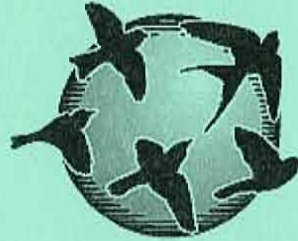


CALGARY BIRD BANDING SOCIETY
2005 ANNUAL TECHNICAL REPORT



Prepared

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Custodire aves
Keep watch on birds

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Record rain in the Calgary area during June 2005 caused devastating flooding on both the Elbow and Bow Rivers. The Monitoring Avian Productivity and Survival project had to be cancelled and access back into the banding area wasn't possible until just before the start of fall migration monitoring. However, lack of regeneration of balsam poplar has been an issue at IBS. The heavy flooding that occurred during 2005 hopefully stimulates poplar seedling recruitment thereby helping to renew the riparian forest at Inglewood Bird Sanctuary and other sites along the Bow River.

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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 2005, 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 fourth consecutive year. The 2005 fall migration monitoring program follows pilot programs in 1992 and 1994 and full fall programs in 1995 through 2004. Mist-nets were operated on 32 of the 38 days between 1 May and 7 June (2248 net-hrs) and 63 of the 70 days between 29 July and 6 October (4387 net-hrs). Total new bandings of 370 and 1335 were achieved for the spring and fall programs respectively. Sample preparation has begun on 919 feather samples collected from 28 species in 2004 in an effort to comprehensively characterize the breeding and/or natal areas of origin for species monitored at IBS.

The IBS MAPS site was operated again in 2005, adding to previous data gathered since 1992. Only 121 net-hours were achieved, all during the first two periods. Record rainfall and flooding precluded further access to the site until late July. Lack of regeneration of balsam poplar has been an issue at IBS. The heavy flooding hopefully stimulates poplar seedling recruitment and may help to alleviate this problem.

2005 marked the second year of full migration monitoring at Las Caletas, Costa Rica on the Osa Peninsula along the Pacific coast. Migration monitoring methods used were similar to those at IBS. Spring migration monitoring was conducted from 30 March - 29 April. Mist-netting occurred on all 31 days for a total of 2209 net-hours. In total, 1412 new birds were captured of which 1054 of 81 species were new bandings. Fifty-three percent (559) of the new bandings were migrants of which 96% (539) were Swainson's Thrushes. Forty-seven percent (496) of the new bandings were resident birds of which 22% (111) were hummingbirds. A manuscript for publication in a peer-reviewed journal is currently being prepared based on 109 of the 110 Swainson's Thrush retrices collected in Costa Rica in 2004.

2005 marked the second year of full Northern Saw-whet Owl migration monitoring at a site in the foothills southwest of Calgary. A total of 209 Northern Saw-whet Owls and 1 Long-eared Owl were captured on 44 days between 14 September and 6 November. 62% were HY and 66% were F. New owls captured/net-hr from 2004 to 2005 was 0.27 and 0.29 respectively.

Two Northern saw-whet Owls banded N of Thorhild, AB in 2005 and near Matador, SK in 2004 were encountered during 2005 monitoring. Old birds recaptured at IBS included Western Wood-Pewee (5-yrs), House Wren (5-yrs), American Robin (≥ 8 -yrs), Brown-headed Cowbird (≥ 5 -yrs) and American Goldfinch (≥ 5 -yrs). A Yellow-rumped Warbler banded at IBS during fall 2002 was recaptured and released in Texas in March 2003 having moved approximately 3000-km. This record was reported to CBBS in fall 2004 but was misplaced and not previously reported in an ATR.

Trend analysis was undertaken on 28 species occurring as migrants at IBS and captured in sufficient quantity to allow analysis. Eight species evidenced significant ($P < 0.05$) or nearly significant ($P < 0.10$) change over the evaluation period:

Trail's Flycatcher	+ 5.8%/year	(p=0.02)
Warbling Vireo	- 1.3%/year	(p=0.06)
House Wren	+ 3.0%/year	(p=0.05)
American Robin	- 2.6%/year	(p=0.09)
Orange-crowned Warbler	- 5.0%/year	(p=0.04)
Yellow Warbler	+ 3.3%/year	(p=0.03)
American Redstart	+ 1.8%/year	(p=0.09)
Wilson's Warbler	+ 2.8%/year	(p=0.09)

It is interesting that four species (Trail's Flycatcher, Yellow Warbler, American Redstart and Wilson's Warbler), show significant or nearly significant increases which is consistent with an increasing supply of second growth and/or shrubby habitat.

Banders-in-Charge and volunteers contributed 386 person-days or approximately 3,088 hours to CBBS projects during 2005.

Bird injuries and mortalities during CBBS projects increased to 1.26% and remained low at 0.20% respectively.



Sharp-shinned Hawk (8 September 2005)

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 1995-2005;
- 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 (Cominco is still utilized for training);
- 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;
- a Northern Saw-whet Owl migration monitoring pilot program was carried out at Inglewood Bird Sanctuary in 2000 and subsequently discontinued; and
- pilot Northern Saw-whet Owl migration monitoring was carried out in 2003 and full migration monitoring was initiated in 2004 and continued in 2005 at a location in the foothills southwest of Calgary.

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.



Canadian Migration Monitoring Network – Inglewood Bird Sanctuary is Site 6



Red-naped Sapsucker (21 May 2005)

FUNDING AND ACKNOWLEDGEMENTS

Funding proceeds other than membership dues and member donations during 2005 were:

- funds raised by the CBBS through participation in the Baillie Birdathon (\$3,915 net – \$5,460 gross); and
- a grant from the Petro-Canada Volunteer Grant Program (\$500).

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, propane, batteries, film and processing etc.).

Sincere appreciation goes out to all members who have helped make 2005 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. Thanks to you all.



Lazuli Bunting (22 May 2005)

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 coordinated and administered by Bird Studies Canada. 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. 2005 is CBBS' 11th 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 2005 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).

A migration monitoring protocol has been developed for IBS 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 7 June. This was the fourth 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 84% was achieved. That is, mist-netting occurred on 32 of the 38 target days for a total of 2248 net-hours (Table 1a, Figure 3a). Inclement weather (5 days) and no BIC (1 day) resulted in 6 days of the monitoring period without banding. Inclement weather also resulted in 4 days with a reduced number of net-hours from the daily target of 72.

Fall

Fall migration monitoring at IBS was conducted from 29 July to 6 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 89% was achieved. That is, significant mist-netting occurred on 62 of the 70 target days for a total of 4387 net-hours (Table 1b, Figure 3b). Inclement weather (6 days) and no volunteer (1 day) resulted in 7 days of the monitoring period without any banding. Another day's banding was significantly fore-shortened due to weather. Inclement weather also resulted in 4 days with a reduced number of net-hours from the daily target of 72.

New Bandings

Spring

A total of 370 new bands were placed on birds of 40 species (Table 2a, Appendix 1a). Days on which 25 or more new bandings occurred were 7, 8 and 9 May (Figure 3a). New banding totals by species at IBS are presented in Table 2a. New species banded in 2005 included Cooper's Hawk, Red-naped Sapsucker, Willow Flycatcher, Lazuli Bunting and Common Grackle.

The top 20 banded species over all years, and during 2005, are identified in Appendix 2. Several species showed dramatic differences in 2005 in their rank compared to combined historical results. Common Yellowthroat was 20th in 2005 compared to 12th over 2002-2005 combined while Song Sparrow was 15th compared to 20th.

Species monitored at IBS based on criteria developed by Bird Studies Canada appear in Appendix 3 along with those criteria.

Fall

A total of 1335 new bands were placed on birds of 67 species (Table 2b, Appendix 1b). Days on which 50 or more new bandings occurred were 12, 15, 18 and 23 August. Approximately 69% of new bandings occurred in August and 24% in September (Figure 3b). These percentages are similar to 2004 and may be indicative of good breeding conditions and early onset of southward migration. New bandings at IBS from 1992-2005 are presented in Table 2b.

The top 20 banded species over all years, and during 2005, are identified in Appendix 2. Several species showed dramatic differences in 2005 in their rank compared to combined historical results. Traill's Flycatcher was 1st in 2005 compared to 6th over 1995-2005 combined, Least Flycatcher was 8th compared to 16th and Song Sparrow and Western Wood-Pewee were 18th and 19th respectively compared to unranked.

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. As in past years several species were banded at Inglewood that are infrequently reported by bird watchers: a Red-naped Sapsucker and a Lazuli Bunting during spring were first bandings at IBS of species more frequently encountered in the foothills southwest of Calgary. A Bank Swallow during fall, although not unexpected, was a first banding for IBS.

The *Oporornis* warblers are often difficult to detect and identify with binoculars. During 2005 migration monitoring at IBS 5 Mourning Warblers and 4 MacGillivray's Warblers were banded. A study of differences between Mourning and MacGillivray's Warblers captured at IBS has been underway since 1996. All birds are photographed when initially captured and additional morphometric detail and plumage characteristics documented. Stable isotope analysis of rectrices collected at IBS in 2003 and 2004 may help shed light on the geographic origin of Mourning and MacGillivray's 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 into the quality of IBS as a refueling stop for Neotropical migrants. A copy of her paper appeared in Appendix 4 of the 2003 ATR and is in the reference list. Based on that work IBS appears to be an important refueling stop for Neotropical migrants.

CBBS has signed a letter of understanding with the Canadian Wildlife Service who are undertaking an evaluation of migration monitoring in Western Canada with the goal of enhancing its effectiveness. Future ATRs will include results of CWS' findings.

Stable Isotope Ecology

Techniques are being developed to identify the geographic origin of birds captured at CMMN sites using stable isotopes. This project offers the possibility of confirming the hypothesis that CMMN sites 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 (Table 3). Preparation and analysis is underway on a large subset of these samples 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. The DETs, after removal of probable and known stopovers (PKS), 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 605 of 388 different birds of 43 species. 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. Yellow Warbler, Western Wood-Pewee, American Robin). A few migrant species appear to use IBS for moulting or extended pre-migratory foraging as evidenced by high recapture rates (e.g. Northern Waterthrush).

Species Recaptured at Inglewood Bird Sanctuary during MM 2005					
Species	Recap	Banded	Species	Recap	Banded
Solitary Sandpiper	3	11	Yellow Warbler	56	146
Downy Woodpecker	10	13	Magnolia Warbler	4	5
Olive-sided Flycatcher	1	3	Yellow-rumped Warbler	12	116
Western Wood-Pewee	4	17	Black-and-white Warbler	1	2
Traill's Flycatcher	20	179	American Redstart	1	7
Least Flycatcher	10	52	Ovenbird	4	17
Eastern Phoebe	1	1	Northern Waterthrush	56	69
Eastern Kingbird	5	13	Connecticut Warbler	1	1
Warbling Vireo	3	10	Mourning Warbler	4	5
Tree Swallow	12	25	MacGillivray's Warbler	2	4
Northern Rough-winged Swallow	3	7	Common Yellowthroat	5	6
Black-capped Chickadee	78	30	Wilson's Warbler	35	120
White-breasted Nuthatch	2	2	American Tree Sparrow	1	3
Brown Creeper	1	1	Clay-colored Sparrow	4	24
House Wren	94	109	Song Sparrow	18	28
Swainson's Thrush	11	52	Lincoln's Sparrow	19	86
Hermit Thrush	4	6	White-throated Sparrow	22	41
American Robin	27	83	White-crowned Sparrow	14	78
Gray Catbird	16	24	Brown-headed Cowbird	5	11
Cedar Waxwing	2	30	Baltimore Oriole	6	11
Tennessee Warbler	13	58	American Goldfinch	2	3
Orange-crowned Warbler	13	63			

Fourty-seven birds banded in previous years were recaptured in 2005. All year-to-year recaptures from 1992-2005 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:

- Western Wood-Pewee banded in 2001 and recaptured every year since;
- House Wren banded in 2000 and recaptured every year since;
- American Robin banded in 1998 and recaptured for the 1st time in 2004 and again in 2005; and
- American Goldfinch banded in 2001 and recaptured every year since

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 2005 field season was MAPS 17th 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.

MAPS Schedule and Coverage

2005 marked the 13th year of the MAPS project at IBS since 1992. Unavailability of qualified personnel precluded gathering data in 1994. In 2005 only 121 net-hours were achieved, all during the first two periods. Record rainfall and flooding precluded further access to the site until late July. Normally MAPS at IBS is conducted during periods 4-10. 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 2005 are summarized in Table 4. The number of each species that were banded is summarized in Table 5 and Figure 5 for 2005 as well as the 12 previous years.

Discussion

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

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.

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

Migration monitoring 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. Thirteen 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.

Monitoring Schedule and Coverage

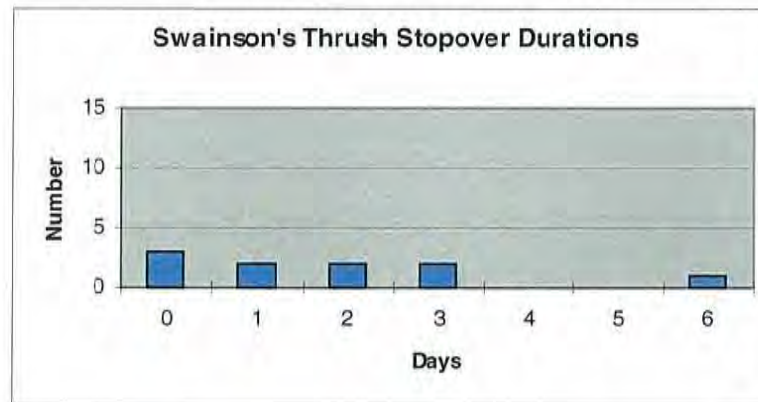
Spring migration monitoring was conducted from 30 March – 29 April. Mist-netting occurred on all 31 days for a total of 2209 net-hours (Table 6). Four days had slightly reduced net-hours due to inclement weather.

Stable Isotope Ecology

A manuscript for publication in a peer-reviewed journal is currently being prepared based on 109 Swainson's Thrush retrices collected in Costa Rica in 2004. Either a pre-publication or the published version should be available for inclusion in next year's ATR. The paper examines the breeding and natal origins of the sampled birds and migration timing versus the expected breeding latitude among other things.

Captures

In total, 1412 birds were captured of which 1054 (75%) of 81 species were new bandings, 25 (1.8%) were released or otherwise un-banded and 332 (24%) were recaptures (Table 6, Appendix 5). New species captured in 2005 were Purple-crowned Fairy (1), Acadian Flycatcher (1), Tennessee Warbler (1), Shining Honeycreeper (1) and Yellow-billed Cacique (1). Fifty-three percent (559) of the new bandings were migrants of which 96% (539) were Swainson's Thrushes. Forty-seven percent (496) of the new bandings were resident birds of which 22% (111) were hummingbirds. Ninety-six percent (318) of the recaptures were resident species. Ten Swainson's Thrushes were recaptured: 3 (30%) same day; 2 each one, two and three days after banding and 1 six days post-banding. Other Neotropical migrants recaptured were one each of House Wren, Kentucky Warbler and Tennessee Warbler.



Green Honeycreeper



Shining Honeycreeper

Recapture of resident birds allows quantification of year-to-year survivorship. One hundred and twenty-one birds banded in previous years (2002-2004) were recaptured in 2005. Based on year-to-year data we get an indication of the survivorship that neotropical resident birds exhibit (see below).

It should be kept in mind that many of these survival rates are based on small sample sizes. Data from future years of monitoring will increase sample sizes and refine survivorship rates.

Species	Y-Y survival	N
Gray-chested Dove	36%	14
Bronzy Hermit	20%	5
Band-tailed Barbthroat	15%	13
Blue-throated Goldentail	3%	38
Charming Hummingbird	8%	26
Black-throated Trogon	50%	4
Blue-crowned Motmot	50%	6
White-whiskered Puffbird	100%	1
Rufous-tailed Jacamar	50%	3
Olivaceous Piculet	40%	7
Buff-throated Foliage-gleaner	35%	16
Plain Xenops	50%	21
Scaly-throated Leaf-tosser	14%	8
Tawny-winged Woodcreeper	55%	17
Wedge-billed Woodcreeper	45%	46
Black-hooded Antshrike	43%	28
Northern Barred Woodcreeper	25%	5
Streak-headed Woodcreeper	41%	17
Slaty Antwren	50%	4
Dot-winged Antwren	18%	46
Chestnut-backed Antbird	35%	32
Bicolored Antbird	29%	17
Ochre-bellied Flycatcher	25%	88
Northern Bentbill	31%	16

Species	Y-Y survival	N
Ruddy-tailed Flycatcher	38%	10
Yellow-bellied Flycatcher	100%	2
Bright-rumped Attila	20%	19
Dusky-capped Flycatcher	20%	5
Thrush-like Schiffornis	47%	9
Orange-collared Manakin	37%	83
Blue-crowned Manakin	48%	42
Red-capped Manakin	47%	101
Tawny-crowned Greenlet	33%	7
Riverside Wren	10%	19
Long-billed Gnatwren	41%	24
Bananaquit	19%	33
Gray-headed Tanager	25%	21
White-shouldered Tanager	37%	24
Black-cheeked Ant-Tanager	26%	23
Cherrie's Tanager	19%	21
Green Honeycreeper	60%	8
Variable Seedeater	10%	21
Thick-billed Seed-Finch	11%	18
Orange-billed Sparrow	42%	63
Black-striped Sparrow	56%	4
Blue-black Grosbeak	24%	20
Scarlet-rumped Cacique	50%	2

Discussion

Migration monitoring at Las Caletas in 2005 was consistent with the pilot migration monitoring programs in 2002 and 2003 and the 2004 migration monitoring results. Figure 6 presents the daily captures of Swainson's Thrushes during 2002-2005. New captures in 2005 (546) were remarkably similar to 2004 (547).

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 continued in 2005.

Methods

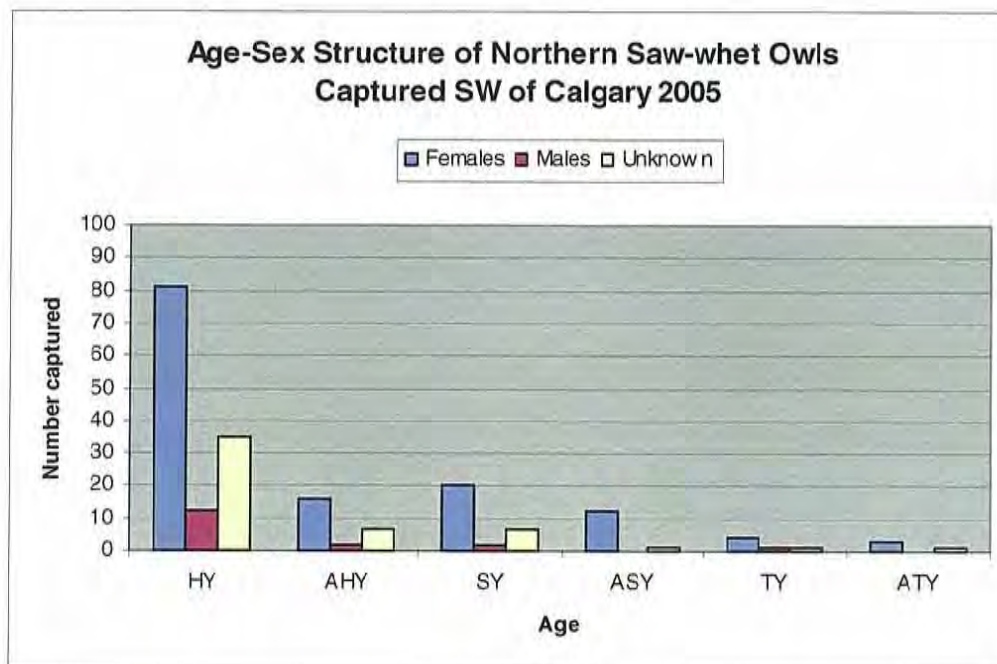
Monitoring was begun 14 September and continued through 6 November. Data from Delta Marsh Bird Observatory and Beaverhill Bird Observatory as well as our own experience indicates that the majority of Northern Saw-whet Owl movement occurs between 15 September and 31 October peaking in mid-October. A continuous 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 1-2 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 209 Northern Saw-whet Owls and 1 Long-eared Owl were captured and banded during 820 luring hours on 44 of 54 possible days between 14 September and 6 November (Figure 7). The 10 evenings when monitoring did not occur were primarily due to access being denied by the landowner (8 days). One evening was lost due to weather and one because a bander in charge was not available. Peak movement occurred between 4 October and 28 October although owls were captured as late as 2 November. One Long-eared Owl was captured on 16 October.

Of the 205 new Northern Saw-whet Owl bandings HY, AHY, SY, ASY, TY and ATY age birds comprised 62%, 12%, 14%, 6%, 3% and 2% respectively (see histogram below). Females comprised 66% and males 8% while 25% could not be sexed with confidence. Comparing 2005 to 2004 over the period 15 September to 31 October – 207 new captures in 719 net-hrs and 173 in 644 respectively – indicates 0.29 owls/net-hr in 2005 and 0.27 owls/net-hr in 2004.

Three owls were recaptured: 2 same evening and 1 two nights later. Two owls originally banded elsewhere were captured (see Significant Recaptures).



Discussion

This site southwest of Calgary has proven itself as 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 American (Figure 8). CBBS intends to continue a full monitoring program in 2006 and the future. CBBS will strive for full coverage during the monitoring period subject to restrictions imposed by the landowner.



Long-eared Owl (16 October 2005)

SIGNIFICANT RE-ENCOUNTERS

Interesting re-encounters of birds banded in previous years are listed below. All recaptures (47) of birds banded in Canada prior to 2005 are indicated in Appendix 4. As in 2003 and 2004 no recoveries of Swainson's Thrushes banded in previous years occurred. 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 are included even if inferred age is < 5 years. The Yellow-rumped Warbler recovery was reported to CBBS in fall 2004 but was misplaced and not previously reported in an ATR.

Northern Saw-whet Owl 0924-03913 Banded as HY-F at Matador, SK on 13 October 2004. Recaptured SW of Calgary on 2 October 2005 as an SY-F. **2-years old. ~450-km W (266°).**

Northern Saw-whet Owl 0924-21402 Banded as L-U 13-m N of Thorhild, AB on 19 June 2005 and last observed there on 19 July 2005. Recaptured SW of Calgary on 20 October 2005 as an HY-F. **~408-km S (190°).**

Western Wood-Pewee 2200-47351 Banded as SY-U at Inglewood Bird Sanctuary on 9 June 2001. Recaptured there on 9 August 2005. **5-years old.**

House Wren 1990-57981 Banded as HY-U at Inglewood Bird Sanctuary on 6 August 2000. Recaptured there on 29 May 2005. **5-yrs old.**

American Robin 1152-38721 Banded as AHY-U at Inglewood Bird Sanctuary on 25 July 1998. Recaptured there on 5 May 2005 as a male. **At least 8-years old.**

Yellow-rumped Warbler 2220-13003 Banded as HY-U at Inglewood Bird Sanctuary on 11 August 2002. Found after striking an object and released alive near Rockport, TX on 12 March 2003. **~2926-km SE (142°).**

Brown-headed Cowbird 1791-28013 Banded as ASY-F at Inglewood Bird Sanctuary on 16 May 2002. Recaptured there on 15 May 2005. **At least 5-years old.**

American Goldfinch 2190-10309 Banded as AHY-M at Inglewood Bird Sanctuary on 28 July 2001. Recaptured there on 4 August 2005. **At least 5-years old.**

TREND ANALYSIS

Table 8 presents the results of trend analysis on those species that are monitored at Inglewood Bird Sanctuary during 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). Figure 9 illustrates graphically the trend to date for 8 species that are evidencing significant or nearly significant trends. It is interesting that four species (Traill's Flycatcher, Yellow Warbler, American Redstart and Wilson's Warbler) show significant or nearly significant increases which is consistent with an increasing supply of second growth and/or shrubby habitat.

Trend analysis is based on total captures from 1995-2005 and represents the results of simple linear regression within Microsoft EXCEL. Daily captures were log-transformed, summed and normalized by dividing by the number of days monitored within the species' "window" of migration as inferred from the overall 1995-2005 capture data. Captures were left as 0 on days when monitoring did not occur. Actual confidence level (P) is indicated. 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 low P values are likely real, the cause behind them is unclear. 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.



Banding station at Las Caletas, Costa Rica

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 (406 person-days or 3,248 hours).

Banders-in-Charge (BIC)

No salaried staff are involved in any CBBS projects. However, a daily per diem is available to all Banders-in-Charge during migration monitoring and MAPS at IBS. 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 2005 field season was \$125/day.



Elizabeth and Roberto Quesada-Calvo

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 2005 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 continues to remain low and in 2005 was split evenly between predation and shock due to capture or handling during banding. The injury rate in 2005 rose sharply to 1.26%, the highest level since 2000 (Figure 10). CBBS members are committed to improving extraction and banding skills and do not take this increase lightly. A concerted effort will be made in 2006 to return to the low levels of injury experienced during 2001-2004.

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 review each casualty to identify potential for reduction or avoidance of similar occurrences in the future.



Basilisk lizard



Long-billed hermit



Orange-billed Sparrow

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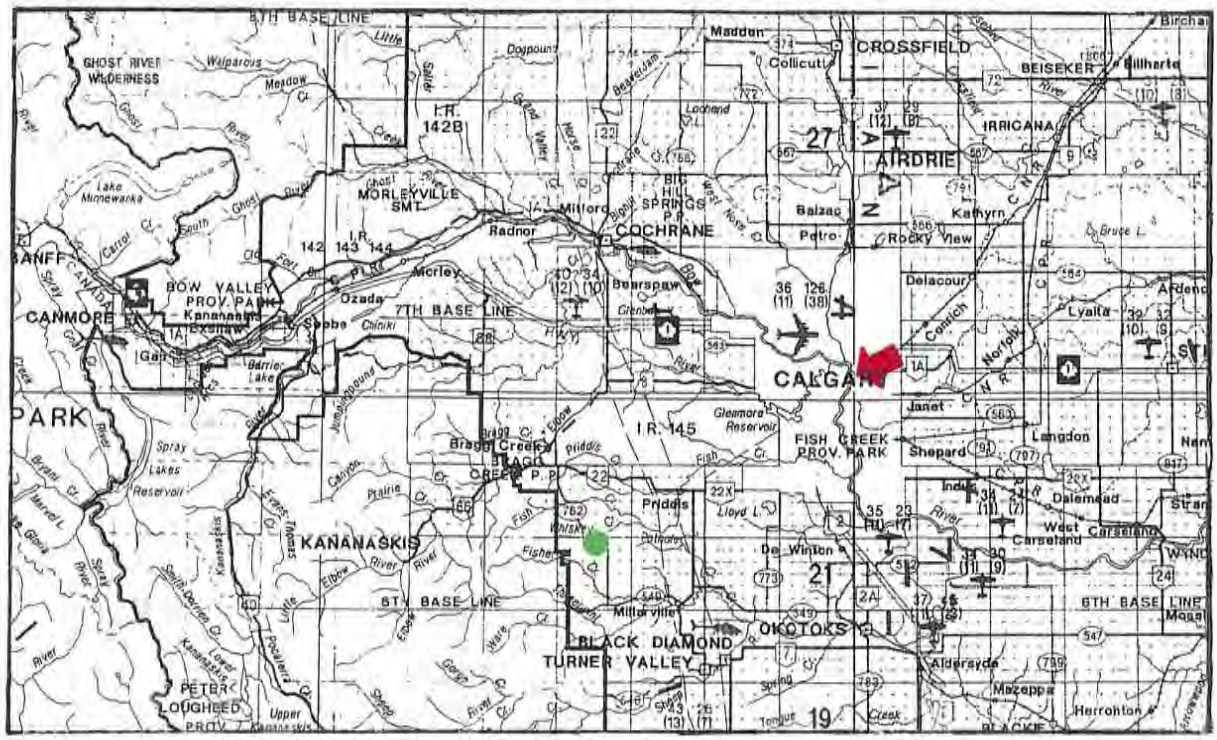


Figure 1. Topographic maps at 1:250,000 (top) and 1:50,000 (bottom) scales showing location of Inglewood Bird Sanctuary in southwestern Alberta. North is up.

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

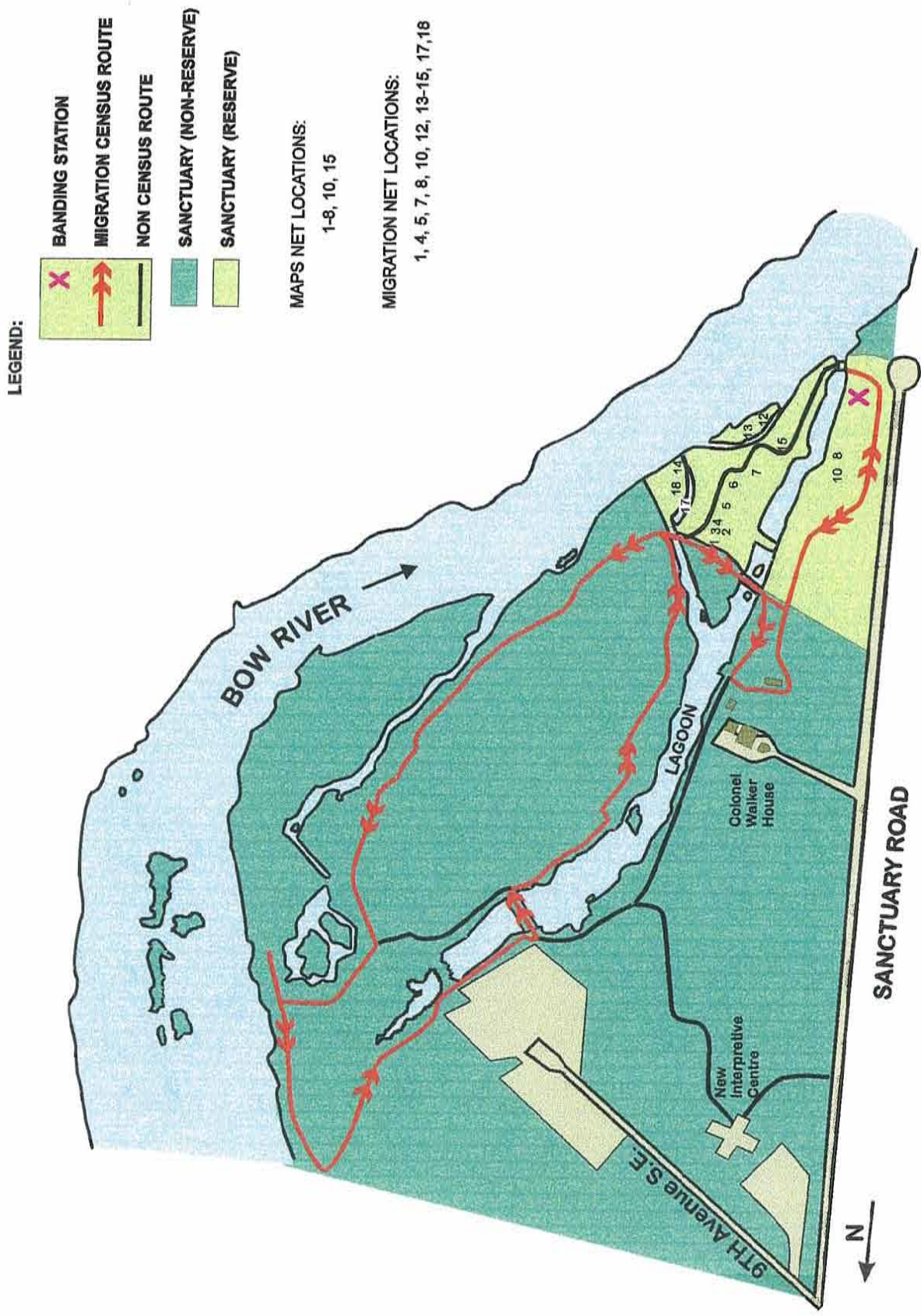


Figure 2. Schematic of Inglewood Bird Sanctuary migration monitoring station

Figure 3a. New bandings at Inglewood Bird Sanctuary - Spring 2005

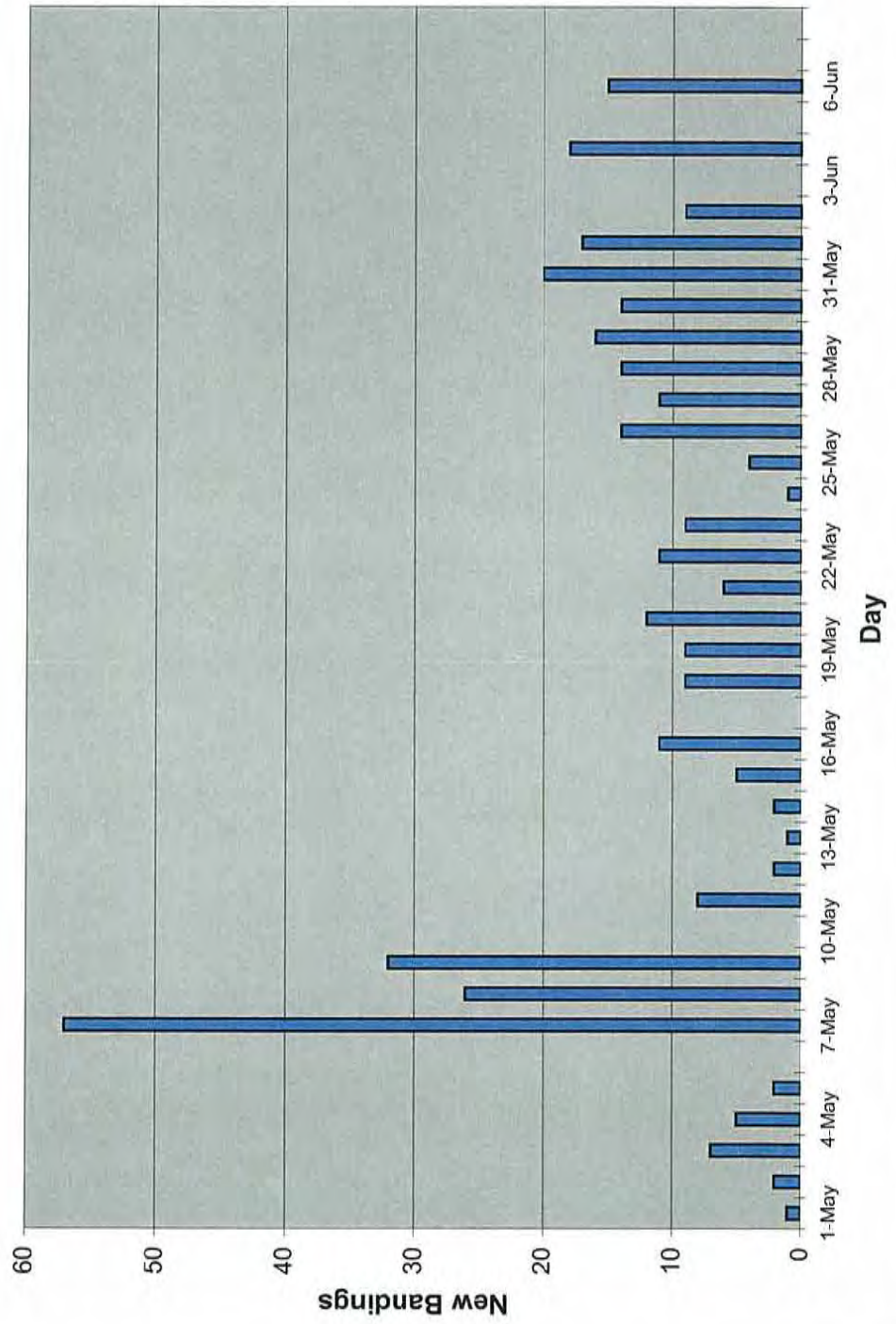


Figure 3b. New Bandings at Inglewood Bird Sanctuary - Fall 2005

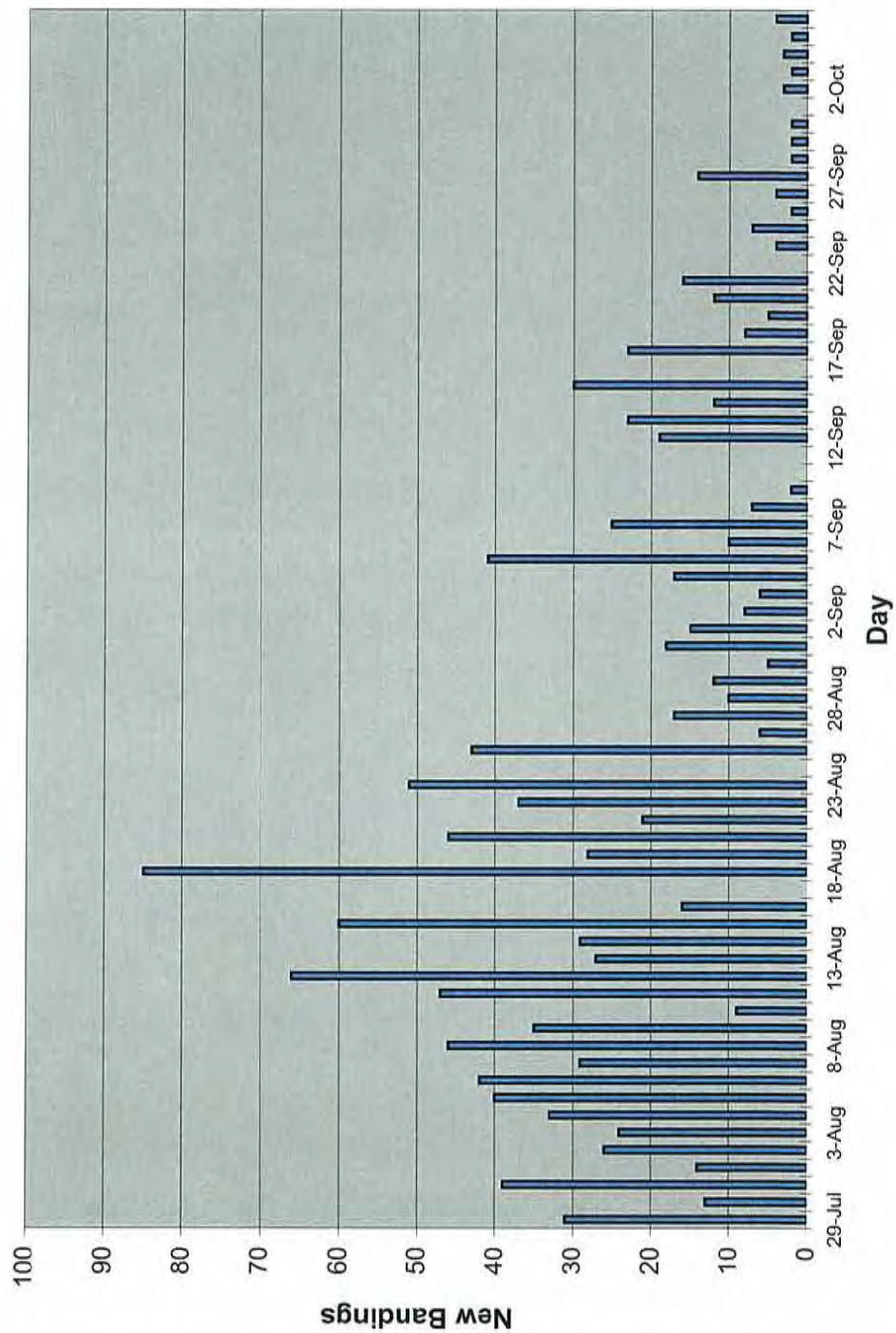




Figure 5. MAPS at Inglewood Bird Sanctuary

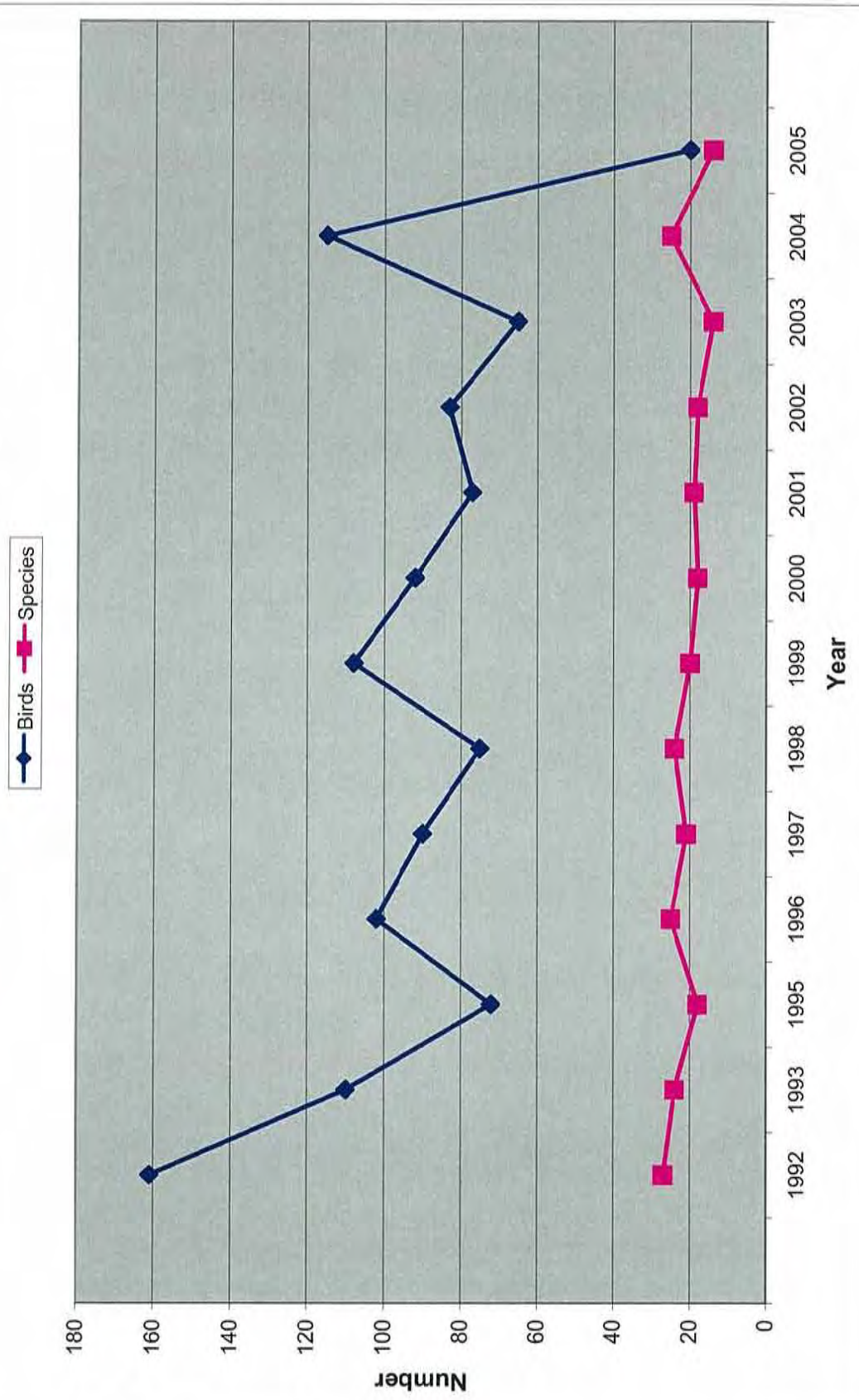


Figure 6. Swainson's Thrush New Captures at Las Caletas, CR

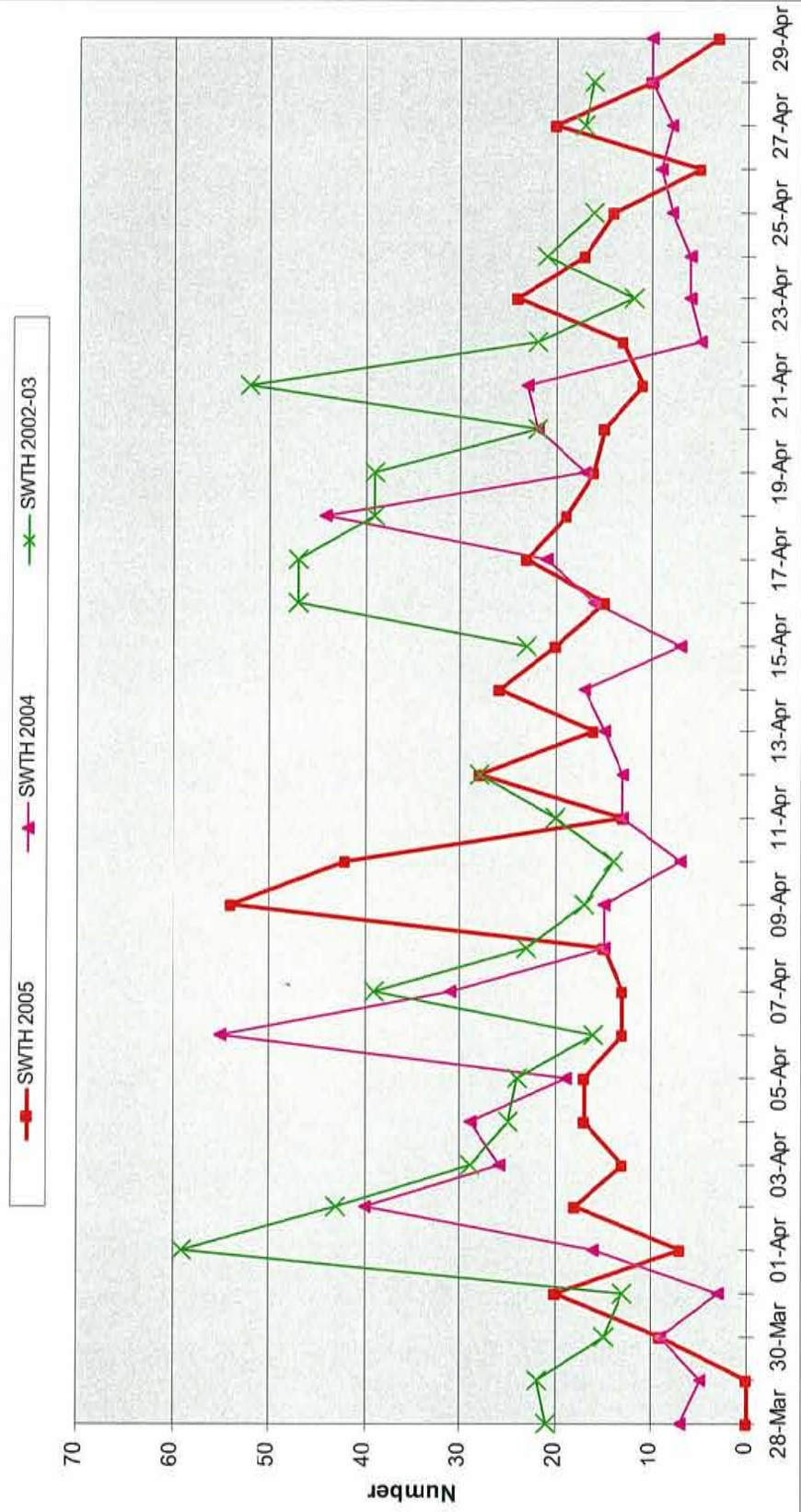
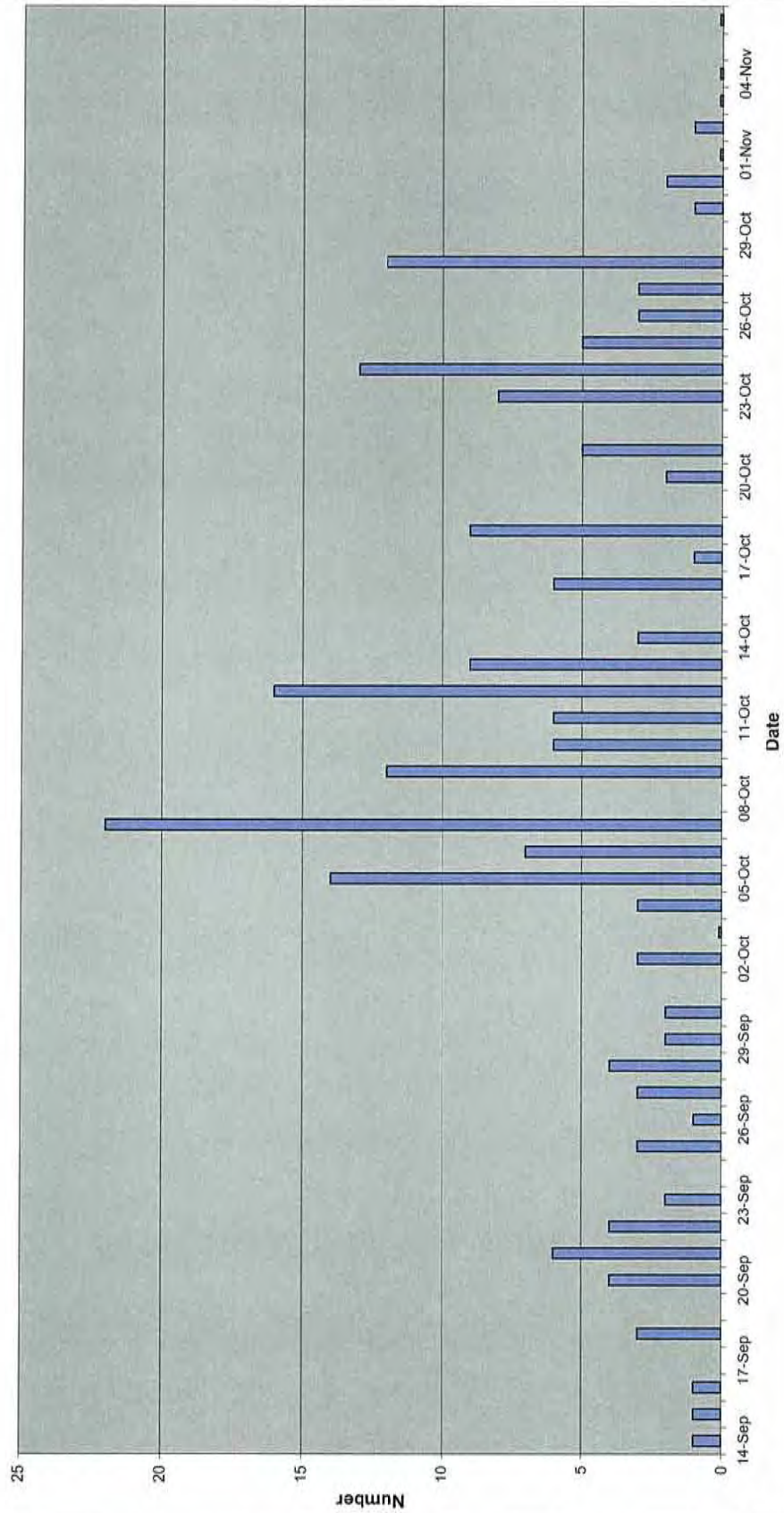


Figure 7. Northern Saw-whet Owl New Captures 2005

(new bands=205, unbanded=4)

Number = 0.1 indicates nets up but no owls captured



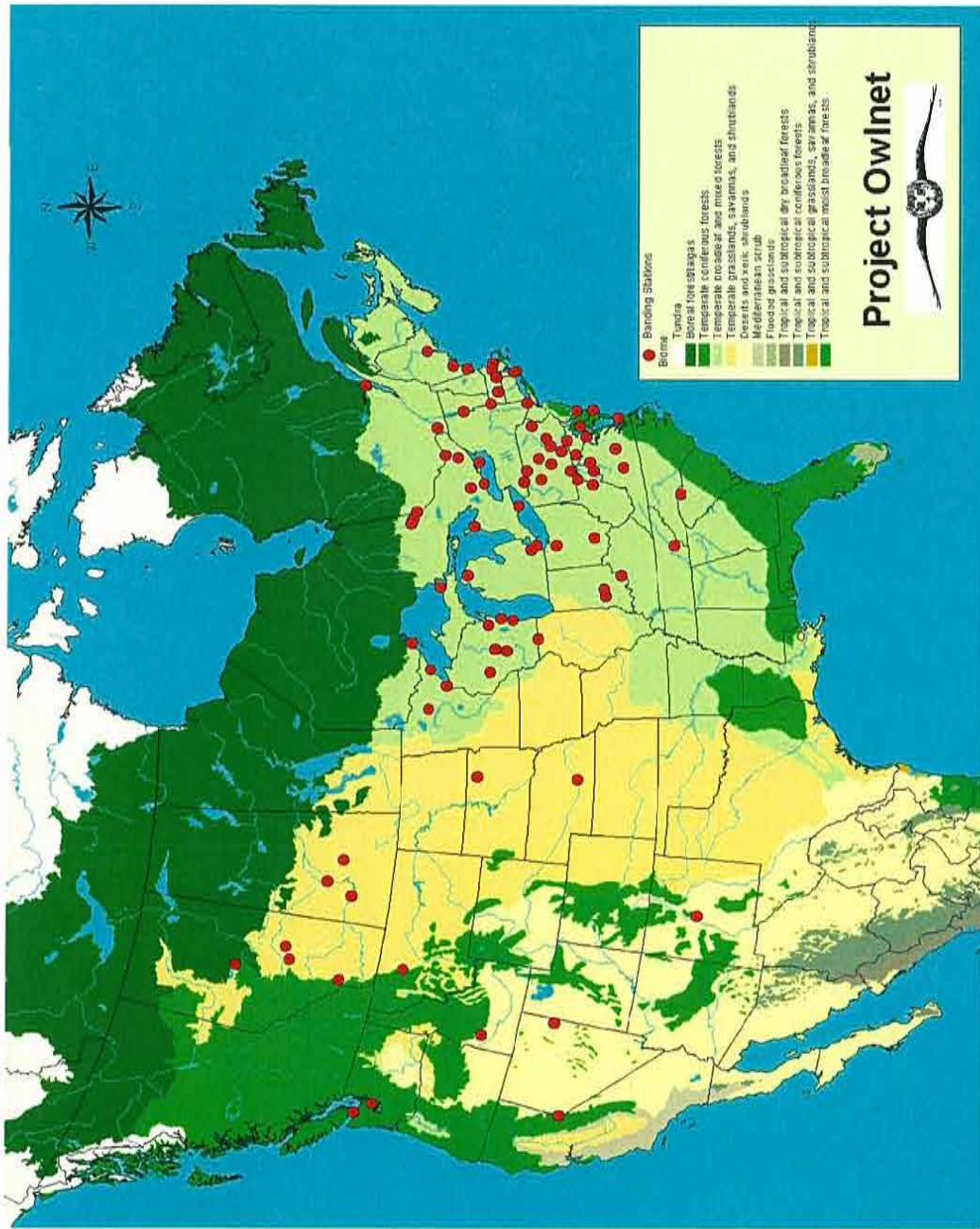


Figure 8. Northern Saw-whet Owl Migration Monitoring Stations Across North America

Figure 9. Trends in Select Species at Inglewood Bird Sanctuary

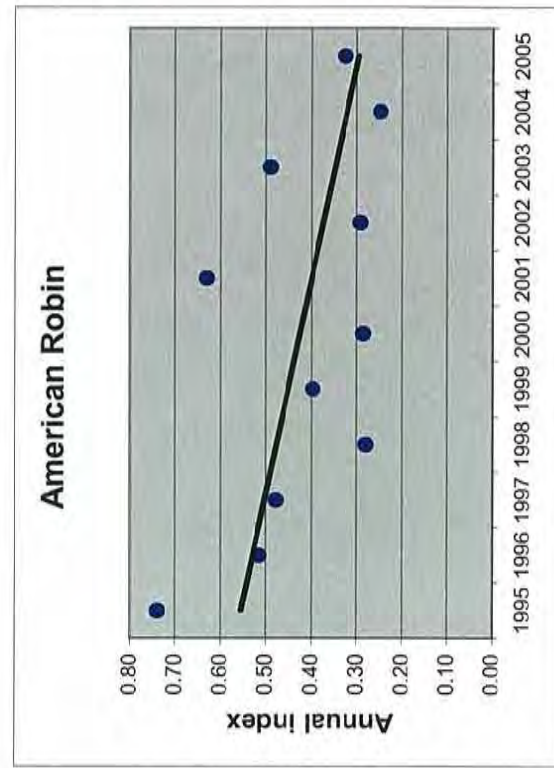
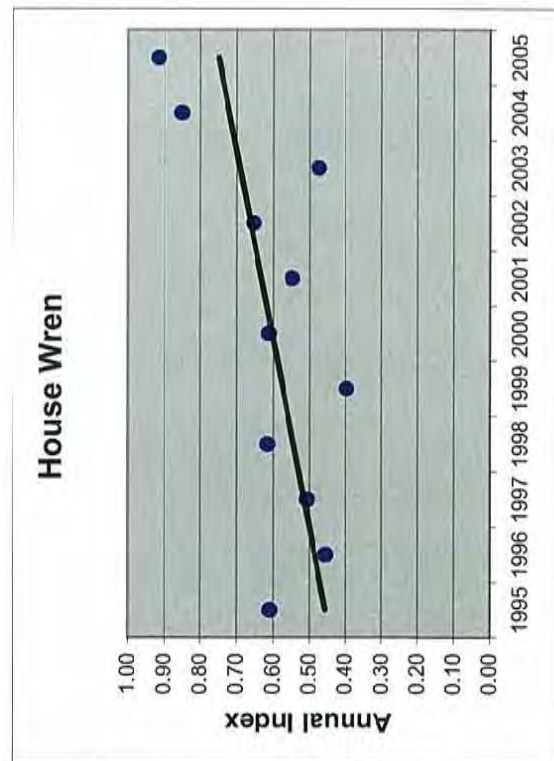
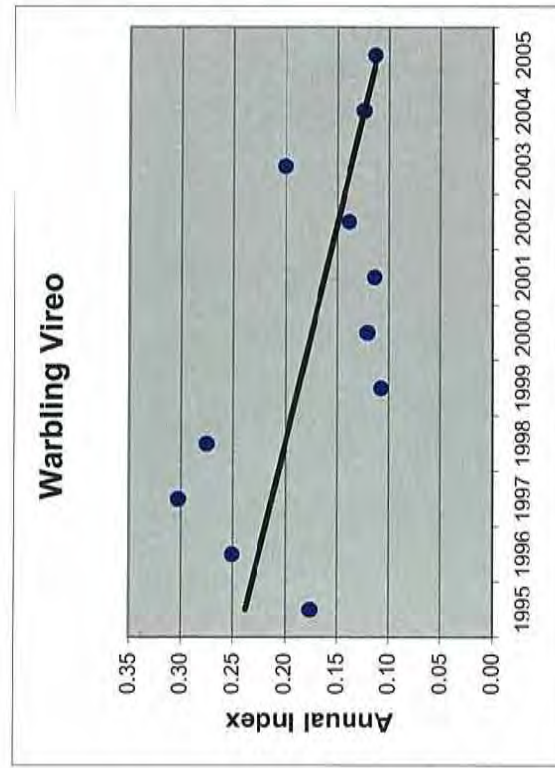
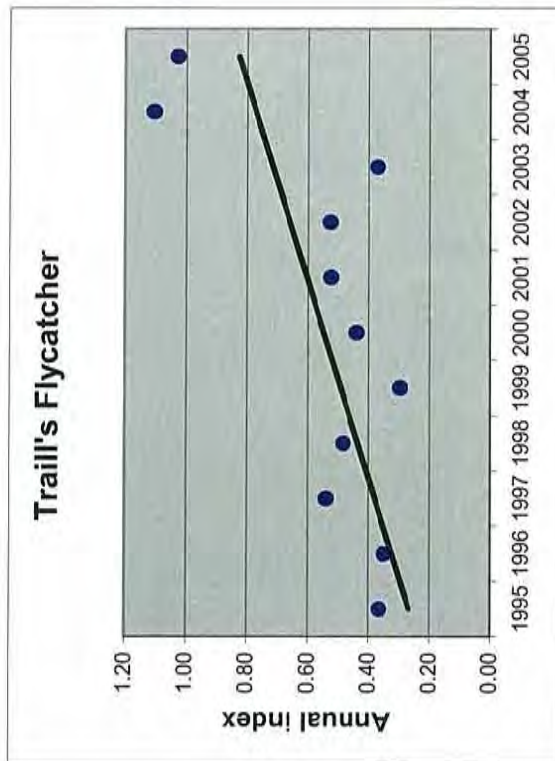


Figure 9 (cont'd). Trends in Select Species at Inglewood Bird Sanctuary

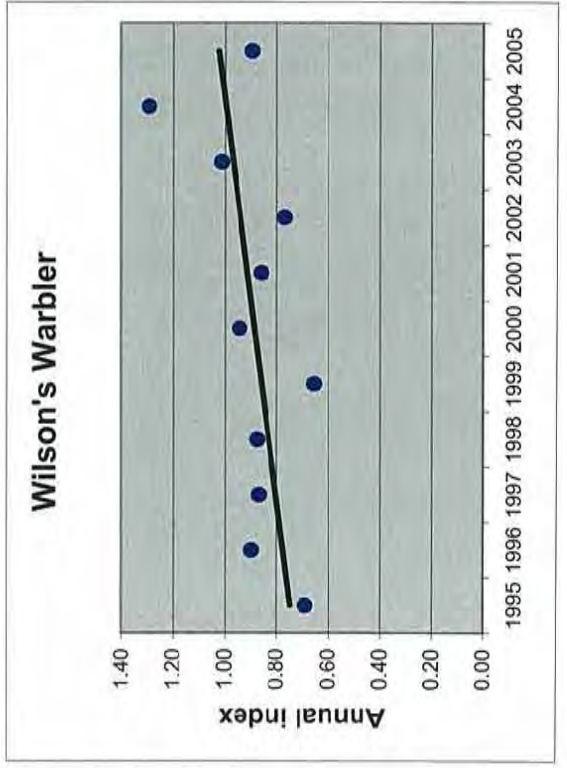
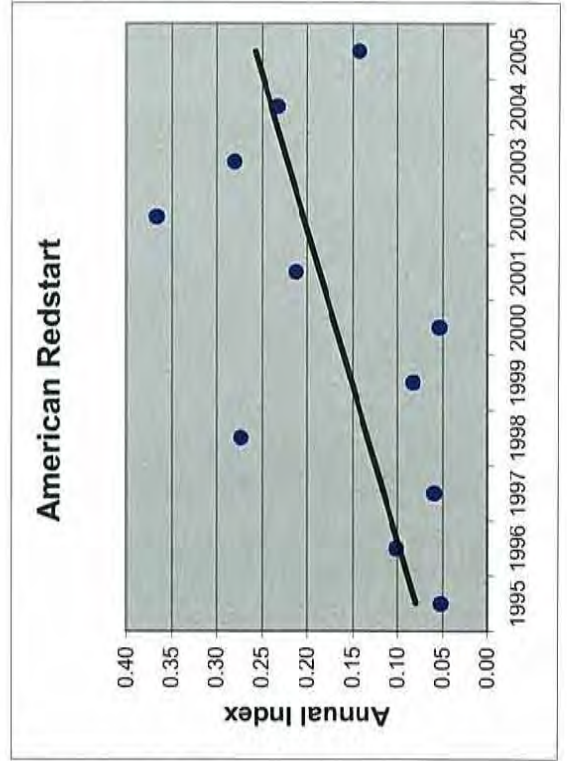
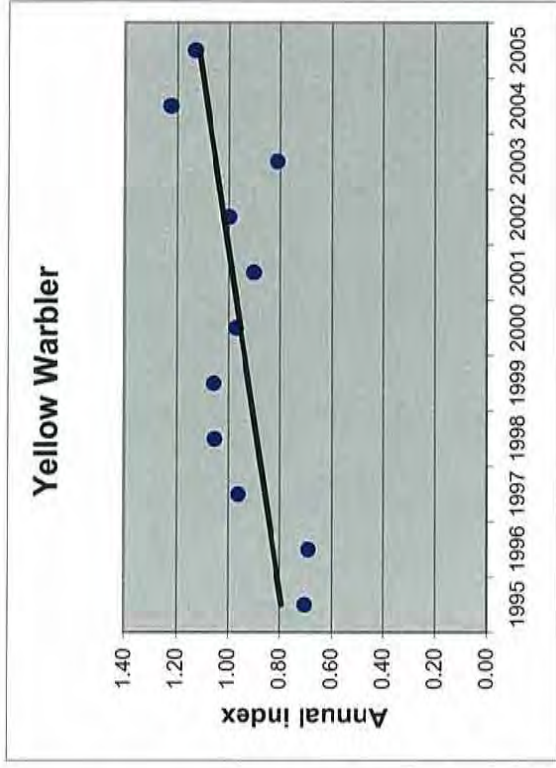
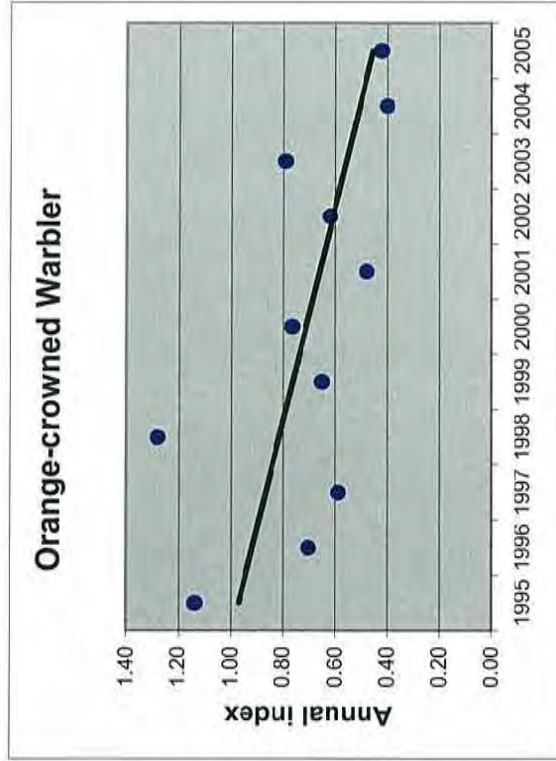


Figure 10. Casualty Rates for all CBBS Projects

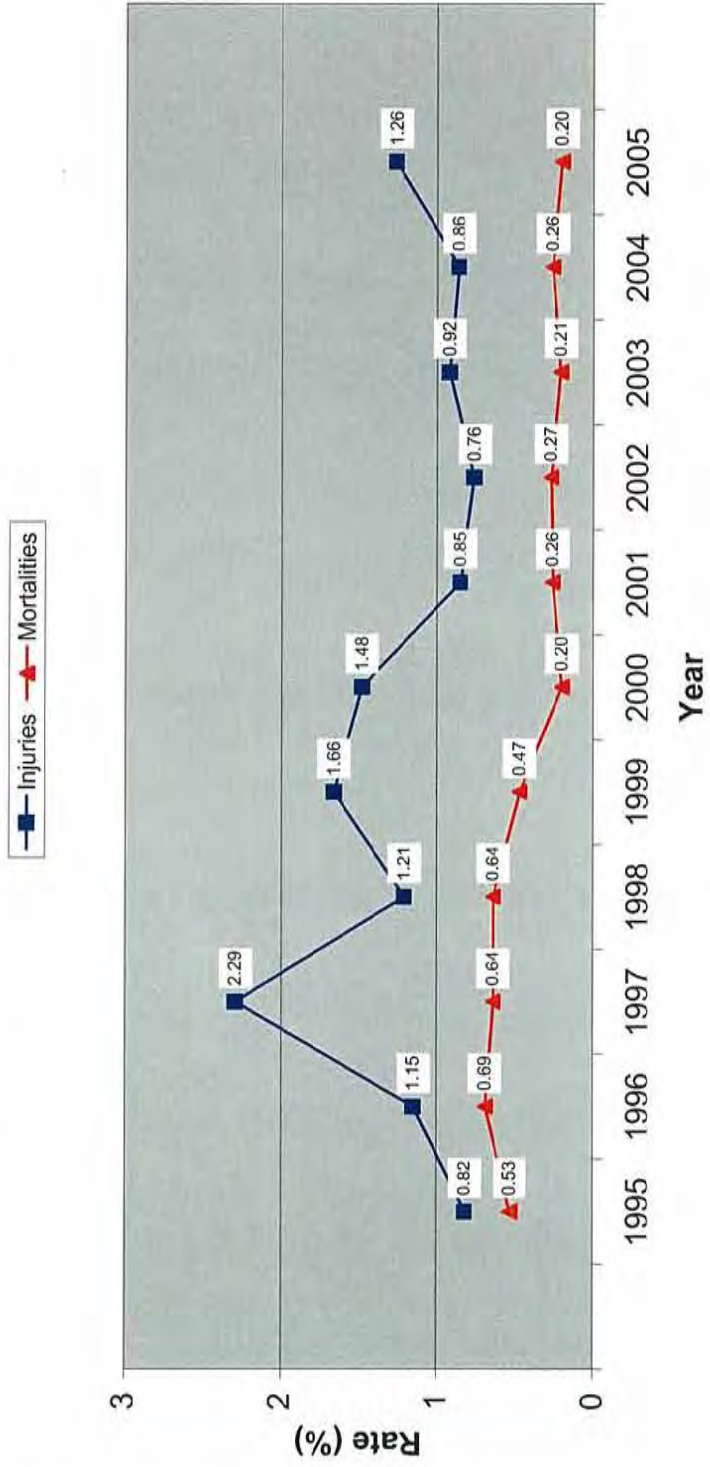


Table 1a. Coverage and Capture Rates During 2005 Spring MM at IBS

Date	Net-hours	Captures				Total	Captures/100 Net-hours
		New Bandings	Recaptures	Escapes	Mortalities		
1-May	58.1	1		2		3	5.2
2-May	71.1	2	2			4	5.6
3-May	72.0	7	2			9	12.5
4-May	72.2	5	2			7	9.7
5-May	73.0	2	2			4	5.5
6-May	no bic					0	
7-May	74.0	57	8	1		66	89.2
8-May	72.3	26	10			36	49.8
9-May	73.2	32	6			38	51.9
10-May	snow					0	
11-May	71.3	8	1			9	12.6
12-May	72.0	2	3			5	6.9
13-May	72.0	1				1	1.4
14-May	72.9	2				2	2.7
15-May	72.2	5	3	1		9	12.5
16-May	72.4	11	3	1		15	20.7
17-May	rain					0	
18-May	72.0	9	3	2		14	19.4
19-May	72.1	9	7			16	22.2
20-May	71.9	12	6			18	25.0
21-May	72.4	6	1	2		9	12.4
22-May	73.6	11	2			13	17.7
23-May	72.7	9	3		1	13	17.9
24-May	72.2	1	3	1		5	6.9
25-May	72.3	4	6	1		11	15.2
26-May	73.2	14	5	1		20	27.3
27-May	74.2	11	5			16	21.6
28-May	73.1	14	2			16	21.9
29-May	73.8	16	10	1		27	36.6
30-May	72.2	14	3	1		18	24.9
31-May	72.4	20	14		1	35	48.3
1-Jun	59.9	17	6	1		24	40.1
2-Jun	37.6	9	5	2		16	42.6
3-Jun	rain					0	
4-Jun	73.4	18	10			28	38.1
5-Jun	rain					0	
6-Jun	60.6	15	12			27	44.6
7-Jun	rain					0	
Total	2248	370	145	17	2	534	23.8

Table 1b. Coverage and Capture Rates During 2005 Fall MM at IBS

Date	Net-hours	Captures				Total	Captures/100 Net-hours
		New Bandings	Recaptures	Escapes	Mortalities		
29-Jul	62.0	31	3			34	55
30-Jul	60.6	13	5	2		20	33
31-Jul	72.6	39	2		2	43	59
1-Aug	75.9	14	4			18	24
2-Aug	72.8	26	6	1		33	45
3-Aug	73.3	24	4	1		29	40
4-Aug	73.4	33	12	1		46	63
5-Aug	73.2	40	8	5		53	72
6-Aug	75.0	42	8	1		51	68
7-Aug	74.2	29	21			50	67
8-Aug	73.7	46	11	4		61	83
9-Aug	71.9	35	9	1		45	63
10-Aug	14.3	9	5	1		15	105
11-Aug	73.0	47	19	5		71	97
12-Aug	73.7	66	20	2	1	89	121
13-Aug	72.0	27	14			41	57
14-Aug	73.1	29	10			39	53
15-Aug	72.2	60	17	1		78	108
16-Aug	56.5	16	13	3		32	57
17-Aug			rain			0	
18-Aug	54.4	85	10			95	175
19-Aug	72.0	28	13	4		45	63
20-Aug	73.6	46	15	1		62	84
21-Aug	72.8	21	14	1	1	37	51
22-Aug	73.5	37	11	1		49	67
23-Aug	72.9	51	17	3		71	97
24-Aug			rain			0	
25-Aug	60.7	43	25	1		69	114
26-Aug	60.2	6	4	1		11	18
27-Aug	69.1	17	9			26	38
28-Aug	72.9	10	2			12	16
29-Aug	72.5	12	2			14	19
30-Aug	72.4	5	5			10	14
31-Aug	72.9	18	9	2		29	40
1-Sep	72.6	15	3			18	25
2-Sep	72.3	8	6			14	19
3-Sep	72.6	6	12			18	25
4-Sep	72.4	17	4			21	29

Table 1b. Coverage and Capture Rates During 2005 Fall MM at IBS

Date	Net-hours	Captures				Total	Captures/100 Net-hours
		New Bandings	Recaptures	Escapes	Mortalities		
5-Sep	73.5	41	13	1		55	75
6-Sep	72.2	10	3			13	18
7-Sep	72.9	25	3	2		30	41
8-Sep	72.4	7	2			9	12
9-Sep	72.3	2	3			5	7
10-Sep		rain				0	
11-Sep		rain				0	
12-Sep	59.8	19	4	1	1	25	42
13-Sep	62.7	23	7	1		31	49
14-Sep	47.3	12	8	1		21	44
15-Sep	62.3	30	9	2		41	66
16-Sep		rain				0	
17-Sep	72.0	23	6			29	40
18-Sep	72.9	8	4			12	16
19-Sep	65.7	5	1			6	9
20-Sep	72.3	12	5			17	24
21-Sep	72.0	16	7			23	32
22-Sep		no volunteer				0	
23-Sep	73.1	4	4			8	11
24-Sep	73.2	7	3	1		11	15
25-Sep	72.8	2	3			5	7
26-Sep	78.1	4				4	5
27-Sep	72.7	14	3	3		20	28
28-Sep	72.0	2	3			5	7
29-Sep	73.0	2	5			7	10
30-Sep	74.3	2	2			4	5
1-Oct		rain				0	
2-Oct	73.0	3	1			4	5
3-Oct	72.0	2				2	3
4-Oct	72.0	3	2			5	7
5-Oct	75.2	2	1			3	4
6-Oct	72.0	4	4			8	11
Total	4387	1335	458	54	5	1852	42

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

Year	2002	2003	2004	2005	Total
Start	1-May	1-May	1-May	1-May	
Finish	7-Jun	7-Jun	7-Jun	7-Jun	
# Days	27	31	31	31	120
Total	624	347	440	370	2151
Species	46	36	41	40	57
Net-hours	1884	2138	2177	2248	10696
Bandings/100 Net-hours	33.1	16.2	20.2	16.5	20.1
Sharp-shinned Hawk			1	1	3
Cooper's Hawk				1	2
American Kestrel	1				1
Solitary Sandpiper	1				1
Spotted Sandpiper	2		2		4
Belted Kingfisher	1			1	3
Red-naped Sapsucker				1	2
Downy Woodpecker	5	1	1	4	15
Northern Flicker	1		1	1	4
Olive-sided Flycatcher			1		1
Western Wood-Pewee	5	1	5		11
Traill's Flycatcher*	6	4	6	6	5
Least Flycatcher	16	6	6	7	42
Eastern Phoebe	1				1
Eastern Kingbird		3	1	2	8
Blue-headed Vireo	2	1			3
Warbling Vireo	4	2			6
Red-eyed Vireo		1			1
Black-billed Magpie			2	1	4
Tree Swallow	18	6	11	18	71
N Rough-winged Swallow	5		4	5	19
Bank Swallow		1	1	1	4
Barn Swallow	1				1
Black-capped Chickadee	3		2	2	9
Red-breasted Nuthatch	1		4	1	7
White-breasted Nuthatch	2				2
House Wren	13	15	8	13	62
Ruby-crowned Kinglet		2			2

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

Year	2002	2003	2004	2005	Total
Veery		1			1
Swainson's Thrush	54	38	50	25	192
Hermit Thrush	2	2	1	2	9
American Robin	28	35	32	40	175
Gray Catbird	13	13	11	10	57
Cedar Waxwing	3		12	8	31
Orange-crowned Warbler	19	6	12	18	73
Yellow Warbler	33	20	13	20	106
Yellow-rumped Warbler	249	100	136	43	571
Blackpoll Warbler	30	2	1	1	35
American Redstart	2	1			3
Ovenbird			1	1	3
Northern Waterthrush	8	3	7	2	22
MacGillivray's Warbler			1		1
Common Yellowthroat	21	6	12	4	47
Wilson's Warbler	4	1	3		8
Western Tanager	1		6	1	9
Chipping Sparrow	3	6	1		10
Clay-colored Sparrow	15	9	10	10	54
Savannah Sparrow	3		2	2	9
Fox Sparrow		1			1
Song Sparrow	3	1	8	7	26
Lincoln's Sparrow	19	31	37	42	171
White-throated Sparrow	5	2	7	7	28
White-crowned Sparrow	6	7	7	42	104
Dark-eyed Junco	1				1
Rose-breasted Grosbeak	1				1
Lazuli Bunting				1	2
Red-winged Blackbird	3	5	1	8	25
Common Grackle				1	2
Brown-headed Cowbird	5	3	7	8	31
Baltimore Oriole	4	7	6		17
American Goldfinch	1	4		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	Total
Start	3-Aug	18-Aug	1-Aug	31-Jul	31-Jul	25-Jul	26-Jul	1-Aug	25-Jul	27-Jul	28-Jul	28-Jul	29-Jul	all
Finish	22-Sep	9-Sep	30-Sep	12-Oct	15-Oct	2-Oct	8-Oct	30-Sep	6-Oct	6-Oct	6-Oct	6-Oct	6-Oct	years
# Days	26	20	54	70	65	61	68	55	73	68	69	71	62	762
Total	841	466	1549	1121	1455	1898	1276	1262	1402	1466	1452	1872	1335	17395
Species	52	48	61	59	64	64	66	68	64	66	60	73	67	103
Net-hours	934	1078	3456	4547	4608	4371	4426	3842	5152	4838	4928	4944	4387	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	41.2
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	25
Cooper's Hawk				1	1			1		1				4
Northern Goshawk				1										1
Broad-winged Hawk						1								1
Solitary Sandpiper	3	2	3	14	13	14	2	8	4	12	5	8	11	99
Spotted Sandpiper		1	2		3	3	2			5	1	4	4	25
Common Snipe								1		1				2
Mourning Dove												1		1
Belted Kingfisher	2	2	8	8	6	8	10	7	2	5	6	7	4	75
Yellow-bellied Sapsucker			1							1				2
Downy Woodpecker		1	2	3	5	7	3	9	9	13	12	16	9	89
Hairy Woodpecker								1		1		2		4
Northern Flicker	2	1	4	8	7	3	11	2		4	7	6	3	58

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

	1992	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Total
Olive-sided Flycatcher			3		5	2		2		2		2	3	22
Western Wood-Pewee	6	4	11	2	33	8	10	7	14	14	11	16	17	153
Yellow-bellied Flycatcher			1				1					2		4
Traill's Flycatcher*	24	16	29	25	50	36	24	40	46	45	32	197	173	737
Least Flycatcher	16	5	16	9	30	14	11	21	20	21	9	40	45	257
Dusky Flycatcher			2	1									2	5
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	140
Yellow-throated Vireo											1			1
Blue-headed Vireo	1		1	1	2			1		2		2		10
Warbling Vireo	8	15	13	18	27	18	8	7	12	9	17	12	10	174
Philadelphia Vireo	1							1	1		1	1		5
Red-eyed Vireo	3	1	2	4	3	12	2	4	2	2	4		3	42
Blue Jay				1				1						2
Black-billed Magpie			2	1	8	2	2	1	3	1	3	3	3	29
Tree Swallow					2					1			7	8
N Rough-winged Swallow												1	2	5
Bank Swallow													1	1
Black-capped Chickadee	9	12	7	17	5	19	10	19	14	13	19	20	28	192
Red-breasted Nuthatch		3		2		4	2	20	7	1	2	4	2	47
White-breasted Nuthatch	1	1	6		4	4	4	5	5	5	7	5	2	49
Brown Creeper	1						1	1				1	1	5
House Wren	3	3	50	45	52	49	33	57	59	72	58	138	96	715

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

Year	1992	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Total
Winter Wren														3
Golden-crowned Kinglet	2		2	1	1	1	2	1		2		1	2	15
Ruby-crowned Kinglet	3	1	10	18	20	14	5	11	15	14	24	18	11	164
Townsend's Solitaire				1					1		1			3
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	306
Hermit Thrush	4		3	14	6	9	9	4	11	11	5	8	4	88
American Robin	5	11	114	81	81	31	60	32	105	37	89	28	43	717
Varied Thrush									1			5		6
Gray Catbird		1		5	7	6	5	4	14	8	19	14	14	97
Brown Thrasher					3						1		1	5
European Starling			2						4					6
Bohemian Waxwing							1							1
Cedar Waxwing	12	1	42	14	67	11	25	26	49	27	21	43	22	360
Tennessee Warbler	43	5	33	30	52	74	106	167	46	76	147	98	58	935
Orange-crowned Warbler	24	36	177	116	86	207	91	84	58	71	115	45	45	1155
Nashville Warbler				1	2	1	1	2	1	1			1	10
Yellow Warbler	56	19	44	62	137	91	138	89	101	119	82	165	126	1229
Chestnut-sided Warbler	1						1				1	1		4
Magnolia Warbler	9	4	2	2	4	4	2	2	1	9	6	4	5	54
Cape May Warbler											2			2
Yellow-rumped Warbler	293	171	496	92	191	638	195	200	246	248	223	148	73	3214
Black-throated Green Warbler					1	1	1							3
Townsend's Warbler	1				1	2	3	1	2	2		1	2	15

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

	1992	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Total
Palm Warbler		3	7	4	3	8	7	1	6	4	1	2	1	47
Bay-breasted Warbler			1				1	1			1			4
Blackpoll Warbler	17	5	17	8	6	30	5	8	11	7	7	1	11	133
Black-and-white Warbler	4	1	1	2		3			2	3	3	1	2	22
American Redstart	19	4	3	6	4	20	5	3	16	27	18	19	7	151
Ovenbird	22	6	10	30	11	38	11	11	24	7	18	37	16	241
Northern Waterthrush	22	8	23	56	46	26	41	34	44	33	29	78	67	507
Connecticut Warbler	2	2	4	4	1	3	3	3	4	1		6	1	34
Mourning Warbler	4	2	5	10	3	9	1	4	5	7	10	7	5	72
MacGillivray's Warbler	2		3	8	10	6	2	5	4	4	5	6	4	59
Common Yellowthroat		1	6	1	8	10	8	4	12	8	9	7	2	76
Wilson's Warbler	121	68	102	175	119	113	100	167	152	145	224	251	120	1857
Canada Warbler	1			2	1	3	1	1	1	2		8		20
Western Tanager	1	1	12	1	3	2	4	1	5	6	3	5	3	47
American Tree Sparrow			10	3	3	7	2	1	1	2	4	4	3	40
Chipping Sparrow	4	1	29	14	151	27	83	50	47	92	23	155	34	710
Clay-colored Sparrow		1	1	6	21	37	26	9	30	26	6	12	14	189
Brewer's Sparrow							1							1
Savannah Sparrow		1			2			1	1					5
Fox Sparrow	1	1	1			2	1		2	1	1	2		12
Song Sparrow		1	9	9	15	18	21	9	3	13	5	15	21	139
Lincoln's Sparrow	9	7	53	28	13	59	48	30	39	88	43	30	44	491
Swamp Sparrow				2		7	3		1	2	1	2		18
White-throated Sparrow	13	11	73	28	39	77	54	18	35	51	25	40	34	498
Harris' Sparrow			1						1			1	1	4

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

	1992	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Total
White-crowned Sparrow	5	4	20	24	22	21	22	23	27	30	18	31	36	283
Dark-eyed Junco	5	3	15	15	3	10	8	6	1	6	3	11	4	90
Rose-breasted Grosbeak	6				1	3	2	3	1	3	7	5	3	34
Red-winged Blackbird			4				2			3		1		10
Common Grackle			3								1		2	6
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	118
Purple Finch		1			2	1	1	2	6				2	15
House Finch													9	9
Pine Siskin					2							1		3
American Goldfinch	3			2	4	2	2	1	4	2		2	1	23
House Sparrow									3					3

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

**Table 3. Stable Isotope Feather Samples
Collected at Inglewood Bird Sanctuary 2004**

Species	Samples
American Robin	9
Baltimore Oriole	5
Blackpoll Warbler	1
Clay-colored Sparrow	7
Cedar Waxwing	8
Chipping Sparrow	64
Common Yellowthroat	6
Eastern Kingbird	4
Gray Catbird	11
White-crowned Sparrow	26
House Wren	55
Lincoln's Sparrow	25
MacGillivray's Warbler	3
Mourning Warbler	8
Yellow-rumped Warbler	102
Northern Waterthrush	60
Orange-crowned Warbler	38
Dark-eyed Junco	8
Ovenbird	28
Ruby-crowned Kinglet	18
Song Sparrow	12
Swainson's Thrush	27
Tennessee Warbler	45
Warbling Vireo	7
Western Wood-Pewee	3
Wilson's Warbler	200
White-throated Sparrow	30
Yellow Warbler	109
Total	919

Table 4. Inglewood Bird Sanctuary MAPS New Bandings - 2005

	5-Jun	15-Jun	Total
Trail's Flycatcher	3		3
Least Flycatcher	1		1
Eastern Kingbird		1	1
Warbling Vireo		1	1
Black-capped Chickadee		2	2
House Wren		1	1
Swainson's Thrush	1		1
American Robin	1		1
Gray Catbird	1		1
Cedar Waxwing		3	3
Yellow Warbler	2		2
Common Yellowthroat		1	1
Song Sparrow		1	1
Brown-headed Cowbird		1	1
Total birds	9	11	20
Total species	6	8	14

Table 5. Inglewood Bird Sanctuary MAPS Summary

Species	New Bandings													Total
	1992	1993	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	
American Kestrel			1											1
Downy Woodpecker	1	3	1	5	4	1			1		1	3		20
Hairy Woodpecker	1	1	1			1								4
Yellow-shafted Flicker	1	1	1											3
Flicker Intergrade			2				2							4
Northern Flicker				2										2
Western Wood-Pewee	6	1	1	1	1	2		1	3			3		19
Trail's Flycatcher				3	3		1	1	4	1	1	2	3	19
Least Flycatcher	14	8	3	2	3	4	2	1	2	1			1	41
Eastern Kingbird	2	1			3	1	3	2	2	1		3	1	17
Warbling Vireo	7	7	1	4	2		2	2	1	4	3		1	34
Red-eyed Vireo	1													1
Black-billed Magpie				1	2							2		5
Tree Swallow	3						2					4		9
Bank Swallow	1													1
Black-capped Chickadee	5	7	5	9	2	3	5	4	4	2	4	10	2	62
White-breasted Nuthatch	3	4		2						1		2		12
House Wren	5	11	9	9	13	8	9	18	11	2	11	9	1	116
Veery	2					1								3
Swainson's Thrush	10	8	6	4	3	1	4		3	1	1	4	1	46
Hermit Thrush								1						1
American Robin	21	6	26	25	23	10	8	14	20	19	19	21	1	213
Gray Catbird	3			1	1	4	8	1	6	16	9	12	1	62
European Starling			1											1
Cedar Waxwing	27	8		6	1	9	5	7	5	13	3	17	3	104
Tennessee Warbler	1	6		7	1	3	4	22	1	1	1	5		52

Table 5. Inglewood Bird Sanctuary MAPS Summary

Species	New Bandings														Total
	1992	1993	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005		
Orange-crowned Warbler						1						1		2	
Yellow Warbler	20	14	7	2	6	9	24	13	4	7	9	4	2	121	
Yellow-rumped Warbler	10					2		2	1		1	1		17	
American Redstart		1									1			2	
Ovenbird	3			1		1								5	
Northern Waterthrush						1	1		1					3	
Mourning Warbler	1													1	
Common Yellowthroat												1	1	2	
Wilson's Warbler				2		1	1					1		5	
Western Tanager		1	3	1	2		4					1		12	
Chipping Sparrow		7			1							1		9	
Clay-colored Sparrow		1				6	17	1	2					27	
Song Sparrow		1		1		1	4				1		1	9	
Lincoln's Sparrow		3	1	2	5	2		1				2		16	
White-throated Sparrow				2						1		2		5	
Rose-breasted Grosbeak				1										1	
Common Grackle			1		2					1				4	
Brown-headed Cowbird	6				3			1	1	2		2	1	16	
Baltimore Oriole	3	7	2	8	9	1	2	1	5	9		2		49	
Purple Finch		1						1						2	
American Goldfinch	2	2		1						1				6	
House Sparrow	2					2								4	
Total	161	110	72	102	90	75	108	92	77	83	65	115	20	970	
Species	27	24	18	25	21	24	20	18	19	18	14	25	14	47	

**Table 6. Coverage and Capture Rates During
2005 Spring MM at Las Caletas, CR**

Date	Net-hours	Captures				Total	Captures/100 Net-hours
		New Bandings	Recaptures	Unbanded	Mortalities		
30-Mar	78.8	37	22	1		60	76
31-Mar	73.5	57	10	6		73	99
1-Apr	46.1	17	8	1		26	56
2-Apr	78.3	46	16			62	79
3-Apr	76.5	36	17			53	69
4-Apr	74.9	35	7	3		45	60
5-Apr	57.2	22	16	1		39	68
6-Apr	76.5	38	10			48	63
7-Apr	77.8	32	13	1		46	59
8-Apr	75.2	31	13	2		46	61
9-Apr	76.1	77	8	2		87	114
10-Apr	76.4	53	12	1		66	86
11-Apr	54.4	20	8			28	51
12-Apr	74.0	43	9			52	70
13-Apr	69.9	39	8			47	67
14-Apr	61.2	35	9	2		46	75
15-Apr	74.6	33	10			43	58
16-Apr	76.2	32	6	1		39	51
17-Apr	73.0	32	5	1		38	52
18-Apr	66.3	40	7			47	71
19-Apr	78.0	29	8			37	47
20-Apr	74.5	30	12	2		44	59
21-Apr	78.0	29	10		1	39	50
22-Apr	75.4	27	11			38	50
23-Apr	74.8	37	3			40	53
24-Apr	74.6	31	9			40	54
25-Apr	67.8	37	9			46	68
26-Apr	52.4	11	8			19	36
27-Apr	74.6	31	12			43	58
28-Apr	72.2	18	8	1		27	37
29-Apr	69.5	19	28			47	68
Total	2209	1054	332	25	1	1411	64

Table 7. New Captures at Las Caletas, CR

Species	2002*	2003*	2004	2005	Total
Start date	17-Mar	15-Apr	26-Mar	30-Mar	
Finish date	12-Apr	9-May	29-Apr	29-Apr	
net-hours	2041	2123	2468	2209	
Tiny Hawk	1	2			3
Barred Forest-Falcon	2	1			3
Ruddy Ground-Dove		1		5	6
Blue Ground-Dove		1			1
White-tipped Dove	1	1		2	4
Gray-chested Dove	5	8	4	2	19
Ruddy Quail-Dove			5	3	8
Dove spp.	1			1	2
Pigeon spp.	1				1
Bronzy Hermit		8	6	1	15
Band-tailed Barbthroat	1	20	14	15	50
Long-billed Hermit	2	15	23	34	74
Stripe-throated Hermit		16	7	9	32
White-tipped Sicklebill	2				2
White-necked Jacobin	1	5	4	1	11
Violet-crowned Woodnymph		11	13	12	36
Blue-throated Goldentail		59	52	5	116
Charming Hummingbird		40	33	35	108
Snowy-bellied Hummingbird		1	1		2
Rufous-tailed Hummingbird		10	14	11	35
Purple-crowned Fairy				1	1
Hummingbird sp.	89			1	90
Black-throated Trogon	2			3	5
Blue-crowned Motmot	1	4			5
Green Kingfisher			4	1	5
American Pygmy Kingfisher	2	1	2	1	6
White-necked Puffbird		1	1		2
White-whiskered Puffbird	1		1	1	3
Rufous-tailed Jacamar		1	1	1	3
Olivaceous Piculet	3	1	1	1	6
Golden-naped Woodpecker			1	1	2
Buff-throated Foliage-gleaner	4	7	1		12
Plain Xenops	5	6	3	8	22
Scaly-throated Leaf-tosser	1	3	3	3	10
Tawny-winged Woodcreeper	6	2	3	6	17
Long-tailed Woodcreeper	1	1		2	4
Wedge-billed Woodcreeper	16	6	11	9	42
Northern Barred-Woodcreeper	2	4		1	7
Black-striped Woodcreeper	1			1	2
Streak-headed Woodcreeper	4	4	7	2	17
Woodcreeper sp.	1				1
Great Antshrike	1				1
Black-hooded Antshrike	8	9	4	3	24
Russet Antshrike	1		2		3
Slaty Antwren		2	1	6	9
Dot-winged Antwren	16	18	7	3	44
Chestnut-backed Antbird	9	15	6	11	41
Bicolored Antbird	2	9	4	12	27
Black-faced Antthrush	2	1		2	5
Streak-chested Antpitta	1	1		1	3
Ochre-bellied Flycatcher	21	23	35	28	107
Northern Bentbill	5	4	5	3	17
Eye-ringed Flatbill	1				1
Yellow-olive Flycatcher		3			3
Golden-crowned Spadebill	2	1	2	6	11
Ruddy-tailed Flycatcher	2	4	1	2	9
Sulphur-rumped Flycatcher	1	3	2	4	10
Black-tailed Flycatcher		1	1		2
Yellow-bellied Flycatcher	1		3		4
Acadian Flycatcher				1	1

Species	2002*	2003*	2004	2005	Total
Alder Flycatcher		35	10	1	46
Willow Flycatcher		3	3		6
Bright-rumped Attila	7	3	6	5	21
Dusky-capped Flycatcher	4		5	1	10
Great-crested Flycatcher	2				2
Thrushlike Schiffornis	2	2	2	2	8
Rufous Piha		3	1		4
White-winged Becard		1			1
Orange-collared Manakin	28	16	17	23	84
Blue-crowned Manakin	7	11	12	8	38
Red-capped Manakin	23	31	23	53	130
Red-eyed Vireo	1	6	2	1	10
Yellow-green Vireo	9	10	4	4	27
Philadelphia Vireo			1		1
Tawny-crowned Greenlet	2	1	3	5	11
Lesser Greenlet		1	1		2
Black-bellied Wren		1	1	1	3
Riverside Wren	6	7	6	12	30
House Wren	2		1	3	6
Scaly-breasted Wren		2	1		3
Long-billed Gnatwren	13	1	3	5	22
Tropical Gnatcatcher		1		3	4
Swainson's Thrush	439	406	547	546	1938
Clay-colored Robin			1	2	3
Tennessee Warbler				3	3
Yellow Warbler			1		1
Chestnut-sided Warbler	2			4	6
Worm-eating Warbler	1				1
Northern Waterthrush	1	1	1	1	4
Louisiana Waterthrush	1				1
Kentucky Warbler	3		1		4
Mourning Warbler	1		1	2	4
MacGillivray's Warbler	1				1
Bananaquit	9	12	9	11	41
Gray-headed Tanager	5	9	5	8	27
White-throated Shrike-Tanager		2	1	4	7
White-shouldered Tanager	4	10	6	3	23
Black-cheeked Ant-Tanager	5	8	6	16	35
Scarlet Tanager	1				1
Cherrie's Tanager	7	5	7	10	29
Bay-headed Tanager	2		3		5
Golden-hooded Tanager		2		1	3
Blue Dacnis			1		1
Green Honeycreeper	5	4		7	16
Shining Honeycreeper				1	1
Red-legged Honeycreeper		3		2	5
Blue-black Grassquit	2		2		4
Variable Seedeater	15	10	10	17	52
Yellow-bellied Seedeater		2	4		6
Thick-billed Seed-Finch	6	4	6	7	23
Orange-billed Sparrow	12	17	19	26	74
Black-striped Sparrow	1	1	2	2	6
Buff-throated Saltator	8	4		9	21
Blue-black Grosbeak	4	9	4	5	22
Yellow-billed cacique				1	1
Scarlet-rumped Cacique			2	1	3
Spot-crowned Euphonia	1	1		2	4
Species	78	80	79	84	117
Total	871	979	1028	1079	3957

* pilot programs

**Table 8. Trend Analysis of Monitored Species
at Inglewood Bird Sanctuary 1995-2005**

Species	Analysis Interval	Trend	P
		%/year	value
Solitary Sandpiper	1996-1998, 2000-2005	-1.0%	0.13
Western Wood-Pewee	1996-2005	0.9%	0.40
Traill's Flycatcher	1995-2005	5.8%	0.02
Least Flycatcher	1995-2005	1.1%	0.23
Eastern Kingbird	1995-1998, 2000-2005	-0.1%	0.88
Warbling Vireo	1995-2005	-1.3%	0.06
House Wren	1995-2005	3.0%	0.05
Ruby-crowned Kinglet	1995-2005	0.2%	0.70
Swainson's Thrush	1995-2005	-0.5%	0.61
American Robin	1995-2005	-2.6%	0.09
Cedar Waxwing	1995-1998, 2000-2005	0.3%	0.79
Tennessee Warbler	1996-1998, 2000-2005	2.3%	0.31
Orange-crowned Warbler	1995-2005	-5.0%	0.04
Yellow Warbler	1995-2005	3.3%	0.03
Yellow-rumped Warbler	1996-2005	-2.3%	0.65
Blackpoll Warbler	1996-2005	-0.4%	0.72
American Redstart	1995-2005	1.8%	0.09
Ovenbird	1996-2005	-0.5%	0.71
Northern Waterthrush	1996-1998, 2000-2005	0.9%	0.44
Wilson's Warbler	1995-2005	2.8%	0.09
Chipping Sparrow	1996-1998, 2000-2005	0.1%	0.97
Clay-colored Sparrow	1996-1998, 2000-2005	-0.2%	0.87
Song Sparrow	1995-1998, 2000-2005	0.1%	0.85
Lincoln's Sparrow	1995-2005	-0.1%	0.96
White-throated Sparrow	1995-2005	-0.5%	0.70
White-crowned Sparrow	1995-2005	0.4%	0.23
Dark-eyed Junco	1995-2005	-1.4%	0.08
Baltimore Oriole	1995-2005	-0.4%	0.63

Table 9. Bander-in-Charge and Volunteer Effort 2005

Member/Guest	Bander-in-Charge						Volunteer										
	Inglewood			NSWO	CR		Inglewood			NSWO	CR						
	Spring MM	MAPS	Fall MM		Spring MM	MAPS	Spring MM	MAPS	Fall MM		Spring MM	MAPS					
Gwyneth Midgley																	
Julia Millen*																	1
Pat Mitchell	6	2	14	17													
Mike Mulligan																	1
Jeff Nugent																	1
Alexandra Oakwood																	10
El Peterson																	1
Alberto Quesada-Calvo*																	16
Elizabeth Quesada-Calvo*																	14
Mark Raymond																	2
Carl Savignac																	10
Paula Schneider																	12
Gwen Smiley																	5
Don Stiles																	5
Bill Taylor																	10
Barry Trakalo																	1
Marie Tremblay																	6
Catherine Watson																	1
Catherine Watson-MacDonald																	1
Linda Wiggins																	1
Bruce Wilson																	2
Colin Young																	5
Linda Young*																	1

* guest volunteer

Table 10. Injuries and Mortalities Sustained During 2005 CBBS Projects

Species	Number Captured	Injuries		Mortalities	
		Number	Type	Number	Cause
Solitary Sandpiper	14	1	wing abrasion		
		1	leg abrasion		
Spotted Sandpiper	4	1	wings (both) strain		
Northern Saw-whet Owl	212	1	cut tongue		
Stripe-throated Hermit	11			1	banding shock
Northern Flicker	4	1	wing abrasion		
Streak-headed Woodcreeper	11	1	cut tongue		
Plain Xenops	14	1	cut leg		
Chestnut-backed Antbird	21	1	broken leg		
Black-faced Antthrush	2	1	cut leg		
Red-capped Manakin	76	1	wing strain		
		1	wing abrasion		
		1	leg abrasion		
Tree Swallow	38	1	cut toe		
House Wren	230	1	leg abrasion	2	net shock
		1	broken leg		
		1	cut toe		
		2	stress		
		1	wing strain		
Swainson's Thrush	624	3	wing abrasion		
		1	cut tongue		
American Robin	119	7	cut tongue	1	predation - hawk
		2	wing abrasion		
		1	wing strain		
Cedar Waxwing	35	1	bruised breast		
Tennessee Warbler	75	1	wing abrasion		
Orange-crowned Warbler	77			1	net shock
Yellow Warbler	216	1	wing abrasion		
		1	cut toe	1	predation- weasel
American Redstart	9	1	stress		
Northern Waterthrush	130			1	predation - deer
Mourning Warbler	9	1	bruised tarsal joint		
Wilson's Warbler	156	1	cut leg		
		1	cut toe		
Western Tanager	4	1	cut tongue		
Black-cheeked Ant-Tanager	26	1	wing strain		
Buff-Throated Saltator	9	1	cut toe		
		1	cut tongue		
Clay-colored Sparrow	34			1	net shock
Lincoln's Sparrow	114	1	neck injury/predation?		
White-throated Sparrow	63	1	dislocated tarsus		
White-crowned Sparrow	94	1	wing strain		
Common Grackle	4	1	wing abrasion		
		1	wing strain		
House Finch	9	1	cut leg		
Total Captures	4059	51	1.26%	8	0.20%

**TABLE 11. CALGARY BIRD BANDING SOCIETY
2005 MEMBERSHIP LIST**

Peter Achuff
Yousif Attia
Sandy Ayer
Christine Bennett
Grahame Booth
Liz Brennan
Lenora Brown
John Cartwright
Amanda Cole
Doug Collister
Judi Crawford-Parr
Rainer Ebel
Derek Ebner
Ian Fawcett
Dick Flynn
Lenora Flynn
Carole Hachey
Garry Hornbeck
Bev Kissinger
Michelle Koch
Stephen Lane
David Lieske
Shonna McLeod
Greg Meyer
Gwyneth Midgley
Pat Mitchell
Kerry Moffatt
Mike Mulligan
Jeff Nugent

Alexandra Oakwood
El Peterson
Mark Raymond
Lynn Robb
Carl Savignac
Paula Schneider
Gwen Smiley
Cyndi Smith
Don Stiles
Bill Taylor
Barry Trakalo
Catherine Watson
Catherine Watson-MacDonald
Linda Wiggins
Amy Wilson
Bruce Wilson
Scott Wilson
Colin Young

Executive

President – Catherine Watson
Vice President – Shonna McLeod
Treasurer – El Peterson
Secretary – Carole Hachey
Annual Report – Doug Collister
Director at Large – Grahame Booth
Director at Large – Greg Meyer
Director at Large – Barry Trakalo

Appendix 1a. New Bandings at Inglewood Bird Sanctuary - Spring 2005

Species	May												
	1	2	3	4	5	6	7	8	9	10	11	12	13
Sharp-shinned Hawk				1									
Cooper's Hawk													
Belted Kingfisher													
Red-naped Sapsucker													
Downy Woodpecker			1					1					
Northern Flicker													
Alder Flycatcher													
Willow Flycatcher													
Least Flycatcher													
Eastern Kingbird													
Black-billed Magpie													1
Tree Swallow			1									1	
N Rough-winged Swallow													
Bank Swallow													
Black-capped Chickadee								2					
Red-breasted Nuthatch													
House Wren													
Swainson's Thrush													
Hermit Thrush												1	
American Robin			1	2				1	2		2		
Gray Catbird													
Cedar Waxwing													
Orange-crowned Warbler		1					2	5	9				
Yellow Warbler													
Yellow-rumped Warbler			1				24	1	11		3		
Blackpoll Warbler													
Ovenbird													
Northern Waterthrush													
Common Yellowthroat													
Western Tanager							1						
Clay-colored Sparrow													
Savannah Sparrow			1										
Song Sparrow							1		3				
Lincoln's Sparrow							10	9	3		1	1	
White-throated Sparrow													
White-crowned Sparrow	1	1	2	2	2		19	7	4				
Lazuli Bunting													
Red-winged Blackbird													
Common Grackle													
Brown-headed Cowbird											1		
American Goldfinch													

Appendix 1a. New Bandings at Inglewood Bird Sanctuary - Spring 2005

Species	May												
	14	15	16	17	18	19	20	21	22	23	24	25	26
Sharp-shinned Hawk													
Cooper's Hawk										1			
Belted Kingfisher													
Red-naped Sapsucker								1					
Downy Woodpecker							1						
Northern Flicker										1			
Alder Flycatcher													
Willow Flycatcher													
Least Flycatcher					1	1							
Eastern Kingbird													
Black-billed Magpie													
Tree Swallow		1	2			1	1						2
N Rough-winged Swallow						1			1			2	
Bank Swallow							1						
Black-capped Chickadee													
Red-breasted Nuthatch													
House Wren	1								1				
Swainson's Thrush					2		1		1	1			1
Hermit Thrush						1							
American Robin	1	3				1	1	2	2		1		5
Gray Catbird													
Cedar Waxwing													
Orange-crowned Warbler			1										
Yellow Warbler													1
Yellow-rumped Warbler		1	2										
Blackpoll Warbler													
Ovenbird													
Northern Waterthrush										1		1	
Common Yellowthroat					1		1		2				
Western Tanager													
Clay-colored Sparrow					1		1	1	1				
Savannah Sparrow													
Song Sparrow			1		2								
Lincoln's Sparrow			1		1	4	3		2	2			4
White-throated Sparrow							1	1		3		1	
White-crowned Sparrow			1		1								1
Lazuli Bunting									1				
Red-winged Blackbird			3				1						
Common Grackle													
Brown-headed Cowbird								1					
American Goldfinch													

Appendix 1a. New Bandings at Inglewood Bird Sanctuary - Spring 2005

Species	May					June							Total
	27	28	29	30	31	1	2	3	4	5	6	7	
Sharp-shinned Hawk													1
Cooper's Hawk													1
Belted Kingfisher							1						1
Red-naped Sapsucker													1
Downy Woodpecker							1						4
Northern Flicker													1
Alder Flycatcher					1				2		2		5
Willow Flycatcher											1		1
Least Flycatcher			2		1		1				1		7
Eastern Kingbird				2									2
Black-billed Magpie													1
Tree Swallow	1		1	1	3	1	1				1		18
N Rough-winged Swallow	1												5
Bank Swallow													1
Black-capped Chickadee													2
Red-breasted Nuthatch					1								1
House Wren	1	1	2	2	1	1			3				13
Swainson's Thrush			1	3	5	6	1		2		1		25
Hermit Thrush													2
American Robin	2	1	3	4	3	1			2				40
Gray Catbird				1	1	3	3		1		1		10
Cedar Waxwing									3		5		8
Orange-crowned Warbler													18
Yellow Warbler	1	4	2	1	4	2	1		2		2		20
Yellow-rumped Warbler													43
Blackpoll Warbler		1											1
Ovenbird	1												1
Northern Waterthrush													2
Common Yellowthroat													4
Western Tanager													1
Clay-colored Sparrow	1	5											10
Savannah Sparrow		1											2
Song Sparrow													7
Lincoln's Sparrow			1										42
White-throated Sparrow	1												7
White-crowned Sparrow									1				42
Lazuli Bunting													1
Red-winged Blackbird	1		2								1		8
Common Grackle		1											1
Brown-headed Cowbird	1		2			1			2				8
American Goldfinch						2							2

Appendix 1b. New Bandings at Inglewood Bird Sanctuary - Fall 2005

Species	July			August																					
	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
Sharp-shinned Hawk																									
Solitary Sandpiper		1	2							1				1	1			3					2		
Spotted Sandpiper					1											2								1	
Belted Kingfisher																									
Downy Woodpecker	1	1						2		1	1			1	1										
Northern Flicker				1														1							
Olive-sided Flycatcher															2		1								
Western Wood-Pewee			1			2			1	1	2	1		2	4		1	1							
Alder Flycatcher	1				2			2	1	1	4	9	5	9	16	1	5	19	8		42	11	7		
Willow Flycatcher					1	2						3													
Least Flycatcher							1			2	5		1	6	4	3	2	3	3		4		1		
Dusky Flycatcher										1							1								
Eastern Phoebe										1															
Eastern Kingbird	1		1	2	2			1		1						1		2							
Warbling Vireo										3	1	3			1	1									
Red-eyed Vireo																			1						
Black-billed Magpie																									
Tree Swallow	3						3		1																
N Rough-winged Swallow						1					1														
Bank Swallow												1													
Black-capped Chickadee	2		11			1											1	2							
Red-breasted Nuthatch																									
White-breasted Nuthatch																									
Brown Creeper																									
House Wren	8	1	2	1	7	4	1	13	6	5	1	3		1	3	2	3	4			2		5	1	
Golden-crowned Kinglet																									
Ruby-crowned Kinglet																									
Swainson's Thrush	1		1				1		2						1			1							
Hermit Thrush																									
American Robin	3	4	7	2	2	1	7	3	1	2	1	1		1		1	1				1			2	
Gray Catbird	1	1							1	2						1						1		2	
Brown Thrasher									1																
Cedar Waxwing			3	2			1	1	3		1	10						1							
Tennessee Warbler	3	2	1			2		2	2	1	5	4		6	4	2	1	6	1					4	
Orange-crowned Warbler																									
Nashville Warbler																									
Yellow Warbler	3	3	6	3	3	4	10	8	7	8	14	1		6	11	4	2	4			9	3	7	1	
Magnolia Warbler																						1		1	
Yellow-rumped Warbler								1						2	1	1		1				3		6	2
Townsend's Warbler															1										
Palm Warbler																									
Blackpoll Warbler																						1			1
Black-and-white Warbler											1														
American Redstart																									
Ovenbird											1						1							1	2
Northern Waterthrush						2	1	1	7	2	1		1		5	2	7	6	3		9	3	2	1	
Connecticut Warbler																									
Mourning Warbler																	1								
MacGillivray's Warbler																								2	1
Common Yellowthroat																									
Wilson's Warbler																	1	3	1		11	5	3	7	
Western Tanager												1										1			
American Tree Sparrow																									
Chipping Sparrow						1	1	4	4	1				8	5	6	1							3	
Clay-colored Sparrow												1		2											
Song Sparrow				1	1	1	1		3		1	1	2	1	4	1								1	
Lincoln's Sparrow																							1	1	
White-throated Sparrow																2									
Harris' Sparrow																									
White-crowned Sparrow																						1			
Dark-eyed Junco																									
Rose-breasted Grosbeak									1									1							
Common Grackle					1																				
Brown-headed Cowbird					1	1		1																	
Baltimore Oriole	3		2	1	2	1	2																		
Purple Finch			2																						
House Finch	1			1	2	1		1	1	1	1														
American Goldfinch							1																		

Appendix 1b. New Bandings at Inglewood Bird Sanctuary - Fall 2005

Species	August											September													
	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Sharp-shinned Hawk																		1							
Solitary Sandpiper																									
Spotted Sandpiper																									
Belted Kingfisher																									
Downy Woodpecker																									
Northern Flicker									1																
Olive-sided Flycatcher																									
Western Wood-Pewee				1																					
Alder Flycatcher	2	6		5		2	1	1			2			3											
Willow Flycatcher		1																							
Least Flycatcher		5			1			2					1												
Dusky Flycatcher																									
Eastern Phoebe																									
Eastern Kingbird																									
Warbling Vireo											1														
Red-eyed Vireo				2																					
Black-billed Magpie																									
Tree Swallow																									
N Rough-winged Swallow																									
Bank Swallow																									
Black-capped Chickadee											1			4	1										
Red-breasted Nuthatch																								1	
White-breasted Nuthatch																									
Brown Creeper																									
House Wren	3			1		2	2	1	2	2	3	1	1		1	1		1				2			
Golden-crowned Kinglet													1												
Ruby-crowned Kinglet				1							1				1									1	
Swainson's Thrush	3	1		5														1					2		
Hermil Thrush																									
American Robin														3											
Gray Catbird				1							2				1										
Brown Thrasher																									
Cedar Waxwing																									
Tennessee Warbler	1	1		1			3				1			2	1							1	1		
Orange-crowned Warbler				5	1			1			1			5	1	5		1				5	3		
Nashville Warbler																	1								
Yellow Warbler	4	2						2					1												
Magnolia Warbler	1	1																							
Yellow-rumped Warbler	4	17				1				4				3	3	1	10					2			
Townsend's Warbler	1																								
Palm Warbler																									
Blackpoll Warbler	2			1				1	1		1												1		
Black-and-white Warbler							1																		
American Redstart				1	1										1										
Ovenbird	2			1	1	1		1		2	1		1												
Northern Waterthrush	4	5		2		1		1		1															
Connecticut Warbler				1																					
Mourning Warbler	1	2																	1						
MacGillivray's Warbler																									
Common Yellowthroat																									
Wilson's Warbler	6	4		6	2	4		1	1	3	2	1		2	17	5	3	1				2	7	7	
Western Tanager										1															
American Tree Sparrow																							1		
Chipping Sparrow																									
Clay-colored Sparrow				5		2	1							1		1									
Song Sparrow				1		1																			
Lincoln's Sparrow	3	5		3		1		1	1	1	1	1	2	2			1					1	1	1	
White-throated Sparrow		1				1	1			2	2		1	5			3								
Harris' Sparrow																									
White-crowned Sparrow							1				1			1			3					5	9	1	
Dark-eyed Junco										1															
Rose-breasted Grosbeak						1																			
Common Grackle																	1								
Brown-headed Cowbird																									
Baltimore Oriole																									
Purple Finch																									
House Finch																									
American Goldfinch																									

Appendix 1b. New Bandings at Inglewood Bird Sanctuary - Fall 2005

Species	September														October						Total			
	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4		5	6	
Sharp-shinned Hawk				1																				2
Solitary Sandpiper																								11
Spotted Sandpiper																								4
Belted Kingfisher			1	1		1																	1	4
Downy Woodpecker												1												9
Northern Flicker																								3
Olive-sided Flycatcher																								3
Western Wood-Pewee																								17
Alder Flycatcher	1																							166
Willow Flycatcher																								7
Least Flycatcher			1																					45
Dusky Flycatcher																								2
Eastern Phoebe																								1
Eastern Kingbird																								11
Warbling Vireo																								10
Red-eyed Vireo																								3
Black-billed Magpie												1				2								3
Tree Swallow																								7
N Rough-winged Swallow																								2
Bank Swallow																								1
Black-capped Chickadee													5											28
Red-breasted Nuthatch			1																					2
White-breasted Nuthatch					1							1												2
Brown Creeper																					1			1
House Wren																								96
Golden-crowned Kinglet																							1	2
Ruby-crowned Kinglet	1		1	1			1							1				1				1		11
Swainson's Thrush	4						1			1			1						1					27
Hermit Thrush			1										2									1		4
American Robin																								43
Gray Catbird			1																					14
Brown Thrasher																								1
Cedar Waxwing																								22
Tennessee Warbler																								58
Orange-crowned Warbler	3		6		1	2				2					1	1						1		45
Nashville Warbler																								1
Yellow Warbler																								126
Magnolia Warbler	1																							5
Yellow-rumped Warbler	3		4			1				1		2												73
Townsend's Warbler																								2
Palm Warbler																						1		1
Blackpoll Warbler	1		1																					11
Black-and-white Warbler																								2
American Redstart																								7
Ovenbird																								16
Northern Waterthrush																								67
Connecticut Warbler																								1
Mourning Warbler																								5
MacGillivray's Warbler						1																		4
Common Yellowthroat				1																				2
Wilson's Warbler	2		2	4	3	3	1																	120
Western Tanager																								3
American Tree Sparrow												1											1	3
Chipping Sparrow																								34
Clay-colored Sparrow										1														14
Song Sparrow											1													21
Lincoln's Sparrow	4		2				7			2			1		1									44
White-throated Sparrow			2			1	6		2	2			2					1						34
Harris' Sparrow																			1					1
White-crowned Sparrow	10					3												1		1				36
Dark-eyed Junco									2														1	4
Rose-breasted Grosbeak																								3
Common Grackle																								2
Brown-headed Cowbird																								3
Baltimore Oriole																								11
Purple Finch																								2
House Finch																								9
American Goldfinch																								1

Appendix 2. Top 20 New Bandings at Inglewood Bird Sanctuary

Species	Spring			Fall		
	Total 2002-2005		2005	Total 1995-2005		2005
	Rank	Number	Rank	Rank	Number	Number
Yellow-rumped Warbler	1	528	1	1	3214	5
Swainson's Thrush	2	167	5	2	1657	3
American Robin	3	135	4	3	1229	2
Lincoln's Sparrow	4	129	2	4	1155	8
Yellow Warbler	5	86	6	5	935	7
White-crowned Sparrow	6	62	2	6	737	1
Orange-crowned Warbler	7	55	7	7	717	11
Tree Swallow	8	53	7	8	715	4
House Wren	9	49	9	9	710	13
Gray Catbird	10	47	10	10	507	6
Clay-colored Sparrow	11	44	10	11	498	13
Common Yellowthroat	12	43	20	12	491	10
Least Flycatcher	13	35	15	13	360	17
Blackpoll Warbler	14	34		14	306	16
Cedar Waxwing	15	23	12	15	283	12
Brown-headed Cowbird	15	23	12	16	257	8
White-throated Sparrow	17	21	15	17	241	20
Alder Flycatcher	17	21	18	18	192	15
Northern Waterthrush	19	20		19	189	
Song Sparrow	20	19	15	20	174	
Red-winged Blackbird		17	12		153	17
Baltimore Oriole		17			139	18
N Rough-winged Swallow		14	19			
Downy Woodpecker		11	20			
Yellow-rumped Warbler						
Wilson's Warbler						
Orange-crowned Warbler						
Tennessee Warbler						
Trail's Flycatcher*						
American Robin						
House Wren						
Chipping Sparrow						
Northern Waterthrush						
White-throated Sparrow						
Lincoln's Sparrow						
Cedar Waxwing						
Swainson's Thrush						
White-crowned Sparrow						
Least Flycatcher						
Ovenbird						
Black-capped Chickadee						
Clay-colored Sparrow						
Warbling Vireo						
Western Wood-Pewee						
Song Sparrow						

* includes Alder and Willow Flycatcher

Appendix 3. Monitored Species at Inglewood Bird Sanctuary

	Spring		Fall		Priority
	2002-2005		1995-2005		
	Mean		Multi-year Mean		
	Number	Frequency	Number	Frequency	
Solitary Sandpiper			8	6	
Western Wood-Pewee			13	8	C
Traill's Flycatcher	6	4	63	22	A
Least Flycatcher	9	6	22	14	C
Eastern Kingbird			12	9	C
Warbling Vireo			13	11	C
Tree Swallow	13	9			C
House Wren	12	8	66	26	E
Ruby-crowned Kinglet			15	10	B
Swainson's Thrush	42	14	23	15	A
American Robin	34	18	64	23	D
Gray Catbird	12	7			E
Cedar Waxwing			31	11	D
Tennessee Warbler			81	24	A
Orange-crowned Warbler	14	7	100	26	A
Yellow Warbler	22	10	106	25	C
Yellow-rumped Warbler	132	13	250	37	B
Blackpoll Warbler	9	3	10	7	A
American Redstart			12	8	C
Ovenbird			20	12	C
Northern Waterthrush	5	5	44	20	A
Common Yellowthroat	11	6			C
Wilson's Warbler			152	33	A
Chipping Sparrow			64	16	C
Clay-colored Sparrow	11	7	18	12	C
Song Sparrow			12	11	D
Lincoln's Sparrow	32	13	44	24	A
White-throated Sparrow			43	19	B
White-crowned Sparrow	16	7	25	13	B
Dark-eyed Junco			7	5	B
Baltimore Oriole			11	5	E



**Appendix 4. Year-to-Year Recaptures at Inglewood Bird Sanctuary,
Dunbow Road and Cominco Natural Area**

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Belted Kingfisher	1363-70918	IBS			B	r										
Belted Kingfisher	1363-70961	IBS												B	r	
Yellow-bellied Sapsucker	8051-65119	Dunbow						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	r	
Downy Woodpecker	1791-28131	IBS										B	r	r	r	
Downy Woodpecker	1871-73457	IBS													B	r
Hairy Woodpecker	0962-90911	IBS				B	x	x	x	x	r	x	r			
Hairy Woodpecker	1152-38713	IBS							B	x	r	x	r			
Northern Flicker	1383-76804	IBS							B	x	x	r				
Northern Flicker	1383-76830	IBS											B	r	r	
Northern Flicker	1453-31301	IBS				B	r									
Western Wood-Pewee	2160-19068	IBS							B	x	x	r				
Western Wood-Pewee	2160-19487	IBS								B	x	r				
Western Wood-Pewee	2190-10406	IBS										B	r			
Western Wood-Pewee	2200-47351	IBS										B	r	r	r	r
Western Wood-Pewee	2290-88513	IBS													B	r
Least Flycatcher	2050-70767	Dunbow						B	x	r						
Eastern Kingbird	1451-38640	IBS	B	x	x	r										
Eastern Kingbird	1461-31482	IBS							B	x	x	x	r			
Eastern Kingbird	1461-50853	Cominco									B	r				
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	1871-73452	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	2161-14605	IBS				B	x	x	r							
Warbling Vireo	2171-56330	Cominco									B	r				
Warbling Vireo	2190-10445	IBS										B	r			
Warbling Vireo	2220-34455	Cominco									B	r				
Warbling Vireo	2270-23115	IBS											B	x	r	r
Warbling Vireo	2270-80426	IBS												B	r	
Warbling Vireo	3101-45254	IBS								B	r					
Warbling Vireo	3101-89999	IBS								B	x	x	r			
Warbling Vireo	3121-21265	Cominco									B	r				
Tree Swallow	1671-56106	IBS												B	r	
Tree Swallow	1671-56126	IBS												B	r	r
Tree Swallow	2161-08859	IBS													B	r
Tree Swallow	2161-08860	IBS													B	r

**Appendix 4. Year-to-Year Recaptures at Inglewood Bird Sanctuary,
Dunbow Road and Cominco Natural Area**

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
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	
Northern Rough-winged Swallow	2290-88401	IBS													B	r
Black-capped Chickadee	1950-45065	IBS			B	r										
Black-capped Chickadee	1950-45186	IBS			B	r	r	r								
Black-capped Chickadee	1950-45254	IBS			B	r	r	x	x	r	r	r				
Black-capped Chickadee	1950-45255	IBS			B	x	x	x	x	x	r	r				
Black-capped Chickadee	1950-45256	IBS			B	r	r									
Black-capped Chickadee	1950-45258	IBS			B	r	r	r	r							
Black-capped Chickadee	1950-45786	IBS					B	r								
Black-capped Chickadee	1980-79991	IBS				B	r	r	r	r	r	r				
Black-capped Chickadee	1990-57154	IBS						B	r							
Black-capped Chickadee	2050-70142	IBS				B	x	r								
Black-capped Chickadee	2050-70427	IBS					B	r								
Black-capped Chickadee	2050-70849	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	2160-18180	IBS						B	r							
Black-capped Chickadee	2160-18704	IBS							B	r						
Black-capped Chickadee	2160-19059	IBS							B	r						
Black-capped Chickadee	2160-19120	IBS							B	r	r	r	r	r		
Black-capped Chickadee	2160-19174	IBS							B	r						
Black-capped Chickadee	2160-19522	IBS								B	r	r	r	r	r	
Black-capped Chickadee	2190-10126	IBS									B	r	r			
Black-capped Chickadee	2190-10128	IBS									B	x	r			
Black-capped Chickadee	2200-47365	IBS										B	r			
Black-capped Chickadee	2220-34017	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
Black-capped Chickadee	2270-80108	IBS												B	r	r
Black-capped Chickadee	2270-80454	IBS													B	r
Black-capped Chickadee	2270-80480	IBS													B	r
Black-capped Chickadee	2270-80687	IBS														B
Black-capped Chickadee	2270-80989	IBS														B
Black-capped Chickadee	2290-88658	IBS														B
Black-capped Chickadee	2290-92058	IBS														B
Black-capped Chickadee	2290-92141	IBS														B
Black-capped Chickadee	2290-92174	IBS														B
Black-capped Chickadee	2390-30780	IBS														B
Black-capped Chickadee	2390-30780	IBS														B

**Appendix 4. Year-to-Year Recaptures at Inglewood Bird Sanctuary,
Dunbow Road and Cominco Natural Area**

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Black-capped Chickadee	2390-30962	IBS											B	r		
Black-capped Chickadee	3500-89670	Dunbow						B	r	r						
White-breasted Nuthatch	1461-31479	IBS							B	r	r					
White-breasted Nuthatch	1461-84757	IBS				B	r	x	r							
White-breasted Nuthatch	1761-15767	IBS											B	r		
White-breasted Nuthatch	1761-28100	IBS														
White-breasted Nuthatch	1791-28150	IBS										B	r			
White-breasted Nuthatch	1811-73193	IBS												B	x	r
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	
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	2270-80297	IBS												B	r	r
House Wren	2270-80314	IBS												B	x	r
House Wren	2270-80336	IBS												B	r	
House Wren	2270-80346	IBS												B	r	
House Wren	2270-80400	IBS												B	r	
House Wren	2270-80454	IBS												B	r	
House Wren	2290-88409	IBS													B	r
House Wren	2290-88450	IBS													B	r
House Wren	2290-92112	IBS												B	r	
House Wren	2290-92203	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			
American Robin	0942-93625	IBS											B	d		
American Robin	0942-93635	IBS											B	r		
American Robin	0942-93643	IBS											B	r		
American Robin	0942-93654	IBS												B	r	
American Robin	0942-93655	IBS												B	r	
American Robin	0942-93660	IBS												B	r	
American Robin	0942-93694	IBS												B	x	d
American Robin	0942-93747	IBS												B	r	

**Appendix 4. Year-to-Year Recaptures at Inglewood Bird Sanctuary,
Dunbow Road and Cominco Natural Area**

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
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	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	1142-55013	IBS										B	r			
American Robin	1152-38703	Dunbow							B	r						
American Robin	1152-38721	IBS							B	x	x	x	x	x	r	r
American Robin	1152-38740	IBS							B	r	x	r	x	r		
American Robin	1202-13232	IBS													B	r
American Robin	1152-38887	IBS									B	r				
American Robin	1202-13232	IBS													B	r
American Robin	1202-13243	IBS													B	r
American Robin	1202-13272	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	8041-54948	IBS							B	r						
Gray Catbird	8041-54987	IBS								B	x	r	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	
Cedar Waxwing	1461-50802	Cominco									B	r				
Cedar Waxwing	1461-63733	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	1990-57854	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						


**Appendix 4. Year-to-Year Recaptures at Inglewood Bird Sanctuary,
Dunbow Road and Cominco Natural Area**

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Yellow Warbler	2160-18045	Dunbow							B	r						
Yellow Warbler	2160-18068	Dunbow							B	r						
Yellow Warbler	2160-18077	Dunbow							B	r						
Yellow Warbler	2160-19059	IBS							B	r						
Yellow Warbler	2160-19576	IBS								B	x	r				
Yellow Warbler	2160-19766	IBS								B	r	r				
Yellow Warbler	2190-10407	IBS									B	x	r			
Yellow Warbler	2200-47358	Cominco									B	x	r			
Yellow Warbler	2200-47371	IBS									B	x	x	r		
Yellow Warbler	2200-47400	IBS									B	r				
Yellow Warbler	2220-13037	IBS										B	r			
Yellow Warbler	2220-13250	IBS										B	r			
Yellow Warbler	2220-13258	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	2220-34423	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	
Yellow Warbler	2270-80288	IBS											B	r	r	
Yellow Warbler	2270-80307	IBS											B	r		
Yellow Warbler	2270-80421	IBS											B	r		
Yellow Warbler	2270-80347	IBS											B	x	r	
Yellow Warbler	2270-80777	IBS												B	r	
Yellow Warbler	2270-80781	IBS												B	r	
Yellow Warbler	2270-80861	IBS												B	r	
Yellow Warbler	2290-88550	IBS												B	r	
Yellow Warbler	2290-92197	IBS											B	r	r	
Yellow Warbler	2390-30570	IBS									B	r	x	r		
Yellow Warbler	3500-89667	Dunbow						B	x	r						
Yellow-rumped Warbler	1910-52603	IBS	B	r												
Clay-colored Sparrow	1990-57805	Cominco									B	x	x	r		
Clay-colored Sparrow	2050-70675	Dunbow						B	x	r						
Clay-colored Sparrow	2120-00157	Dunbow						B	r	r						
Clay-colored Sparrow	2120-00170	Dunbow						B	x	r						
Clay-colored Sparrow	2120-00176	Dunbow						B	r							
Clay-colored Sparrow	2160-18022	Dunbow							B	r						
Clay-colored Sparrow	2160-18028	Dunbow							B	r						
Clay-colored Sparrow	2160-18030	Dunbow							B	r						
Clay-colored Sparrow	2160-19504	IBS								B	x	x	r			
Clay-colored Sparrow	2220-34456	Cominco								B	r					
Clay-colored Sparrow	2220-34615	Cominco								B	r					
Clay-colored Sparrow	2270-23483	IBS								B	r					
Clay-colored Sparrow	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					

**Appendix 4. Year-to-Year Recaptures at Inglewood Bird Sanctuary,
Dunbow Road and Cominco Natural Area**

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Song Sparrow	1541-17895	Cominco									B	r				
Song Sparrow	1861-68929	IBS													B	r
Lincoln's Sparrow	1671-56128	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						E	r							
Brown-headed Cowbird	1461-31414	Dunbow							B	r						
Brown-headed Cowbird	1541-17842	Cominco									B	r				
Brown-headed Cowbird	1761-28251	IBS										B	r			
Brown-headed Cowbird	1791-28013	IBS											B	r	r	r
Brown-headed Cowbird	1811-73648	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				
Baltimore Oriole	8041-54938	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	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	

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

 banding location different than recapture location

Appendix 5. Captures at Las Caletas, CR 2005

	30-Mar	31-Mar	1-Apr	2-Apr	3-Apr	4-Apr	5-Apr	6-Apr	7-Apr	8-Apr	9-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	28-Apr	29-Apr					
Tennessee Warbler			1		1																															
Chimney-sided Warbler	3																																			
Northern Waterthrush	4				1																															
Kentucky Warbler	1																																			
Bananaquit	2				1																															
Gray-headed Tanager	10	1			1																															
White-throated Shrike-Tanager	6				1																															
White-shouldered Tanager	4				1																															
Black-chested Ant-Tanager	3				1																															
Cherry's Tanager	15	1	4	1	1	2																														
Golden-hooded Tanager	10				1																															
Green Honeycreeper	1																																			
Shining Honeycreeper	7																																			
Red-legged Honeycreeper	1																																			
Variable Seedeater	2				1																															
Thick-billed Seed-Finch	17	1			2																															
Orange-billed Sparrow	7	1			1																															
Black-striped Sparrow	25	2	2		2																															
Buff-throated Saltator	2																																			
Blue-black Grosbeak	9	1	1	4																																
Yellow-billed Cuckoo	5				1																															
Scarlet-rumped Cacique	1																																			
Spot-crowned Euphonia	1				1																															
Species	81	22	24	9	23	15	18	7	18	14	13	16	11	6	13	16	7	11	8	15	7	11	13	14	13	11	18	5	11	7	16					
Total	1054	37	57	17	46	36	35	22	38	32	31	77	53	20	43	39	35	32	32	40	29	30	29	27	37	31	37	11	31	18	19					
Other unbanded captures																																				
Ruddy Ground Dove	1																																			
Dove spp.	1																																			
Band-tailed Birdfinch	1																																			
Stripe-throated Heron	4				1																															
Charming Hummingbird	4				4																															
Rufous-tailed Hummingbird	3				1																															
Hummingbird spp.	1																																			
American Pygmy Kingfisher	1																																			
Swainson's Thrush	7																																			
Bananaquit	1																																			
Black-chested Ant-Tanager	1																																			
Orange-shed Sparrow	1																																			
Total unbanded other captures	25	1	6	1	0	0	3	1	0	1	2	2	1	0	0	0	2	0	1	1	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	
Total new captures	1080	38	63	16	46	36	38	23	38	33	33	79	54	20	43	39	37	33	33	40	29	32	30	27	37	31	37	11	31	19	19					
New captures																																				
Migrants	585	11	22	7	21	14	17	18	16	14	16	55	42	14	28	16	26	20	16	23	20	16	15	11	15	24	17	14	5	20	10	3				
Residents	514	27	41	11	25	22	21	5	22	19	17	24	12	6	15	23	11	13	17	10	20	13	17	19	12	13	14	23	6	11	9	16				
Hummingbirds	124	6	13	4	6	4	5	0	5	4	4	12	2	0	5	5	5	3	6	3	2	0	2	6	3	1	0	1	0	1	3	3				
Swainson's Thrush	549	9	20	7	18	13	17	17	13	13	15	54	42	13	28	16	26	20	15	23	19	16	15	11	13	24	17	14	5	20	10	3				

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

Species	Band	2002	2003	2004	2005
Bananaquit	0029	B	r	r	
Bananaquit	0070	B	r		
Bananaquit	0093	B	r		
Bananaquit	00115		B	x	r
Bananaquit	00191				B
Bananaquit	00197				B
Band-tailed Barbthroat	0072			B	r
Band-tailed Barbthroat	0290			B	r
Band-tailed Barbthroat	0166				B
Band-tailed Barbthroat	0237				B
Bicolored Antbird	0713	B	r		
Bicolored Antbird	893		B	r	r
Bicolored Antbird	0604			B	r
Bicolored Antbird	0605			B	r
Bicolored Antbird	0358				B
Bicolored Antbird	0668				B
Bicolored Antbird	0669				B
Bicolored Antbird	0670				B
Black-bellied Wren	0306				B
Black-cheeked Ant-Tanager	0859	B	r		
Black-cheeked Ant-Tanager	1604		B	r	x
Black-cheeked Ant-Tanager	865		B	r	r
Black-cheeked Ant-Tanager	1700		B	x	r
Black-cheeked Ant-Tanager	0319				B
Black-cheeked Ant-Tanager	1697				B
Black-hooded Antshrike	0810	B	r	x	x
Black-hooded Antshrike	0816	B	r	r	x
Black-hooded Antshrike	0819	B	r		
Black-hooded Antshrike	0824	B	r	x	x
Black-hooded Antshrike	737		B	r	r
Black-hooded Antshrike	738		B	x	r
Black-hooded Antshrike	0563		B	r	
Black-hooded Antshrike	769		B	x	x
Black-hooded Antshrike	1657			B	r
Black-hooded Antshrike	1665			B	r
Black-hooded Antshrike	1660			B	x
Black-hooded Antshrike	0643				B
Black-hooded Antshrike	0666				B
Black-striped Sparrow	1619		B	x	r

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

Species	Band	2002	2003	2004	2005
Black-throated Trogon	839	B	x	r	
Blue-black Grosbeak	878		B	r	r
Blue-black Grosbeak	883		B	r	
Blue-black Grosbeak	890		B	r	r
Blue-black Grosbeak	1651			B	x
Blue-black Grosbeak	0313				B
Blue-crowned Manakin	0007	B	r	r	x
Blue-crowned Manakin	00133		B	r	
Blue-crowned Manakin	0059	B	x	r	
Blue-crowned Manakin	00109		B	x	r
Blue-crowned Manakin	0119		B	r	r
Blue-crowned Manakin	0126		B	x	r
Blue-crowned Manakin	0140		B	x	r
Blue-crowned Manakin	00142		B	x	r
Blue-crowned Manakin	0160		B	r	
Blue-crowned Manakin	0176		B	x	r
Blue-crowned Manakin	0230			B	r
Blue-crowned Manakin	0323				B
Blue-crowned Manakin	0371				B
Blue-crowned Motmot	1203		B	r	
Blue-crowned Motmot	1208		B	r	x
Blue-throated Goldentail	0101			B	r
Blue-throated Goldentail	0116			B	x
Blue-throated Goldentail	0137			B	x
Bright-rumped Attila	767		B	r	
Bright-rumped Attila	0852	B	x	r	x
Bright-rumped Attila	0609			B	r
Bronzy Hermit	0066			B	r
Buff-throated Foliage-gleaner	0813	B	r	x	r
Buff-throated Foliage-gleaner	0904	B	r	r	r
Buff-throated Saltator	933				B
Charming Hummingbird	0016			B	r
Charming Hummingbird	0047			B	r
Charming Hummingbird	0163				B
Charming Hummingbird	0177				B
Charming Hummingbird	0196				B
Cherrie's Tanager	1606		B	r	
Cherrie's Tanager	0805	B	r	r	
Cherrie's Tanager	1650			B	r

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

Species	Band	2002	2003	2004	2005
Cherrie's Tanager	0327				B
Chestnut-backed Antbird	0832	B	r		
Chestnut-backed Antbird	0901	B	r	r	r
Chestnut-backed Antbird	0902	B	r		
Chestnut-backed Antbird	1602		B	r	
Chestnut-backed Antbird	758		B	r	r
Chestnut-backed Antbird	868		B	x	x
Chestnut-backed Antbird	780			B	r
Chestnut-backed Antbird	1637			B	r
Chestnut-backed Antbird	1638			B	r
Chestnut-backed Antbird	1662			B	r
Chestnut-backed Antbird	0322				B
Chestnut-backed Antbird	0331				B
Cocoa Woodcreeper	0316				B
Dot-winged Antwren	00104		B	r	
Dot-winged Antwren	00106		B	r	
Dot-winged Antwren	0033	B	x	r	r
Dot-winged Antwren	0110	B	x	r	
Dot-winged Antwren	0131		B	r	
Dot-winged Antwren	0199			B	x
Dot-winged Antwren	0238			B	x
Dusky-capped Flycatcher	790			B	r
Golden-crowned Spadebill	00187				B
Gray-chested Dove	1204		B	x	r
Gray-chested Dove	1210		B	r	r
Gray-chested Dove	1215			B	r
Gray-headed Tanager	1623		B	r	r
Gray-headed Tanager	0823	B	r		
Gray-headed Tanager	0843	B	r		
Gray-headed Tanager	748		B	r	
Gray-headed Tanager	0630				B
Green Honeycreeper	708	B	x	x	r
Green Honeycreeper	604		B	x	r
Green Honeycreeper	0593		B	x	r
Lesser Greenlet	00161			B	x
Long-billed Gnatwren	0023	B	r	r	x
Long-billed Gnatwren	0053	B	r		
Long-billed Gnatwren	0063	B	r	x	r
Long-billed Gnatwren	0103	B	r		

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

Species	Band	2002	2003	2004	2005
Long-billed Gnatwren	0508	B	x	r	r
Long-billed Hermit	0099				B
Long-tailed Woodcreeper	0286				B
Northern Barred Woodcreeper	920		B	x	x
Northern Barred Woodcreeper	924		B	x	r
Northern Bentbill	0004	B	r		
Northern Bentbill	00121		B	r	
Northern Bentbill	00149		B	r	
Northern Bentbill	0101			B	r
Northern Bentbill	00164			B	r
Northern Bentbill	0120				B
Northern Bentbill	00162			B	x
Northern Bentbill	00185				B
Northern Waterthrush	229037603				B
Ochre-bellied Flycatcher	0008	B	r	r	
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
Ochre-bellied Flycatcher	0177			B	r
Ochre-bellied Flycatcher	0202			B	r
Ochre-bellied Flycatcher	0203			B	r
Ochre-bellied Flycatcher	0206			B	r
Ochre-bellied Flycatcher	0207			B	r
Ochre-bellied Flycatcher	0226			B	r
Ochre-bellied Flycatcher	0247			B	r
Ochre-bellied Flycatcher	0101			B	r
Ochre-bellied Flycatcher	0250			B	x
Ochre-bellied Flycatcher	0252			B	x
Ochre-bellied Flycatcher	0276				B
Ochre-bellied Flycatcher	0277				B
Ochre-bellied Flycatcher	0289				B
Ochre-bellied Flycatcher	0306				B
Ochre-bellied Flycatcher	0307				B
Olivaceous Piculet	0038	B	r		

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

Species	Band	2002	2003	2004	2005
Olivaceous Piculet	0099	B	r		
Olivaceous Piculet	0650				B
Orange-billed Sparrow	0801	B	r	r	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	851	B	x	x	r
Orange-billed Sparrow	0861	B	r	x	r
Orange-billed Sparrow	869		B	r	r
Orange-billed Sparrow	873		B	r	
Orange-billed Sparrow	880		B	r	r
Orange-billed Sparrow	1629			B	r
Orange-billed Sparrow	1644			B	r
Orange-billed Sparrow	1664			B	r
Orange-billed Sparrow	1688			B	r
Orange-billed Sparrow	0328				B
Orange-billed Sparrow	0614				B
Orange-billed Sparrow	0639				B
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	
Orange-collared Manakin	0146		B	r	r
Orange-collared Manakin	0567		B	r	r
Orange-collared Manakin	0567		B	r	x
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
Orange-collared Manakin	0274				B

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

Species	Band	2002	2003	2004	2005
Orange-collared Manakin	0343				B
Orange-collared Manakin	0344				B
Orange-collared Manakin	0368				B
Plain Xenops	0009	B	x	x	x
Plain Xenops	0037	B	r	r	r
Plain Xenops	0046	B	r	r	r
Plain Xenops	0049	B	r	x	r
Plain Xenops	00120		B	r	x
Plain Xenops	0194			B	x
Plain Xenops	0346				B
Plain Xenops	0363				B
Red-capped Manakin	0511	B	r	r	r
Red-capped Manakin	0512	B	x	r	r
Red-capped Manakin	0514	B	x	x	x
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
Red-capped Manakin	0569		B	r	x
Red-capped Manakin	0570		B	x	r
Red-capped Manakin	0572		B	r	
Red-capped Manakin	0578		B	r	r
Red-capped Manakin	0579		B	r	
Red-capped Manakin	0601		B	r	
Red-capped Manakin	0626		B	r	r
Red-capped Manakin	0659				B
Red-capped Manakin	1001			B	r
Red-capped Manakin	1005			B	r
Red-capped Manakin	1011			B	r
Red-capped Manakin	1025			B	r
Red-capped Manakin	1046			B	x
Riverside Wren	816	B	x	x	x

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

Species	Band	2002	2003	2004	2005
Riverside Wren	731		B	r	
Riverside Wren	739		B	x	x
Riverside Wren	788			B	r
Riverside Wren	0618				B
Ruddy Quail-Dove	2806			B	x
Ruddy-tailed Flycatcher	00159		B	r	
Ruddy-tailed Flycatcher	0024	B	r		
Ruddy-tailed Flycatcher	0096	B	r	x	r
Ruddy-tailed Flycatcher	00182				B
Ruddy-tailed Flycatcher	0165				B
Rufous-tailed Hummingbird	0090			B	x
Rufous-tailed Hummingbird	0160				B
Rufous-tailed Hummingbird	0162				B
Rufous-tailed Jacamar	774		B	r	
Scaly-throated Leaf-tosser	746		B	r	
Scarlet-rumped Cacique	2804			B	r
Slaty Antwren	00153		B	r	
Slaty Antwren	0187			B	r
Slaty Antwren	00172			B	x
Slaty Antwren	0370				B
Streak-headed Woodcreeper	0701	B	r		
Streak-headed Woodcreeper	755		B	x	r
Streak-headed Woodcreeper	783			B	r
Streak-headed Woodcreeper	785			B	r
Streak-headed Woodcreeper	787			B	r
Streak-headed Woodcreeper	789			B	r
Streak-headed Woodcreeper	791			B	x
Tawny-crowned Greenlet	13	B	r		
Tawny-crowned Greenlet	0208			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
Tawny-winged Woodcreeper	0720	B	r		
Tawny-winged Woodcreeper	736		B	x	x
Tawny-winged Woodcreeper	795			B	r
Tawny-winged Woodcreeper	0636				B
Tawny-winged Woodcreeper	0626				B
Tawny-winged Woodcreeper	0300				B

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

Species	Band	2002	2003	2004	2005
Tawny-winged Woodcreeper	0302				B
Thick-billed Seed-Finch	0528	B	x	r	
Thrush-like Schiffornis	841	B	x	r	r
Thrushlike Schiffornis	753		B	r	
Variable Seedeater	0141		B	x	r
Violet-crowned Woodnymph	0332(0190)				B
Violet-crowned Woodnymph	0338(0156)				B
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
Wedge-billed Woodcreeper	00139		B	r	r
Wedge-billed Woodcreeper	0118		B	x	r
Wedge-billed Woodcreeper	0151		B	r	
Wedge-billed Woodcreeper	0154		B	r	r
Wedge-billed Woodcreeper	0212			B	r
Wedge-billed Woodcreeper	0218			B	r
Wedge-billed Woodcreeper	0223			B	r
Wedge-billed Woodcreeper	0233			B	r
Wedge-billed Woodcreeper	0254			B	r
Wedge-billed Woodcreeper	0279				B
Wedge-billed Woodcreeper	0300				B
Wedge-billed Woodcreeper	0302				B
White-shouldered Tanager	0722	B	x	r	
White-shouldered Tanager	0730	B	r		
White-shouldered Tanager	0597		B	r	
White-shouldered Tanager	0586		B	x	r
White-shouldered Tanager	794			B	r
White-shouldered Tanager	797			B	r
White-shouldered Tanager	1024			B	r
White-whiskered Puffbird	666			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