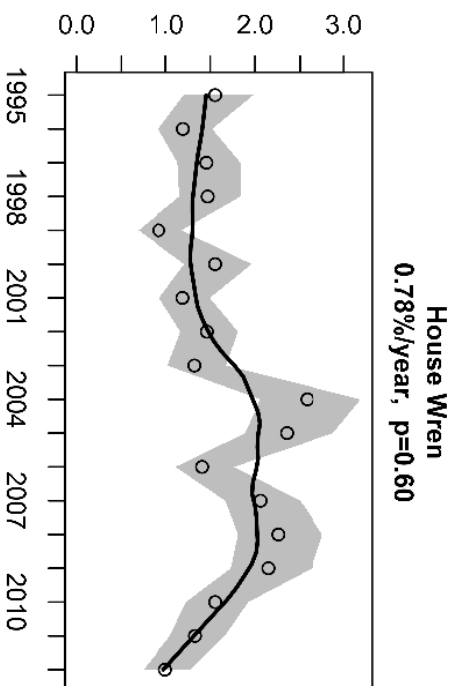
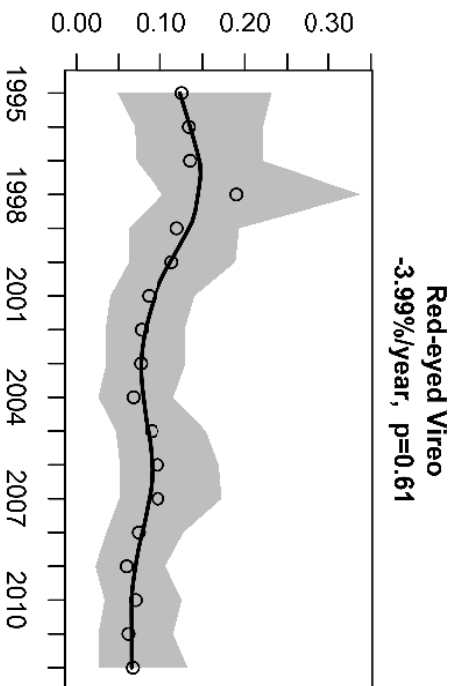
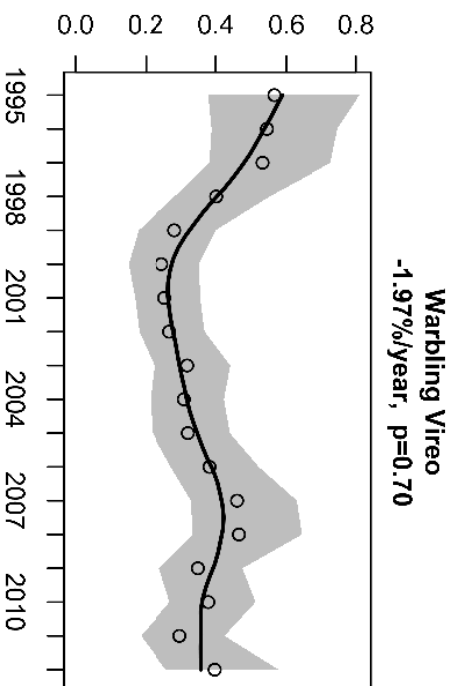
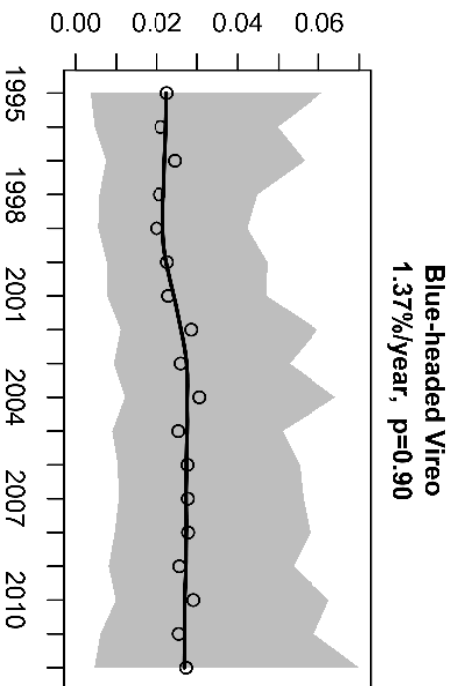
Annual abundance index (average captures p. day)



Year

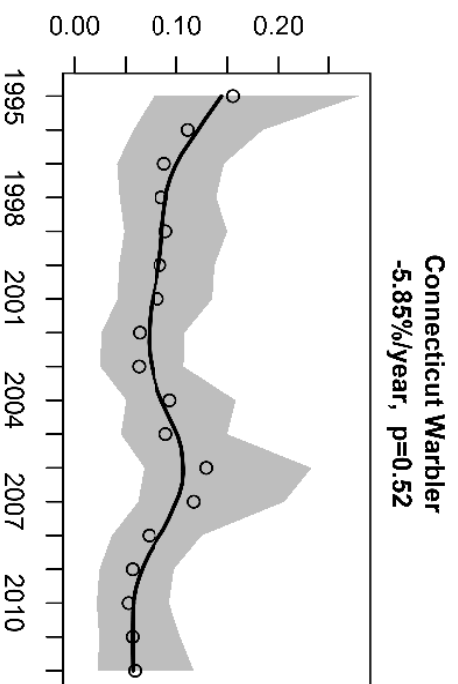
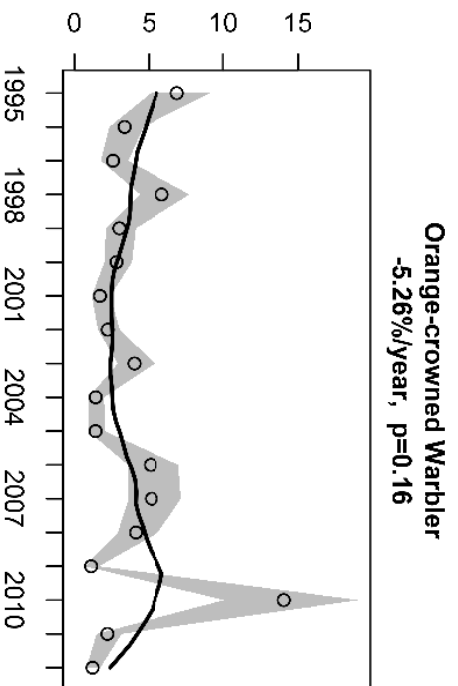
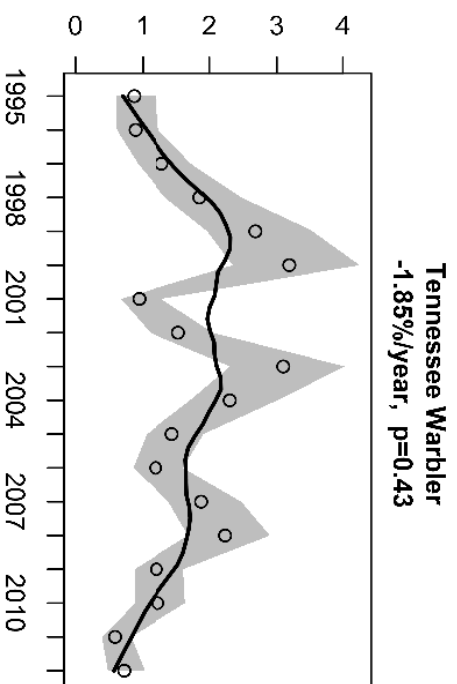
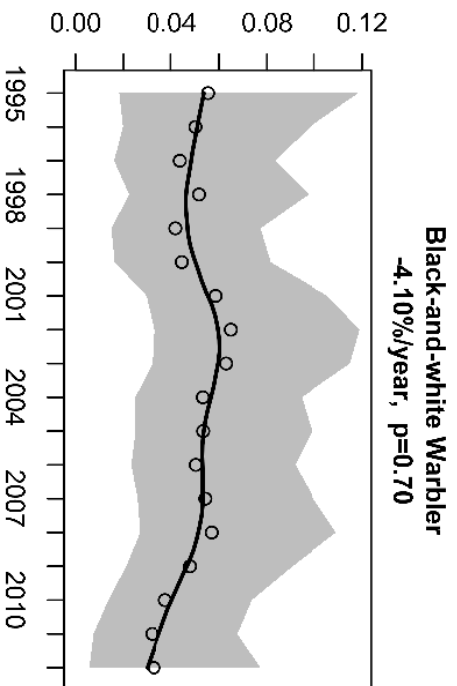
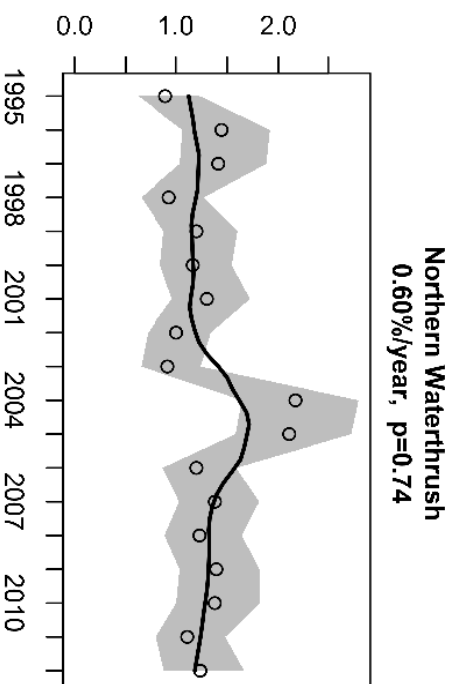
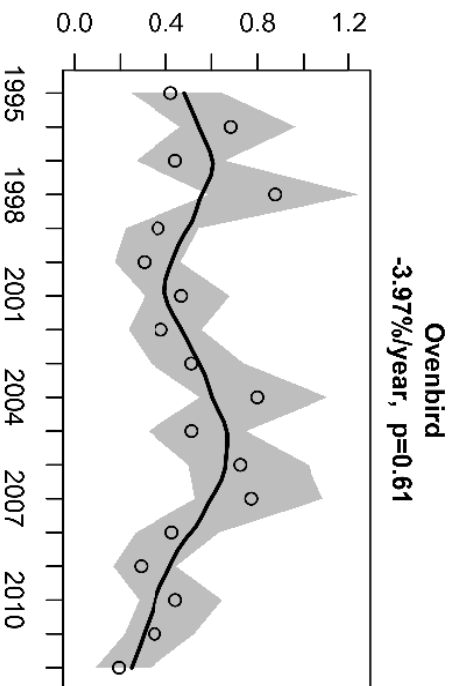
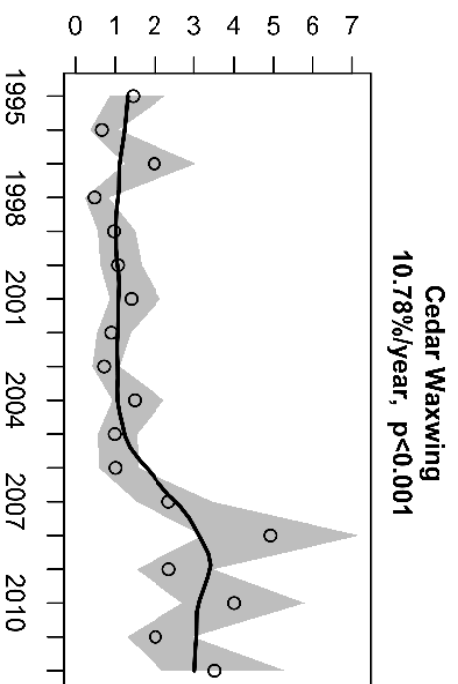
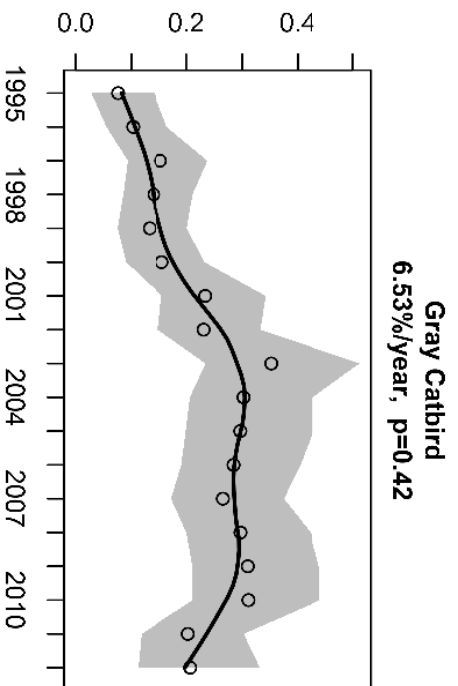


Annual abundance index (average captures p. day)



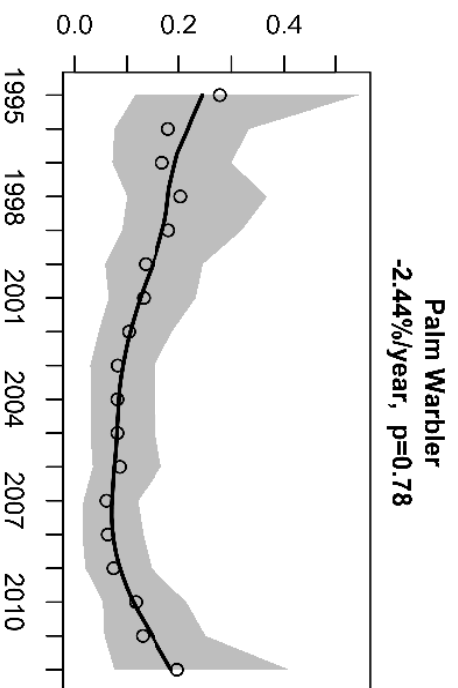
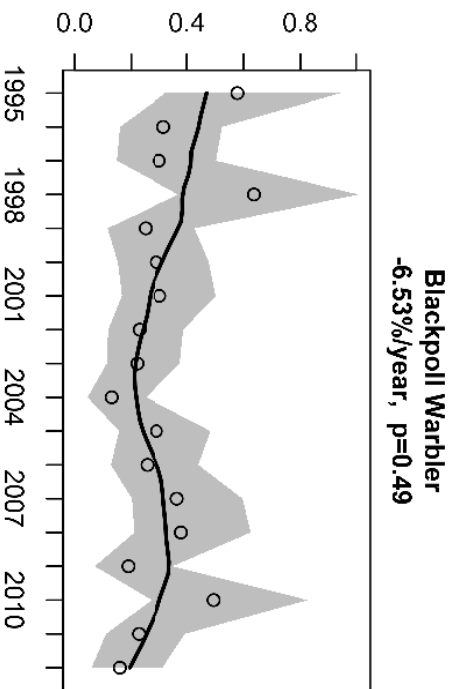
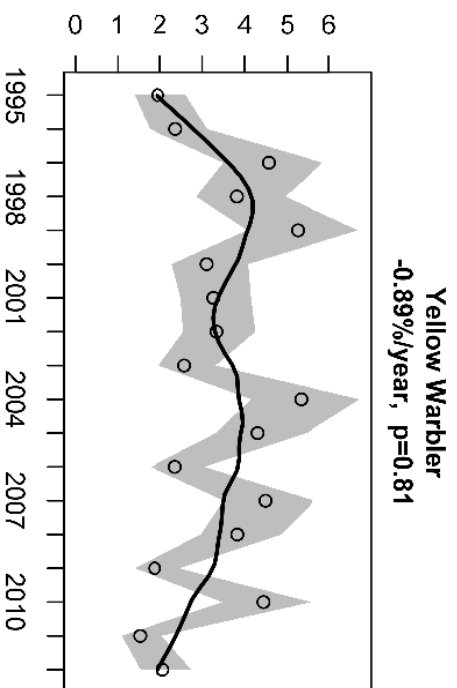
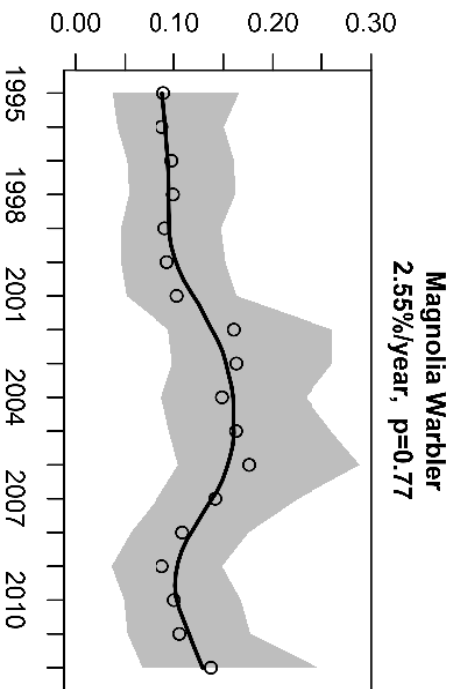
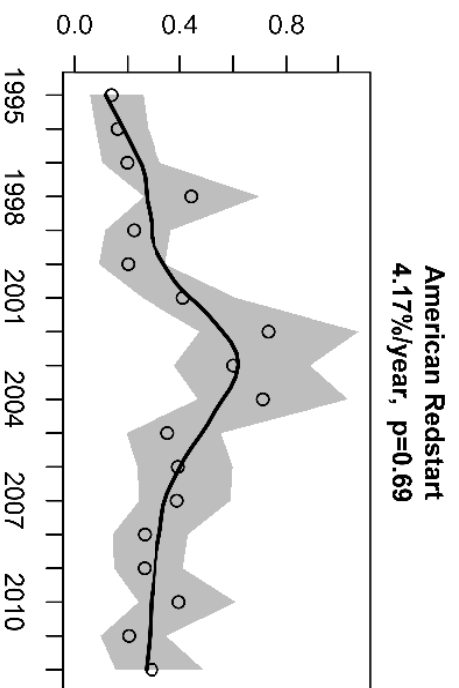
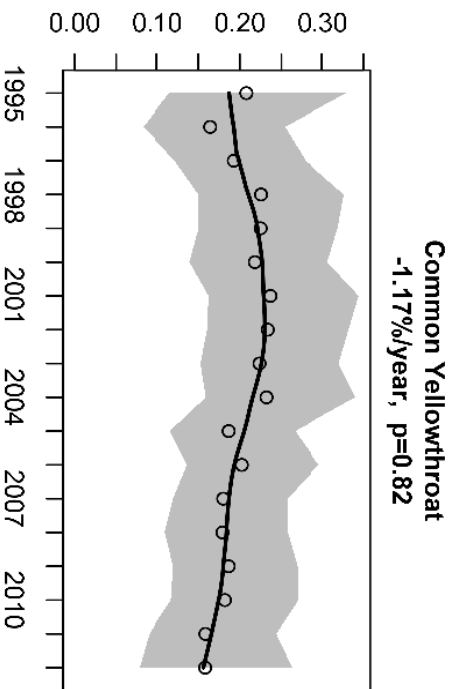
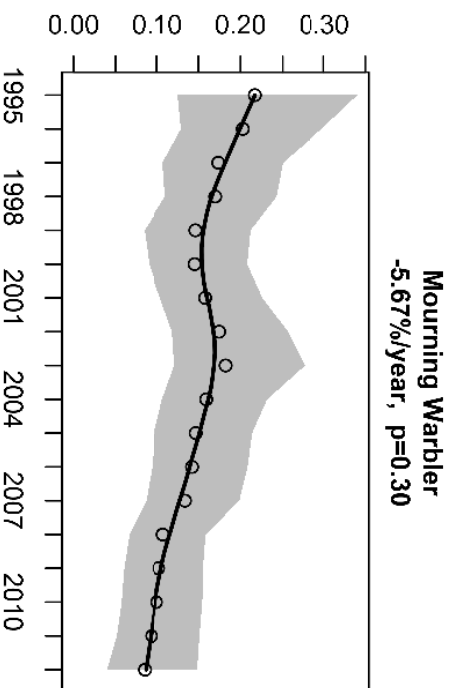
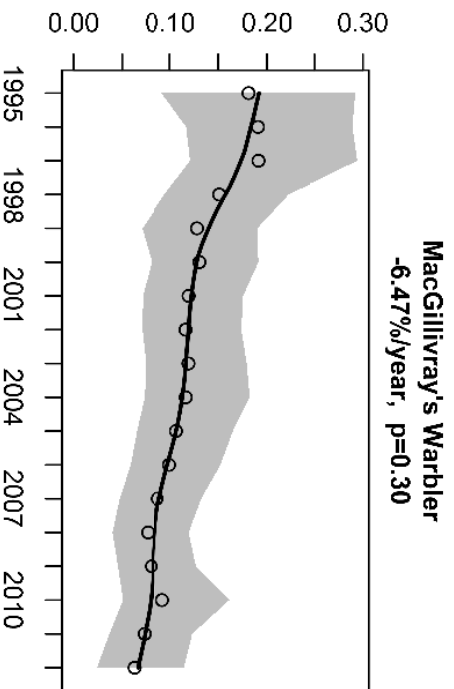
Year

Annual abundance index (average captures p. day)



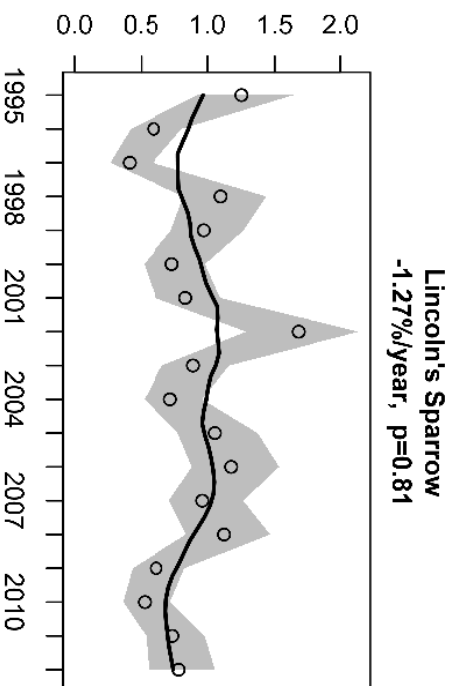
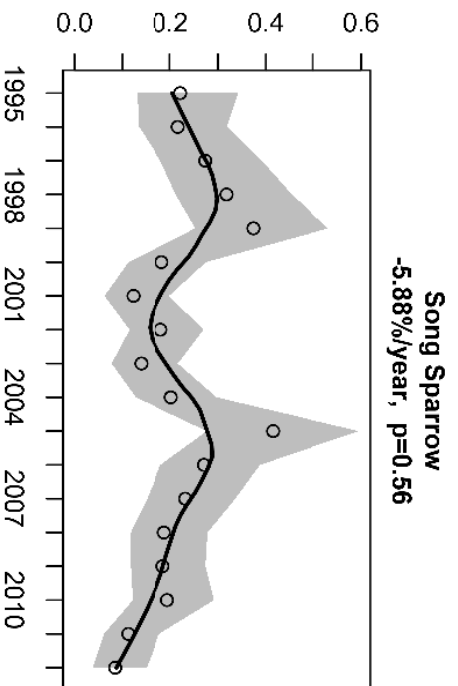
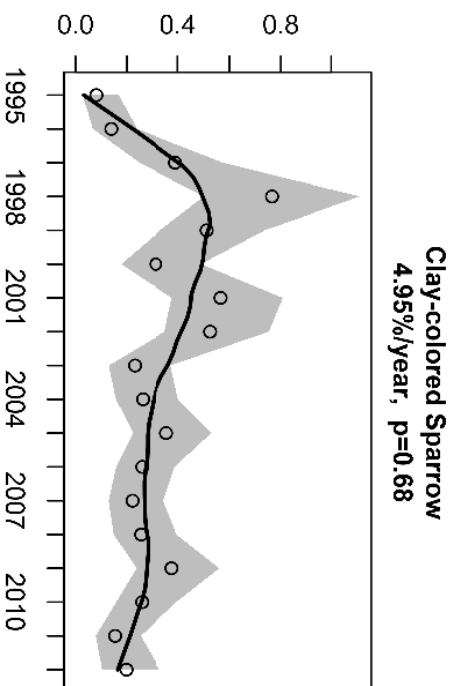
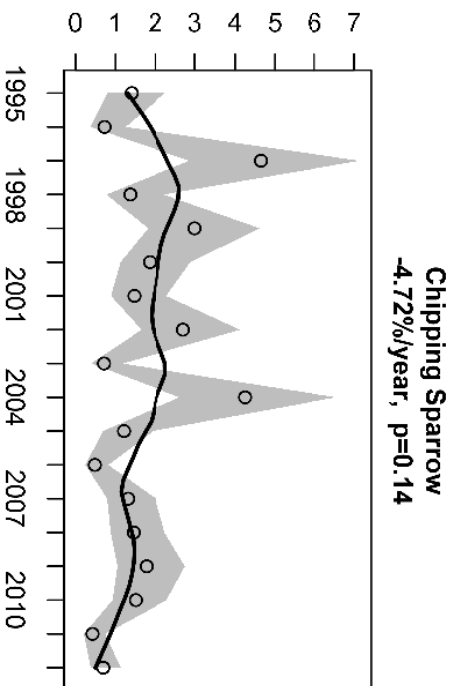
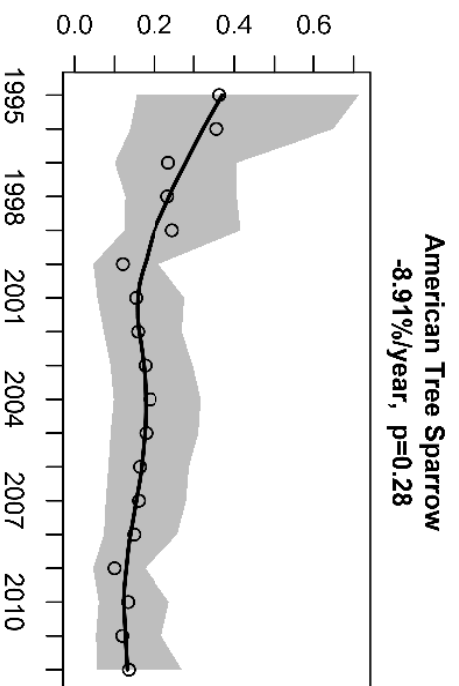
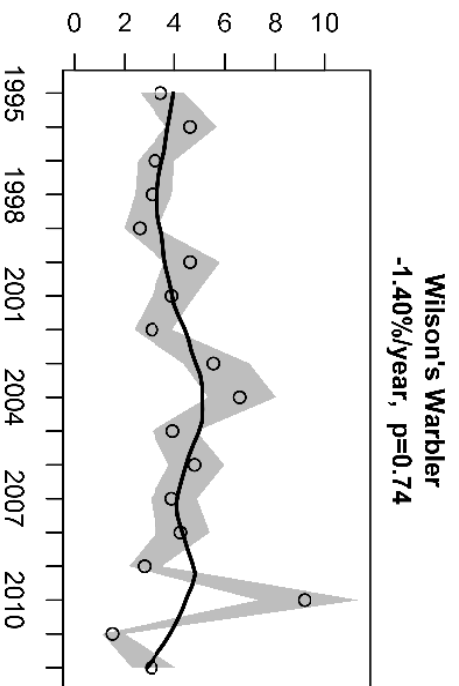
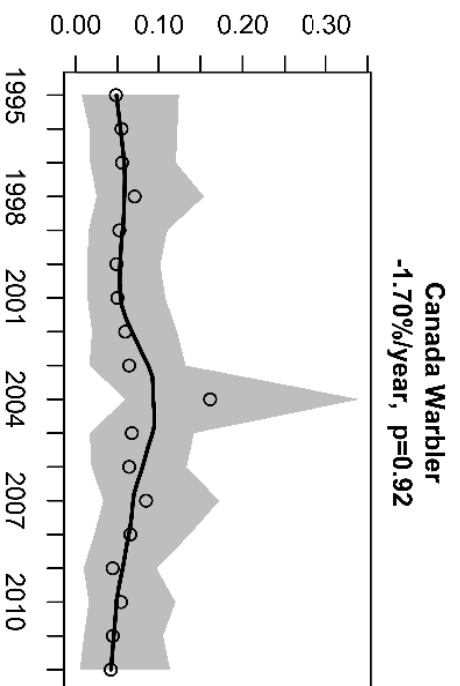
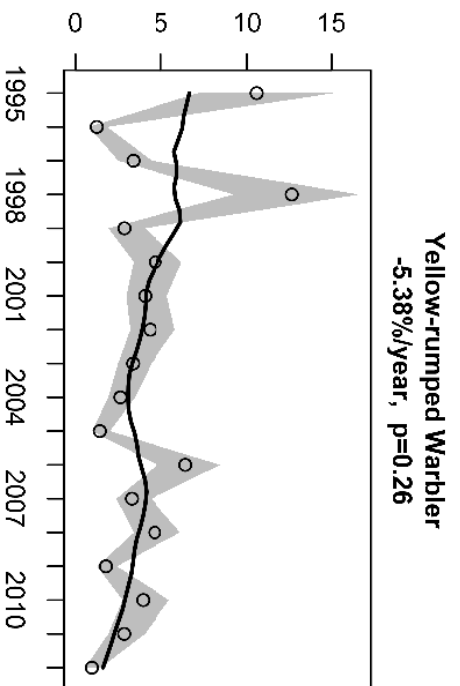
Year

Annual abundance index (average captures p. day)



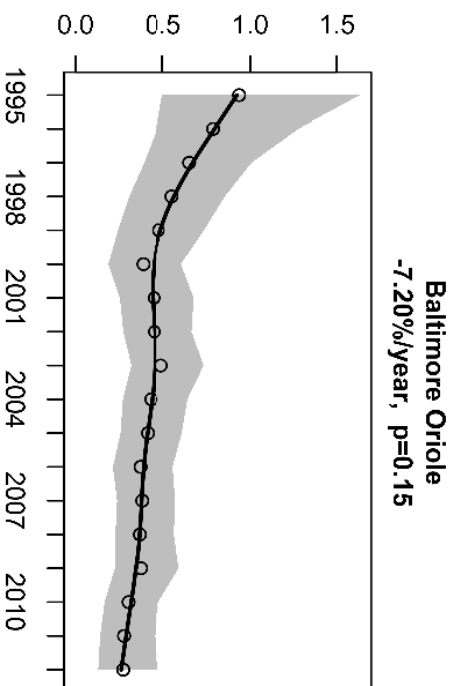
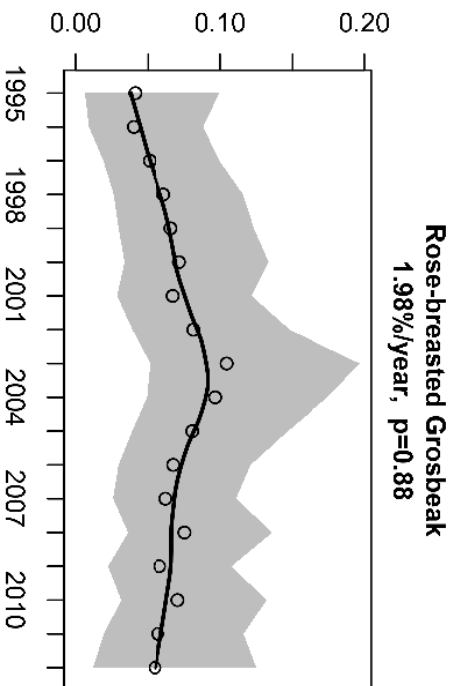
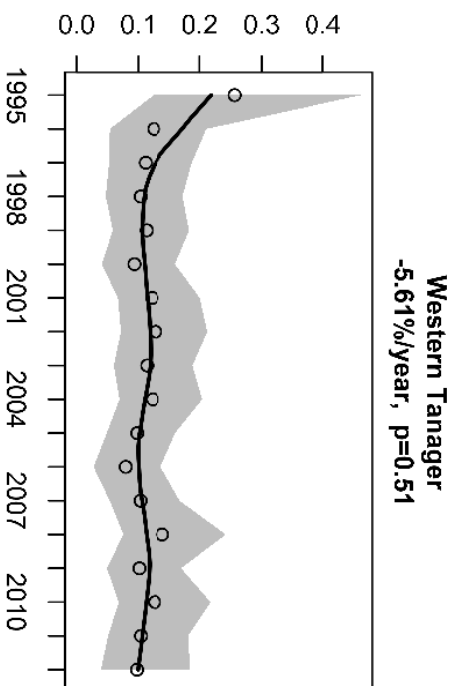
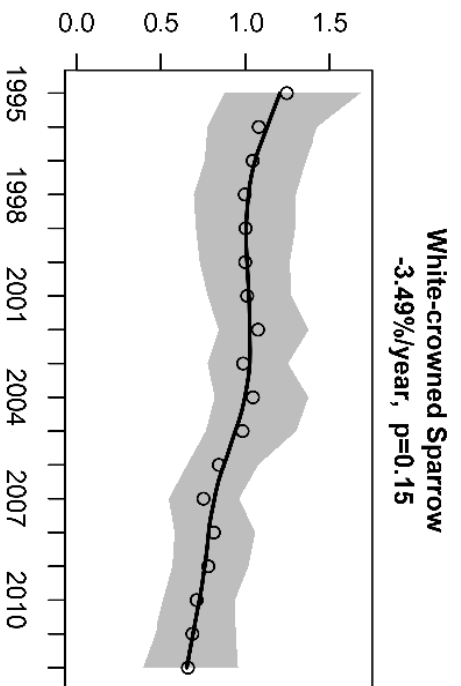
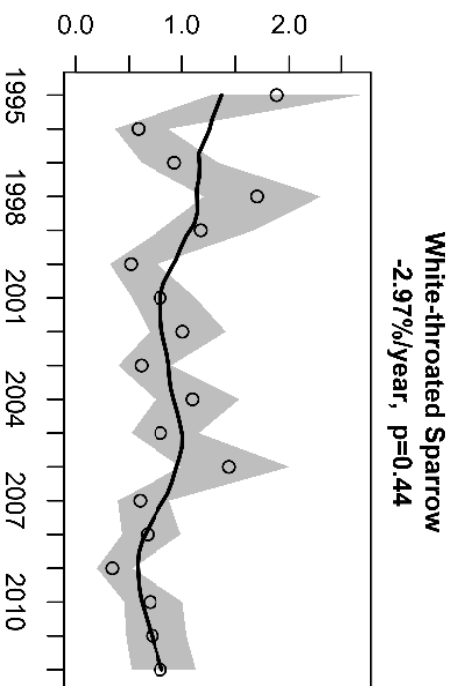
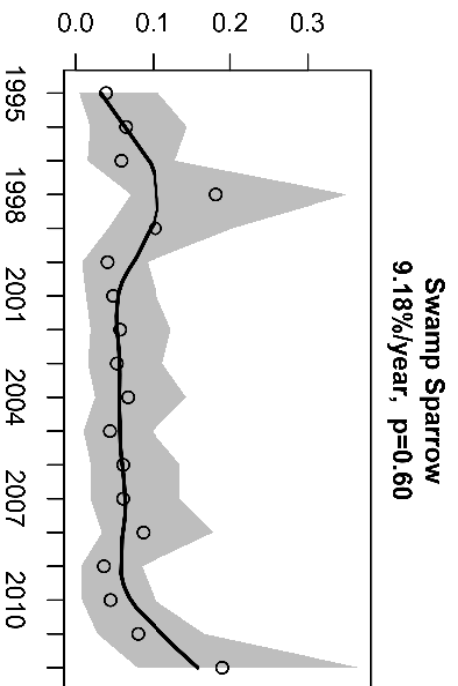
Year

Annual abundance index (average captures p. day)



Year

Annual abundance index (average captures p. day)



Year

## Appendix 6a. New Captures at La Selva Biological Station 2011 and 2012

Year	2011	2012
Start Date	26-Mar	16-Apr
Finish Date	24-Apr	15-May
<b>New Bandings</b>		
Little Tinamou	1	
White-throated Crake	1	
Blue Ground-Dove		2
Gray-chested Dove	6	2
Ruddy Quail-Dove	2	
Squirrel Cuckoo	2	
Groove-billed Ani	4	1
Long-billed Hermit	1	
Rufous-tailed Hummingbird	3	
Black-throated Trogon	2	1
Rufous Motmot		1
American Pygmy Kingfisher		2
White-whiskered Puffbird	1	3
Rufous-tailed Jacamar	1	1
Plain-brown Woodcreeper	2	2
Wedge-billed Woodcreeper	8	9
Northern Barred Woodcreeper	1	2
Cocoa Woodcreeper	1	1
Streak-headed Woodcreeper		1
Fasciated Antshrike	1	
Barred Antshrike	1	
Western Slaty-Antshrike	4	3
Checker-throated Antwren		1
Dusky Antbird	3	2
Bare-crowned Antbird		1
Chestnut-backed Antbird	2	1
Ocellated Antbird	1	
Spotted Antbird		1
Yellow Tyrannulet	8	3
Olive-striped Flycatcher	2	
Ochre-bellied Flycatcher	22	20
Black-capped Pygmy-Tyrant	1	1
Northern Bentbill	2	
Yellow-margined Flycatcher	1	
Royal Flycatcher	1	1
Tropical Pewee		1
Acadian Flycatcher		2
Alder Flycatcher	1	13
Willow Flycatcher	1	9
Trail's Flycatcher	4	9

## Appendix 6a. New Captures at La Selva Biological Station 2011 and 2012

Year	2011	2012
Start Date	26-Mar	16-Apr
Finish Date	24-Apr	15-May
Bright-rumped Attila	6	2
Great Kiskadee		1
Social Flycatcher		2
Rufous Mourner	4	
Gray-capped Flycatcher	1	
Cinnamon Becard	3	
White-winged Becard	1	1
White-collared Manakin	25	30
Red-capped Manakin	2	2
Philadelphia Vireo	1	
Red-eyed Vireo	7	16
Yellow-green Vireo	7	2
Lesser Greenlet	2	
Black-throated Wren	1	4
Bay Wren	8	5
Stripe-breasted Wren	1	1
House Wren	2	3
White-breasted Wood-Wren	2	2
Long-billed Gnatwren	2	2
Swainson's Thrush	54	29
Wood Thrush	11	
Veery		1
Gray-cheeked Thrush		4
Clay-colored Thrush	5	1
Gray Catbird	1	
Golden-winged Warbler	1	
Tennessee Warbler	3	
Chestnut-sided Warbler	9	4
Ovenbird	3	1
Northern Waterthrush	2	1
Kentucky Warbler	4	
Mourning Warbler	3	8
Olive-crowned Yellowthroat	3	6
Canada Warbler	11	33
Yellow-breasted Chat	1	
Buff-rumped Warbler		2
Bananaquit		1
Dusky-faced Tanager	3	2
Red-throated Ant-Tanager	5	1
Summer Tanager	3	
Crimson-collared Tanager	1	

## Appendix 6a. New Captures at La Selva Biological Station 2011 and 2012

Year	2011	2012
Start Date	26-Mar	16-Apr
Finish Date	24-Apr	15-May
Passerini's Tanager	19	18
Olive-backed Euphonia		4
Green Honeycreeper		3
Blue-black Grassquit	5	4
Variable Seedeater	63	81
Thick-billed Seed-Finch	21	16
Orange-billed Sparrow	1	8
Grayish Saltator	1	
Buff-throated Saltator	4	5
Black-headed Saltator	1	1
Blue-black Grosbeak	7	4
Black-cowled Oriole	3	
Scarlet-rumped Cacique	4	1
<b>Species</b>	77	67
<b>Total new bandings</b>	415	408



## Appendix 6a. New Captures at La Selva Biological Station 2011 and 2012

Year	2011	2012
Start Date	26-Mar	16-Apr
Finish Date	24-Apr	15-May
<b>Other unbanded captures</b>		
Semiplumbeous Hawk	1	
Blue Ground-Dove		1
Bronzy Hermit	21	9
Band-tailed Barbthroat	24	39
Long-billed Hermit	49	28
Stripe-throated Hermit	22	16
White-tipped Sicklebill	1	
Scaly-chested Hummingbird	2	
White-necked Jacobin	5	5
Violet-headed Hummingbird	3	
Violet-crowned Woodnymph	13	14
Blue-throated Goldentail	1	
Blue-chested Hummingbird	13	7
Rufous-tailed Hummingbird	81	62
Bronze-tailed Plumeleteer	8	2
Purple-crowned Fairy		2
American Pygmy Kingfisher		1
White-whiskered Puffbird		2
Plain-brown Woodcreeper		2
Wedge-billed Woodcreeper	1	1
Yellow Tyrannulet		1
Ochre-bellied Flycatcher	1	
Ovenbird	1	
Canada Warbler		1
Passerini's Tanager	1	
Blue-black Grassquit		3
Variable Seedeater	4	4
Orange-billed Sparrow		1
Blue-black Grosbeak		3
<b>Total unbanded other captures</b>	252	204
<b>Total new captures</b>	667	612
<b>Net hrs</b>	3214	3210
<b>New captures/net-hour</b>	0.21	0.19
<b>New captures</b>		
<b>Migrants</b>	125	133
Residents	295	295
Hummingbirds	247	184

**Appendix 6b. Captures at La Selva Biological Station - 2012**

	Total	16-Apr	17-Apr	18-Apr	19-Apr	20-Apr	21-Apr	22-Apr	23-Apr	24-Apr	25-Apr	26-Apr	27-Apr	28-Apr	29-Apr	30-Apr	01-May	02-May	03-May	04-May	05-May	06-May	07-May	08-May	09-May	10-May	11-May	12-May	13-May	14-May	15-May
<b>New Bandings</b>																															
Blue Ground-Dove	2				1			1																							
Gray-chested Dove	2											1							1												
Groove-billed Ani	1							1																							
Black-throated Trogon	1												1																		
Rufous Motmot	1																												1		
American Pygmy Kingfisher	2																1				1										
White-whiskered Puffbird	3										1		1	1																	
Rufous-tailed Jacamar	1													1																	
Plain-brown Woodcreeper	2																						1								
Wedge-billed Woodcreeper	9	2		2	1		1					1			1																1
Northern Barred Woodcreeper	2						1																								
Cocoa Woodcreeper	1													1																	
Streak-headed Woodcreeper	1											1																			
Western Slaty-Antshrike	3		1					1																1							
Checker-throated Antwren	1																1														
Dusky Antbird	2		1													1															
Bare-crowned Antbird	1																						1								
Chestnut-backed Antbird	1							1																							
Spotted Antbird	1																				1										
Yellow Tyrannulet	3							1									1				1										
Ochre-bellied Flycatcher	20		1		1	1		1	1			1	3	1	1	1				1	1				1	2		2		1	
Black-capped Pygmy-Tyrant	1		1																												
Royal Flycatcher	1							1																							
Tropical Pewee	1										1																				
Acadian Flycatcher	2																1														1
Alder Flycatcher	13								2					2	1		3	1		2	1	1									
Willow Flycatcher	9														1				1		1						1	3			2
Trail's Flycatcher	9						1	1			1		1	3		2															
Bright-rumped Attila	2	1																							1						
Great Kiskadee	1											1																			
Social Flycatcher	2						1							1																	
White-winged Becard	1							1																							
White-collared Manakin	30	3	3	2	2	1	4	2	2		1		1		1	3	1	1						1	1		1				
Red-capped Manakin	2																	1			1										
Red-eyed Vireo	16						1	1	1			1		1	1		1	1	3		1	2						2			
Yellow-green Vireo	2											2																			
Black-throated Wren	4		1	1																				1				1			
Bay Wren	5					1						1				2	1														
Stripe-breasted Wren	1																												1		
House Wren	3						2															1									
White-breasted Wood-Wren	2						1	1																							
Long-billed Gnatwren	2				1																					1					
Swainson's Thrush	29		2	5		1	1	3	2	2	2	2	2	1	5	1	1														1
Veery	1													1																	
Gray-cheeked Thrush	4											3			1																
Clay-colored Thrush	1							1																							

**Appendix 6b. Captures at La Selva Biological Station - 2012**

	<b>Total</b>	16-Apr	17-Apr	18-Apr	19-Apr	20-Apr	21-Apr	22-Apr	23-Apr	24-Apr	25-Apr	26-Apr	27-Apr	28-Apr	29-Apr	30-Apr	01-May	02-May	03-May	04-May	05-May	06-May	07-May	08-May	09-May	10-May	11-May	12-May	13-May	14-May	15-May	
Chestnut-sided Warbler	4		1	1									2																			
Ovenbird	1							1																								
Northern Waterthrush	1						1																									
Mourning Warbler	8						1				1		5									1										
Olive-crowned Yellowthroat	6	1	1														1	1						1							1	
Canada Warbler	33	2	2	2	2	2	1	2	4		4	4	4	3							1											
Buff-rumped Warbler	2		1			1																										
Bananaquit	1																		1													
Dusky-faced Tanager	2																		1			1										
Red-throated Ant-Tanager	1								1																							
Passerini's Tanager	18		3			3	2	1	1			1		1								1		2			1				2	
Olive-backed Euphonia	4	1																					1			1	1					
Green Honeycreeper	3					2	1																									
Blue-black Grassquit	4			1	1																1			1								
Variable Seedeater	81	1	2	2	2	4	4	9			1	9		2	8	7	3	1	2	2	3	3	2	3	1	1	2	3	1	1	2	
Thick-billed Seed-Finch	16	1	1	3	1		1	1					1	1	1		1			1	1						1			1		1
Orange-billed Sparrow	8	2		1	1					1				1	1																	
Buff-throated Saltator	5		2					1																								
Black-headed Saltator	1																															
Blue-black Grosbeak	4				1							1							1						1							
Scarlet-rumped Cacique	1																					1										
<b>Species</b>	<b>67</b>	<b>9</b>	<b>15</b>	<b>10</b>	<b>11</b>	<b>9</b>	<b>16</b>	<b>20</b>	<b>9</b>	<b>1</b>	<b>8</b>	<b>14</b>	<b>14</b>	<b>13</b>	<b>12</b>	<b>7</b>	<b>15</b>	<b>5</b>	<b>7</b>	<b>8</b>	<b>7</b>	<b>10</b>	<b>4</b>	<b>7</b>	<b>5</b>	<b>3</b>	<b>8</b>	<b>3</b>	<b>2</b>	<b>4</b>	<b>6</b>	
<b>Total new bandings</b>	<b>408</b>	<b>14</b>	<b>23</b>	<b>20</b>	<b>14</b>	<b>16</b>	<b>24</b>	<b>32</b>	<b>15</b>	<b>2</b>	<b>12</b>	<b>29</b>	<b>25</b>	<b>22</b>	<b>20</b>	<b>18</b>	<b>18</b>	<b>5</b>	<b>10</b>	<b>10</b>	<b>9</b>	<b>13</b>	<b>5</b>	<b>10</b>	<b>6</b>	<b>3</b>	<b>12</b>	<b>6</b>	<b>2</b>	<b>4</b>	<b>9</b>	

**Appendix 6b. Captures at La Selva Biological Station - 2012**

	Total	16-Apr	17-Apr	18-Apr	19-Apr	20-Apr	21-Apr	22-Apr	23-Apr	24-Apr	25-Apr	26-Apr	27-Apr	28-Apr	29-Apr	30-Apr	01-May	02-May	03-May	04-May	05-May	06-May	07-May	08-May	09-May	10-May	11-May	12-May	13-May	14-May	15-May
<b>Other unbanded captures</b>																															
Blue Ground-Dove	1																									1					
Bronzy Hermit	9			2							1									1	1	1		1		1		1			
Band-tailed Barbthroat	39	5	5	1	3	2			1			3	1	1			3	1	2	1	1		1	2		3		1		2	
Long-billed Hermit	28			4	1							2	1	1	4		1	1	2				2	2	2	1	1	1		2	
Stripe-throated Hermit	16	1	4		3	1	1					2	1				1													2	
White-necked Jacobin	5							1	1		1			2																	
Violet-crowned Woodnymph	14	1			1							1	1		1		1	1					1	1	1	2	1			1	
Blue-chested Hummingbird	7				1	1		2					1						1			1									
Rufous-tailed Hummingbird	62		1	1	3	2	1	5				3	4		5	7	2	1	4		2	2	1	4	5	2	1	1	1	2	2
Bronze-tailed Plumeleteer	2			1																	1										
Purple-crowned Fairy	2										1				1																
American Pygmy Kingfisher	1										1																				
White-whiskered Puffbird	2																					2									
Plain-brown Woodcreeper	2																					2									
Wedge-billed Woodcreeper	1																									1					
Yellow Tyrannulet	1																														
Canada Warbler	1												1																		
Blue-black Grassquit	3														1	1		1													
Variable Seedeater	4							1				1	1				1														
Orange-billed Sparrow	1																					1									
Blue-black Grosbeak	3	3																													
<b>Total unbanded other captures</b>	204	10	10	9	12	6	2	9	2	0	4	12	11	4	12	8	9	5	9	2	5	9	5	10	9	10	3	3	2	4	8
<b>Total new captures</b>	612	24	33	29	26	22	26	41	17	2	16	41	36	26	32	26	27	10	19	12	14	22	10	20	15	13	15	9	4	8	17
<b>Net hrs</b>	3210	49.4	103.4	106.7	111.3	118.4	120.0	120.0	95.1	15.0	116.3	122.0	121.9	121.4	117.5	118.0	117.8	95.8	117.1	116.5	115.7	69.2	117.7	118.9	126.1	119.0	118.9	104.2	118.7	115.8	82.6
<b>New captures/net-hour</b>	0.19	0.49	0.32	0.27	0.23	0.19	0.22	0.34	0.18	0.13	0.14	0.34	0.30	0.21	0.27	0.22	0.23	0.10	0.16	0.10	0.12	0.32	0.08	0.17	0.12	0.11	0.13	0.09	0.03	0.07	0.21
		<<120 net-hrs																													

Appendix 6b. Captures at La Selva Biological Station - 2012

	Total	16-Apr	17-Apr	18-Apr	19-Apr	20-Apr	21-Apr	22-Apr	23-Apr	24-Apr	25-Apr	26-Apr	27-Apr	28-Apr	29-Apr	30-Apr	01-May	02-May	03-May	04-May	05-May	06-May	07-May	08-May	09-May	10-May	11-May	12-May	13-May	14-May	15-May	
<b>Recaptures</b>																																
Gray-chested Dove	1														1																	
Band-tailed Barbthroat	1																									1						
Long-billed Hermit	10	1		1	1							1	2										3	1								
Stripe-throated Hermit	1				1																											
Rufous-tailed Hummingbird	1			1																												
American Pygmy Kingfisher	1																					1										
White-whiskered Puffbird	1																														1	
Plain-brown Woodcreeper	1																				1											
Wedge-billed Woodcreeper	8										1		1			1					1		1			1		1			1	
Western Slaty-Antshrike	3													1																		
Checker-throated Antwren	3																															
Dusky Antbird	4		1								1										1											
Ochre-bellied Flycatcher	14	1	2								2	1		2		1					2					2					1	
Royal Flycatcher	1								1																							
Trill's Flycatcher	1									1																						
Alder Flycatcher	5										1										3	1										
Willow Flycatcher	1																														1	
Bright-rumped Attila	1					1																										
White-collared Manakin	20	1	3			3		1				1		1	1	2	1	2	1						1	1		1				
Black-throated Wren	7				1	1									1										2				1	1		
Bay Wren	6		1				1	1			1	1							1													
Stripe-breasted Wren	1																														1	
Long-billed Gnatwren	1																			1												
Swainson's Thrush	1				1																											
Veery	1																1															
Northern Waterthrush	1		1																													
Mourning Warbler	2												1	1																		
Olive-crowned Yellowthroat	3	1	1																	1												
Canada Warbler	4		1				1							1	1																	
Buff-rumped Warbler	1					1																										
Passerini's Tanager	3		1			1	1																									
Variable Seedeater	13	1							2					2						2	1	1			1							
Thick-billed Seed-Finch	4															1									1			1				
Orange-billed Sparrow	5		1	2											1															1		
Buff-throated Saltator	3		1						1												1											
Blue-black Grosbeak	3	1	1			1																										
	137																															
<b>Total recaptures</b>	137	6	14	4	5	8	3	6	1	0	6	7	4	8	5	5	7	3	5	8	4	0	6	3	5	3	1	3	2	2	3	
<b>Total new captures + recaptures</b>	749	30	47	33	31	30	29	47	18	2	22	48	40	34	37	31	34	13	24	20	18	22	16	23	20	16	16	12	6	10	20	
<b>New captures</b>																																
Migrants	133	2	5	8	2	3	6	8	9	2	8	12	16	14	4	6	3	2	3	3	3	4	0	0	0	1	3	2	0	0	4	
Residents	295	15	18	12	12	13	18	25	6	0	5	18	11	8	17	13	16	4	7	7	6	14	5	10	7	3	9	4	2	4	6	
Hummingbirds	184	7	10	9	12	6	2	8	2	0	3	11	9	4	11	7	8	4	9	2	5	4	5	10	8	9	3	3	2	4	7	