

# CALGARY BIRD BANDING SOCIETY

## 2007 ANNUAL TECHNICAL REPORT



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***Custodire aves***  
Keep watch on birds

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## Calgary Bird Banding Society Code of Ethics

**1. Members are jointly responsible for the safety and welfare of the birds they capture and study. Stress, injuries and mortalities must be minimized. The following guidelines must be adhered to:**

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

**2. Members must continually assess their own work to ensure that the highest standards possible are maintained. The following guidelines must be adhered to:**

- reassess methods and your approach whenever an injury or mortality occurs
- accept constructive and positive criticism from your peers

**3. Members must offer honest and constructive assessment of other members work to help develop and maintain the highest standards possible. The following guidelines must be adhered to:**

- provide criticism to other members in a constructive and positive manner
- inform members and others of innovations and improvements in capture, handling and banding techniques
- any mistreatment of birds or improper conduct by a member must be reported to the BIC and/or a member of the CBBS executive



Dawn at Inglewood Bird Sanctuary migration monitoring station  
(Photo by Alejandro Nava Donatti)

## TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY</b> .....	<b>1</b>
<b>FUNDING AND ACKNOWLEDGEMENTS</b> .....	<b>5</b>
<b>MIGRATION MONITORING AT INGLEWOOD BIRD SANCTUARY</b> .....	<b>6</b>
Background .....	6
Methods and Study Site .....	6
Monitoring Schedule and Coverage .....	7
<i>Spring</i> .....	7
<i>Fall</i> .....	7
New Bandings .....	7
<i>Spring</i> .....	7
<i>Fall</i> .....	7
<i>General</i> .....	8
Stable Isotope Ecology .....	8
Daily Estimated Totals (DETs) .....	9
Recaptures .....	9
<b>MONITORING AVIAN PRODUCTIVITY AND SURVIVORSHIP (MAPS)</b> .....	<b>11</b>
Background .....	11
Objectives .....	11
Methods.....	12
Schedule and Coverage .....	12
Results .....	12
Discussion .....	12
<b>DINOSAUR PROVINCIAL PARK PILOT SPRING MIGRATION MONITORING</b> .....	<b>13</b>
Background .....	13
Methods.....	13
Results .....	13
Discussion .....	14
<b>MONTEREO DE SOBREVIVENCIA INVERNAL (MOSI) AND MIGRATION MONITORING AT LAS CALETAS, COSTA RICA</b> .....	<b>15</b>
Introduction.....	15
Study Site .....	15
Methods.....	15
MoSI.....	15
<i>Schedule and Coverage</i> .....	15
<i>Captures</i> .....	16
Migration Monitoring .....	16
<i>Schedule and Coverage</i> .....	16
<i>Captures</i> .....	16
Recaptures .....	17
Discussion .....	17

<b>NORTHERN SAW-WHET OWL MIGRATION MONITORING .....</b>	<b>19</b>
Background .....	19
Methods.....	19
Results .....	19
Discussion .....	20
<b>SIGNIFICANT RE-ENCOUNTERS .....</b>	<b>21</b>
<b>TREND ANALYSIS .....</b>	<b>22</b>
<b>PERSONNEL .....</b>	<b>23</b>
Volunteers .....	23
Banders-in-Charge (BIC).....	23
<b>MORTALITIES AND INJURIES.....</b>	<b>24</b>
<b>REFERENCES.....</b>	<b>25</b>

## FIGURES

1. Topographic maps showing location of IBS and NSWO migration monitoring stations
2. Schematic of Inglewood Bird Sanctuary migration monitoring station
3. Histogram of new bandings at Inglewood Bird Sanctuary
  - a. Spring 2007
  - b. Fall 2007
4. Map showing location of Las Caletas, Costa Rica
5. Graph of MAPS results 1992-2007
6. Swainson’s Thrush migration at Las Caletas, Costa Rica
7. Histogram of Northern Saw-whet Owl new captures SW of Calgary 2007
8. Map of Northern Saw-whet Owl monitoring sites in North America
9. Graph of casualty rates 1995-2007

## TABLES

1. Migration monitoring dates and capture rates at Inglewood Bird Sanctuary
  - a. Spring 2007
  - b. Fall 2007
2. New bandings at Inglewood Bird Sanctuary
  - a. Spring 2002-2007
  - b. Fall 1992-2007
3. Inglewood Bird Sanctuary MAPS new bandings 2007
4. Inglewood Bird Sanctuary MAPS new bandings 1992-2007
5. Dinosaur Provincial Park pilot SMM new bandings 2007
6. MoSi and migration monitoring dates and capture rates at Las Caletas, CR 2007
7. New captures at Las Caletas, CR 2002-2007

8. Trend analysis of monitored species at Inglewood Bird Sanctuary
  - a. Fall 1995-2007
  - b. Spring 2002- 2007
9. Bander-in-Charge and volunteer effort 2007
10. Injuries and mortalities 2007
11. CBBS membership list 2007

## **APPENDICES**

1. New bandings at Inglewood Bird Sanctuary
  - a. Spring 2007
  - b. Fall 2007
2. Top 20 new bandings at Inglewood Bird Sanctuary 1995-2007
3. Monitored species at Inglewood Bird Sanctuary
4. Year-to-year recaptures in Alberta 1992-2007
5. New bandings and other captures in Costa Rica 2007
6. Year-to-year recaptures in Costa Rica 2002-2007
7. Trend analysis charts



Mourning Dove at Dinosaur Provincial Park in 2007  
(photo by Cyndi Smith)

## EXECUTIVE SUMMARY

The Calgary Bird Banding Society (CBBS) was incorporated in March 1995. The main objective of CBBS remains conducting 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, the site is an integral component of the Canadian Migration Monitoring Network.

During 2007, in addition to membership dues and member donations CBBS received support from the Alberta Gaming and Liquor Commission, Petro-Canada Volunteer Grant Fund and Baillie Birdathon.

Spring migration monitoring was undertaken at IBS for the sixth consecutive year since it was initiated in 2002. The 2007 fall migration monitoring program marks the 13<sup>th</sup> year of monitoring and follows pilot programs in 1992 and 1994 and full fall programs in 1995 through 2006. Mist-nets were operated on 32 of the 36 days between 1 May and 5 June (2113 net-hrs) and 66 of the 72 days between 28 July and 7 October (4665 net-hrs). Total new bandings of 528 and 1670 were achieved for the spring and fall programs respectively.

The IBS MAPS site was operated again in 2007, the 15<sup>th</sup> replicate since 2002. The 147 new bandings of 18 species was the highest since the project was initiated in 1992.

Pilot SMM was undertaken at Dinosaur Provincial Park in 2007. A total of 505 birds were banded in 907 net-hours between 12-27 May. Due to the difficult logistics CBBS does not intend to continue the DPP project in 2008.

MoSi was continued and migration monitoring was re-initiated during 2007 at Las Caletas, Costa Rica on the Osa Peninsula along the Pacific coast. During MoSi a total of 387 birds were captured of which 228 were new bandings including 8 over-wintering Neotropical migrants. During migration monitoring a total of 1203 birds were captured of which 875 were new bandings including 562 Swainson's Thrushes and 17 other Neotropical migrants. A Northern Waterthrush, banded in April 2003 was recaptured evidencing multi-year over-winter site fidelity and year-to-year survival.

2007 marked the 4<sup>th</sup> year of full Northern Saw-whet Owl migration monitoring at a site in the foothills southwest of Calgary. A total of 147 Northern Saw-whet Owls were captured and banded on 34 evenings between 16 September and 1 November. 64% were HY and 60% were F. New owls per net-hour since inception is 0.25, 0.29, 0.27 and 0.23 in 2004, 2005, 2006 and 2007 respectively.

A Swainson's Thrush banded in 2005 was recaptured, another rare example of stopover site fidelity at IBS. Two Northern Saw-whet Owls banded in the foothills southwest of Calgary

were recaptured at other sites and reported to us in 2007. An HY-F banded on 1 October 2006 was recaptured at Beaverhill Bird Observatory on 3 October 2007 approximately 315-km NNE and an HY-F banded on 11 October 2007 was recaptured near Edenwold, SK on 23 October 2007 moving 717-km E in 12 days. Old birds recaptured included Black-capped Chickadees (9 and 10 years old), Gray Catbird ( $\geq 5$ -yrs) and Brown-headed Cowbird ( $\geq 7$ -years).

Trend analysis was undertaken on 25 and 11 species in fall and spring respectively occurring as migrants at IBS and captured in sufficient quantity to allow analysis. It is interesting that two species (Traill's Flycatcher, Wilson's Warbler) show significant ( $P < 0.05$ ) or almost significant ( $P < 0.10$ ) increases which is consistent with an increasing supply of second growth and/or shrubby habitat.

Banders-in-Charge and volunteers contributed 496 person-days or approximately 3968 hours to CBBS projects during 2007.

The number of mortalities during 2007 CBBS banding projects remained low at 0.27% while the injury rate in 2007 was 0.91%, about average since 2001.



Aberrant plumaged Black-capped Chickadee at IBS in 2007  
(photo by Shonna McLeod)



## 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 1995-2007;
- spring banding was initiated in 1997 at Dunbow Road approximately 22-km SSE of the City of Calgary and continued in 1998 and 1999;
- spring and fall banding/migration monitoring was initiated at the Cominco Natural Area (CNA) in 2000 with spring banding continued in 2001;
- colour-banding and relocation of Red-tailed and Swainson's Hawks at Calgary International Airport was initiated in cooperation with the Calgary Airport Authority in 2000 and continued through 2004;
- pilot spring migration monitoring was initiated at Las Caletas on the Osa Peninsula, Costa Rica in 2002, continued in 2003 and full migration monitoring initiated in 2004 and continued in 2005 and 2007;
- pilot Monitoreo de Sobrevivencia Invernal (MoSI) was undertaken in Costa Rica both at Las Caletas and another site on Isla Violin in 2006;
- a Northern Saw-whet Owl migration monitoring pilot program was carried out at Inglewood Bird Sanctuary in 2000 and subsequently discontinued;
- pilot Northern Saw-whet Owl migration monitoring was carried out in 2003 and full migration monitoring was initiated in 2004 and continued through 2007 at a location in the foothills southwest of Calgary;
- pilot MAPS was undertaken at Dinosaur Provincial Park (DPP) in 2006; and
- pilot SMM was undertaken at Dinosaur Provincial Park (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.

### Canadian Migration Monitoring Network (CMMN)



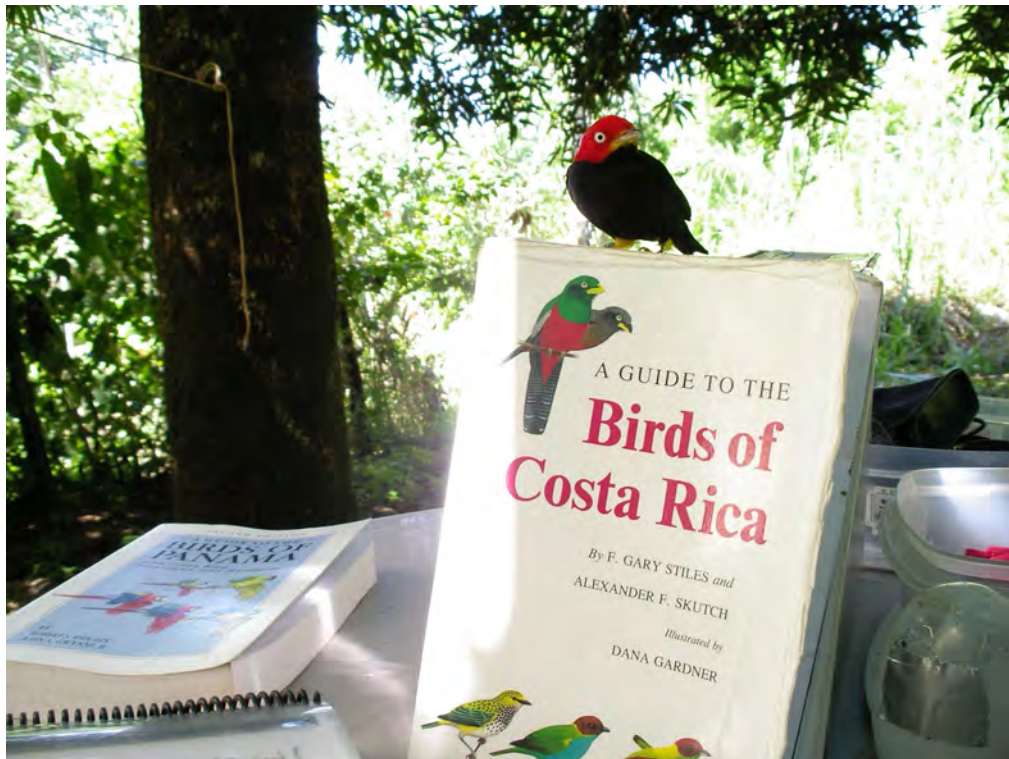
## FUNDING AND ACKNOWLEDGEMENTS

Funding other than membership dues and member donations during 2007 were:

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

Funds were used to provide a per diem to Banders-in-Charge (BICs), cover in-country costs for the Costa Rica migration monitoring project, purchase mist-nets, produce the annual technical report, conduct stable isotope analyses of feather samples and cover migration monitoring miscellaneous costs (field data sheets, batteries, film and processing etc.).

Sincere appreciation goes out to all CBBS members who have helped make 2007 another successful year for CBBS. Many non-members have helped immensely by volunteering at our casino, participating in the Baillie Birdathon and providing expertise such as carpentry, electrical etc. A special thanks to Gwen Smiley for a very thorough critical review of this technical report.



Red-capped Manakin checking out the CBBS banding station in Costa Rica  
(Photo by Doug Collister)

## MIGRATION MONITORING AT INGLEWOOD BIRD SANCTUARY

### 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 many Neotropical migrants in North America may be decreasing. Although destruction of tropical forests on the wintering grounds has been implicated in declines, increasing concern is being raised about the potential effect of accelerated land-use changes on breeding grounds.

Inglewood Bird Sanctuary (IBS) is a federal Migratory Bird Sanctuary known as an important site for migrating passerines. IBS is strategically located within 80-km of the Rocky Mountains (Figure 1) and is a unique and valuable member of the Canadian Migration Monitoring Network. IBS is located within Calgary which greatly facilitates member involvement. Pilot monitoring, covering only a portion of the fall migration, was undertaken in 1992 and 1994. Full spring and fall migration monitoring has occurred since 2002 and 1995 respectively. 2007 is CBBS' 13<sup>th</sup> anniversary. 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

Both spring and fall migration of Neotropical migrants were monitored in 2007 at Inglewood Bird Sanctuary (IBS). IBS's 35 hectares includes mature riverine balsam poplar forest known for its number and diversity of songbirds during spring and fall migration (Sherrington 1975, Elphinstone 1990). Constant-effort mist-netting (i.e. constant number of nets in permanent locations for constant time period each day) and collection of associated morphometric and other data (e.g. age, sex, wing chord, weight, fat reserves, capture net, time of capture) from each bird captured was carried out each day, weather permitting, during spring and fall migration. Twelve 12-m long x 30-mm mesh mist-nets were operated in permanent net lanes for approximately 6-hours each day beginning at sunrise. A daily census was obtained when possible. A census was not attempted when the number of migrants or volunteer shortage would result in unacceptable risk to captured birds (e.g. excessive holding time).

The migration monitoring protocol used at IBS was developed from procedures outlined in McCracken *et al.* 1993 (A manual for monitoring bird migration), Hagan *et al.* 1994 (Recommended methods for monitoring bird migration) and Hussell and Ralph 1996 (Recommended methods for monitoring bird populations by counting and capture of migrants). Net locations and the daily census route are shown on Figure 2.

## **Monitoring Schedule and Coverage**

### ***Spring***

Spring migration monitoring at IBS was conducted from 1 May to 5 June. This was the 6<sup>th</sup> year of full spring migration monitoring at IBS. In addition to standardized constant-effort mist-netting, a census route was surveyed 2-3 hours from the start of the netting. Coverage of 89% was achieved. That is, mist-netting occurred on 32 of the 36 target days for a total of 2113 net-hours (Table 1a, Figure 3a). Inclement weather (3 days) and no BIC (1 day) resulted in 4 days of the monitoring period without banding. Inclement weather and high water during the last portion of the monitoring period also resulted in 13 days with a reduced number of net-hours from the daily target of 72.

### ***Fall***

Fall migration monitoring at IBS was conducted from 28 July to 7 October. In addition to standardized constant-effort mist-netting, a census route was surveyed 2-3 hours from the start of the netting. Coverage of 92% was achieved. That is, mist-netting occurred on 66 of the 72 target days for a total of 4665 net-hours (Table 1b, Figure 3b). Inclement weather (1 day), no volunteer (1 day) and no BIC (4 days) resulted in 6 days of the monitoring period without any banding. Inclement weather also resulted in 5 days with a reduced number of net-hours from the daily target of 72.

## **New Bandings**

### ***Spring***

A total of 528 new bands were placed on birds of 45 species (Table 2a, Appendix 1a). At least 20, 30 and 40 new bandings occurred on 9, 6, and 2 days respectively (Figure 3a). New banding totals by species at IBS are presented in Table 2a. The top 20 banded species over all years, and during 2007, are identified in Appendix 2. Chipping Sparrow and Clay-colored Sparrow were 1<sup>st</sup> and 2<sup>nd</sup> in 2007 compared to 6<sup>th</sup> and 7<sup>th</sup> respectively over all years. Species monitored at IBS based on criteria developed by Bird Studies Canada appear in Appendix 3 along with those criteria.

### ***Fall***

A total of 1670 new bands were placed on birds of 68 species (Table 2b, Appendix 1b). At least 40, 50 and 60 new bandings occurred on 17, 7 and 2 days respectively (Figure 3b). Approximately 59% of new bandings occurred in August and 30% in September. The level of new bandings that occur in August versus September at IBS varies considerably 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 in 2007. New bandings at IBS from 1992-2007 are presented in Table 2b. The top 20 banded species over all

years, and during 2007, are identified in Appendix 2. Chipping Sparrow and White-throated Sparrow ranked 14<sup>th</sup> and 18<sup>th</sup> in 2007 compared to 9<sup>th</sup> and 12<sup>th</sup> respectively over all years. White-crowned Sparrow and Clay-colored Sparrow did not place in the top 20 in 2007 compared to placing 16<sup>th</sup> and 19<sup>th</sup> respectively over all years. Two species, Warbling Vireo and House Finch, were 17<sup>th</sup> and 13<sup>th</sup> respectively in 2007 after not appearing in the top 20 previously. Species monitored at IBS based on criteria developed by Bird Studies Canada appear in Appendix 3 along with those criteria.

### ***General***

Mist-netting can add another dimension to understanding the avifauna at a site particularly in detection of rare or elusive species. A single Magnolia Warbler and 2 Gray-cheeked Thrushes during spring were first bandings at IBS of species rarely observed.

The *Oporornis* warblers are often difficult to detect and identify with binoculars. During 2007 migration monitoring at IBS 4 Connecticut Warblers, 6 Mourning Warblers and 3 MacGillivray's Warblers were banded. Stable isotope analysis of rectrices collected at IBS in 2003 and 2004 may help shed light on the geographic origin of *Oporornis* warblers banded 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. Ms. Dunn's analysis provided insight that IBS appears to be an important refueling stop for Neotropical migrants. A copy of her paper appeared in Appendix 4 of the 2003 ATR and is available on the CBBS website.

### **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-west of their respective locations. Preliminary results involving 1999 samples from Delta Marsh Bird Observatory and Atlantic Bird Observatory indeed indicated that CMMN stations are capturing birds from a broad area, not simply from a small region close to the station. To investigate the origin of birds captured at IBS during the fall migration, feather material was collected from 54 resident and migrant birds during 2003. A total of 919 feather samples were collected from 28 species at IBS during 2004. A large subset of these samples has been analyzed and interpretation is underway in an effort to comprehensively characterize the breeding and/or natal areas of origin for species monitored at IBS.

## **Daily Estimated Totals (DETs)**

The daily estimated totals (DETs) represent the total number of birds, by species, detected at the IBS migration monitoring site each day. Each DET incorporates capture data as well as a standardized census and any casual observations made during banding operations. DETs, after removal of probable and known stopovers (PKS), can give an overall description of bird migration. DET is secondary, and inferior to, mist-netting as a monitoring measure at IBS. If high capture rates and/or personnel shortage create a risk to the welfare of the birds, a census (and therefore a DET) is not done.

## **Recaptures**

Recaptures at IBS during migration monitoring totaled 723 of at least 459 different birds of 54 species (see table on following page). Recapture rates were highest in resident species (e.g. House Wren, Black-capped Chickadee, Downy Woodpecker). However some resident species evidenced a relatively low recapture rate suggesting that migrants swell the ranks (e.g. American Robin, Least Flycatcher). A few migrant species appear to use IBS for moulting or extended re-migratory foraging as evidenced by high recapture rates (e.g. Northern Waterthrush, Tennessee Warbler, Ovenbird, White-throated Sparrow).

Seventy-four (74) birds banded at IBS in previous years were recaptured in 2007. All year-to-year recaptures from 1992-2007 are presented in Appendix 4. Most year-to-year recaptures occur in the year following banding. However in a few cases birds are recaptured in several subsequent years and occasionally re-appear a number of years after banding. Of note are:

- Black-capped Chickadee banded in 1997 at IBS and recaptured, for the first time, in 2007 at Pearce Estate;
- Black-capped Chickadee banded in 1998 at IBS and recaptured, for the first time, in 2007 at Stanley Park;
- Yellow Warbler banded in 2002 and recaptured in 2005 and again this year, 2007;
- Yellow Warbler banded in 2002 and recaptured in 2006 and again this year, 2007;
- Yellow Warbler banded in 2001 and recaptured in 2002 and 2004 and again this year, 2007;
- Brown-headed Cowbird banded in 2002 and recaptured, for the first time, in 2007; and
- Black-capped Chickadees (n=5) banded at IBS and recaptured in adjacent areas of the city by a U of A PhD candidate studying connectivity – two of which are detailed above.

<b>Species Recaptured at Inglewood Bird Sanctuary during MM 2007</b>					
<b>Species</b>	<b>Recap</b>	<b>Banded</b>	<b>Species</b>	<b>Recap</b>	<b>Banded</b>
Solitary Sandpiper	2	7	Yellow Warbler	72	177
Spotted Sandpiper	1	6	Chestnut-sided Warbler	1	1
Belted Kingfisher	5	8	Magnolia Warbler	1	6
Downy Woodpecker	20	17	Yellow-rumped Warbler	32	268
Western Wood-Pewee	3	22	Blackpoll Warbler	2	12
Traill's Flycatcher	6	108	Black-and-white Warbler	1	2
Least Flycatcher	21	67	American Redstart	2	16
Eastern Kingbird	13	17	Ovenbird	13	38
Northern Shrike	1	1	Northern Waterthrush	48	57
Warbling Vireo	6	28	Connecticut Warbler	1	4
Philadelphia Vireo	1	2	Mourning Warbler	3	6
Red-eyed Vireo	1	5	MacGillivray's Warbler	4	3
Black-billed Magpie	1	4	Common Yellowthroat	4	9
Tree Swallow	20	17	Wilson's Warbler	30	139
Northern Rough-winged Swallow	2	5	Canada Warbler	3	4
Black-capped Chickadee	67	22	Chipping Sparrow	15	142
White-breasted Nuthatch	4	6	Clay-colored Sparrow	15	73
House Wren	125	117	Song Sparrow	11	15
Ruby-crowned Kinglet	1	21	Lincoln's Sparrow	15	65
Gray-cheeked Thrush	1	2	White-throated Sparrow	10	26
Swainson's Thrush	12	78	White-crowned Sparrow	2	28
Hermit Thrush	2	6	Red-winged Blackbird	1	5
American Robin	23	84	Brown-headed Cowbird	4	8
Gray Catbird	14	21	Baltimore Oriole	9	14
Cedar Waxwing	15	72	House Finch	2	35
Tennessee Warbler	28	87	American Goldfinch	1	7
Orange-crowned Warbler	18	181	House Sparrow	1	0



## 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 2007 field season was MAPS 19<sup>th</sup> year of North American operation.

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

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

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

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

### Objectives

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

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

## **Methods**

The MAPS Program consists of standardized constant-effort mist-netting during the breeding season. The breeding season is considered to extend from May through mid-August and is divided into 10 ten-day periods. Ten 30-mm mist-nets are operated for 6 hours from sunrise on one day in each of the ten-day periods. Mist-netting commences the first ten-day period during which the majority of breeding adults of the target species have established territories and migrant individuals of these species are no longer passing through the area. 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 a replicate in 2007.

## **Schedule and Coverage**

2007 marked the 15<sup>th</sup> year of the MAPS project at IBS since 1992. Unavailability of qualified personnel precluded gathering data in 1994 and flooding in 2005 limited effort to 121 net-hours, all during the first two periods. Record rainfall and flooding precluded further access to the site until late July. Although period 4 is no longer required at stations at the latitude of IBS we have continued with it in most years out of tradition.

## **Results**

The number of each species banded, by date, during 2007 are summarized in Table 3. The number of each species that was banded is summarized in Table 4 and Figure 5 for 2007 as well as the 14 previous years. Please note that 7 of the 10 MAPS nets are also MM nets and therefore many new bandings are both MM and MAPS birds and included in tables and appendices for both projects. New bandings totaled 147 of 18 species. Year-to-year recaptures are an important part of MAPS. In 2007 there were a total of 75 recaptures, many of which were birds banded in previous years (see Appendix 4).

## **Discussion**

Lack of regeneration of balsam poplar has been an issue at IBS. The heavy flooding that occurred during 2005 may have stimulated poplar seedling recruitment thereby helping to alleviate this problem.

## DINOSAUR PROVINCIAL PARK PILOT SPRING MIGRATION MONITORING

### Background

Dinosaur Provincial Park is a World Heritage Site located approximately 2 hours east of Calgary or 48-km northeast of the town of Brooks. Potential to band at Dinosaur Provincial Park was identified in 2006 based on discussions with park staff and CBBS decided to conduct a pilot MAPS project that year at a site within the reserve area just east of the southeastern corner of the public loop road. In 2007 a pilot spring migration monitoring program was carried out.

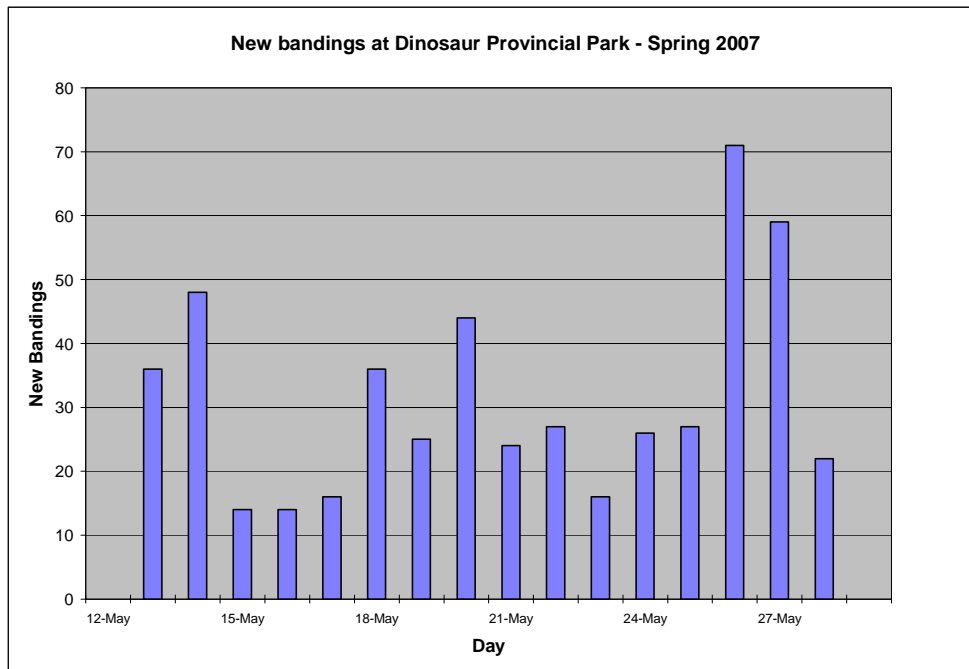
### Methods

Migration monitoring background and methodology is presented previously in this report and will not be repeated here except that 10 mist-nets rather than 12 were used at DPP. The banding area at DPP is riparian forest on the floodplain of the Red Deer River.

### Results

Captures and net-hours by date from 12-27 May 2007 are summarized below.

Date	Net-hours	Captures	Recaptures	Escapes/ unbanded	Mortalities	Total	Captures/ 100 Net- hours
		New Bandings					
12-May	61.3	36	2	1		39	63.6
13-May	61.2	48	11	1		60	98.0
14-May	44.0	14	5			19	43.2
15-May	59.7	14	7	2		23	38.5
16-May	44.9	16	3			19	42.3
17-May	61.7	36	14			50	81.0
18-May	48.8	25	7	4		36	73.8
19-May	63.2	44	6	1		51	80.7
20-May	60.3	24	7	2		33	54.7
21-May	54.4	27	11	2		40	73.5
22-May	57.4	16	14	1		31	54.0
23-May	59.8	26	14	1		41	68.6
24-May	44.1	27	11			38	86.2
25-May	62.5	71	24		1	96	153.6
26-May	63.3	59	13	1		73	115.3
27-May	60.8	22	10	1		33	54.3
<b>Total</b>	<b>907</b>	<b>505</b>	<b>159</b>	<b>17</b>	<b>1</b>	<b>682</b>	<b>75.2</b>



## Discussion

A total of 505 new bands were placed on birds of 43 species (Table 5). Over 50 new bandings occurred on two days, 25 and 26 May (see above). Eleven species were captured in sufficient numbers (>10) and on a sufficient number of dates ( $\geq 5$ ) to be monitored:

Alder Flycatcher	Least Flycatcher
House Wren	Swainson's Thrush
American Robin	Gray Catbird
Orange-crowned Warbler	Yellow Warbler
Common Yellowthroat	Spotted Towhee
Clay-colored Sparrow	

Interesting captures included Red-naped Sapsucker (1 on each of 13 and 26 May), Yellow-bellied Flycatcher (19 May), Say's Phoebe (2 on 15 May), Swainson's Thrush (140 distributed throughout the period), Black-and-white Warbler (1 on each of 23 and 26 May), Connecticut Warbler (25 May) and MacGillivray's Warbler (20 May). Year-to-year recaptures at this site are included in Appendix 4.

Although the site at DPP is interesting and has a rich population of breeding birds the logistics of carrying out banding studies using personnel from Calgary is difficult. CBBS does not rule out the possibility of carrying out full migration monitoring at this site at some point in the future but does not intend to continue in 2008.

## **MONITEREO DE SOBREVIVENCIA INVERNAL (MoSI) and MIGRATION MONITORING AT LAS CALETAS, COSTA RICA**

### **Introduction**

A migration monitoring site on the Osa Peninsula on the Pacific coast of Costa Rica was identified in 1998 and pilot migration monitoring was initiated in 2002 and continued in 2003 (Figure 4). A full migration monitoring program was initiated in 2004 and continued in 2005 to monitor Neotropical migrants on their northward migration through Central America. During December 2005 thru March 2006 CBBS undertook a pilot initiative based on the Monitero de Sobrevivencia Invernal (MoSI) program of the Institute for Bird Populations primarily aimed at quantifying over-winter survival of Neotropical migrants. During December 2006 and March 2007 CBBS continued MoSi at Las Caletas. In addition migration monitoring at Las Caletas was re-initiated from 30 March-27 April.

### **Study Site**

The Las Caletas migration monitoring site is located on the Pacific coast of southwest Costa Rica on the Osa Peninsula just north of Corcovado National Park in the vicinity of the Las Caletas ecotourism lodge. Las Caletas is located on the south coast of Drake Bay, a few kilometres southwest of the small village of Agujitas. The lodge is on a hill looking north over the Pacific Ocean. The monitoring station is 200-m further uphill south of the lodge.

### **Methods**

Methods used at Las Caletas are similar to those at IBS. Constant-effort mist-netting 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 on each day, weather permitting. Twelve to fifteen 12-m long x 30-mm mesh mist-nets were operated for approximately 6 hours each day beginning at sunrise (~ 0530 to 1130). USFWS aluminum bands were applied to migrants while CBBS-purchased bands were applied to species resident in the area including hummingbirds.

### **MoSI**

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

MoSI was conducted from 10-15 December 2006 and 5-10 March 2007. Mist-netting occurred on all 12 days for a total of 1000 net-hours (Table 6). Several days had reduced net-hours due to rain.

### *Captures*

In total, 387 birds of 59 species were captured of which 228 (59%) were new bandings, 146 (38%) were recaptures and 13 (3%) were released or otherwise un-banded (Table 6, Appendix 5). New species captured were Fiery-billed Aracari, Prothonotary Warbler and Buff-rumped Warbler. Of the 241 resident new captures 79 (33%) were hummingbirds.

A total of 8 over-wintering Neotropical migrants were banded:

- Yellow-bellied Flycatcher (2)
- Prothonotary Warbler (1)
- Northern Waterthrush (2)
- Kentucky Warbler (2)
- Mourning Warbler (1)

### **Migration Monitoring**

#### *Schedule and Coverage*

Migration monitoring was conducted from 30 March to 27 April 2007. Mist-netting occurred on 28 of 29 days for a total of 3120 net-hours (Table 6). Several days had reduced net-hours due to rain.

### *Captures*

In total, 1203 birds of 79 species were captured of which 875 (73%) were new bandings, 289 (24%) were recaptures and 39 (3%) were released or otherwise un-banded (Table 6, Appendix 5). New or unusual species captured were Purple-crowned Fairy (second banding), Sulphur-bellied Flycatcher, Scale-crested Pygmy-Tyrant and Summer Tanager (3<sup>rd</sup> and 4<sup>th</sup> bandings). Of the 327 resident new captures 95 (29%) were hummingbirds. Sixty-four percent (587) of the new captures were Neotropical migrants of which 570 (97%) were Swainson's Thrushes.

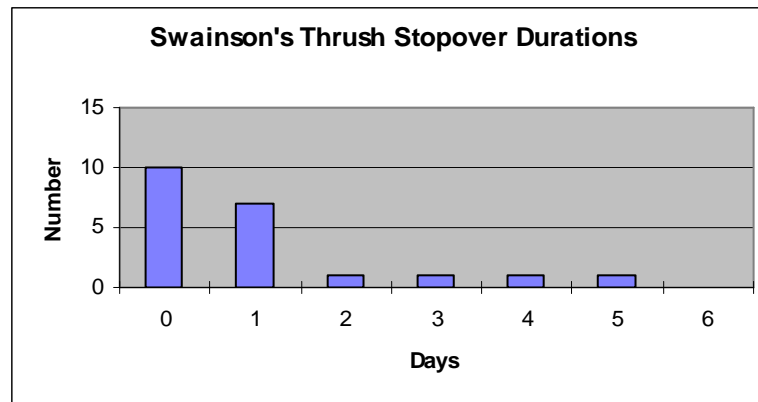
Other new capture Neotropical migrants included:

- Yellow-bellied Flycatcher (1)
- Alder Flycatcher (2)
- Traill's Flycatcher (1)
- Sulphur-bellied Flycatcher (1)
- Yellow-green Vireo (2)
- House Wren (2)
- Chestnut-sided Warbler (6)
- Northern Waterthrush (1)
- Mourning Warbler (1)

## Recaptures

Four hundred and thirty-seven (437) recaptures were made of 262 different birds of 59 species during MoSi and migration monitoring combined. A Northern Waterthrush, banded in April 2003 was recaptured evidencing multi-year over-winter site fidelity and year-to-year survival.

Twenty-one Swainson's Thrushes were recaptured in a similar pattern to previous years: ten (48%) same day, 7 (33%) one day after banding and 1 each 2,3,4 and 5 days after banding.



Recapture of resident birds allows quantification of year-to-year survivorship. One hundred and thirty-six (136) birds banded in previous years (2002-2006) were recaptured (Appendix 6). Based on year-to-year data we can calculate an estimate of the survivorship of Neotropical resident birds. It should be kept in mind that many of these survival rates are based on small sample sizes. Sample sizes greater than 60 appear to provide reliable estimates.

## Discussion

As in 2006 MoSI provided a limited amount of information on over-winter survival of Neotropical migrants. MoSi is a program that requires many years of data from numerous sites to be effective. Figure 6 presents daily captures of Swainson's Thrushes since 2002. As can be seen in Table 7 captures of this species since initiation of full migration monitoring in 2004 have been remarkably consistent – 547, 546 and 570 in 2004, 2005 and 2007 respectively. CBBS plans to continue the Las Caletas project in 2008. MoSi and migration monitoring will be combined in an extended continuous period from mid-March through late April. CBBS has published two papers to date based on its research in Costa Rica (see Wilson et al. a,b under references).

Species	Y-Y survival	Number banded
Gray-chested Dove	39%	15
Ruddy Quail-Dove	43%	9
Bronzy Hermit	10%	9
Band-tailed Barbthroat	22%	34
Long-billed Hermit	11%	45
Blue-throated Goldentail	6%	65
Charming Hummingbird	13%	81
Rufous-tailed Hummingbird	17%	26
Black-throated Trogon	22%	7
Blue-crowned Motmot	56%	5
White-whiskered Puffbird	33%	2
Rufous-tailed Jacamar	20%	4
Olivaceous Piculet	22%	7
Buff-throated Foliage-gleaner	39%	15
Plain Xenops	54%	24
Scaly-throated Leaf-tosser	9%	10
Tawny-winged Woodcreeper	57%	19
Long-tailed Woodcreeper	50%	3
Wedge-billed Woodcreeper	45%	66
Northern Barred Woodcreeper	64%	5
Cocoa Woodcreeper	48%	20
Black-hooded Antshrike	54%	24
Slaty Antwren	59%	9
Dot-winged Antwren	24%	46
Chestnut-backed Antbird	39%	44
Bicolored Antbird	47%	36
Black-faced Antthrush	25%	8
Ochre-bellied Flycatcher	31%	108
Northern Bentbill	39%	18
Golden-crowned Spadebill	9%	10

Species	Y-Y survival	Number banded
Ruddy-tailed Flycatcher	35%	12
Sulphur-rumped Flycatcher	29%	13
Yellow-bellied Flycatcher	33%	2
Bright-rumped Attila	36%	24
Dusky-capped Flycatcher	40%	7
Thrush-like Schiffornis	33%	8
Orange-collared Manakin	36%	88
Blue-crowned Manakin	46%	44
Red-capped Manakin	32%	149
Tawny-crowned Greenlet	17%	15
Lesser Greenlet	50%	2
Black-bellied Wren	25%	3
Riverside Wren	26%	43
Long-billed Gnatwren	47%	22
Northern Waterthrush	50%	5
Bananaquit	20%	41
Gray-headed Tanager	33%	39
White-shouldered Tanager	42%	25
Black-cheeked Ant-Tanager	30%	44
Cherrie's Tanager	29%	34
Bay-headed Tanager	56%	5
Green Honeycreeper	57%	11
Red-legged Honeycreeper	33%	5
Variable Seedeater	6%	49
Thick-billed Seed-Finch	27%	27
Orange-billed Sparrow	39%	78
Buff-throated Saltator	25%	23
Black-striped Sparrow	27%	9
Blue-black Grosbeak	30%	24
Scarlet-rumped Cacique	25%	3



## NORTHERN SAW-WHET OWL MIGRATION MONITORING

### Background

During 2003 a site in the foothills southwest of Calgary 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-18 November with encouraging results. A full monitoring program was implemented in 2004 and has continued in 2005, 2006 and 2007.

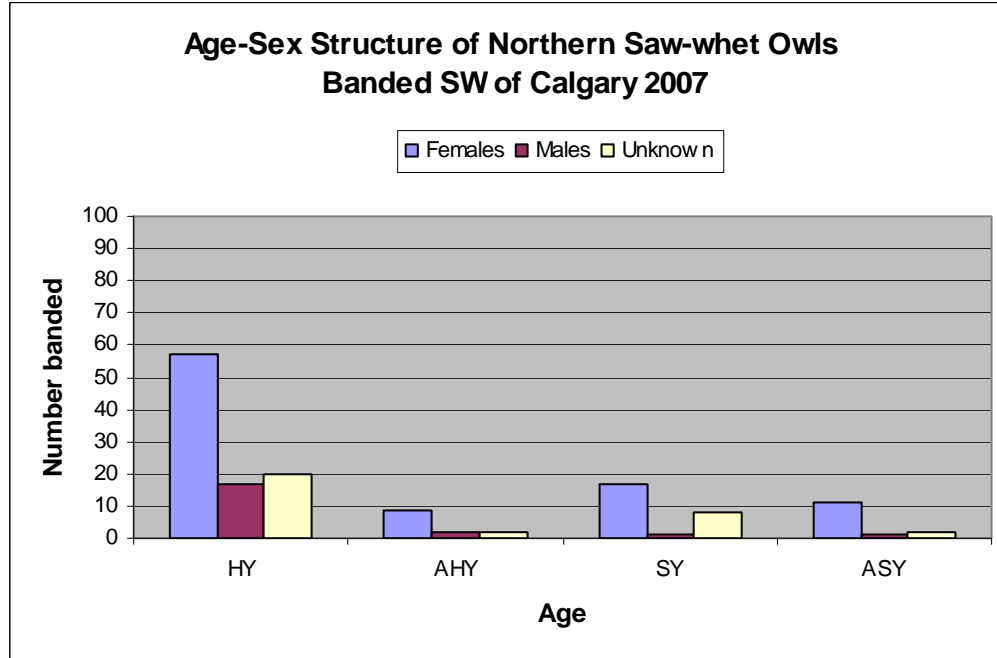
### Methods

Monitoring was begun 16 September and continued through 1 November. Data from Delta Marsh Bird Observatory and Beaverhill Bird Observatory as well as our own experience indicates that the majority of Northern Saw-whet Owl movement occurs between 15 September and 31 October peaking in mid-October. 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 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 1 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 147 Northern Saw-whet Owls were captured and banded during 651 luring hours on 34 of 47 possible evenings between 16 September and 1 November (Figure 7). The 14 evenings when monitoring did not occur were primarily due to access being denied by the landowner (N=12). Two evenings were lost and another two evenings were reduced due to weather. Peak movement occurred between 2 and 12 October although owls were captured as early as 16 September and as late as 31 October.

Of the 147 new Northern Saw-whet Owl bandings HY, AHY, SY and ASY age birds comprised 64%, 9%, 18% and 10% respectively (see histogram below). Females comprised 60% and males 13% while 27% 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 and 0.23** in 2004, 2005, 2006 and 2007 respectively.



Two owls were recaptured: one three evenings after it was banded and another that was banded in 2004. No owls originally banded elsewhere were captured. However an owl banded by CBBS in 2007 was recaptured at Edenwold, Saskatchewan and another banded by CBBS in 2006 was re-encountered at Beaverhill Bird Observatory (see Significant Re-encounters).

### **Discussion**

This site southwest of Calgary has proven itself 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 8). CBBS intends to continue a full monitoring program in 2008 and the future. CBBS will strive for full coverage during the monitoring period subject to restrictions imposed by the landowner.

## SIGNIFICANT RE-ENCOUNTERS

Interesting re-encounters of birds banded in previous years are listed below. All recaptures of birds at CBBS study sites and banded prior to 2007 are indicated in Appendix 4. For the first time since 2002 a Swainson's Thrush banded in a previous year was re-encountered. This appears to be yet another rare examples of stopover site fidelity at IBS. 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 more infrequently and for which longevity data may be lacking may be included even if inferred age is <5 years. Recoveries pre-2007 that have just recently come to our attention and have not been presented in previous ATRs are also presented.

**Northern Saw-whet Owl** 0924-21758 Banded as HY-F SW of Calgary, AB on 1 October 2006. Recaptured at Beaverhill Bird Observatory on 3 October 2007 as SY-F. 315-km NNE (24°).

**Northern Saw-whet Owl** 1204-25383 Banded as HY-U SW of Calgary, AB on 31 October 2004. Recaptured at the same location on 26 October 2007. 3-years old.

**Northern Saw-whet Owl** 924-45607 Banded as HY-F SW of Calgary on 11 October 2007. Recaptured near Edenwold, SK by Jared Clarke on 23 October 2007. 717-km E (87°) in 12 days.

**Black-capped Chickadee** 2050-70848 Banded as HY-U at Inglewood Bird Sanctuary on 2 September 1997. Recaptured at Pearce Estate on 11 May 2007 as M. 10-years old.

**Black-capped Chickadee** 2160-18119 Banded as HY-U at Inglewood Bird Sanctuary on 13 August 1998. Recaptured at Stanley Park on 21 June 2007. 9-years old.

**Swainson's Thrush** 1871-73214 Banded as HY-U at Inglewood Bird Sanctuary on 29 July 2005. Recaptured there on 12, 13 and 27 August 2007. 2-years old.

**Yellow Warbler** 2390-30570 Banded as HY-M at Inglewood Bird Sanctuary on 19 August 2001. Recaptured there on 5 June 2007. 7-years old.

**Gray Catbird** 8041-59443 Banded as HY-U at Cominco Natural Area on 5 August 2001. Recaptured at Inglewood Bird Sanctuary on 30 May 2006. 5-km N. At least 5-years old.

**Brown-headed Cowbird** 1681-67124 Banded as ASY-M at Inglewood Bird Sanctuary on 13 July 2002. Recaptured there on 23 May 2007. At least 7-years old.

## TREND ANALYSIS

Table 8 and Appendix 7 present the results of trend analysis on those species that are monitored at Inglewood Bird Sanctuary during spring and fall migration. Monitored species are, for the most part, those for which at least 10 individuals are captured on at least 5 different days (Appendix 3). It is interesting that Traill's Flycatcher (significant) and Wilson's Warbler (almost significant) evidenced a positive trend in fall which is consistent with an increasing supply of second growth and/or shrubby habitat.

Trend analysis is based on total captures from 1995-2007 and 2002-2007 for fall and spring respectively and was performed by Bird Studies Canada (Tara Crewe). Note that scientific investigation normally requires a P level of  $<0.05$  and preferably  $<0.01$  in order to consider results significant. Due to net-lane inconsistencies year-to-year 11 species could only be analyzed using a subset of the data.

Although the trends with  $P < 0.05$  are likely real, the cause behind them is open to interpretation. Only time and comparison to other CMMN stations will indicate whether significant trends are due to changes in regional populations or to other confounding variables such as weather or habitat change in and around IBS. Correlating trends between migration monitoring stations adds strength to the interpretation that a trend is reflecting regional population(s). Comparable annual indices from other stations were not available for comparison.



Black-capped Chickadee at Inglewood Bird Sanctuary  
(Photo by Alejandro Nava Donatti)

## PERSONNEL

### Volunteers

Volunteer participation in all of the CBBS projects continues to be the key to 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 no more than 3 people are in the reserve at one time, in order to minimize impact. Thus, on any given day, a Bander-in-Charge and 1 or 2 volunteers carry out the banding. Projects not based in IBS are not subject to this restriction. All participants in CBBS projects at IBS are required to complete the IBS orientation each year. In addition all participants in any CBBS project are required to complete the CBBS orientation.

Without donated time, primarily by members of the Calgary Bird Banding Society, the high degree of success of CBBS projects would not have been possible. Sincere appreciation is extended to all of the Banders-in-Charge (BICs) and volunteers listed in Table 9 who contributed approximately 8 hours in the field on each day indicated (496 person-days or 3,968 hours).

### Banders-in-Charge (BIC)

No salaried staff are involved in CBBS projects. However, a per diem is available to all Banders-in-Charge during most CBBS projects. This arrangement provides an incentive for qualified individuals to assume the BIC duties and imposes accountability on the BIC to complete field data sheets and input data to computer files. No per diems are paid until all duties of the BIC, including data entry, have been fully discharged. The per diem established by the general membership for the 2007 field season was \$125/day for migration monitoring and MAPS at IBS, \$125/day for pilot migration monitoring at DPP and \$40/day for Northern Saw-whet Owl migration monitoring. No per diems were paid for BIC duties during MoSI or migration monitoring in Costa Rica.



Prothonotary Warbler banded at Las Caletas, Costa Rica  
(photo by Steve Lane)

## MORTALITIES AND INJURIES

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

Table 10 presents all casualties during the 2007 migration monitoring, including the Costa Rica, Northern Saw-whet Owl and MAPS projects. Note that the number captured, by species, is only given where that species experienced injury or mortality. The number of mortalities during CBBS banding projects remained low at 0.27%. Of 15 mortalities 6 were known to be predation, 5 may have been predation (dead in net) and 4 occurred during extraction or banding. The injury rate in 2007 was 0.91%, about average since 2001 (Figure 9).

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



Coyote predation is a problem at IBS  
(Photo by Alejandro Nava Donatti)

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## FIGURES

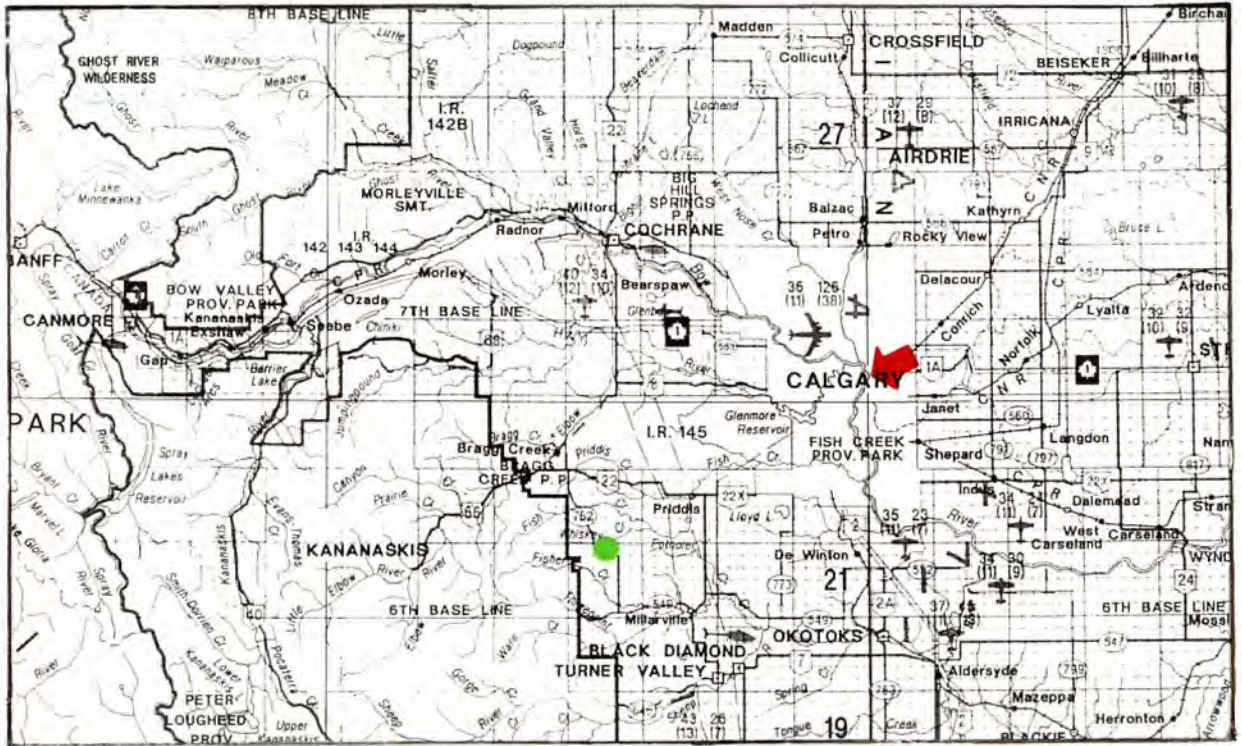


Figure 1. Topographic maps at 1:250,000 (top) and 1:50,000 (bottom) scales showing location of Inglewood Bird Sanctuary in southwestern Alberta. North is up.

**Green dot indicates approximate location of CBBS Northern Saw-whet Owl migration monitoring site**

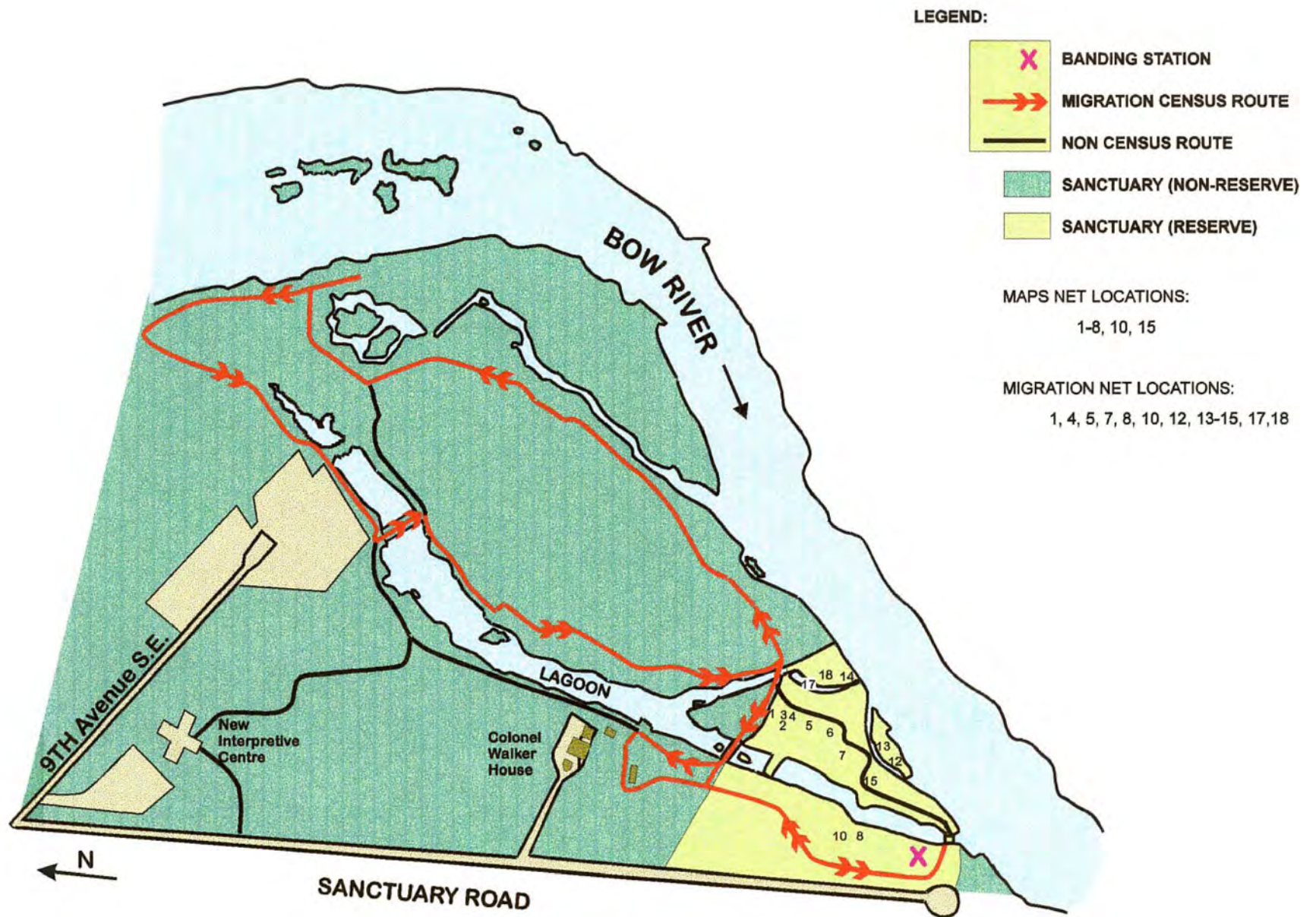
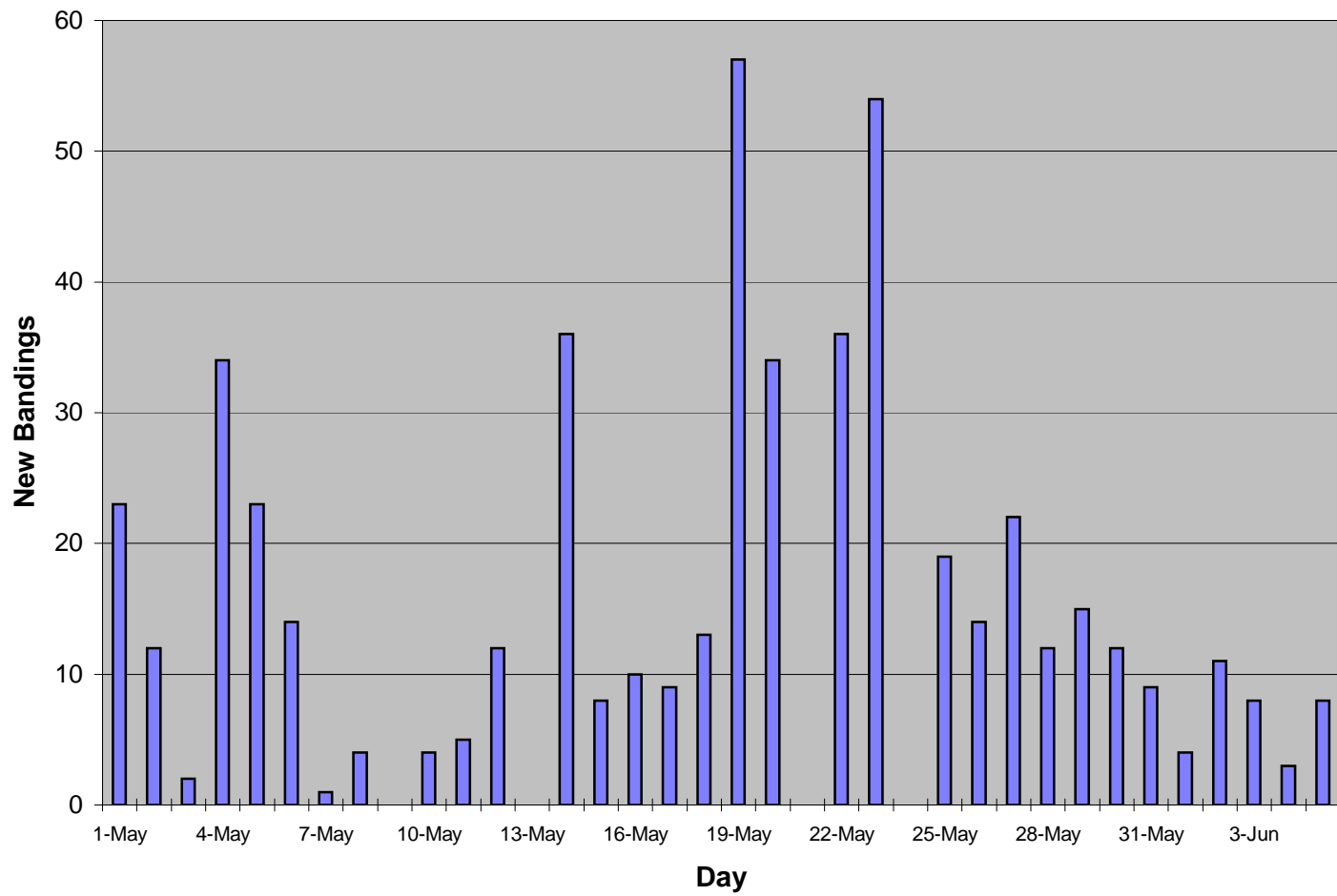
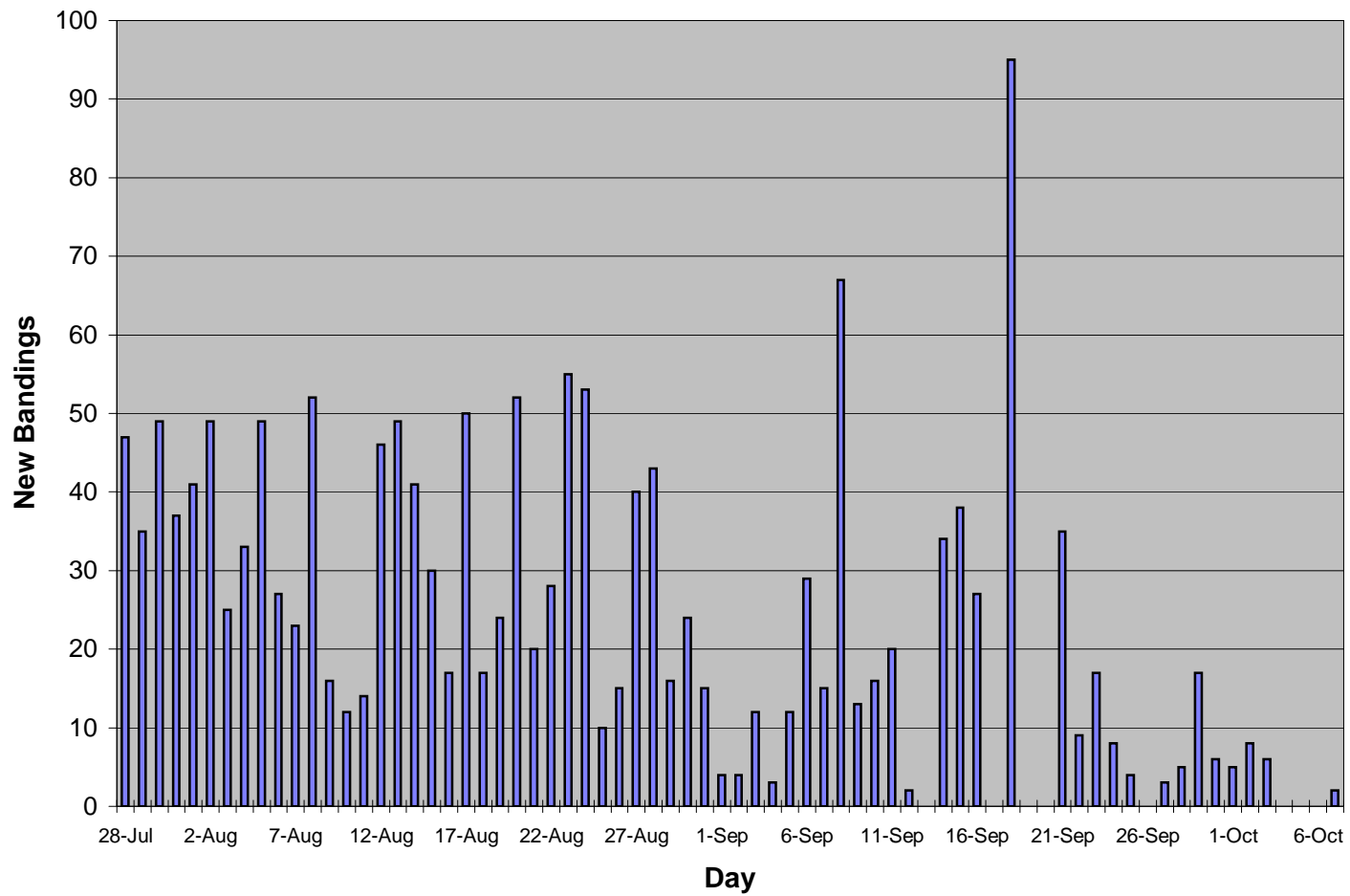


Figure 2. Schematic of Inglewood Bird Sanctuary migration monitoring station

**Figure 3a. New bandings at Inglewood Bird Sanctuary - Spring 2007**



**Figure 3b. New Bandings at Inglewood Bird Sanctuary - Fall 2007**





**MARINO BALLENA NATIONAL PARK**

**COSTA RICA**  
Central America

**EASTERN SECTION**

**LEGEND**

- National Capital **SAN JOSE**
- Provincial Capital **HEREDIA**
- Cantonal Capital **ESCAZU**
- District Town **San Antonio**
- Route Number: Primary 5
- Secondary 48
- Emergency Hospital +
- Hotels H
- Gasoline Station G
- Mountain Peaks ▲ 634
- Points of Interest \* **Atenas**
- Distances in Kilometers 12
- Protected Areas
- Wetland Areas
- Elevation in Meters ▲ 634

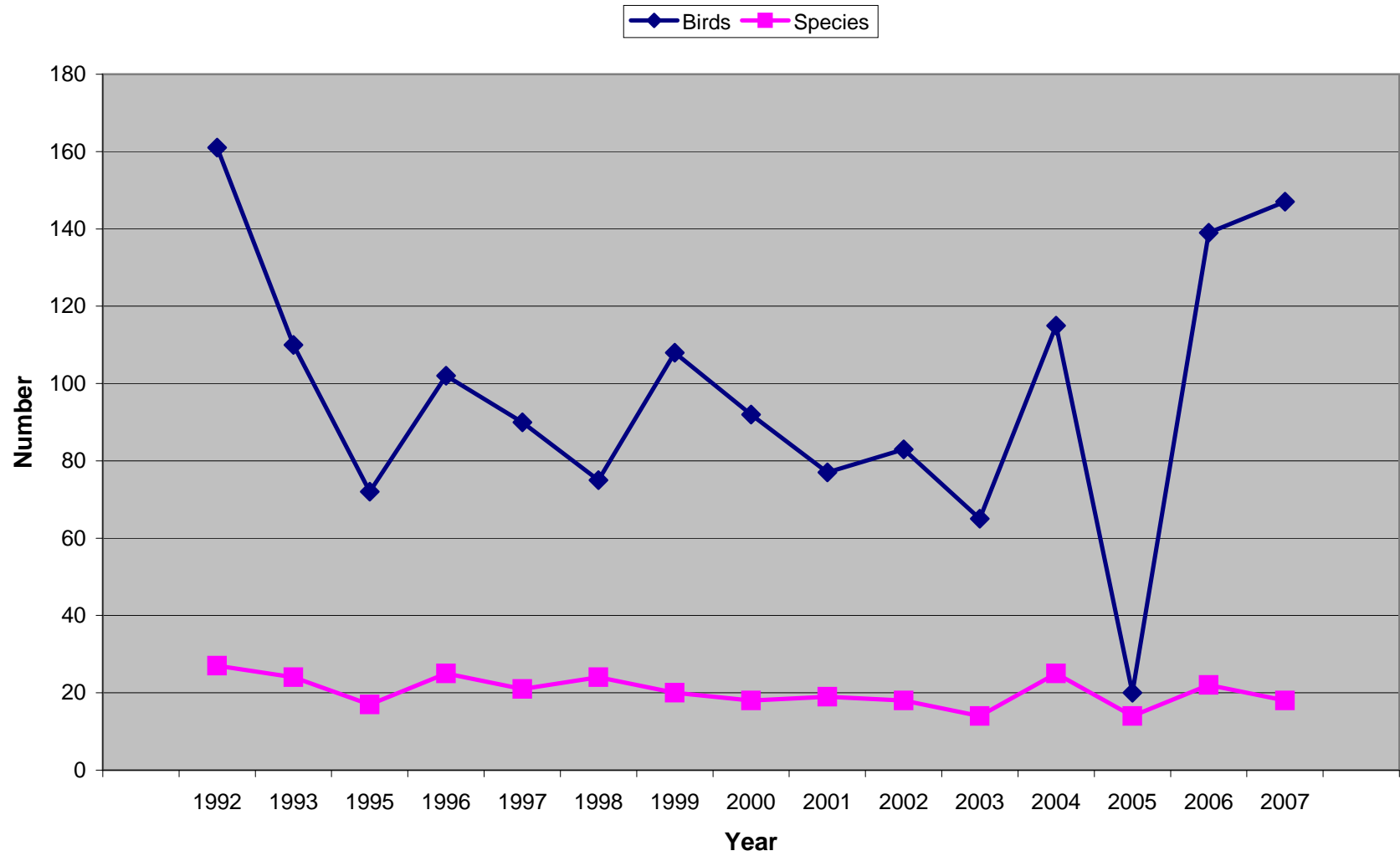
1:100,000 APPROX.  
1 INCH = 6.2 MILES

0 30 40 KILOMETERS  
0 20 MILES

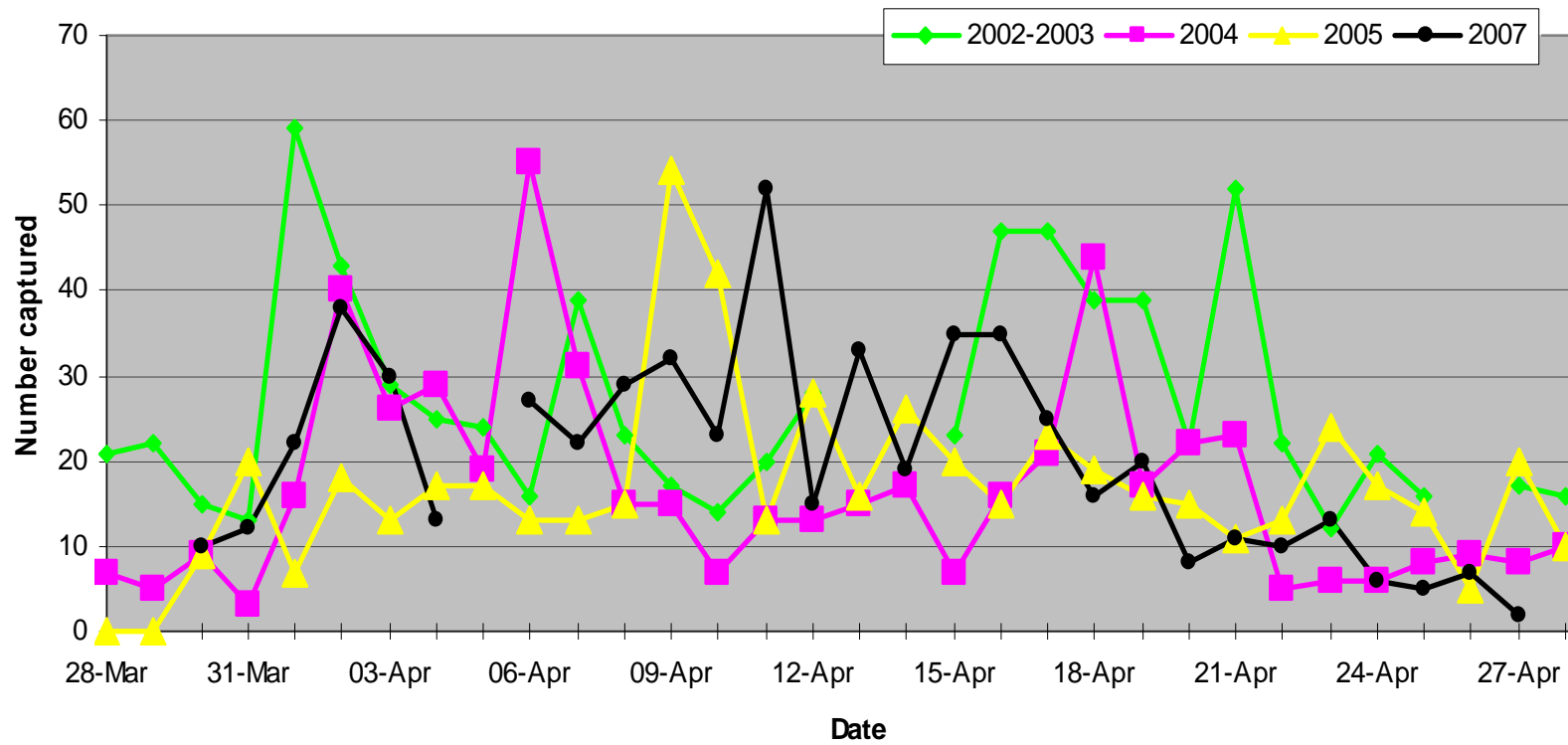
**Figure 4. Location of CBBS Migration Monitoring Site at Las Caletas, Costa Rica**

Kilometers  
Conic Projection  
Scale: 1:200,000, National Geographic Institute  
Cartographer: Tec.

Figure 5. MAPS at Inglewood Bird Sanctuary

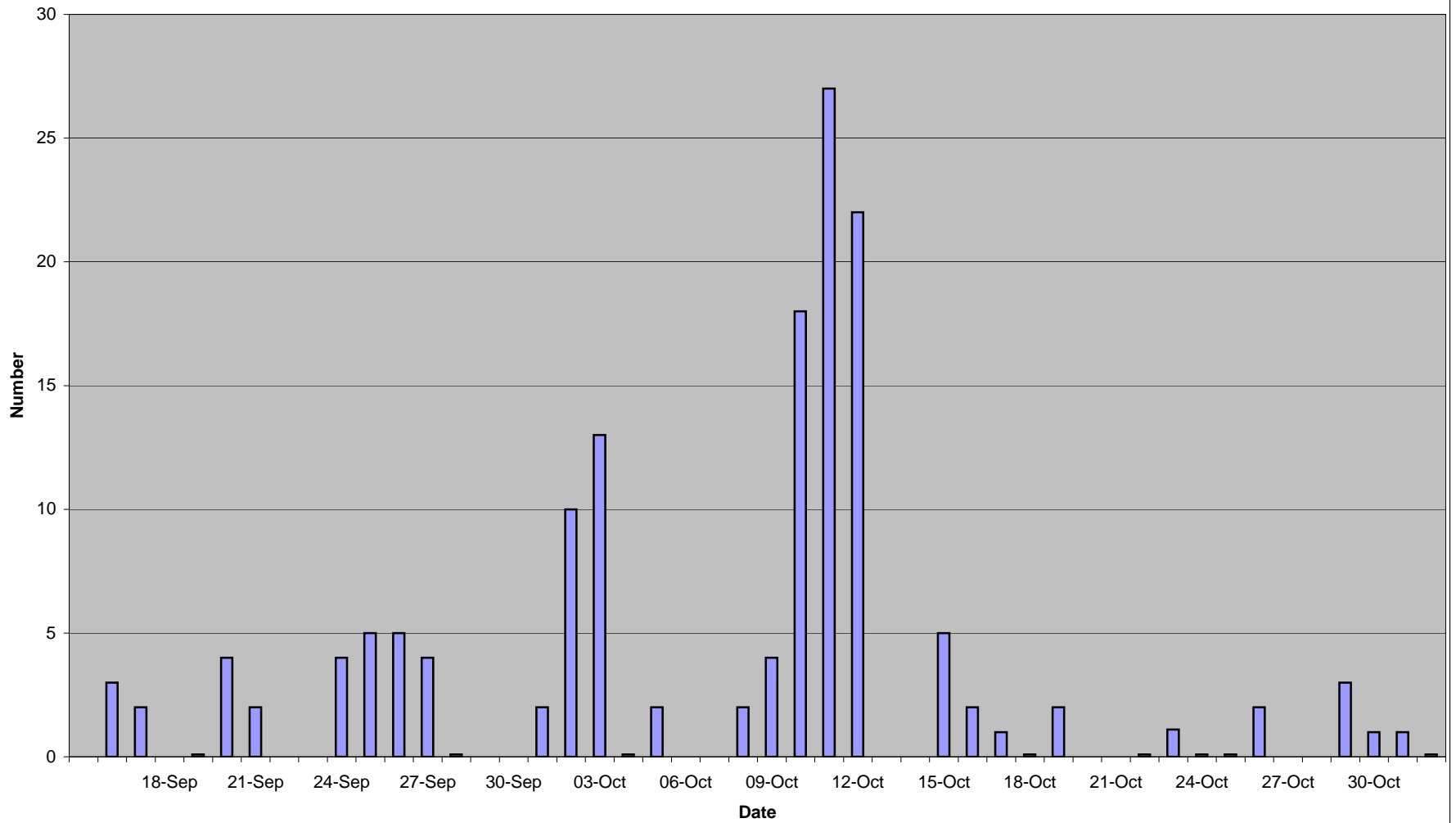


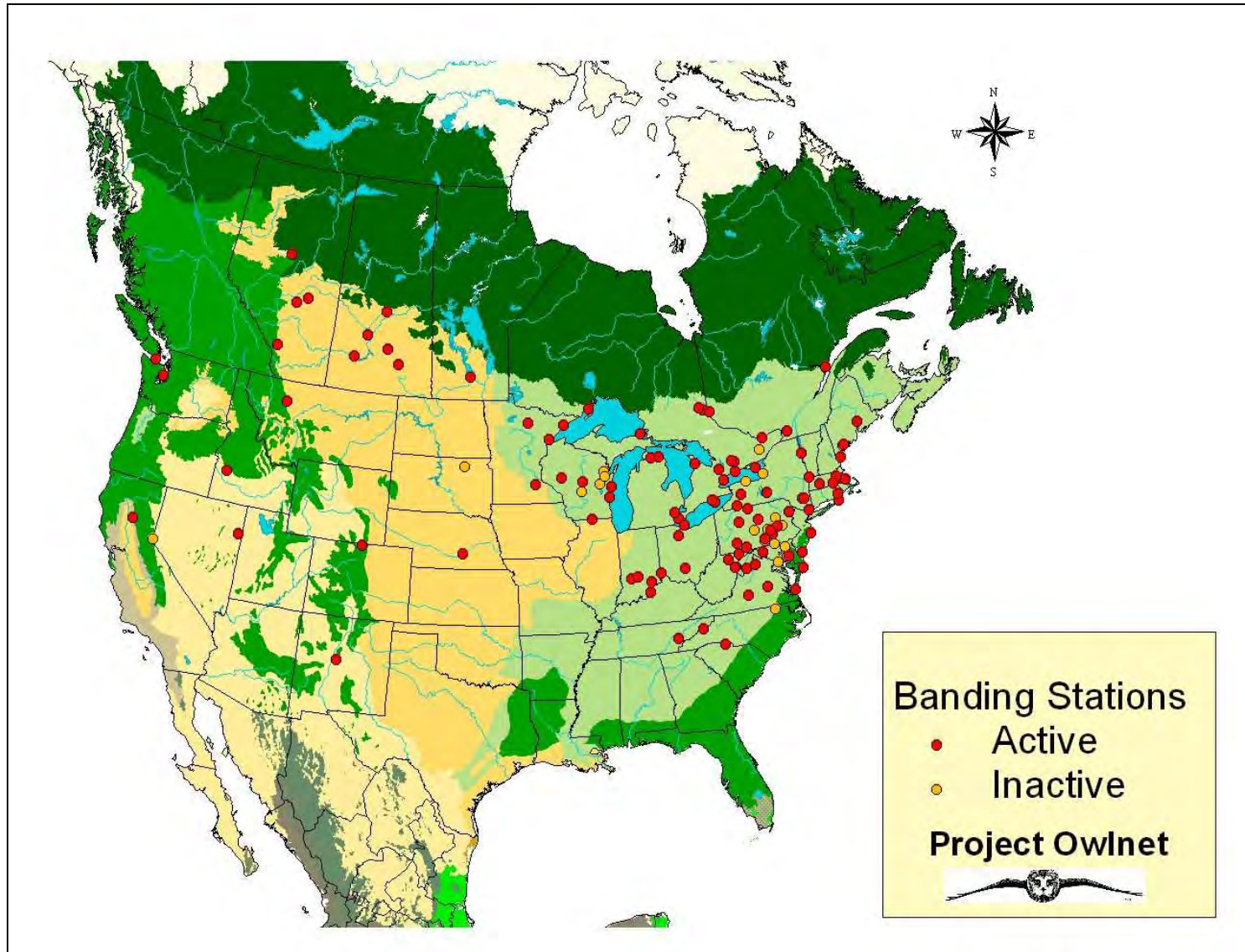
**Figure 6. New Captures of Swainson's Thrush at Las Caletas 2002-2007**





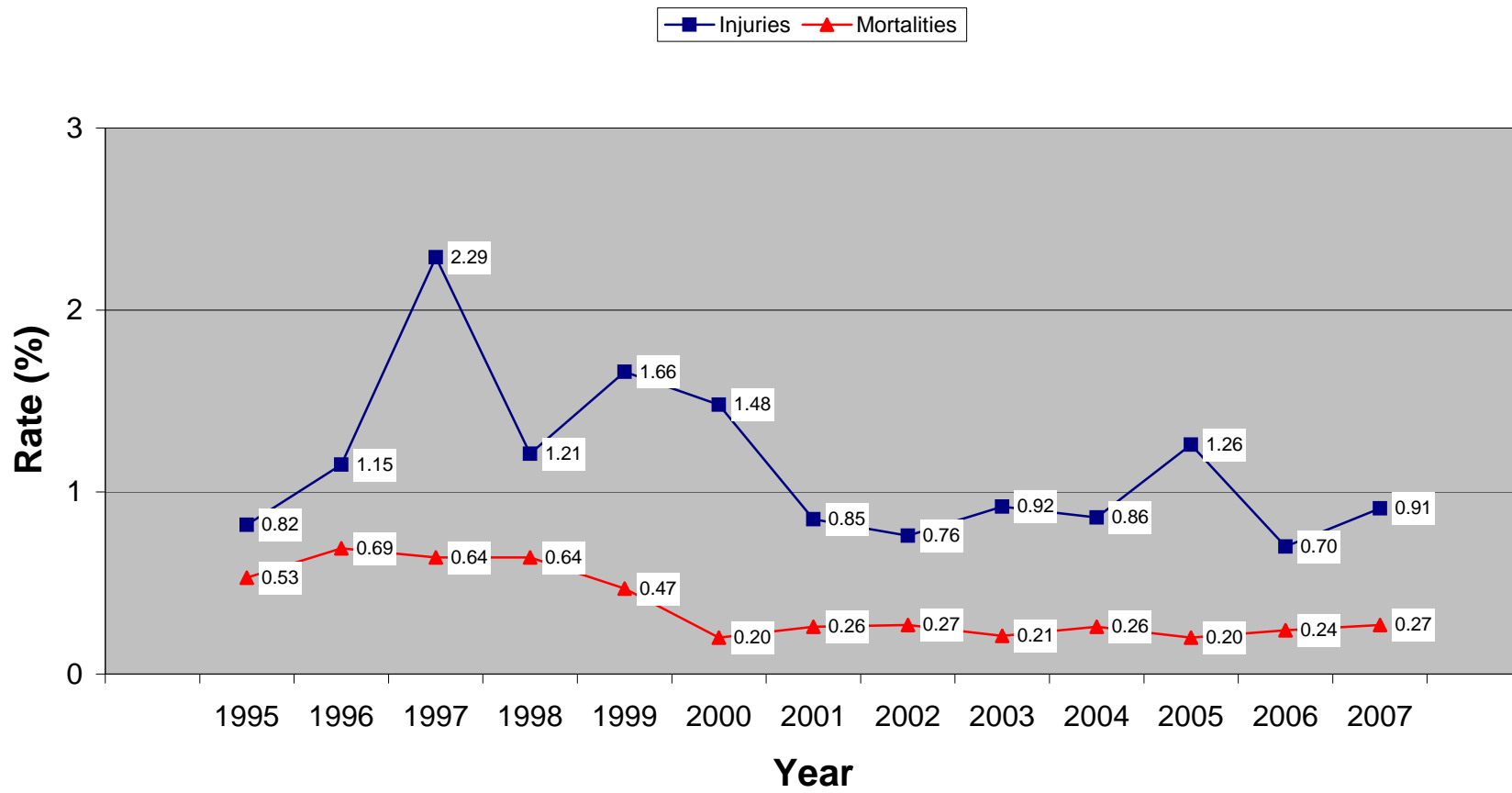
**Figure 7. Northern Saw-whet Owl New Captures 2007**  
**(new bands=147, unbanded=0)**  
Number = 0.1 indicates nets up but no owls captured





**Figure 8. Northern Saw-whet Owl Migration Monitoring Stations Across North America**

Figure 9. Casualty Rates for all CBBS Projects



## **TABLES**

**Table 1a. Coverage and Capture Rates During 2007 Spring MM at IBS**

Date	Net-hours	Captures				Total	Captures/100 Net-hours
		New Bandings	Recaptures	Escapes/unbanded	Mortalities		
01-May	72.3	23	6	7		36	49.8
02-May	63.8	12	6	1		19	29.8
03-May	49.5	2	1			3	6.1
04-May	50.4	34	2	1		37	73.4
05-May	72.3	23	3	1		27	37.3
06-May	73.7	14	3	1		18	24.4
07-May	72.3	1			3	4	5.5
08-May	68.7	4	4			8	11.6
09-May	windy					0	
10-May	70.0	4	6			10	14.3
11-May	72.0	5	2			7	9.7
12-May	72.1	12		2	1	15	20.8
13-May	no BIC					0	
14-May	72.7	36	1	1		38	52.3
15-May	72.3	8	5			13	18.0
16-May	72.0	10	6	2		18	25.0
17-May	71.8	9	5			14	19.5
18-May	67.3	13	2	1		16	23.8
19-May	72.5	57	10	2	3	72	99.3
20-May	72.3	34	22	4		60	83.0
21-May	rain					0	
22-May	73.7	36	16	1		53	71.9
23-May	72.4	54	11	4		69	95.3
24-May	snow					0	
25-May	62.5	19	12	1		32	51.2
26-May	59.0	14	3	2		19	32.2
27-May	64.1	22	7	5		34	53.0
28-May	60.9	12	5			17	27.9
29-May	60.6	15	9	1		25	41.3
30-May	60.2	12	2			14	23.3
31-May	76.8	9	10		1	20	26.0
01-Jun	61.5	4	5			9	14.6
02-Jun	61.0	11	5			16	26.2
03-Jun	60.0	8	2			10	16.7
04-Jun	60.5	3	2	3		8	13.2
05-Jun	42.0	8	4			12	28.6
<b>Total</b>	<b>2113</b>	<b>528</b>	<b>177</b>	<b>40</b>	<b>8</b>	<b>753</b>	<b>35.6</b>

**Table 1b. Coverage and Capture Rates During 2007 Fall MM at IBS**

Date	Net-hours	Captures				Total	Captures/100 Net-hours
		New Bandings	Recaptures	Escapes	Mortalities		
28-Jul	74.6	47	14			61	82
29-Jul	72.7	35	11			46	63
30-Jul	72.8	49	18	1		68	93
31-Jul	73.1	37	19			56	77
01-Aug	74.0	41	10	1		52	70
02-Aug	74.8	49	23			72	96
03-Aug	72.0	25	9			34	47
04-Aug	72.0	33	16	1		50	69
05-Aug	75.3	49	10		1	60	80
06-Aug	72.2	27	4			31	43
07-Aug	72.0	23	7	1		31	43
08-Aug	70.5	52	15			67	95
09-Aug	73.2	16	7			23	31
10-Aug	56.7	12	11			23	41
11-Aug	73.2	14	14	1		29	40
12-Aug	75.8	46	12			58	77
13-Aug	73.1	49	16			65	89
14-Aug	72.9	41	16	3		60	82
15-Aug	74.6	30	13			43	58
16-Aug	71.5	17	4	2		23	32
17-Aug	74.0	50	26	6		82	111
18-Aug	72.6	17	8	3		28	39
19-Aug	67.5	24	14	2		40	59
20-Aug	72.0	52	8	7		67	93
21-Aug	65.4	20	3			23	35
22-Aug	73.1	28	5			33	45
23-Aug	72.3	55	11	1		67	93
24-Aug	72.5	53	17	1		71	98
25-Aug	72.2	10	14	1		25	35
26-Aug	49.8	15	4			19	38
27-Aug	49.7	40	12			52	105
28-Aug	71.8	43	13	2		58	81
29-Aug	71.9	16	14			30	42
30-Aug	71.7	24	12			36	50
31-Aug	72.6	15	7	1		23	32
01-Sep	72.0	4				4	6
02-Sep	72.0	4	6			10	14
03-Sep	72.4	12	7			19	26
04-Sep	71.6	3	3			6	8
05-Sep	71.8	12	1	1		14	19

**Table 1b. Coverage and Capture Rates During 2007 Fall MM at IBS**

Date	Net-hours	Captures				Total	Captures/100 Net-hours
		New Bandings	Recaptures	Escapes	Mortalities		
06-Sep	66.2	29	2			31	47
07-Sep	72.1	15	2			17	24
08-Sep	75.3	67	12	1		80	106
09-Sep	72.6	13	4			17	23
10-Sep	72.3	16	1	1		18	25
11-Sep	72.0	20	3	2		25	35
12-Sep	39.9	2		1		3	8
13-Sep		no BIC				0	
14-Sep	72.8	34	4			38	52
15-Sep	72.4	38	4	1		43	59
16-Sep	72.0	27	7			34	47
17-Sep		weather				0	
18-Sep	62.1	95	13	5		113	182
19-Sep		no volunteer				0	
20-Sep		no BIC				0	
21-Sep	70.4	35	7	1		43	61
22-Sep	72.0	9	2			11	15
23-Sep	72.1	17	6	1		24	33
24-Sep	72.3	8	4			12	17
25-Sep	71.4	4	2	1		7	10
26-Sep	70.1		4	2		6	9
27-Sep	72.3	3	3			6	8
28-Sep	72.7	5	5	1		11	15
29-Sep	72.2	17	4			21	29
30-Sep	72.0	6	3			9	13
01-Oct	72.4	5	2			7	10
02-Oct	72.8	8	5	1		14	19
03-Oct	72.2	6	3			9	12
04-Oct	72.1		1			1	1
05-Oct		no BIC				0	
06-Oct		no BIC				0	
07-Oct	72.0	2	1			3	4
<b>Total</b>	<b>4665</b>	<b>1670</b>	<b>538</b>	<b>53</b>	<b>1</b>	<b>2262</b>	<b>48</b>

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

Year	2002	2003	2004	2005	2006	2007	Total
Start	01-May	01-May	01-May	01-May	01-May	01-May	
Finish	07-Jun	07-Jun	07-Jun	07-Jun	07-Jun	06-Jun	
# Days	27	31	31	31	33	32	
Total	597	230	440	370	311	528	2476
Species	46	36	41	40	41	44	66
Net-hours	1884	2138	2177	2248	2273	2113	12834
Bandings/100 Net-hours	31.7	10.8	20.2	16.5	13.7	25.0	19.3
Sharp-shinned Hawk			1	1	1		3
Cooper's Hawk				1			1
American Kestrel	1						1
Killdeer						1	1
Solitary Sandpiper	1						1
Spotted Sandpiper	2		2		1		5
Belted Kingfisher	1			1	3	1	6
Red-naped Sapsucker				1			1
Downy Woodpecker	5	1	1	4	1	4	16
Northern Flicker	1		1	1			3
Olive-sided Flycatcher			1				1
Western Wood-Pewee	5	1	5		4	4	8
Trail's Flycatcher*	6	4	6	6	1	9	32
Least Flycatcher	16	6	6	7	5	16	56
Eastern Phoebe	1						1
Eastern Kingbird		3	1	2	3	2	11
Blue-headed Vireo	2	1					3
Warbling Vireo	4	2			1	3	10
Red-eyed Vireo		1					1
Black-billed Magpie			2	1		2	5
Tree Swallow	18	6	11	18	14	12	79
N Rough-winged Swallow	5		4	5	4	3	21
Bank Swallow		1	1	1			3
Barn Swallow	1						1
Black-capped Chickadee	3		2	2	1	2	10
Red-breasted Nuthatch	1		4	1		1	7
White-breasted Nuthatch	2				2	1	5
House Wren	13	15	8	13	10	18	77
Ruby-crowned Kinglet		2			3	1	6
Golden-crowned Kinglet					1		1
Gray-cheeked Thrush					1	2	3



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

Year	2002	2003	2004	2005	2006	2007	
Swainson's Thrush	54	38	5	25	46	44	212
Hermit Thrush	2	2	1	2		2	9
Veery		1					1
American Robin	28	35	32	4	37	38	174
Gray Catbird	13	13	11	1	15	9	62
Brown Thrasher					1		1
Cedar Waxwing	3		12	8	8	1	32
Orange-crowned Warbler	19	6	12	18	1	18	74
Yellow Warbler	33	2	13	2	21	23	94
Magnolia Warbler						1	1
Yellow-rumped Warbler	249	1	136	43	45	61	535
Blackpoll Warbler	3	2	1	1			7
American Redstart	2	1			2	2	7
Ovenbird			1	1	1		3
Northern Waterthrush	8	3	7	2	3	4	27
MacGillivray's Warbler			1		1	1	3
Common Yellowthroat	21	6	12	4	6	2	51
Wilson's Warbler	4	1	3		3	3	14
Western Tanager	1		6	1		4	12
Chipping Sparrow	3	6	1		6	108	124
Clay-colored Sparrow	15	9	1	1	6	63	95
Savannah Sparrow	3		2	2	2		9
Fox Sparrow		1					1
Song Sparrow	3	1	8	7		2	21
Lincoln's Sparrow	19	31	37	42	16	20	165
White-throated Sparrow	5	2	7	7	2	2	25
White-crowned Sparrow	6	7	7	42	16	17	95
Dark-eyed Junco	1						1
Rose-breasted Grosbeak	1					1	2
Lazuli Bunting				1			1
Red-winged Blackbird	3	5	1	8	5	4	26
Common Grackle				1	2	3	6
Brown-headed Cowbird	5	3	7	8	4	8	35
Baltimore Oriole	4	7	6		6	3	26
American Goldfinch	1	4		2		2	9

\*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	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	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	years
# Days	26	20	54	70	65	61	68	55	73	68	69	71	62	62	66	890
Total	841	466	1549	1121	1455	1898	1276	1262	1402	1466	1452	1872	1335	1625	1670	20690
Species	52	48	61	59	64	64	66	68	64	66	60	73	67	64	68	103
Net-hours	934	1078	3456	4547	4608	4371	4426	3842	5152	4838	4928	4944	4387	4509	4665	42182
Bandings/100 Net-hours	90.0	43.2	44.8	24.7	31.6	43.4	28.8	32.8	27.2	30.3	29.5	37.9	30.4	36.0	35.8	49.0
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	29
Cooper's Hawk				1	1			1		1						4
Northern Goshawk				1												1
Broad-winged Hawk						1									1	2
Solitary Sandpiper	3	2	3	14	13	14	2	8	4	12	5	8	11	7	7	113
Spotted Sandpiper		1	2		3	3	2			5	1	4	4	3	6	34
Common Snipe								1		1						2
Mourning Dove												1				1
Belted Kingfisher	2	2	8	8	6	8	10	7	2	5	6	7	4	15	7	97
Yellow-bellied Sapsucker			1							1						2
Downy Woodpecker		1	2	3	5	7	3	9	9	13	12	16	9	7	13	109
Hairy Woodpecker								1		1		2		1		5
Northern Flicker	2	1	4	8	7	3	11	2		4	7	6	3	3	1	62
Olive-sided Flycatcher	3		3		5	2		2		2		2	3	1	3	26
Western Wood-Pewee	6	4	11	2	33	8	10	7	14	14	11	16	17	11	18	182
Yellow-bellied Flycatcher			1				1					2			2	6
Traill's Flycatcher*	24	16	29	25	50	36	24	40	46	45	32	197	173	71	99	907
Least Flycatcher	16	5	16	9	30	14	11	21	20	21	9	40	45	43	51	351
Dusky Flycatcher			2	1									2			5

**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	Total
Pacific-slope Flycatcher			1		1							1				3
Eastern Phoebe		1						1			1		1			4
Great Crested Flycatcher									1							1
Eastern Kingbird	1	2	7	18	17	19	2	7	17	7	15	17	11	17	15	172
Yellow-throated Vireo											1					1
Blue-headed Vireo	1		1	1	2			1		2		2		1	1	12
Warbling Vireo	8	15	13	18	27	18	8	7	12	9	17	12	1	17	25	207
Philadelphia Vireo	1							1	1		1	1			2	7
Red-eyed Vireo	3	1	2	4	3	12	2	4	2	2	4		3	4	5	51
Blue Jay				1				1								2
Black-billed Magpie			2	1	8	2	2	1	3	1	3	3	3		2	31
Tree Swallow										1			7		5	13
N Rough-winged Swallow					2							1	2		2	7
Bank Swallow													1		1	2
Black-capped Chickadee	9	12	7	17	5	19	10	19	14	13	19	20	28	27	20	239
Red-breasted Nuthatch		3		2		4	2	20	7	1	2	4	2	3	3	53
White-breasted Nuthatch	1	1	6		4	4	4	5	5	5	7	5	2	2	5	56
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	873
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	213
Townsend's Solitaire				1					1		1			1		4
Veery	2					1						1				4
Gray-cheeked Thrush	1					1		1								3
Swainson's Thrush	34	13	17	52	10	28	19	13	30	13	19	31	27	17	34	357
Hermit Thrush	4		3	14	6	9	9	4	11	11	5	8	4	3	4	95
American Robin	5	11	114	81	81	31	60	32	105	37	89	28	43	29	46	792
Varied Thrush									1			5				6
Gray Catbird		1		5	7	6	5	4	14	8	19	14	14	13	12	122

**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	Total
Brown Thrasher					3						1		1			5
European Starling			2						4						1	7
Bohemian Waxwing							1									1
Cedar Waxwing	12	1	42	14	67	11	25	26	49	27	21	43	22	24	71	455
Tennessee Warbler	43	5	33	30	52	74	106	167	46	76	147	98	58	43	87	1065
Orange-crowned Warbler	24	36	177	116	86	207	91	84	58	71	115	45	45	154	163	1472
Nashville Warbler				1	2	1	1	2	1	1			1	3		13
Yellow Warbler	56	19	44	62	137	91	138	89	101	119	82	165	126	75	154	1458
Chestnut-sided Warbler	1						1				1	1			1	5
Magnolia Warbler	9	4	2	2	4	4	2	2	1	9	6	4	5	6	5	65
Cape May Warbler											2					2
Yellow-rumped Warbler	293	171	496	92	191	638	195	200	246	248	223	148	73	412	207	3833
Black-throated Green Warbler					1	1	1									3
Townsend's Warbler	1				1	2	3	1	2	2		1	2	2	1	18
Palm Warbler		3	7	4	3	8	7	1	6	4	1	2	1	4		51
Bay-breasted Warbler			1				1	1			1					4
Blackpoll Warbler	17	5	17	8	6	30	5	8	11	7	7	1	11	7	12	152
Black-and-white Warbler	4	1	1	2		3			2	3	3	1	2	1	2	25
American Redstart	19	4	3	6	4	20	5	3	16	27	18	19	7	16	14	181
Ovenbird	22	6	10	30	11	38	11	11	24	7	18	37	16	26	28	295
Northern Waterthrush	22	8	23	56	46	26	41	34	44	33	29	78	67	43	53	603
Connecticut Warbler	2	2	4	4	1	3	3	3	4	1		6	1	5	4	43
Mourning Warbler	4	2	5	10	3	9	1	4	5	7	10	7	5	5	6	83
MacGillivray's Warbler	2		3	8	10	6	2	5	4	4	5	6	4	4	2	65
Common Yellowthroat		1	6	1	8	10	8	4	12	8	9	7	2	9	7	92
Wilson's Warbler	121	68	102	175	119	113	100	167	152	145	224	251	12	168	136	2053
Canada Warbler	1			2	1	3	1	1	1	2		8		1	4	25
Western Tanager	1	1	12	1	3	2	4	1	5	6	3	5	3		4	51
American Tree Sparrow			10	3	3	7	2	1	1	2	4	4	3	5	2	47
Chipping Sparrow	4	1	29	14	151	27	83	50	47	92	23	155	34	1	34	745

**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	Total
Clay-colored Sparrow		1	1	6	21	37	26	9	30	26	6	12	14	15	10	214
Brewer's Sparrow							1									1
Savannah Sparrow		1			2			1	1					1		6
Fox Sparrow	1	1	1			2	1		2	1	1	2			1	13
Song Sparrow		1	9	9	15	18	21	9	3	13	5	15	21	14	13	166
Lincoln's Sparrow	9	7	53	28	13	59	48	30	39	88	43	30	44	58	45	594
Swamp Sparrow				2		7	3		1	2	1	2		2	1	21
White-throated Sparrow	13	11	73	28	39	77	54	18	35	51	25	40	34	67	24	589
Harris' Sparrow			1						1			1	1			4
White-crowned Sparrow	5	4	20	24	22	21	22	23	27	30	18	31	36	17	11	311
Dark-eyed Junco	5	3	15	15	3	10	8	6	1	6	3	11	4	14		104
Rose-breasted Grosbeak	6				1	3	2	3	1	3	7	5	3	2	1	37
Red-winged Blackbird			4				2			3		1			1	11
Common Grackle			3								1		2	4		10
Brown-headed Cowbird			1	2	2	1		2	4	5	1	4	3			25
Baltimore Oriole	4		21	12	12	8	5	1	8	9	20	7	11	2	11	131
Purple Finch		1			2	1	1	2	6				2	1	1	17
House Finch													9	2	35	46
Pine Siskin					2							1			2	5
American Goldfinch	3			2	4	2	2	1	4	2		2	1	2	5	30
House Sparrow									3							3

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

**Table 3. Inglewood Bird Sanctuary MAPS New Bandings - 2007**

	09-Jun	16-Jun	26-Jun	07-Jul	17-Jul	28-Jul	06-Aug	Total
Western Wood-Pewee	1						2	3
Least Flycatcher	3	1		1		3	1	9
Warbling Vireo			1					1
Black-capped Chickadee			2			3		5
White-breasted Nuthatch					1			1
House Wren	1			1	9	17	2	30
American Robin	1		2	4	8	2	1	18
Gray Catbird		2	1			2	3	8
Cedar Waxwing	2	5	1		2	9	1	20
Tennessee Warbler				2	1	8		11
Yellow Warbler		1	2	1	3	9	10	26
Yellow-rumped Warbler						3		3
Chipping Sparrow				1		1		2
Clay-colored Sparrow						1		1
Song Sparrow							1	1
Red-winged Blackbird			1					1
Baltimore Oriole		1				2		3
House Finch				1		3		4
<b>Total birds</b>	<b>8</b>	<b>10</b>	<b>10</b>	<b>11</b>	<b>24</b>	<b>63</b>	<b>21</b>	<b>147</b>
<b>Total species</b>	<b>5</b>	<b>5</b>	<b>7</b>	<b>7</b>	<b>6</b>	<b>13</b>	<b>8</b>	<b>18</b>

**Table 4. Inglewood Bird Sanctuary MAPS Summary**

Species	New Bandings															Total	Freq
	1992	1993	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007		
American Kestrel			1													1	2
Downy Woodpecker	1	3	1	5	4	1			1		1	3			5	25	49
Hairy Woodpecker	1	1	1			1										4	7
Northern Flicker	1	1	3	2			2								2	14	27
Western Wood-Pewee	6	1	1	1	1	2		1	3			3			2	21	36
Traill's Flycatcher				3	3		1	1	4	1	1	2	3		2	21	42
Least Flycatcher	14	8	3	2	3	4	2	1	2	1			1	5	9	55	96
Eastern Kingbird	2	1			3	1	3		2	1		3	1		1	18	34
Warbling Vireo	7	7	1	4	2		2	2	1	4	3		1	2	1	37	67
Red-eyed Vireo	1															1	1
Black-billed Magpie				1	2							2				5	10
Tree Swallow	3						2					4			8	17	4
Bank Swallow	1															1	1
Black-capped Chickadee	5	7	5	9	2	3	5	4	4	2	4	10	2	8	5	75	15
White-breasted Nuthatch	3	4		2						1		2			2	15	7
House Wren	5	11	9	9	13	8	9	18	11	2	11	9	1	15	30	161	15
Veery	2					1										3	2
Swainson's Thrush	10	8	6	4	3	1	4		3	1	1	4	1	4		50	13
Hermit Thrush								1								1	1
American Robin	21	6	26	25	23	10	8	14	20	19	19	21	1	45	18	276	15
Gray Catbird	3			1	1	4	8	1	6	16	9	12	1	4	8	74	13
European Starling			1													1	1
Cedar Waxwing	27	8		6	1	9	5	7	5	13	3	17	3	8	20	132	14
Tennessee Warbler	1	6		7	1	3	4	22	1	1	1	5		5	11	68	13
Orange-crowned Warbler						1					1					2	2
Yellow Warbler	20	14	7	2	6	9	24	13	4	7	9	4	2	10	26	157	15

**Table 4. Inglewood Bird Sanctuary MAPS Summary**

Species	New Bandings															Total	Freq
	1992	1993	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007		
Yellow-rumped Warbler	10					2		2	1		1	1			3	20	7
American Redstart		1									1			2		4	3
Ovenbird	3			1		1										5	3
Northern Waterthrush						1	1		1							3	3
Mourning Warbler	1															1	1
Common Yellowthroat												1	1			2	2
Wilson's Warbler				2		1	1					1				5	4
Western Tanager		1	3	1	2		4					1				12	6
Chipping Sparrow		7			1							1		1	2	12	5
Clay-colored Sparrow		1				6	17	1	2						1	28	6
Song Sparrow		1		1		1	4				1		1		1	10	7
Lincoln's Sparrow		3	1	2	5	2		1				2				16	7
White-throated Sparrow				2						1		2				5	3
Rose-breasted Grosbeak				1												1	1
Red-winged Blackbird															1	1	1
Common Grackle			1		2					1						4	3
Brown-headed Cowbird	6				3			1	1	2		2	1	2		18	8
Baltimore Oriole	3	7	2	8	9	1	2	1	5	9		2			3	52	12
Purple Finch		1						1								2	2
House Finch														5	4	9	2
American Goldfinch	2	2		1						1				1		7	5
House Sparrow	2					2										4	2
<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>1456</b>	<b>2751</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>47</b>	<b>47</b>



**Table 5. New Bandings at Dinosaur Provincial Park - Spring 2007**

Species	May																	Total
	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27		
Yellow-bellied Sapsucker	1		1														2	
Red-naped Sapsucker		1													1		2	
Olive-sided Flycatcher			1											1			2	
Western Wood-Pewee								1									1	
Yellow-bellied Flycatcher								1									1	
Alder Flycatcher								1				1	1	7	5		15	
Least Flycatcher	4	4	1	2	4	1	3	6	4	3	1	2	2	5		1	43	
Say's Phoebe				2													2	
Warbling Vireo													2				2	
Red-eyed Vireo							1			1							2	
Tree Swallow	1			1		3							1				6	
Black-capped Chickadee															2		2	
House Wren		4		6	5	11	4	14	9	7	3	4	3	4	6	3	83	
Ruby-crowned Kinglet	1				1												2	
Veery	1																1	
Swainson's Thrush	4	20	3	1	1	9	8	6	3	3	3	12	9	24	29	5	140	
American Robin	5	1	1	1		2				1		1					12	
Gray Catbird							1	3	1	1	1		3	1	2	7	20	
Brown Thrasher									1	1						1	3	
Cedar Waxwing																1	1	
Tennessee Warbler		1										3					4	
Orange-crowned Warbler	4	2			1	1	2	2					1	1			14	
Yellow Warbler	1	3	1			1	2	8	1	5	2	2	1	12	4	1	44	
Yellow-rumped Warbler			4														4	
Blackpoll Warbler		1	2	1		1								2			7	
Black-and-white Warbler												1			1		2	
American Redstart															1		1	
Ovenbird							1				1			1			3	
Connecticut Warbler														1			1	
MacGillivray's Warbler									1								1	
Common Yellowthroat	2	1			2	1					1		2	1	3	2	15	
Wilson's Warbler							1							4			5	
Spotted Towhee		1			1	2	1			2			1	2	1		11	
Chipping Sparrow	3					1	1			1							6	
Clay-colored Sparrow	2					1			2	1	2		1	2			11	
Lark Sparrow								1									1	
Lincoln's Sparrow	4	3			1	1											9	
White-throated Sparrow	1	3						1			1			1		1	8	
White-crowned Sparrow	2	2															4	
Brown-headed Cowbird		1				1			2					1			5	
Baltimore Oriole															2		2	
Pine Siskin										1							1	
American Goldfinch											1			1	2		4	

**Table 6. Coverage and Capture Rates During  
2006-2007 MoSI and Migration Monitoring at Las Caletas**

Date	Net-hours	Captures				Total	Captures per 100 net-hours
		New Bandings	Recaptures	Unbanded	Mortalities		
<b>Las Caletas</b>							
<b>10-Dec</b>	92.2	38	14	2		54	59
<b>11-Dec</b>	34.5	18	6	2		26	75
<b>12-Dec</b>	96.9	32	24	3	1	60	62
<b>13-Dec</b>	80.2	16	16	2		34	42
<b>14-Dec</b>	97.0	24	12			36	37
<b>15-Dec</b>	62.7	14	14			28	45
<b>05-Mar</b>	89.0	12	16			28	31
<b>06-Mar</b>	90.0	19	5			24	27
<b>07-Mar</b>	90.0	15	12		1	28	31
<b>08-Mar</b>	90.3	14	11			25	28
<b>09-Mar</b>	90.0	14	2	2		18	20
<b>10-Mar</b>	87.2	12	14			26	30
<b>30-Mar</b>	84.7	37	28	3		68	80
<b>31-Mar</b>	70.5	37	16	1		54	77
<b>01-Apr</b>	71.4	30	7	2		39	55
<b>02-Apr</b>	72.0	45	11	3		59	82
<b>03-Apr</b>	72.3	36	17			53	73
<b>04-Apr</b>	71.6	20	8	0		28	39
<b>05-Apr</b>	rained out					0	
<b>06-Apr</b>	76.6	34	13	2		49	64
<b>07-Apr</b>	44.2	26	11	2		39	88
<b>08-Apr</b>	71.0	40	12	2		54	76
<b>09-Apr</b>	72.0	44	13	4		61	85
<b>10-Apr</b>	74.7	30	17	0		47	63
<b>11-Apr</b>	61.9	56	7	4		67	108
<b>12-Apr</b>	23.8	15	3	1		19	80
<b>13-Apr</b>	72.6	38	16	2		56	77
<b>14-Apr</b>	55.5	29	4	2		35	63
<b>15-Apr</b>	86.5	44	9		1	54	62
<b>16-Apr</b>	90.6	55	8	1		64	71
<b>17-Apr</b>	91.0	42	13	1	2	58	64
<b>18-Apr</b>	89.5	33	10			43	48
<b>19-Apr</b>	90.8	30	8	1		39	43
<b>20-Apr</b>	93.6	21	16	1		38	41
<b>21-Apr</b>	89.9	30	2	1		33	37
<b>22-Apr</b>	89.6	21	6	2		29	32
<b>23-Apr</b>	90.9	28	8	1		37	41
<b>24-Apr</b>	90.6	14	6			20	22
<b>25-Apr</b>	77.1	9	8			17	22
<b>26-Apr</b>	92.6	22	5			27	29
<b>27-Apr</b>	52.5	9	7			16	30
<b>Total</b>	<b>3120</b>	<b>1103</b>	<b>435</b>	<b>47</b>	<b>5</b>	1590	<b>51</b>

**Table 7. New captures in Costa Rica 2002-2007**

Species	2002*	2003*	2004	2005	2006**	2007***	Total
Start date	17 Mar	15 Apr	28 Mar	30-Mar	11-Dec	10-Dec	
Finish date	12-Apr	9 May	29 Apr	29-Apr	10-Mar	27-Apr	
Net-hours	2041	2123	2468	2209	2074	3120	
Tiny Hawk	1	2			1		4
Barred Forest-Falcon	2	1				1	4
Ruddy Ground-Dove		1		5	1		7
Blue Ground-Dove		1					1
White-tipped Dove	1	1		2	1	1	6
Gray-chested Dove	5	8	4	2	1	4	24
Ruddy Quail-Dove			5	3	2	3	13
Dove spp.	1			1			2
Pigeon spp.	1						1
Bronzy Hermit		8	6	1	4	4	23
Band-tailed Barbthroat	1	20	14	15	8	23	81
Long-billed Hermit	2	15	23	34	14	26	114
Stripe-throated Hermit		16	7	9	11	13	56
White-tipped Sicklebill	2					3	5
White-necked Jacobin	1	5	4	1	11	4	26
Violet-crowned Woodnymph		11	13	12	5	8	49
Blue-throated Goldentail		59	52	5	24	35	175
Charming Hummingbird		40	33	35	28	35	171
Mangrove Hummingbird					2		2
Snowy-bellied Hummingbird		1	1				2
Rufous-tailed Hummingbird		10	14	11	8	22	65
Purple-crowned Fairy				1		1	2
Hummingbird sp.	89			1			90
Black-throated Trogon	2			3	2	3	10
Blue-crowned Motmot	1	4			1	2	8
Green Kingfisher			4	1	3	3	11
American Pygmy Kingfisher	2	1	2	1	1		7
White-necked Puffbird		1	1				2
White-whiskered Puffbird	1		1	1		1	4
Rufous-tailed Jacamar		1	1	1	1		4
Fiery-billed Aracari						2	2
Olivaceous Piculet	3	1	1	1	1	1	8
Golden-naped Woodpecker			1	1			2
Buff-throated Foliage-gleaner	4	7	1		3	2	17
Plain Xenops	5	6	3	8	2	6	30
Scaly-throated Leaf-tosser	1	3	3	3		1	11
Tawny-winged Woodcreeper	6	2	3	6	3	4	24
Long-tailed Woodcreeper	1	1		2	1	4	9
Wedge-billed Woodcreeper	16	6	11	9	27	12	81
Northern Barred-Woodcreeper	2	4		1		3	10
Black-striped Woodcreeper	1			1			2
Cocoa Woodcreeper	4	4	7	2	2	2	21
Woodcreeper sp.	1						1
Great Antshrike	1						1
Black-hooded Antshrike	8	9	4	3	4	6	34
Russet Antshrike	1		2		1		4

**Table 7. New captures in Costa Rica 2002-2007**

Species	2002*	2003*	2004	2005	2006**	2007***	Total
Start date	17 Mar	15 Apr	28 Mar	30-Mar	11-Dec	10-Dec	
Finish date	12-Apr	9 May	29 Apr	29-Apr	10-Mar	27-Apr	
Net-hours	2041	2123	2468	2209	2074	3120	
Slaty Antwren		2	1	6		3	12
Dot-winged Antwren	16	18	7	3	4	4	52
Chestnut-backed Antbird	9	15	6	11	8	11	60
Bicolored Antbird	2	9	4	12	10	17	54
Black-faced Antthrush	2	1		2	3	1	9
Streak-chested Antpitta	1	1		1			3
Ochre-bellied Flycatcher	21	23	35	28	7	19	133
Northern Bentbill	5	4	5	3	3	6	26
Eye-ringed Flatbill	1						1
Yellow-olive Flycatcher		3					3
Golden-crowned Spadebill	2	1	2	6	4	8	23
Ruddy-tailed Flycatcher	2	4	1	2	3	5	17
Sulphur-rumped Flycatcher	1	3	2	4	3	3	16
Black-tailed Flycatcher		1	1				2
Yellow-bellied Flycatcher	1		3		1	3	8
Acadian Flycatcher				1			1
Alder Flycatcher		35	10	1		3	49
Willow Flycatcher		3	3				6
Bright-rumped Attila	7	3	6	5	3	2	26
Rufous Mourner		3	1		1	1	6
Dusky-capped Flycatcher	4		5	1	1	1	12
Great-crested Flycatcher	2				1		3
Sulphur-bellied Flycatcher						1	1
Scale-crested Pygmy-Tyrant						1	1
Thrushlike Schiffornis	2	2	2	2		1	9
Rufous Piha					1		1
White-winged Becard		1					1
Orange-collared Manakin	28	16	17	23	6	28	118
Blue-crowned Manakin	7	11	12	8	8	13	59
Red-capped Manakin	23	31	23	53	28	46	204
Red-eyed Vireo	1	6	2	1			10
Yellow-green Vireo	9	10	4	4		2	29
Philadelphia Vireo			1				1
Tawny-crowned Greenlet	2	1	3	5	4	10	25
Lesser Greenlet		1	1		1	6	9
Black-bellied Wren		1	1	1	2	2	7
Riverside Wren	6	7	5	12	15	5	50
House Wren	2		1	3	1	2	9
Scaly-breasted Wren		2	1		2		5
Long-billed Gnatwren	13	1	3	5	1	8	31
Tropical Gnatcatcher		1		3		1	5
Swainson's Thrush	439	406	547	546		570	2508
Wood Thrush					1		1
Clay-colored Robin			1	2	3	5	11
White-throated Robin					5		5
Tennessee Warbler				3	5		8

**Table 7. New captures in Costa Rica 2002-2007**

Species	2002*	2003*	2004	2005	2006**	2007***	Total
Start date	17 Mar	15 Apr	28 Mar	30-Mar	11-Dec	10-Dec	
Finish date	12-Apr	9 May	29 Apr	29-Apr	10-Mar	27-Apr	
Net-hours	2041	2123	2468	2209	2074	3120	
Yellow Warbler			1				1
Mangrove Warbler					1		1
Chestnut-sided Warbler	2			4	2	6	14
Prothonotary Warbler						1	1
Worm-eating Warbler	1				1		2
Northern Waterthrush	1	1	1	1	3	3	10
Louisiana Waterthrush	1						1
Kentucky Warbler	3		1		2	2	8
Mourning Warbler	1		1	2	2	2	8
MacGillivray's Warbler	1						1
Buff-rumped Warbler						2	2
Bananaquit	9	12	9	11	7	13	61
Gray-headed Tanager	5	9	5	8	14	12	53
White-throated Shrike-Tanager		2	1	4			7
White-shouldered Tanager	4	10	6	3	3	6	32
Black-cheeked Ant-Tanager	5	8	6	16	10	11	56
Summer Tanager					2	2	4
Scarlet Tanager	1						1
Cherrie's Tanager	7	5	7	10	6	10	45
Bay-headed Tanager	2		3			2	7
Golden-hooded Tanager		2		1			3
Blue Dacnis			1				1
Green Honeycreeper	5	4		7		3	19
Shining Honeycreeper				1			1
Red-legged Honeycreeper		3		2			5
Blue-black Grassquit	2		2				4
Variable Seedeater	15	10	10	17	14	9	75
Yellow-bellied Seedeater		2	4				6
Thick-billed Seed-Finch	6	4	6	7	4	7	34
Orange-billed Sparrow	12	17	19	26	5	25	104
Black-striped Sparrow	1	1	2	2	4	1	11
Buff-throated Saltator	8	4		9	3	6	30
Blue-black Grosbeak	4	9	4	5	3	7	32
Great-tailed Grackle					2		2
Yellow-billed Cacique				1			1
Scarlet-rumped Cacique			2	1			3
Spot-crowned Euphonia	1	1		2	1	2	7
<b>Species</b>	<b>78</b>	<b>80</b>	<b>79</b>	<b>84</b>	<b>78</b>	<b>82</b>	<b>128</b>
<b>Total</b>	<b>871</b>	<b>979</b>	<b>1028</b>	<b>1079</b>	<b>397</b>	<b>1155</b>	<b>5508</b>

\* pilot programs

\*\* MoSI including Isla Violin

\*\*\* modified MoSI and MM

Neotropical migrant

**Table 8a. Trend Analysis of Species Monitored in Fall  
at Inglewood Bird Sanctuary 1995-2007**

Species	Analysis Interval	Trend	P	DQ
		%/year		
Solitary Sandpiper	1996-1998, 2000-2007	2.2%		red
Western Wood-Pewee	1996-2007	40.0%		orange
Traill's Flycatcher	1995-2007	10.4%	*	yellow
Least Flycatcher	1995-2007	8.3%		yellow
Warbling Vireo	1995-2007	1.5%		orange
Ruby-crowned Kinglet	1995-2007	5.9%	+	orange
Swainson's Thrush	1995-2007	1.6%		yellow
American Robin	1995-2007	-0.7%		yellow
Tennessee Warbler	1996-1998, 2000-2007	0.7%		green
Orange-crowned Warbler	1995-2007	-2.4%		green
Yellow Warbler	1995-2007	80.0%		green
Yellow-rumped Warbler	1996-2007	-0.8%		green
Blackpoll Warbler	1996-2007	-6.0%		red
American Redstart	1995-2007	1.8%		orange
Ovenbird	1996-2007	3.1%		orange
Northern Waterthrush	1996-1998, 2000-2007	2.4%		yellow
Wilson's Warbler	1995-2007	3.6%	+	green
Chipping Sparrow	1996-1998, 2000-2007	-6.2%		yellow
Clay-colored Sparrow	1996-1998, 2000-2007	3.1%		orange
Song Sparrow	1995-1998, 2000-2007	-0.5%		orange
Lincoln's Sparrow	1995-2007	5.6%		green
White-throated Sparrow	1995-2007	-0.1%		yellow
White-crowned Sparrow	1995-2007	1.2%		yellow
Dark-eyed Junco	1995-2007	-2.1%		red
Baltimore Oriole	1995-2007	-12.1%	*	red

<b>Data Quality:</b>	
if mean birds/season < 10 or mean observation days/season < 5	DQ=red
if mean birds/season >= 10 and mean days/season >= 5	DQ=orange
if mean birds/season >= 20 and mean days/season >= 10	DQ=yellow
if mean birds/season >= 25 and mean days/season >= 20	DQ=green

<b>P Values (significance of trend):</b>	
+	0.1
*	0.05
**	0.01
***	0.001
****	<0.0001

**Table 8b. Trend Analysis of Species Monitored in Spring  
at Inglewood Bird Sanctuary 2002-2007**

Species	Analysis Interval	Trend	P	DQ
		%/year		
House Wren	2002-2007	9.3%		orange
Gray Catbird	2002-2007	-5.3%		orange
Swainson's Thrush	2002-2007	-2.2%		yellow
American Robin	2002-2007	23.6%	+	yellow
Orange-crowned Warbler	2002-2007	6.0%		orange
Yellow Warbler	2002-2007	-3.1%		orange
Yellow-rumped Warbler	2002-2007	-50.2%	*	yellow
Common Yellowthroat	2002-2007	-29.4%	+	orange
Clay-colored Sparrow	2002-2007	24.0%		orange
Lincoln's Sparrow	2002-2007	-16.6%		yellow
White-crowned Sparrow	2002-2007	22.0%		orange

<b>Data Quality:</b>	
if mean birds/season < 10 or mean observation days/season < 5	DQ=red
if mean birds/season >= 10 and mean days/season >= 5	DQ=orange
if mean birds/season >= 20 and mean days/season >= 10	DQ=yellow
if mean birds/season >= 25 and mean days/season >= 20	DQ=green

<b>P Values (significance of trend):</b>	
+	0.1
*	0.05
**	0.01
***	0.001
****	<0.0001

**Table 9. Bander-in-Charge and Volunteer Effort 2007**

Member/Guest	Bander-in-Charge (days)					Volunteer (days)						
	Inglewood			NSWO	Costa Rica	DPP	Inglewood			NSWO	Costa Rica	DPP
	Spring MM	MAPS	Fall MM		MOSI & MM	pilot MM	Spring MM	MAPS	Fall MM		MOSI & MM	pilot MM
Peter Achuff												3
Teri Ashacher							4					
Yousif Attia									1			
Christine Bennett							3		7		6	2
Liz Brennan									3			
Vivian Brisette*										3		
Joanna Coleman										2		
Doug Collister	5		3		19							
Carla Davidson									1	2		
Nancy Davis									6			
Alejandro Nava Donatti							7		7	2		
Alexandra Dubrovna										2		
Dick Flynn										3		
Lenora Flynn										3		
Ken Foster									3	6		
Marcel Gahbauer									2	3		2
Chris Godwin-Sheppard									0.5	5		
Carole Hachey							5	1	12			
Steve Lane	2	4	27		6	7		1				
Josh Levac							2					2
David Lieske							2					2
Shonna McLeod	12		17	18				1	2			
Greg Meyer	4		6			9						
Pat Mitchell	9	3	13	17								
Mike Mulligan							8.5		7			



**Table 9. Bander-in-Charge and Volunteer Effort 2007**

Member/Guest	Bander-in-Charge (days)					Volunteer (days)						
	Inglewood			NSWO	Costa Rica	DPP	Inglewood			NSWO	Costa Rica	DPP
	Spring MM	MAPS	Fall MM		MOSI & MM	pilot MM	Spring MM	MAPS	Fall MM		MOSI & MM	pilot MM
Brian Orr*												1
EI Peterson								5			15	2
Kevin Peterson*								3				
Lisa Quattrocchi							3	1	3			3
Gwen Smiley								4	1		13	5
Cyndi Smith												3
Don Stiles									4			
Bill Taylor								5	7		6	
Gwen Tietz												5
Barry Trakalo							1				19	
Marie Tremblay									1			
Amy Turnbull							3	1	1	1		
Byron Waight*												1
Catherine Watson							2		2			2
Anne Weerstra									4	2		
Linda Wiggins							2		1	1		
Amy Wilson											15	
Scott Wilson					15				1			
Colin Young									13	4		

\* guest volunteer

**Table 10. Injuries and Mortalities Sustained During 2007 CBBS Projects**

Species	Captures	Injuries		Mortalities	
		Number	Type	Number	Cause
Gray-chested Dove	6			1	died after banding
Band-tailed Barbthroat	33			1	dead in net
Stripe-throated Hermit	13			1	died during banding
Wedge-billed Woodcreeper	66	1	wing abrasion		
Ochre-bellied Flycatcher	45	2	wing strain		
		1	head abrasion		
Ruddy-tailed Flycatcher	9			1	died during extraction
Red-capped Manakin	71	1	cut toe		
		1	wing abrasion		
Yellow-Green Vireo	2	1	cut toe		
Swainson's Thrush	591	3	wing strain	1	died after banding
Gray-headed Tanager	29	1	wing abrasion		
Black-cheeked Ant-Tanager	27	1	cut toe, wing strain		
Orange-billed Sparrow	58	2	wing strain		
Buff-throated Saltator	9	1	wing strain		
		1	wing abrasion		
		1	cut toe		
Broad-winged Hawk	1	1	cut tongue		
Spotted Sandpiper	6	1	wing strain		
Northern Flicker	2		wing strain	1	unknown predator
Trill's Flycatcher	124	2	wing strain		
Northern Shrike	2	1	cut tongue		
Red-eyed Vireo	7	1	cut toe		
Black-capped Chickadee	28	1	broken leg		
		1	wing strain		
House Wren	181	1	leg abrasion	1	dead in net
		1	wing strain		
		1	bill abrasion		
		2	cut toe		
Swainson's Thrush	241	1	broken leg	1	dead in net
American Robin	120	4	cut tongue	1	dead in net
		1	wing abrasion		
Gray Catbird	66	1	dislocated leg		
Cedar Waxwing	92	2	wing strain		
Yellow Warbler	265		wing strain	1	dead in net
			cut toe	1	deer predation
Yellow-rumped Warbler	272	2	wing strain		
Northern Waterthrush	57	1	leg abrasion		
Mourning Warbler	6	1	wing strain		
MacGillivray's Warbler	4	1	wing strain		
Wilson's Warbler	144	1	broken leg		
Chipping Sparrow	149	1	broken leg		
		1	wing abrasion		
Clay-colored Sparrow	85	1	cut toe		
Lincoln's Sparrow	74		knee abrasion	2	coyote predation
White-throated Sparrow	37	1	broken leg		
Sparrow spp.	2			2	unknown predator
Red-winged Blackbird	6	1	cut tongue		
Brown-headed Cowbird	18	1	cut tongue		
<b>Total</b>	<b>5598</b>	<b>51</b>	<b>0.91%</b>	<b>15</b>	<b>0.27%</b>

**TABLE 11. CALGARY BIRD BANDING SOCIETY  
2007 MEMBERSHIP LIST**

Peter Achuff  
Teri Aschacher  
Yousif Attia  
Christine Bennett  
Liz Brennan  
Amanda Cole  
Joanna Coleman  
Doug Collister  
Carla Davidson  
Nancy Davis  
Alejandro Nava Donatti  
Alexandra Dubrovna  
Dick Flynn  
Lenora Flynn  
Ken Foster  
Marcel Gahbauer  
Chris Godwin-Sheppard  
Carole Hachey  
Steve Herrero  
Garry Hornbeck  
Bev Kissinger  
Maryanne Kissinger  
Michelle Koch  
Wendy Langford  
Steve Lane  
Josh Levac  
David Lieske  
Shonna McLeod  
Greg Meyer  
Pat Mitchell  
Mike Mulligan  
Jeff Nugent

El Peterson  
Kevin Peterson  
Lisa Quattrocchi  
Carl Savignac  
Paula Schneider  
Gwen Smiley  
Cyndi Smith  
Tara Stephens  
Don Stiles  
Bill Taylor  
Gwen Tietz  
Barry Trakalo  
Marie Tremblay  
Amy Turnbull  
Catherine Watson  
Anne Weerstra  
Linda Wiggins  
Amy Wilson  
Bruce Wilson  
Scott Wilson  
Colin Young

**Executive**

President – Shonna McLeod  
Vice President – Greg Meyer  
Treasurer – El Peterson  
Secretary – Gwen Smiley  
Annual Report – Doug Collister  
Director at Large – Amy Turnbull  
Director at Large – Bill Taylor  
Director at Large – David Lieske

## **Appendix 1**

## Appendix 1a. New Bandings at Inglewood Bird Sanctuary - Spring 2007

Species	May												
	1	2	3	4	5	6	7	8	9	10	11	12	13
Killdeer											1		
Belted Kingfisher													
Downy Woodpecker	2				1								
Western Wood-Pewee													
Alder Flycatcher													
Willow Flycatcher													
Least Flycatcher													
Eastern Kingbird													
Warbling Vireo													
Black-billed Magpie						1							
Tree Swallow					1			1		1	1		
N Rough-winged Swallow													
Black-capped Chickadee	2												
Red-breasted Nuthatch											1		
White-breasted Nuthatch													
House Wren													
Ruby-crowned Kinglet						1							
Gray-cheeked Thrush													
Swainson's Thrush												1	
Hermit Thrush	1											1	
American Robin	6	2		1	1	1					1	3	
Gray Catbird													
Cedar Waxwing													
Orange-crowned Warbler		2	1	6	2	2				1	1		
Yellow Warbler													
Magnolia Warbler													
Yellow-rumped Warbler	5		1	26	8	1		2				2	
American Redstart													
Northern Waterthrush												1	
MacGillivray's Warbler													
Common Yellowthroat													
Wilson's Warbler													
Western Tanager													
Chipping Sparrow		5			7								
Clay-colored Sparrow													
Song Sparrow								1					
Lincoln's Sparrow	5	2		1	3	1							
White-throated Sparrow												1	
White-crowned Sparrow	2	1				7	1			2		3	
Rose-breasted Grosbeak													
Red-winged Blackbird													
Common Grackle													
Brown-headed Cowbird													
Baltimore Oriole													
American Goldfinch													

## Appendix 1a. New Bandings at Inglewood Bird Sanctuary - Spring 2007

Species	May												
	14	15	16	17	18	19	20	21	22	23	24	25	26
Killdeer													
Belted Kingfisher													
Downy Woodpecker													
Western Wood-Pewee					1				2				1
Alder Flycatcher	2								1	2			
Willow Flycatcher													
Least Flycatcher	1								3			3	
Eastern Kingbird													1
Warbling Vireo							1						2
Black-billed Magpie													
Tree Swallow	1	1		1		2							
N Rough-winged Swallow		1							1				
Black-capped Chickadee													
Red-breasted Nuthatch													
White-breasted Nuthatch		1											
House Wren		1	1	3	2	2			1			1	
Ruby-crowned Kinglet													
Gray-cheeked Thrush									1				
Swainson's Thrush	4	2	2	2	1	4			2	2		1	2
Hermit Thrush													
American Robin	1	2					3			2		2	1
Gray Catbird					1								
Cedar Waxwing													
Orange-crowned Warbler	3												
Yellow Warbler	1		1				1					1	3
Magnolia Warbler													
Yellow-rumped Warbler	13					1	1		1				
American Redstart												1	
Northern Waterthrush					1	1				1			
MacGillivray's Warbler													
Common Yellowthroat												1	
Wilson's Warbler						1				1		1	
Western Tanager			1						1	1			1
Chipping Sparrow			4	2	3	26	11		13	37			
Clay-colored Sparrow	6			1	3	20	16		7	5		4	1
Song Sparrow													1
Lincoln's Sparrow	1						1		1	2		2	1
White-throated Sparrow													
White-crowned Sparrow												1	
Rose-breasted Grosbeak													
Red-winged Blackbird	3		1										
Common Grackle									1				
Brown-headed Cowbird									1	1			
Baltimore Oriole												1	
American Goldfinch					1								

## Appendix 1a. New Bandings at Inglewood Bird Sanctuary - Spring 2007

Species	May					June					Total	
	27	28	29	30	31	1	2	3	4	5		
Killdeer												1
Belted Kingfisher				1								1
Downy Woodpecker	1											4
Western Wood-Pewee												4
Alder Flycatcher			1					1	1			8
Willow Flycatcher				1								1
Least Flycatcher	2	2	1		1	1	1			1		16
Eastern Kingbird									1			2
Warbling Vireo												3
Black-billed Magpie				1								2
Tree Swallow		2		1								12
N Rough-winged Swallow		1										3
Black-capped Chickadee												2
Red-breasted Nuthatch												1
White-breasted Nuthatch												1
House Wren	1		1	3			1	1				18
Ruby-crowned Kinglet												1
Gray-cheeked Thrush					1							2
Swainson's Thrush	4	3	6	1	2	2	3					44
Hermit Thrush												2
American Robin	5		2				1	3	1			38
Gray Catbird	2		1				2	2		1		9
Cedar Waxwing										1		1
Orange-crowned Warbler												18
Yellow Warbler	2	3		3	2		1	1		4		23
Magnolia Warbler					1							1
Yellow-rumped Warbler												61
American Redstart	1											2
Northern Waterthrush												4
MacGillivray's Warbler			1									1
Common Yellowthroat				1								2
Wilson's Warbler												3
Western Tanager												4
Chipping Sparrow												108
Clay-colored Sparrow												63
Song Sparrow												2
Lincoln's Sparrow												20
White-throated Sparrow			1									2
White-crowned Sparrow												17
Rose-breasted Grosbeak	1											1
Red-winged Blackbird												4
Common Grackle	1						1					3
Brown-headed Cowbird	2				2		1			1		8
Baltimore Oriole			1			1						3
American Goldfinch		1										2









## **Appendix 2**

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

Spring				
Species	Total 2002-2007		2007	
	Rank	Number	Rank	Number
Yellow-rumped Warbler	1	634	3	61
Swainson's Thrush	2	257	4	44
American Robin	3	210	5	38
Lincoln's Sparrow	4	165	7	20
Yellow Warbler	5	130	6	23
Chipping Sparrow	6	124	1	108
Clay-colored Sparrow	7	113	2	63
White-crowned Sparrow	8	95	10	17
Tree Swallow	9	79	12	12
Orange-crowned Warbler	10	74	8	18
Gray Catbird	11	71	13	9
House Wren	12	68	8	18
Least Flycatcher	13	56	11	16
Common Yellowthroat	14	51		2
Brown-headed Cowbird	15	35	15	8
Blackpoll Warbler	16	34		
Traill's Flycatcher*	17	32	13	9
Cedar Waxwing	17	32		1
Northern Waterthrush	19	27	16	4
Red-winged Blackbird	20	26	16	4
Downy Woodpecker		16	16	4
Western Wood-Pewee		19	16	4
Western Tanager		12	16	4

Fall				
Species	Total 1995-2007		2007	
	Rank	Number	Rank	Number
Yellow-rumped Warbler	1	3833	1	207
Wilson's Warbler	2	2053	4	136
Orange-crowned Warbler	3	1472	2	163
Yellow Warbler	4	1458	3	154
Tennessee Warbler	5	1065	7	87
Traill's Flycatcher*	6	907	5	99
House Wren	7	873	5	99
American Robin	8	792	11	46
Chipping Sparrow	9	745	14	34
Northern Waterthrush	10	603	9	53
Lincoln's Sparrow	11	594	12	45
White-throated Sparrow	12	589	18	24
Cedar Waxwing	13	455	8	71
Swainson's Thrush	14	357	14	34
Least Flycatcher	15	351	10	51
White-crowned Sparrow	16	311		
Ovenbird	17	295	16	28
Black-capped Chickadee	18	239	19	20
Clay-colored Sparrow	19	214		
Ruby-crowned Kinglet	20	213	19	20
Warbling Vireo			17	25
House Finch			13	35

\* includes Alder and Willow Flycatcher

## **Appendix 3**

**CRITERIA USED TO DEFINE AND PRIORITIZE MONITORED SPECIES  
(From Bird Studies Canada)**

**Monitored Species**

Mean number banded each year  $\geq 10$ , and mean number of days each year on which individuals banded  $\geq 5$ .

**Priority for Migration Monitoring**

- A** Those species that have <50% of Canadian and Alaskan breeding range covered by the Breeding Bird Survey and <60% of winter range within Canada and U.S.
- B** Those species that have <50% of Canadian and Alaskan breeding range covered by the Breeding Bird Survey but 60% of their winter range is within Canada and U.S.
- C** Those species with <60% coverage of Canadian and Alaskan breeding range (but 50% of NA range) covered by the Breeding Bird Survey and have <60% of wintering range in Canada and U.S.
- D** Those species with <60% coverage of Canadian and Alaskan breeding range covered by the Breeding Bird Survey but have >60% of their wintering range in Canada and U.S.
- E** Those species with >60% coverage of Canadian and Alaskan breeding range covered by the Breeding Bird Survey but have <60% of their wintering range in Canada and U.S.
- F** Those species with >60% coverage of Canadian and Alaskan breeding range covered by the Breeding Bird Survey and have >60% of their wintering range in Canada and U.S.

### Appendix 3. Monitored Species at Inglewood Bird Sanctuary

Species	Spring		Fall		Priority
	2002-2007		1995-2007		
	Mean		Mean		
	Number	Frequency	Number	Frequency	
Western Wood-Pewee			12	8	C
Traill's Flycatcher			62	21	A
Least Flycatcher			24	14	C
Eastern Kingbird			12	9	C
Warbling Vireo			14	11	C
Tree Swallow	11	8			C
House Wren	11	7	63	24	E
Ruby-crowned Kinglet			15	10	B
Swainson's Thrush	36	12	22	14	A
American Robin	30	15	55	20	D
Gray Catbird	10	6			E
Cedar Waxwing			31	11	D
Tennessee Warbler			73	23	A
Orange-crowned Warbler	11	5	101	23	A
Yellow Warbler	18	9	99	23	C
Yellow-rumped Warbler	87	10	239	36	B
American Redstart			11	8	C
Ovenbird			19	12	C
Northern Waterthrush			41	18	A
Wilson's Warbler			140	31	A
Chipping Sparrow			53	14	C
Clay-colored Sparrow	18	6	15	10	C
Song Sparrow			12	10	D
Lincoln's Sparrow	23	10	42	22	A
White-throated Sparrow			40	17	B
White-crowned Sparrow	13	6	22	11	B
	3		7		A
	2		4		B
	3		8		C

## **Appendix 4**



**Appendix 4. Year-to-Year Recaptures at Inglewood Bird Sanctuary,  
Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park and De Wit Ranch**

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Northern Saw-whet Owl	1204-23480	De Wit ranch													B	d		
Northern Saw-whet Owl	1204-25371	De Wit ranch													B	x	r	
Northern Saw-whet Owl	0924-21506	De Wit ranch														B	r	
Northern Saw-whet Owl	1204-25383	De Wit ranch													B	x	x	r
Belted Kingfisher	1283-88929	IBS															B	r
Belted Kingfisher	1363-70918	IBS			B	r												
Belted Kingfisher	1363-70961	IBS											B	r				
Belted Kingfisher	1363-71000	IBS															B	r
Yellow-bellied Sapsucker	8051-65119	Dunbow						B	r									
Yellow-bellied Sapsucker	8001-77959	DPP															B	r
Yellow-bellied Sapsucker	8001-77960	DPP															B	r
Red-naped Sapsucker	8041-54901	Dunbow							B	r								
Downy Woodpecker	1451-67033	IBS				B	r	r	x	x	x	r						
Downy Woodpecker	1461-02314	IBS					B	r	r	r								
Downy Woodpecker	1461-05307	Dunbow						B	x	r								
Downy Woodpecker	1461-50837	Cominco									B	r						
Downy Woodpecker	1461-63690	IBS			B	r												
Downy Woodpecker	1461-84563	Cominco									B	r						
Downy Woodpecker	1761-28014	Cominco									B	r						
Downy Woodpecker	1791-28009	IBS											B	r	r			
Downy Woodpecker	1791-28131	IBS										B	r	r	r			
Downy Woodpecker	1811-73700	IBS													B	x	r	
Downy Woodpecker	1871-73165	IBS														B	r	
Downy Woodpecker	1871-73196	IBS														B	r	
Downy Woodpecker	1871-73382	IBS														B	r	
Downy Woodpecker	1871-73457	IBS													B	r	r	r
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			
Northern Flicker	1453-31301	IBS				B	r											

**Appendix 4. Year-to-Year Recaptures at Inglewood Bird Sanctuary,  
Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park and De Wit Ranch**

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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		
Least Flycatcher	2050-70767	Dunbow						B	x	r								
Least Flycatcher	2290-37714	DPP															B	r
Least Flycatcher	2290-37255	IBS															B	r
Least Flycatcher	2430-31064	IBS															B	r
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						
Eastern Kingbird	1461-50898	Cominco									B	r						
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			
Eastern Kingbird	1811-73189	IBS												B	x	x	r	
Eastern Kingbird	1871-73181	IBS														B	r	r
Eastern Kingbird	1871-73452	IBS													B	r		
Eastern Kingbird	1901-94517	IBS															B	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									

**Appendix 4. Year-to-Year Recaptures at Inglewood Bird Sanctuary,  
Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park and De Wit Ranch**

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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	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		
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	2181-72952	IBS															B	r
Tree Swallow	2181-72955	IBS															B	r
Northern Rough-winged Swallow	2290-88401	IBS													B	r		
Northern Rough-winged Swallow	2290-37070	IBS														B	x	r
Northern Rough-winged Swallow	2290-37386	IBS														B	r	
Black-capped Chickadee	1950-45065	IBS			B	r												
Black-capped Chickadee	1950-45186	IBS			B	r	r	r										
Black-capped Chickadee	1950-45254	IBS			B	r	r	x	x	r	r	r						
Black-capped Chickadee	1950-45255	IBS			B	x	x	x	x	x	r	r						

**Appendix 4. Year-to-Year Recaptures at Inglewood Bird Sanctuary,  
Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park and De Wit Ranch**

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Black-capped Chickadee	1950-45256	IBS			B	r	r											
Black-capped Chickadee	1950-45258	IBS			B	r	r	r	r									
Black-capped Chickadee	1950-45786	IBS					B	r										
Black-capped Chickadee	1980-79991	IBS				B	r	r	r	r	r	r						
Black-capped Chickadee	1990-57154	IBS						B	r									
Black-capped Chickadee	2050-70142	IBS				B	x	r										
Black-capped Chickadee	2050-70427	IBS					B	r										
Black-capped Chickadee	2050-70848	IBS						B	x	x	x	x	x	x	x	x	x	r
Black-capped Chickadee	2050-70849	IBS						B	r									
Black-capped Chickadee	2120-00102	Dunbow						B	r	r								
Black-capped Chickadee	2120-00103	Dunbow						B	r									
Black-capped Chickadee	2120-00105	Dunbow						B	r	r								
Black-capped Chickadee	2120-00107	Dunbow						B	r	r								
Black-capped Chickadee	2120-00109	Dunbow						B	r	r								
Black-capped Chickadee	2120-00110	Dunbow						B	r									
Black-capped Chickadee	2120-00113	Dunbow						B	r									
Black-capped Chickadee	2120-00114	Dunbow						B	r									
Black-capped Chickadee	2120-00117	Dunbow						B	r	r								
Black-capped Chickadee	2120-00124	Dunbow						B	x	r								
Black-capped Chickadee	2120-00125	Dunbow						B	r									
Black-capped Chickadee	2120-00128	Dunbow						B	r									
Black-capped Chickadee	2120-00197	Dunbow						B	r									
Black-capped Chickadee	2160-18085	Dunbow							B	r								
Black-capped Chickadee	2160-18119	IBS							B	x	x	x	x	x	x	x	x	r
Black-capped Chickadee	2160-18180	IBS						B	r									
Black-capped Chickadee	2160-18704	IBS							B	r								
Black-capped Chickadee	2160-19059	IBS							B	r								
Black-capped Chickadee	2160-19120	IBS							B	r	r	r	r	r				
Black-capped Chickadee	2160-19174	IBS							B	r								
Black-capped Chickadee	2160-19522	IBS								B	r	r	r	r	r			
Black-capped Chickadee	2190-10126	IBS									B	r	r					
Black-capped Chickadee	2190-10128	IBS									B	x	r					

**Appendix 4. Year-to-Year Recaptures at Inglewood Bird Sanctuary,  
Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park and De Wit Ranch**

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Black-capped Chickadee	2200-47365	IBS										B	r					
Black-capped Chickadee	2220-34017	Cominco									B	r						
Black-capped Chickadee	2220-34132	Cominco									B	r						
Black-capped Chickadee	2220-34593	Cominco									B	r						
Black-capped Chickadee	2270-23454	IBS											B	r	r	r	r	
Black-capped Chickadee	2270-80108	IBS											B	r	r	r		
Black-capped Chickadee	2270-80454	IBS												B	r	r	r	r
Black-capped Chickadee	2270-80480	IBS												B	r			
Black-capped Chickadee	2270-80687	IBS												B	r			
Black-capped Chickadee	2270-80989	IBS													B	r		
Black-capped Chickadee	2270-81230	IBS														B	r	
Black-capped Chickadee	2270-81297	IBS														B	x	r
Black-capped Chickadee	2270-81338	IBS															B	r
Black-capped Chickadee	2290-37241	IBS															B	r
Black-capped Chickadee	2290-37640	IBS															B	r
Black-capped Chickadee	2290-37793	DPP															B	r
Black-capped Chickadee	2290-88414	IBS													B	x	x	r
Black-capped Chickadee	2290-88658	IBS													B	r	r	r
Black-capped Chickadee	2290-92058	IBS												B	r			
Black-capped Chickadee	2290-92141	IBS												B	r	r	r	
Black-capped Chickadee	2290-92174	IBS												B	r			
Black-capped Chickadee	2290-37242	IBS															B	r
Black-capped Chickadee	2290-37348	IBS														B	r	
Black-capped Chickadee	2390-30780	IBS										B	r					
Black-capped Chickadee	2390-30780	IBS										B	x	r				
Black-capped Chickadee	2390-30962	IBS											B	r				
Black-capped Chickadee	2430-31003	IBS															B	r
Black-capped Chickadee	3500-89670	Dunbow						B	r	r								
White-breasted Nuthatch	1461-31479	IBS							B	r	r							
White-breasted Nuthatch	1461-84757	IBS				B	r	x	r									
White-breasted Nuthatch	1761-15767	IBS										B	r					
White-breasted Nuthatch	1761-28100	IBS																

**Appendix 4. Year-to-Year Recaptures at Inglewood Bird Sanctuary,  
Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park and De Wit Ranch**

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
House Wren	1910-52261	IBS	B	r	x	r	r	r	r									
House Wren	1950-45790	IBS					B	r										
House Wren	1950-45886	IBS					B	r										
House Wren	1950-48126	IBS		B	x	r												
House Wren	1990-57803	Cominco									B	r						
House Wren	1990-57943	IBS									B	r						
House Wren	1990-57981	IBS									B	r	r	r	r	r		
House Wren	2060-28447	IBS						B	r									
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			

**Appendix 4. Year-to-Year Recaptures at Inglewood Bird Sanctuary,  
Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park and De Wit Ranch**

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
House Wren	2270-81375	IBS															B	r
House Wren	2270-81418	IBS													B	x	r	
House Wren	2290-37017	IBS														B	r	
House Wren	2290-37184	IBS														B	r	
House Wren	2290-37286	IBS															B	r
House Wren	2290-37293	IBS															B	r
House Wren	2290-37313	IBS														B	x	r
House Wren	2290-37331	IBS														B	r	
House Wren	2290-37483	IBS														B	r	
House Wren	2290-37489	IBS														B	r	r
House Wren	2290-37710	DPP															B	r
House Wren	2290-37724	DPP															B	r
House Wren	2290-37732	DPP															B	r
House Wren	2290-37748	DPP															B	r
House Wren	2290-37762	DPP															B	r
House Wren	2290-37770	DPP															B	r
House Wren	2290-88409	IBS													B	r		
House Wren	2290-88460	IBS													B	r		
House Wren	2290-88533	IBS													B	x	x	r
House Wren	2290-92112	IBS												B	r			
House Wren	2290-92203	IBS												B	r			
House Wren	2430-31067	IBS															B	r
Swainson's Thrush	1451-67159	IBS					B	x	r									
Swainson's Thrush	1461-63572	IBS						B	r									
Swainson's Thrush	1461-63682	IBS			B	x	r											
Swainson's Thrush	1461-63692	IBS			B	x	x	r										
Swainson's Thrush	1461-63741	IBS					B	r										
Swainson's Thrush	1461-69595	IBS					B	r										
Swainson's Thrush	1541-17673	IBS								B	r	x	r					
Swainson's Thrush	1871-73214	IBS														B	x	r
American Robin	0942-93625	IBS											B	d				
American Robin	0942-93635	IBS											B	r				

**Appendix 4. Year-to-Year Recaptures at Inglewood Bird Sanctuary,  
Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park and De Wit Ranch**

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
American Robin	0942-93643	IBS											B	r				
American Robin	0942-93654	IBS												B	r			
American Robin	0942-93655	IBS												B	r	x	r	
American Robin	0942-93660	IBS												B	r			
American Robin	0942-93686	IBS												B	x	x	x	d
American Robin	0942-93694	IBS												B	x	d		
American Robin	0942-93747	IBS												B	r			
American Robin	0942-93786	IBS												B	x	r		
American Robin	0962-90991	IBS				B	x	r										
American Robin	0972-30082	IBS										B	r					
American Robin	0972-30083	IBS										B	r	r				
American Robin	0972-30087	IBS										B	r					
American Robin	0972-30095	IBS										B	x	r				
American Robin	0972-30466	IBS				B	x	r										
American Robin	0942-93731	IBS												B	x	x	r	
American Robin	1142-49046	IBS						B	r									
American Robin	1142-49201	Dunbow						B	r									
American Robin	1142-49212	Dunbow						B	x	r								
American Robin	1142-49217	Dunbow						B	r									
American Robin	1142-49221	Dunbow						B	r									
American Robin	1142-49261	IBS											B	r		r		
American Robin	1142-49270	IBS											B	x	r			
American Robin	1142-49272	IBS											B	x	x	x	r	
American Robin	1142-55013	IBS										B	x	x	x	x	r	
American Robin	1142-55058	IBS																
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	1152-38887	IBS									B	r						
American Robin	1202-13232	IBS													B	r		
American Robin	1202-13233	IBS														B	r	
American Robin	1202-13232	IBS													B	r		



**Appendix 4. Year-to-Year Recaptures at Inglewood Bird Sanctuary,  
Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park and De Wit Ranch**

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
American Robin	1202-13243	IBS													B	r		
American Robin	1202-13272	IBS													B	r	r	
American Robin	1202-13302	IBS														B	r	r
American Robin	1202-13308	IBS														B	r	
American Robin	1202-13333	IBS														B	r	
American Robin	1202-13337	IBS														B	r	
American Robin	1202-13338	IBS														B	r	
American Robin	1202-13340	IBS														B	x	r
American Robin	1202-13345	IBS														B	r	
American Robin	1202-13368	IBS														B	r	
American Robin	1202-13384	IBS														B	r	
American Robin	1202-13386	IBS														B	r	r
American Robin	1202-13431	IBS															B	r
American Robin	1202-13475	IBS															B	r
American Robin	1202-13476	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	8001-77934	DPP															B	r
Gray Catbird	8001-77944	DPP															B	r
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	x	x	x	x	r	
Gray Catbird	8041-83021	Cominco									B	r						
Gray Catbird	8041-83028	Cominco									B	r						
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

**Appendix 4. Year-to-Year Recaptures at Inglewood Bird Sanctuary,  
Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park and De Wit Ranch**

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Gray Catbird	8041-83301	IBS														B	x	r
Cedar Waxwing	1461-50802	Cominco									B	r						
Cedar Waxwing	1461-63733	IBS					B	r										
Tennessee Warbler	2300-06276	IBS														B	r	
Orange-crowned Warbler	2160-18542	IBS							B	r								
Yellow Warbler	1910-52230	IBS	B	x	x	r												
Yellow Warbler	1950-45519	IBS				B	r	x	r									
Yellow Warbler	1950-45878	IBS					B	r	r									
Yellow Warbler	1950-48086	IBS		B	x	r												
Yellow Warbler	1950-48129	IBS		B	x	r	r											
Yellow Warbler	1950-48133	IBS		B	x	r												
Yellow Warbler	1980-79983	IBS				B	r	r	r	r								
Yellow Warbler	1990-57104	Dunbow						B	r									
Yellow Warbler	1990-57734	Cominco									B	r						
Yellow Warbler	1990-57738	Cominco									B	r						
Yellow Warbler	1990-57802	Cominco									B	r						
Yellow Warbler	1990-57864	Cominco									B	r						
Yellow Warbler	1990-57898	Cominco									B	r						
Yellow Warbler	1990-57916	Cominco									B	r						
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					

**Appendix 4. Year-to-Year Recaptures at Inglewood Bird Sanctuary,  
Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park and De Wit Ranch**

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Yellow Warbler	2200-47371	IBS										B	x	x	r			
Yellow Warbler	2200-47400	IBS										B	r					
Yellow Warbler	2220-13037	IBS											B	r				
Yellow Warbler	2220-13250	IBS											B	r				
Yellow Warbler	2220-13252	IBS											B	x	x	x	r	r
Yellow Warbler	2220-13258	IBS											B	r				
Yellow Warbler	2220-13262	IBS											B	r				
Yellow Warbler	2220-13397	IBS											B	r				
Yellow Warbler	2220-34098	Cominco									B	r						
Yellow Warbler	2220-34171	Cominco									B	r						
Yellow Warbler	2220-34293	Cominco									B	r						
Yellow Warbler	2220-34320	Cominco									B	r						
Yellow Warbler	2220-34370	Cominco									B	x	x	x	x	x	r	
Yellow Warbler	2220-34423	Cominco									B	r						
Yellow Warbler	2220-34438	Cominco									B	r						
Yellow Warbler	2270-23132	IBS											B	r				
Yellow Warbler	2270-23288	IBS											B	r				
Yellow Warbler	2270-23333	IBS											B	r				
Yellow Warbler	2270-23346	IBS											B	r				
Yellow Warbler	2270-23419	IBS											B	x	x	r	x	r
Yellow Warbler	2270-80288	IBS												B	r	r		
Yellow Warbler	2270-80303	IBS												B	x	x	r	
Yellow Warbler	2270-80307	IBS												B	r			
Yellow Warbler	2270-80319	IBS												B	x	x	x	r
Yellow Warbler	2270-80347	IBS												B	x	r		
Yellow Warbler	2270-80421	IBS												B	r			
Yellow Warbler	2270-80447	IBS												B	x	x	r	
Yellow Warbler	2270-80596	IBS													B	x	r	
Yellow Warbler	2270-80777	IBS													B	r	r	
Yellow Warbler	2270-80781	IBS													B	r		
Yellow Warbler	2270-80785	IBS													B	x	r	
Yellow Warbler	2270-80861	IBS													B	r		

**Appendix 4. Year-to-Year Recaptures at Inglewood Bird Sanctuary,  
Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park and De Wit Ranch**

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Yellow Warbler	2270-81400	IBS															B	r
Yellow Warbler	2290-37023	IBS														B	r	
Yellow Warbler	2290-37050	IBS														B	r	
Yellow Warbler	2290-37231	IBS															B	r
Yellow Warbler	2290-37253	IBS															B	r
Yellow Warbler	2290-37258	IBS															B	r
Yellow Warbler	2290-37297	IBS															B	r
Yellow Warbler	2290-37311	IBS														B	r	
Yellow Warbler	2290-37383	IBS														B	r	
Yellow Warbler	2290-37757	DPP															B	r
Yellow Warbler	2290-37761	DPP															B	r
Yellow Warbler	2290-88365	IBS												B	x	r	r	
Yellow Warbler	2290-88550	IBS												B	r	r	r	
Yellow Warbler	2290-92164	IBS											B	x	x	r		
Yellow Warbler	2290-92197	IBS											B	r	r			
Yellow Warbler	2390-30570	IBS									B	r	x	r	x	x	r	
Yellow Warbler	3500-89667	Dunbow						B	x	r								
Yellow-rumped Warbler	1910-52603	IBS	B	r														
Yellow-rumped Warbler	2290-37137	IBS														B	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						



**Appendix 4. Year-to-Year Recaptures at Inglewood Bird Sanctuary,  
Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park and De Wit Ranch**

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Clay-colored Sparrow	2270-81350	IBS															B	r
Clay-colored Sparrow	2390-30503	IBS										B	x	r				
Vesper Sparrow	1461-05331	Dunbow						B	r									
Vesper Sparrow	1461-31412	Dunbow							B	r								
Savannah Sparrow	2171-56304	Cominco									B	r						
Song Sparrow	1541-17836	Cominco									B	r						
Song Sparrow	1541-17895	Cominco									B	r						
Song Sparrow	1861-68929	IBS													B	r		
Song Sparrow	1871-73157	IBS														B	r	
Song Sparrow	1871-73227	IBS														B	r	
Song Sparrow	1901-94717	IBS															B	r
Lincoln's Sparrow	1671-56128	IBS												B	r			
Lincoln's Sparrow	2091-55732	IBS														B	r	
Lincoln's Sparrow	2161-14607	IBS				B	r											
Lincoln's Sparrow	3121-21261	Cominco									B	r						
White-throated Sparrow	1791-28046	IBS											B	r				
White-throated Sparrow	1871-73465	IBS													B	r		
Red-winged Blackbird	8041-83032	Cominco									B	r						
Brown-headed Cowbird	1461-05333	Dunbow						B	r									
Brown-headed Cowbird	1461-31414	Dunbow							B	r								
Brown-headed Cowbird	1541-17842	Cominco									B	r						
Brown-headed Cowbird	1681-67124	IBS											B	x	x	x	x	r
Brown-headed Cowbird	1761-28251	IBS										B	r					
Brown-headed Cowbird	1791-28013	IBS											B	r	r	r	r	
Brown-headed Cowbird	1811-73648	IBS												B	r			
Brown-headed Cowbird	1871-73167	IBS														B	r	
Brown-headed Cowbird	1871-73199	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						

**Appendix 4. Year-to-Year Recaptures at Inglewood Bird Sanctuary,  
Dunbow Road, Cominco Natural Area, Dinosaur Provincial Park and De Wit Ranch**

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Brown-headed Cowbird	8041-83245	Cominco														B	x	r
Baltimore Oriole	8041-54908	IBS							B	r								
Baltimore Oriole	8041-83030	Cominco									B	r						
Baltimore Oriole	8041-83090	IBS											B	r	r			
Baltimore Oriole	8041-83201	IBS													B	r		
Baltimore Oriole	8041-83221	IBS													B	r		
Baltimore Oriole	8041-83222	IBS													B	x	r	
Baltimore Oriole	8041-83274	IBS														B	r	r
Baltimore Oriole	8051-65131	IBS						B	r									
American Goldfinch	1990-57875	Cominco									B	r						
American Goldfinch	2120-00188	Dunbow						B	x	r								
American Goldfinch	2190-10309	IBS										B	x	r	r	r		
American Goldfinch	2220-34131	Cominco									B	r						
American Goldfinch	2220-34245	Cominco									B	r						
American Goldfinch	2270-23364	IBS											B		r			
American Goldfinch	2270-80350	Cominco												B	r			
American Goldfinch	2270-80353	Cominco												B	r			
American Goldfinch	2290-37381	IBS														B	r	

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

     change in species  
     banding location different than recapture location

## **Appendix 5**

### Appendix 5. New captures during MoSI and MM at Las Caletas 2006-2007

SPECIES	Total	Monitoreo de Supervivencia Invernal (MoSI)										Migration Monitoring (MM)								
		10-Dec	11-Dec	12-Dec	13-Dec	14-Dec	15-Dec	05-Mar	06-Mar	07-Mar	08-Mar	09-Mar	10-Mar	30-Mar	31-Mar	01-Apr	02-Apr	03-Apr	04-Apr	05-Apr
Barred Forest-Falcon	1											1								
White-tipped Dove	1																			
Gray-chested Dove	4								2			1			1					
Ruddy Quail-Dove	3								1											
Bronzy Hermit	3																			
Band-tailed Barbthroat	15	2	1	3			1		1		1	2								
Long-billed Hermit	21	1	1	2	1				3			1								
Stripe-throated Hermit	8			1				3	2		1									
White-tipped Sicklebill	1																		1	
White-necked Jacobin	4					2		1												
Violet-crowned Woodnymph	8		1							1	1									
Blue-throated Goldentail	32	4	5	4	5															
Charming Hummingbird	30	6			3	1	2	1		1									4	
Rufous-tailed Hummingbird	21			1	1	1							2	2						
Black-throated Trogon	3																			
Blue-crowned Motmot	2								1											
Green Kingfisher	2																			1
White-whiskered Puffbird	1																			
Fiery-billed Aracari	2									2										
Olivaceous Piculet	1																			
Buff-throated Foliage-gleaner	2					1														1
Plain Xenops	6					1				1										1
Scaly-throated Leaf-tosser	1																			
Tawny-winged Woodcreeper	4																			1
Long-tailed Woodcreeper	4																			1
Wedge-billed Woodcreeper	11		1	2		1					1	1								1
Northern Barred-Woodcreeper	3																			
Cocoa Woodpecker	2			1					1											
Black-hooded Antshrike	6		1	1							1									1
Slaty Antwren	3					2														
Dot-winged Antwren	4	1				1														
Chestnut-backed Antbird	10	2					1	1												1
Bicolored Antbird	17	2		2																8
Black-faced Antthrush	1																			
Ochre-bellied Flycatcher	19	2		1		1	1		2		1		1							1
Northern Bentbill	4																			1
Golden-crowned Spadebill	8	1			2				2											
Ruddy-tailed Flycatcher	4	1									1									1
Sulphur-rumped Flycatcher	3		1																	
Yellow-bellied Flycatcher	3						2													
Alder Flycatcher	2																			



## Appendix 5. New captures during MoSI and MM at Las Caletas 2006-2007

SPECIES	Total	Monitoreo de Supervivencia Invernal (MoSI)										Migration Monitoring (MM)								
		10-Dec	11-Dec	12-Dec	13-Dec	14-Dec	15-Dec	05-Mar	06-Mar	07-Mar	08-Mar	09-Mar	10-Mar	30-Mar	31-Mar	01-Apr	02-Apr	03-Apr	04-Apr	05-Apr
Traill's Flycatcher	1																			
Bright-rumped Attila	2																			
Rufous Mourner	1																			
Dusky-capped Flycatcher	1																			
Sulphur-bellied Flycatcher	1																			
Scale-crested Pygmy-Tyrant	1																			
Thrushlike Schiffornis	1																			
Orange-collared Manakin	27	1			2		1		1	1	2		1			1	1			
Blue-crowned Manakin	13	2	2		1			1							1					
Red-capped Manakin	46	5	2	3		7		2	1						2	3				
Yellow-green Vireo	2																			
Tawny-crowned Greenlet	10	1				1	2			1										
Lesser Greenlet	5																			1
Black-bellied Wren	2																			
Riverside Wren	4														1					
House Wren	2																			
Long-billed Gnatwren	8		1			2														1
Tropical Gnatcatcher	1									1										
Swainson's Thrush	562																			
Clay-colored Robin	5	1																		
Chestnut-sided Warbler	6																	2	1	
Prothonotary Warbler	1									1										
Northern Waterthrush	3			1						1							1			
Kentucky Warbler	2						1								1					
Mourning Warbler	2			1																1
Buff-rumped Warbler	2									2										
Bananaquit	13	2		3													1			
Gray-headed Tanager	12	1		2						2					1					
White-shouldered Tanager	6					1														
Black-cheeked Ant-Tanager	10															1				
Summer Tanager	2					1														
Cherrie's Tanager	10	1		2		1	2			1										
Bay-headed Tanager	2									1										
Green Honeycreeper	3														2					
Variable Seedeater	9														1					1
Thick-billed Seed-Finch	7			1																
Orange-billed Sparrow	22	2	1	1																
Black-striped Sparrow	1																			
Buff-throated Saltator	6									1										1
Blue-black Grosbeak	7		1																	
Spot-crowned Euphonia	2					1		1												

### Appendix 5. New captures during MoSI and MM at Las Caletas 2006-2007

SPECIES	Total	Monitoreo de Supervivencia Invernal (MoSI)										Migration Monitoring (MM)								
		10-Dec	11-Dec	12-Dec	13-Dec	14-Dec	15-Dec	05-Mar	06-Mar	07-Mar	08-Mar	09-Mar	10-Mar	30-Mar	31-Mar	01-Apr	02-Apr	03-Apr	04-Apr	05-Apr
<b>Species</b>	82	19	12	18	8	15	10	8	13	12	12	11	9	18	19	7	10	6	8	0
<b>Total new bandings</b>	1103	38	18	32	16	24	14	12	19	15	14	14	12	37	37	30	45	36	20	0
<b>Other unbanded captures</b>																				
Bronzy Hermit	1													1						
Band-tailed Barbthroat	8	1			1					1										
Long-billed Hermit	5											2								
Stripe-throated Hermit	5																			
White-tipped Sicklebill	2			1																
Blue-throated Goldentail	3																			
Charming Hummingbird	5			1																
Rufous-tailed Hummingbird	1															1				
Purple-crowned Fairy	1															1				
Green Kingfisher	1																			
Wedge-billed Woodcreeper	1			1																
Chestnut-backed Antbird	1																			
Northern Bentbill	2													1						
Ruddy-tailed Flycatcher	1			1																
Orange-collared Manakin	1																1			
Lesser Greenlet	1																			
Riverside Wren	1																			
Swainson's Thrush	8																			
Black-cheeked Ant-Tanager	1		1												1	2				
Orange-billed Sparrow	3	1		1	1															
<b>Total unbanded other captures</b>	52	2	2	4	2	0	0	0	0	1	0	2	0	3	1	2	3	0	0	0
<b>Total new captures</b>	1155	40	20	36	18	24	14	12	19	16	14	16	12	40	38	32	48	36	20	0
<b>Net hrs</b>	3120	92.2	34.5	96.9	80.2	97.0	62.7	89.0	90.0	90.0	90.3	90.0	87.2	84.7	70.5	71.4	72.0	72.3	71.6	0.0
<b>New captures/net-hour</b>	0.37	0.43	0.58	0.37	0.22	0.25	0.22	0.13	0.21	0.18	0.16	0.18	0.14	0.47	0.54	0.45	0.67	0.50	0.28	

Neotropical migrant

### Appendix 5. New captures during MoSI and MM at Las Caletas 2006-2007

SPECIES	Total	Migration Monitoring (MM)																					
		06-Apr	07-Apr	08-Apr	09-Apr	10-Apr	11-Apr	12-Apr	13-Apr	14-Apr	15-Apr	16-Apr	17-Apr	18-Apr	19-Apr	20-Apr	21-Apr	22-Apr	23-Apr	24-Apr	25-Apr	26-Apr	27-Apr
Barred Forest-Falcon	1																						
White-tipped Dove	1	1																					
Gray-chested Dove	4																						
Ruddy Quail-Dove	3										1												
Bronzy Hermit	3												1		1			1					
Band-tailed Barbthroat	15	1									1							1					1
Long-billed Hermit	21									1	1		1	1		4	1	1					
Stripe-throated Hermit	8																						
White-tipped Sicklebill	1																						
White-necked Jacobin	4																						
Violet-crowned Woodnymph	8										2			1		1	1						
Blue-throated Goldentail	32	1									3			2	1		1		3		1	1	1
Charming Hummingbird	30				3	1								3				1			1	2	1
Rufous-tailed Hummingbird	21										2	1		1	1		2	1		2			1
Black-throated Trogon	3												2	1									
Blue-crowned Motmot	2																						
Green Kingfisher	2																					1	
White-whiskered Puffbird	1													1									
Fiery-billed Aracari	2																						
Olivaceous Piculet	1					1																	
Buff-throated Foliage-gleaner	2																						
Plain Xenops	6		1								1												
Scaly-throated Leaf-tosser	1										1												
Tawny-winged Woodcreeper	4						1					1			1								
Long-tailed Woodcreeper	4		1								1			1									
Wedge-billed Woodcreeper	11					1						1							1				
Northern Barred-Woodcreeper	3													1									
Cocoa Woodpecker	2																						
Black-hooded Antshrike	6					1																	
Slaty Antwren	3																						1
Dot-winged Antwren	4					1										1							
Chestnut-backed Antbird	10				1		1							1			1						1
Bicolored Antbird	17			2														1					
Black-faced Antthrush	1																		1				
Ochre-bellied Flycatcher	19				2							1	2				1						1
Northern Bentbill	4						1							1					1				
Golden-crowned Spadebill	8																2						1
Ruddy-tailed Flycatcher	4																						1
Sulphur-rumped Flycatcher	3										1						1						
Yellow-bellied Flycatcher	3											1											
Alder Flycatcher	2													1									1

### Appendix 5. New captures during MoSI and MM at Las Caletas 2006-2007

SPECIES	Total	Migration Monitoring (MM)																					
		06-Apr	07-Apr	08-Apr	09-Apr	10-Apr	11-Apr	12-Apr	13-Apr	14-Apr	15-Apr	16-Apr	17-Apr	18-Apr	19-Apr	20-Apr	21-Apr	22-Apr	23-Apr	24-Apr	25-Apr	26-Apr	27-Apr
Trail's Flycatcher	1										1												
Bright-rumped Attila	2											1								1			
Rufous Mourner	1								1														
Dusky-capped Flycatcher	1														1								
Sulphur-bellied Flycatcher	1										1												
Scale-crested Pygmy-Tyrant	1								1														
Thrushlike Schiffornis	1																			1			
Orange-collared Manakin	27	1		1	2		1		1			3		1	1	1						3	
Blue-crowned Manakin	13											1	1		1			2	1				
Red-capped Manakin	46	1		1			1					2	1	1	1		3	1	1			2	1
Yellow-green Vireo	2	1									1												
Tawny-crowned Greenlet	10				2										1	1						1	
Lesser Greenlet	5										1									2			
Black-bellied Wren	2								1			1											
Riverside Wren	4										2					1							
House Wren	2																						
Long-billed Gnatwren	8					1			1										1	1			
Tropical Gnatcatcher	1																						
Swainson's Thrush	562	27	22	29	32	23	49	15	33	19	34	35	25	16	19	8	11	10	13	6	5	7	2
Clay-colored Robin	5			1							1	2											
Chestnut-sided Warbler	6		1	1												1							
Prothonotary Warbler	1																						
Northern Waterthrush	3																						
Kentucky Warbler	2																						
Mourning Warbler	2																						
Buff-rumped Warbler	2																						
Bananaquit	13			1									1	1	1		1					1	
Gray-headed Tanager	12						1												1				
White-shouldered Tanager	6	1		1					1				1										
Black-cheeked Ant-Tanager	10				1	1						1			1			1		1			
Summer Tanager	2																						
Cherrie's Tanager	10			1																			
Bay-headed Tanager	2															1							
Green Honeycreeper	3				1																		
Variable Seedeater	9											1	1			1	2						
Thick-billed Seed-Finch	7																	1				1	
Orange-billed Sparrow	22		1	1					2				1	1	1	1		1			1		1
Black-striped Sparrow	1																						
Buff-throated Saltator	6														2		1						
Blue-black Grosbeak	7			1			1		1						2								
Spot-crowned Euphonia	2																						

### Appendix 5. New captures during MoSI and MM at Las Caletas 2006-2007

SPECIES	Total	Migration Monitoring (MM)																					
		06-Apr	07-Apr	08-Apr	09-Apr	10-Apr	11-Apr	12-Apr	13-Apr	14-Apr	15-Apr	16-Apr	17-Apr	18-Apr	19-Apr	20-Apr	21-Apr	22-Apr	23-Apr	24-Apr	25-Apr	26-Apr	27-Apr
Species	82	8	5	11	8	8	8	1	5	10	9	16	15	14	11	13	15	9	13	8	5	12	8
Total new bandings	1103	34	26	40	44	30	56	15	38	29	44	55	42	33	30	21	30	21	28	14	9	22	9
<b>Other unbanded captures</b>																							
Bronzy Hermit	1																						
Band-tailed Barbthroat	8		1		1				1	2													
Long-billed Hermit	5	1	1		1																		
Stripe-throated Hermit	5				1								1				1	1					
White-tipped Sicklebill	2								1														
Blue-throated Goldentail	3												2						1				
Charming Hummingbird	5			1	1		1																
Rufous-tailed Hummingbird	1																	1					
Purple-crowned Fairy	1																						
Green Kingfisher	1							1															
Wedge-billed Woodcreeper	1																						
Chestnut-backed Antbird	1															1							
Northern Bentbill	2	1																					
Ruddy-tailed Flycatcher	1																						
Orange-collared Manakin	1																						
Lesser Greenlet	1											1											
Riverside Wren	1			1																			
Swainson's Thrush	8						3				1				1								
Black-cheeked Ant-Tanager	1																						
Orange-billed Sparrow	3																						
<b>Total unbanded other captures</b>	52	2	2	2	4	0	4	1	2	2	1	1	3	0	1	1	1	2	1	0	0	0	0
<b>Total new captures</b>	1155	36	28	42	48	30	60	16	40	31	45	56	45	33	31	22	31	23	29	14	9	22	9
<b>Net hrs</b>	3120	76.6	44.2	71.0	72.0	74.7	61.9	23.8	72.6	55.5	86.5	90.6	91.0	89.5	90.8	93.6	89.9	89.6	90.9	90.6	77.1	92.6	52.5
<b>New captures/net-hour</b>	0.37	0.47	0.63	0.59	0.67	0.40	0.97	0.67	0.55	0.56	0.52	0.62	0.49	0.37	0.34	0.24	0.34	0.26	0.32	0.15	0.12	0.24	0.17

Neotropical migrant

## **Appendix 6**

## Appendix 6. Year-to-Year Recaptures at Las Caletas, Costa Rica

Species	Band	2002	2003	2004	2005	2006	2007
Gray-chested Dove	1204		B	x	r		
Gray-chested Dove	1210		B	r	r		
Gray-chested Dove	1211		B	x	x	r	r
Gray-chested Dove	1215			B	r		
Ruddy Quail-Dove	2806			B	x	r	
Ruddy Quail-Dove	2808			B	x	r	
Ruddy Quail-Dove	2813				B	x	r
Bronzy Hermit	0066			B	r		
Band-tailed Barbthroat	0072			B	r		
Band-tailed Barbthroat	0086			B	x	r	
Band-tailed Barbthroat	0290(0094)			B	r	r	
Band-tailed Barbthroat	0166				B	r	
Band-tailed Barbthroat	0237				B	r	
Band-tailed Barbthroat	0285					B	r
Band-tailed Barbthroat	0329					B	r
Long-billed Hermit	0097				B	r	r
Long-billed Hermit	0099				B	r	
Long-billed Hermit	0260				B	r	
Long-billed Hermit	0330					B	r
Long-billed Hermit	0379					B	r
Violet-crowned Woodnymph	0332(0190)				B	r	
Violet-crowned Woodnymph	0338(0156)				B	r	
Blue-throated Goldentail	0050			B	x	x	r
Blue-throated Goldentail	0101			B	r	r	
Blue-throated Goldentail	0116			B	x	r	
Blue-throated Goldentail	0137			B	x	r	
Blue-throated Goldentail	0225					B	r
Charming Hummingbird	0016			B	r		
Charming Hummingbird	0047			B	r		
Charming Hummingbird	0163				B	r	
Charming Hummingbird	0177				B	r	
Charming Hummingbird	0196				B	r	
Charming Hummingbird	0197				B	r	
Charming Hummingbird	0326					B	r
Charming Hummingbird	0328					B	r
Charming Hummingbird	0375					B	r
Charming Hummingbird	0382					B	r
Rufous-tailed Hummingbird	0090			B	x	r	
Rufous-tailed Hummingbird	0160				B	r	
Rufous-tailed Hummingbird	0162				B	r	
Rufous-tailed Hummingbird	0278					B	r
Black-throated Trogon	839	B	x	r			

## Appendix 6. Year-to-Year Recaptures at Las Caletas, Costa Rica

Species	Band	2002	2003	2004	2005	2006	2007
Blue-crowned Motmot	1203		B	r			
Blue-crowned Motmot	1208		B	r	x	r	r
White-whiskered Puffbird	666			B	r		
Rufous-tailed Jacamar	774		B	r			
Olivaceous Piculet	0038	B	r				
Olivaceous Piculet	0099	B	r				
Olivaceous Piculet	0650				B	r	
Buff-throated Foliage-gleaner	813	B	r	x	r	r	r
Buff-throated Foliage-gleaner	0904	B	r	r	r	r	
Plain Xenops	0009	B	x	x	x	r	r
Plain Xenops	0037	B	r	r	r	r	
Plain Xenops	0046	B	r	r	r		
Plain Xenops	0049	B	r	x	r	x	r
Plain Xenops	00120		B	r	x	r	
Plain Xenops	0194			B	x	r	
Plain Xenops	0346				B	r	
Plain Xenops	0363				B	r	
Plain Xenops	0422					B	r
Scaly-throated Leaftosser	746		B	r			
Tawny-winged Woodcreeper	791		B	r			
Tawny-winged Woodcreeper	897		B	r			
Tawny-winged Woodcreeper	0705	B	r	r			
Tawny-winged Woodcreeper	0714	B	r	x	r	r	r
Tawny-winged Woodcreeper	0720	B	r				
Tawny-winged Woodcreeper	736		B	x	x	r	r
Tawny-winged Woodcreeper	795			B	r		
Tawny-winged Woodcreeper	0286				B	r	
Tawny-winged Woodcreeper	0300				B	r	
Tawny-winged Woodcreeper	0302				B	r	
Tawny-winged Woodcreeper	0626				B	r	r
Tawny-winged Woodcreeper	0636				B	r	
Tawny-winged Woodcreeper	0665				B	r	
Long-tailed Woodcreeper	0286				B	r	
Long-tailed Woodcreeper	0419					B	r
Wedge-billed Woodcreeper	0006	B	r	r			
Wedge-billed Woodcreeper	0016	B	r				
Wedge-billed Woodcreeper	0022	B	r				
Wedge-billed Woodcreeper	0041	B	r	r			
Wedge-billed Woodcreeper	0047	B	r	r	r		
Wedge-billed Woodcreeper	0082	B	r				
Wedge-billed Woodcreeper	0097	B	x	x	x	r	
Wedge-billed Woodcreeper	00139		B	r	r	x	r



### Appendix 6. Year-to-Year Recaptures at Las Caletas, Costa Rica

Species	Band	2002	2003	2004	2005	2006	2007
Wedge-billed Woodcreeper	0118		B	x	r		
Wedge-billed Woodcreeper	0151		B	r			
Wedge-billed Woodcreeper	0154		B	r	r	x	r
Wedge-billed Woodcreeper	0212			B	r	r	r
Wedge-billed Woodcreeper	0218			B	r		
Wedge-billed Woodcreeper	0219			B	x	x	r
Wedge-billed Woodcreeper	0223			B	r		
Wedge-billed Woodcreeper	0233			B	r	r	
Wedge-billed Woodcreeper	0254			B	r	r	
Wedge-billed Woodcreeper	0279				B	r	r
Wedge-billed Woodcreeper	0300				B	r	
Wedge-billed Woodcreeper	0302				B	r	
Wedge-billed Woodcreeper	378					B	r
Wedge-billed Woodcreeper	0390					B	r
Wedge-billed Woodcreeper	0393					B	r
Wedge-billed Woodcreeper	0418					B	r
Northern Barred-Woodcreeper	920		B	x	x	r	
Northern Barred-Woodcreeper	924		B	x	r	x	r
Cocoa Woodcreeper	0701	B	r				
Cocoa Woodcreeper	755		B	x	r		
Cocoa Woodcreeper	783			B	r		
Cocoa Woodcreeper	785			B	r		
Cocoa Woodcreeper	787			B	r		
Cocoa Woodcreeper	789			B	r	x	r
Cocoa Woodcreeper	791			B	x	r	r
Cocoa Woodcreeper	714					B	r
Cocoa Woodcreeper	0316				B	r	r
Black-hooded Antshrike	0810	B	r	x	x	r	
Black-hooded Antshrike	0816	B	r	r	x	r	
Black-hooded Antshrike	0819	B	r				
Black-hooded Antshrike	0824	B	r	x	x	r	
Black-hooded Antshrike	737		B	r	r	r	r
Black-hooded Antshrike	738		B	x	r	r	
Black-hooded Antshrike	0563		B	r	x	x	r
Black-hooded Antshrike	769		B	x	x	r	
Black-hooded Antshrike	1657			B	r		
Black-hooded Antshrike	1665			B	r		
Black-hooded Antshrike	1660			B	x	r	r
Black-hooded Antshrike	0643				B	r	
Black-hooded Antshrike	0666				B	r	
Slaty Antwren	00153		B	r			
Slaty Antwren	0187			B	r	r	

## Appendix 6. Year-to-Year Recaptures at Las Caletas, Costa Rica

Species	Band	2002	2003	2004	2005	2006	2007
Slaty Antwren	00172			B	x	r	
Slaty Antwren	0350				B	x	r
Slaty Antwren	0354				B	x	r
Slaty Antwren	0370				B	r	
<b>Dot-winged Antwren</b>	<b>00104</b>		<b>B</b>	<b>r</b>			
Dot-winged Antwren	00106		B	r			
Dot-winged Antwren	0033	B	x	r	r	x	r
Dot-winged Antwren	0110	B	x	r			
Dot-winged Antwren	0131		B	r			
Dot-winged Antwren	0199			B	x	r	
Dot-winged Antwren	0238			B	x	r	
<b>Chestnut-backed Antbird</b>	<b>0832</b>	<b>B</b>	<b>r</b>				
Chestnut-backed Antbird	901	B	r	r	r	r	r
Chestnut-backed Antbird	0902	B	r				
Chestnut-backed Antbird	1602		B	r			
Chestnut-backed Antbird	758		B	r	r	r	
Chestnut-backed Antbird	868		B	x	x	r	
Chestnut-backed Antbird	780			B	r		
Chestnut-backed Antbird	1637			B	r		
Chestnut-backed Antbird	1638			B	r		
Chestnut-backed Antbird	1662			B	r	r	
Chestnut-backed Antbird	0322				B	r	
Chestnut-backed Antbird	0331				B	r	r
Chestnut-backed Antbird	0382					B	r
Chestnut-backed Antbird	0392					B	r
Chestnut-backed Antbird	0395					B	r
<b>Bicolored Antbird</b>	<b>0713</b>	<b>B</b>	<b>r</b>				
Bicolored Antbird	893		B	r	r	r	r
Bicolored Antbird	0604			B	r	r	r
Bicolored Antbird	0605			B	r	r	r
Bicolored Antbird	0357				B	r	
Bicolored Antbird	0358				B	r	r
Bicolored Antbird	0368				B	r	r
Bicolored Antbird	0369				B	r	r
Bicolored Antbird	0668				B	r	
Bicolored Antbird	0669				B	r	
Bicolored Antbird	0670				B	r	
Bicolored Antbird	0690					B	r
Bicolored Antbird	0724					B	r
<b>Black-faced Antthrush</b>	<b>957</b>					<b>B</b>	<b>r</b>
Black-faced Antthrush	958					B	r
<b>Ochre-bellied Flycatcher</b>	<b>0008</b>	<b>B</b>	<b>r</b>	<b>r</b>			

## Appendix 6. Year-to-Year Recaptures at Las Caletas, Costa Rica

Species	Band	2002	2003	2004	2005	2006	2007
Ochre-bellied Flycatcher	00128		B	r			
Ochre-bellied Flycatcher	0014	B	r				
Ochre-bellied Flycatcher	0021	B	r	r			
Ochre-bellied Flycatcher	0060	B	r	r			
Ochre-bellied Flycatcher	0067	B	r	r			
Ochre-bellied Flycatcher	0094	B	r				
Ochre-bellied Flycatcher	0134		B	r			
Ochre-bellied Flycatcher	0144		B	x	r	x	r
Ochre-bellied Flycatcher	0101			B	r		
Ochre-bellied Flycatcher	0177			B	r	r	
Ochre-bellied Flycatcher	0202			B	r		
Ochre-bellied Flycatcher	0203			B	r		
Ochre-bellied Flycatcher	0206			B	r	x	r
Ochre-bellied Flycatcher	0207			B	r		
Ochre-bellied Flycatcher	0226			B	r		
Ochre-bellied Flycatcher	0247			B	r		
Ochre-bellied Flycatcher	0250			B	x	r	
Ochre-bellied Flycatcher	0252			B	x	r	r
Ochre-bellied Flycatcher	0276				B	r	r
Ochre-bellied Flycatcher	0277				B	r	
Ochre-bellied Flycatcher	0289				B	r	
Ochre-bellied Flycatcher	0306				B	r	
Ochre-bellied Flycatcher	0307				B	r	r
Ochre-bellied Flycatcher	0416					B	r
Ochre-bellied Flycatcher	0424					B	r
Ochre-bellied Flycatcher	0425					B	r
Ochre-bellied Flycatcher	0432					B	r
Northern Bentbill	0004	B	r				
Northern Bentbill	00121		B	r			
Northern Bentbill	00149		B	r			
Northern Bentbill	0101			B	r	r	
Northern Bentbill	00164			B	r		
Northern Bentbill	0120				B	r	r
Northern Bentbill	00162			B	x	r	
Northern Bentbill	00185				B	r	
Golden-crowned Spadebill	00187				B	r	
Ruddy-tailed Flycatcher	00159		B	r			
Ruddy-tailed Flycatcher	0024	B	r				
Ruddy-tailed Flycatcher	0096	B	r	x	r	r	
Ruddy-tailed Flycatcher	00182				B	r	r
Ruddy-tailed Flycatcher	0165				B	r	
Sulphur-rumped Flycatcher	0284				B	x	r

## Appendix 6. Year-to-Year Recaptures at Las Caletas, Costa Rica

Species	Band	2002	2003	2004	2005	2006	2007
Sulphur-rumped Flycatcher	0420					B	r
Sulphur-rumped Flycatcher	0450					B	r
Yellow-bellied Flycatcher	230006703	B	r				
Bright-rumped Attila	0767		B	r	x	r	
Bright-rumped Attila	0852	B	x	r	x	r	r
Bright-rumped Attila	0609			B	r	r	r
Bright-rumped Attila	0675				B	x	r
Dusky-capped Flycatcher	784			B	x	x	r
Dusky-capped Flycatcher	790			B	r		
Thrush-like Schiffornis	841	B	x	r	r		
Thrush-like Schiffornis	753		B	r			
Orange-collared Manakin	0503	B	x	r	r		
Orange-collared Manakin	0504	B	r				
Orange-collared Manakin	0506	B	x	r			
Orange-collared Manakin	0509	B	r				
Orange-collared Manakin	0518	B	r				
Orange-collared Manakin	0520	B	r	r			
Orange-collared Manakin	0531	B	r	r			
Orange-collared Manakin	0537	B	r				
Orange-collared Manakin	0546	B	r	r			
Orange-collared Manakin	0556	B	r	r			
Orange-collared Manakin	0557	B	x	r	x	x	r
Orange-collared Manakin	0146		B	r	r	r	r
Orange-collared Manakin	0567		B	r	r	r	r
Orange-collared Manakin	0567		B	r	x	r	
Orange-collared Manakin	0568		B	r			
Orange-collared Manakin	0602		B	r	r		
Orange-collared Manakin	0618		B	r	r		
Orange-collared Manakin	0651				B	r	
Orange-collared Manakin	0272				B	r	r
Orange-collared Manakin	0280				B	r	r
Orange-collared Manakin	0274				B	r	
Orange-collared Manakin	0343				B	r	
Orange-collared Manakin	0344				B	r	r
Orange-collared Manakin	0368				B	r	
Blue-crowned Manakin	0007	B	r	r	x	r	r
Blue-crowned Manakin	00133		B	r			
Blue-crowned Manakin	0059	B	x	r			
Blue-crowned Manakin	00109		B	x	r	r	
Blue-crowned Manakin	0119		B	r	r	r	r
Blue-crowned Manakin	0126		B	x	r		
Blue-crowned Manakin	0140		B	x	r	r	

### Appendix 6. Year-to-Year Recaptures at Las Caletas, Costa Rica

Species	Band	2002	2003	2004	2005	2006	2007
Blue-crowned Manakin	00142		B	x	r		
Blue-crowned Manakin	0160		B	r			
Blue-crowned Manakin	0176		B	x	r	r	
Blue-crowned Manakin	0230			B	r	r	r
Blue-crowned Manakin	0244			B	r	r	
Blue-crowned Manakin	0287				B	r	
Blue-crowned Manakin	0323				B	r	
Blue-crowned Manakin	0371				B	r	
Blue-crowned Manakin	0392					B	r
<b>Red-capped Manakin</b>	<b>0511</b>	<b>B</b>	<b>r</b>	<b>r</b>	<b>r</b>		
Red-capped Manakin	0512	B	x	r	r		
Red-capped Manakin	0514	B	x	x	x	r	
Red-capped Manakin	0516	B	x	x	r		
Red-capped Manakin	0519	B	x	r	r		
Red-capped Manakin	0522	B	x	x	r		
Red-capped Manakin	0529	B	x	x	r		
Red-capped Manakin	0532	B	r				
Red-capped Manakin	0535	B	r				
Red-capped Manakin	0540	B	x	r			
Red-capped Manakin	0550	B	r	r	r		
Red-capped Manakin	0552	B	x	r			
Red-capped Manakin	0554	B	x	x	r		
Red-capped Manakin	0125		B	r	r	r	r
Red-capped Manakin	0569		B	r	x	r	
Red-capped Manakin	0570		B	x	r		
Red-capped Manakin	0572		B	r			
Red-capped Manakin	0578		B	r	r	x	r
Red-capped Manakin	0579		B	r			
Red-capped Manakin	0601		B	r			
Red-capped Manakin	0612		B	x	x	r	
Red-capped Manakin	0626		B	r	r		
Red-capped Manakin	0659				B	r	
Red-capped Manakin	0674				B	x	r
Red-capped Manakin	1001			B	r		
Red-capped Manakin	1005			B	r		
Red-capped Manakin	1011			B	r		
Red-capped Manakin	1012			B	x	x	r
Red-capped Manakin	1025			B	r		
Red-capped Manakin	1046			B	x	r	
Red-capped Manakin	1067					B	r
Red-capped Manakin	0696					B	r
<b>Tawny-crowned Greenlet</b>	<b>13</b>	<b>B</b>	<b>r</b>				

## Appendix 6. Year-to-Year Recaptures at Las Caletas, Costa Rica

Species	Band	2002	2003	2004	2005	2006	2007
Tawny-crowned Greenlet	0208			B	r		
Lesser Greenlet	00161			B	x	r	
Black-bellied Wren	0306				B	r	
Riverside Wren	816	B	x	x	x	r	
Riverside Wren	731		B	r			
Riverside Wren	739		B	x	x	r	
Riverside Wren	788			B	r		
Riverside Wren	0618				B	r	r
Riverside Wren	0676					B	r
Riverside Wren	0678					B	r
Riverside Wren	0721					B	r
Long-billed Gnatwren	0023	B	r	r	x	r	
Long-billed Gnatwren	0053	B	r				
Long-billed Gnatwren	0063	B	r	x	r		
Long-billed Gnatwren	0103	B	r				
Long-billed Gnatwren	0508	B	x	r	r	r	r
Long-billed Gnatwren	0269				B	r	r
Long-billed Gnatwren	288				B	r	
Northern Waterthrush	227080501		B	x	x	x	r
Northern Waterthrush	229037603				B	r	
Chestnut-sided Warbler	230006803				B	r	
Bananaquit	0029	B	r	r			
Bananaquit	0070	B	r				
Bananaquit	0093	B	r				
Bananaquit	00115		B	x	r		
Bananaquit	00191				B	r	
Bananaquit	00197				B	r	
Bananaquit	0114					B	r
Bananaquit	0124					B	r
Gray-headed Tanager	1623		B	r	r	r	r
Gray-headed Tanager	0823	B	r				
Gray-headed Tanager	0843	B	r				
Gray-headed Tanager	748		B	r			
Gray-headed Tanager	881		B	x	x	x	r
Gray-headed Tanager	0630				B	r	r
Gray-headed Tanager	0388					B	r
Gray-headed Tanager	0686					B	r
Gray-headed Tanager	0694					B	r
White-shouldered Tanager	0722	B	x	r			
White-shouldered Tanager	0730	B	r				
White-shouldered Tanager	0597		B	r			
White-shouldered Tanager	0582		B	x	x	x	r

## Appendix 6. Year-to-Year Recaptures at Las Caletas, Costa Rica

Species	Band	2002	2003	2004	2005	2006	2007
White-shouldered Tanager	0586		B	x	r		
White-shouldered Tanager	794			B	r		
White-shouldered Tanager	797			B	r	x	r
White-shouldered Tanager	1024			B	r		
White-shouldered Tanager	0695					B	r
Black-cheeked Ant-Tanager	0859	B	r				
Black-cheeked Ant-Tanager	1604		B	r	x	r	
Black-cheeked Ant-Tanager	865		B	r	r		
Black-cheeked Ant-Tanager	1700		B	x	r		
Black-cheeked Ant-Tanager	0302				B	r	
Black-cheeked Ant-Tanager	0319				B	r	r
Black-cheeked Ant-Tanager	1696				B	x	r
Black-cheeked Ant-Tanager	1697				B	r	r
Black-cheeked Ant-Tanager	0418					B	r
Black-cheeked Ant-Tanager	0701					B	r
Cherrie's Tanager	1606		B	r			
Cherrie's Tanager	0805	B	r	r			
Cherrie's Tanager	771		B	x	x	x	r
Cherrie's Tanager	1650			B	r	r	
Cherrie's Tanager	0315				B	x	r
Cherrie's Tanager	0324				B	r	
Cherrie's Tanager	0327				B	r	
Bay-headed Tanager	0725	B	x	x	x	x	r
Green Honeycreeper	708	B	x	x	r		
Green Honeycreeper	604		B	x	r		
Green Honeycreeper	0593		B	x	r	x	r
Green Honeycreeper	0652				B	x	r
Green Honeycreeper	0658				B	x	r
Red-legged Honeycreeper	0631				B	x	r
Variable Seedeater	0141		B	x	r	r	
Thick-billed Seed-Finch	0527	B	x	x	x	x	r
Thick-billed Seed-Finch	0528	B	x	r			
Thick-billed Seed-Finch	1066					B	r
Thick-billed Seed-Finch	1070					B	r
Orange-billed Sparrow	801	B	r	r	r	x	r
Orange-billed Sparrow	0802	B	r				
Orange-billed Sparrow	0806	B	r				
Orange-billed Sparrow	0818	B	r	r	r		
Orange-billed Sparrow	0842	B	r				
Orange-billed Sparrow	0848	B	r				
Orange-billed Sparrow	0851	B	x	x	r	x	r
Orange-billed Sparrow	0861	B	r	x	r		

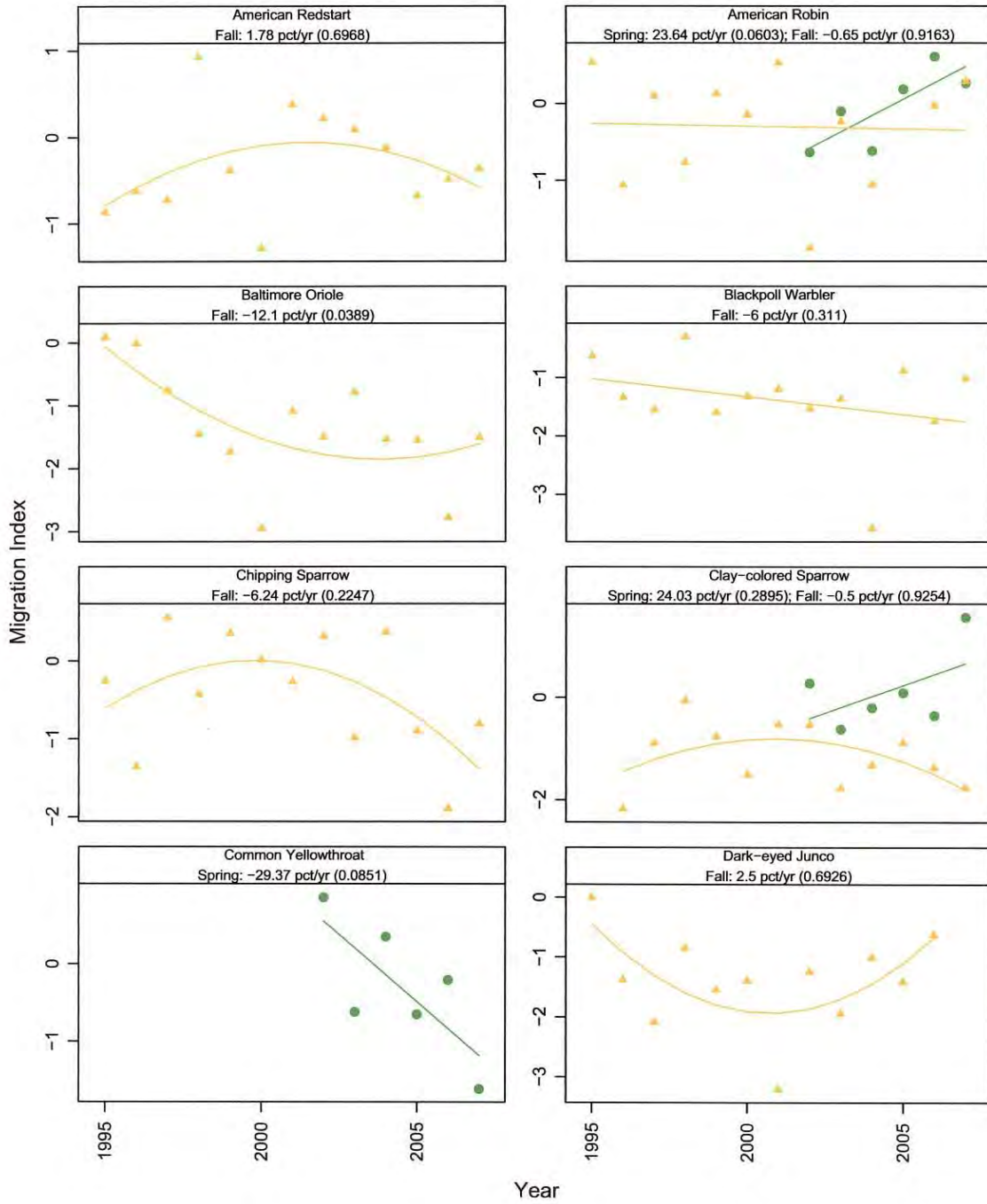
## Appendix 6. Year-to-Year Recaptures at Las Caletas, Costa Rica

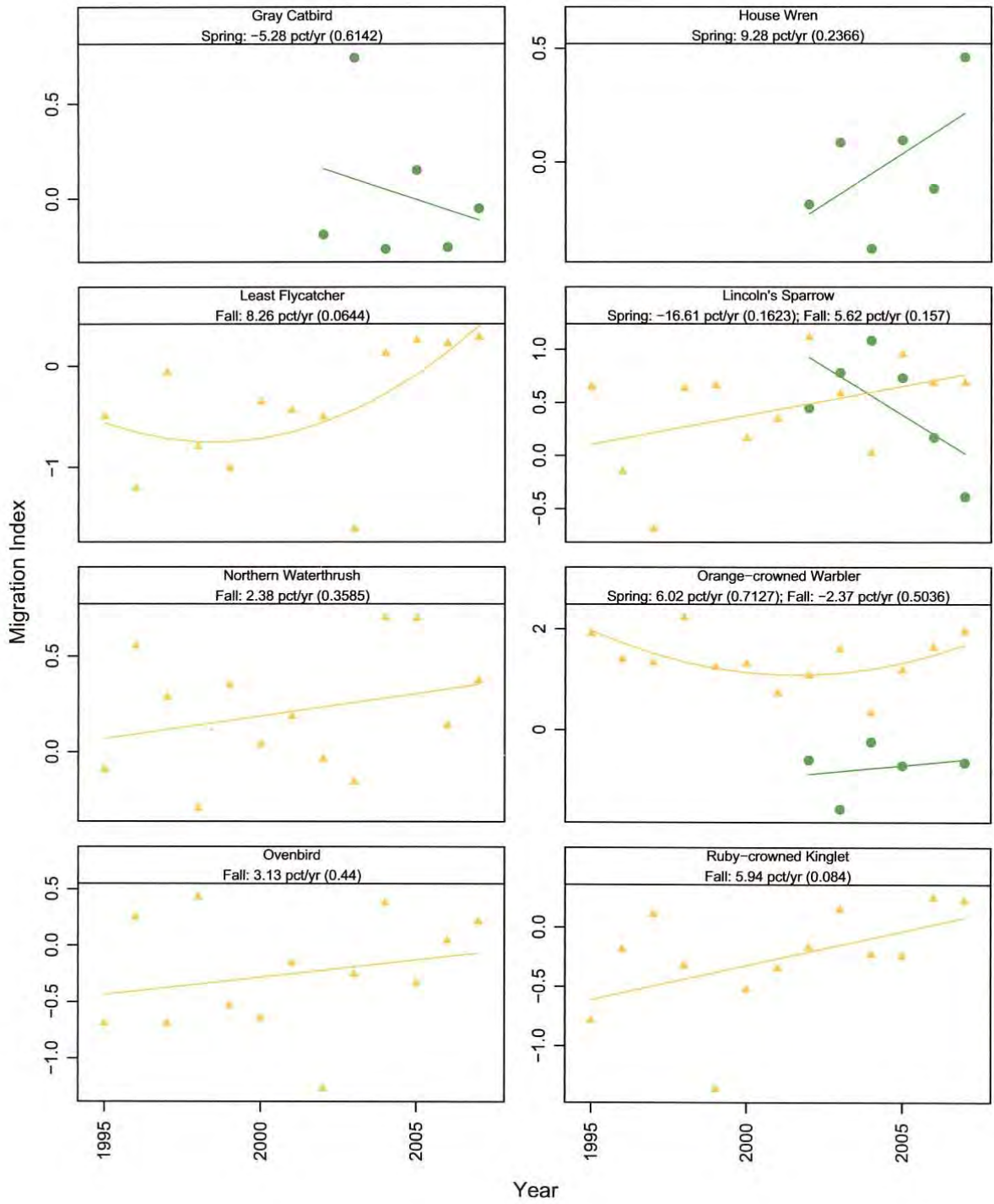
Species	Band	2002	2003	2004	2005	2006	2007
Orange-billed Sparrow	869		B	r	r	x	r
Orange-billed Sparrow	873		B	r			
Orange-billed Sparrow	880		B	r	r		
Orange-billed Sparrow	888		B	x	x	x	r
Orange-billed Sparrow	889		B	x	x	x	r
Orange-billed Sparrow	1629			B	r	r	
Orange-billed Sparrow	1644			B	r	r	r
Orange-billed Sparrow	1664			B	r		
Orange-billed Sparrow	1688			B	r		
Orange-billed Sparrow	0310				B	r	
Orange-billed Sparrow	0328				B	r	
Orange-billed Sparrow	0334				B	r	
Orange-billed Sparrow	0614				B	r	
Orange-billed Sparrow	0639				B	r	
Orange-billed Sparrow	0386					B	r
<b>Black-striped Sparrow</b>	<b>1619</b>		<b>B</b>	<b>x</b>	<b>r</b>		
Black-striped Sparrow	0374					B	r
<b>Buff-throated Saltator</b>	<b>922</b>		<b>B</b>	<b>x</b>	<b>x</b>	<b>x</b>	<b>r</b>
Buff-throated Saltator	933				B	r	
Buff-throated Saltator	0336				B	x	r
<b>Blue-black Grosbeak</b>	<b>878</b>		<b>B</b>	<b>r</b>	<b>r</b>		
Blue-black Grosbeak	883		B	r			
Blue-black Grosbeak	890		B	r	r	r	
Blue-black Grosbeak	0416 (1651)			B	x	r	
Blue-black Grosbeak	0313				B	r	
Blue-black Grosbeak	0371					B	r
<b>Scarlet-rumped Cacique</b>	<b>2804</b>			<b>B</b>	<b>r</b>		

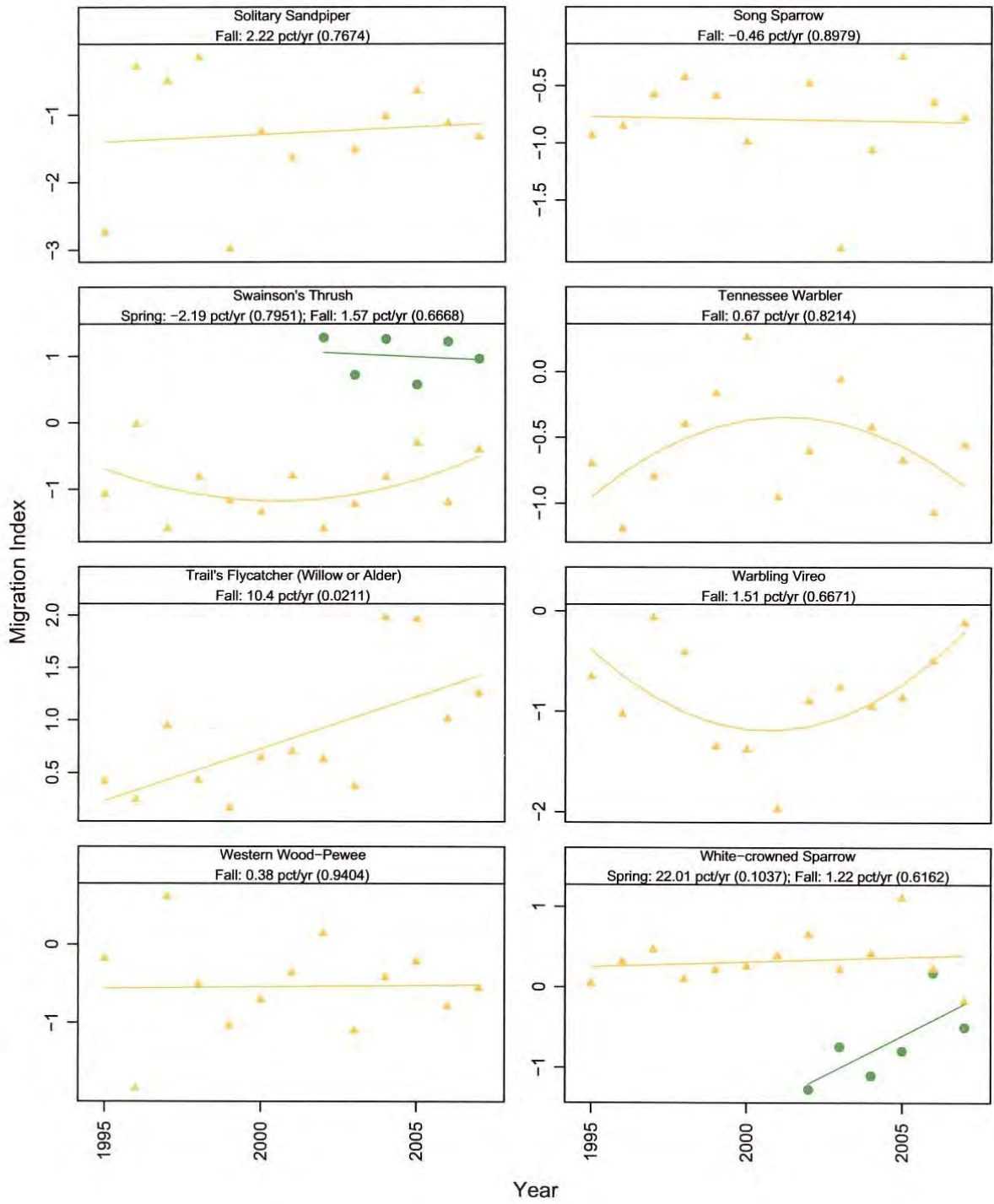
- B year banded
- r recaptured
- d bird dead or remains found
- x not detected but survival deduced from re-encounter in subsequent year
- change in species
- Neotropical migrant

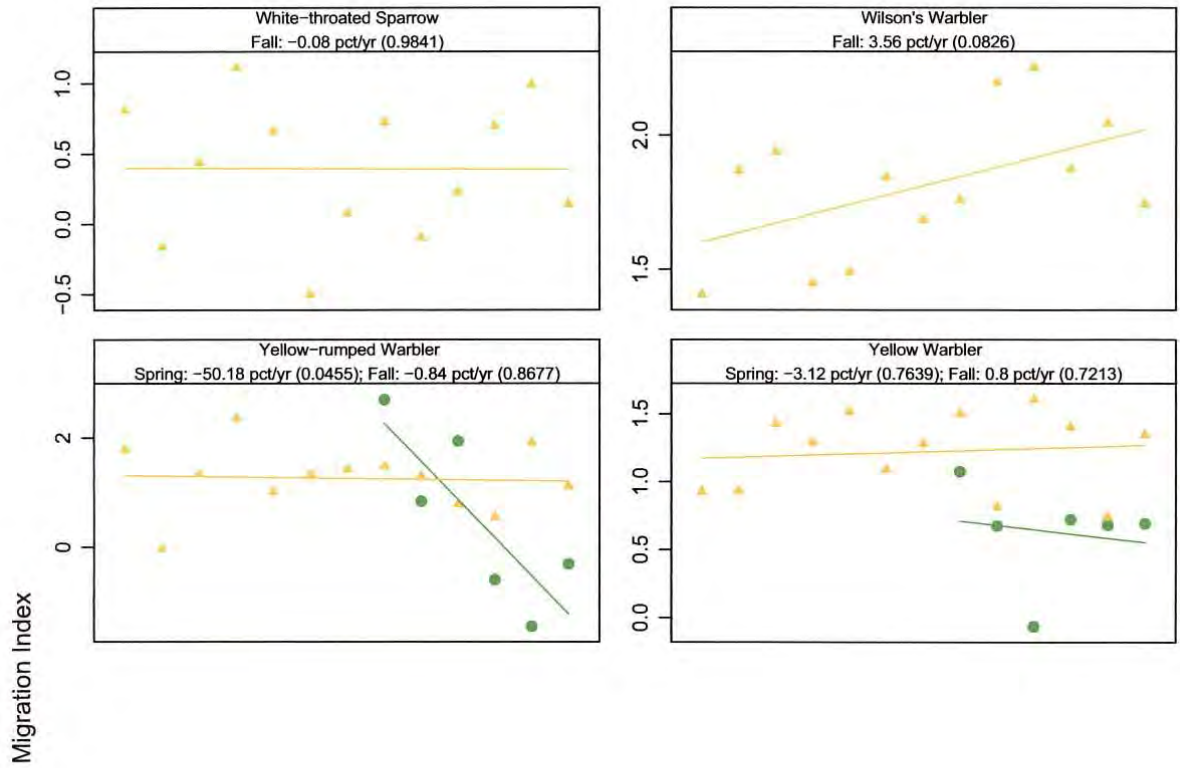


## **Appendix 7**









Year