

CALGARY BIRD BANDING SOCIETY
2011 ANNUAL TECHNICAL REPORT



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Custodire aves

Keep watch on birds

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Calgary Bird Banding Society Code of Ethics

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

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

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

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

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

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



Common Mergansers at Inglewood Bird Sanctuary

(Photo by Bill Taylor)

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*Common Goldeneyes at Inglewood Bird Sanctuary
(Photo by Carol Knox)*

EXECUTIVE SUMMARY

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

During 2011, in addition to membership dues and member donations CBBS received support from the Alberta Gaming and Liquor Commission, a Community Spirit Grant, the Suncor Volunteer Grant Fund, the Alberta Conservation Association and the Baillie Birdathon.

Spring migration monitoring was undertaken at IBS for the 10th consecutive year since 2002. The 2011 fall program marks the 17th year of migration monitoring and follows pilot programs in 1992 and 1994 and full fall programs in 1995 through 2010. Mist-nets were operated on 33 of the 37 days between 1 May and 6 June (1988 net-hrs) and 66 of the 72 days between 28 July and 7 October (4639 net-hrs). Total new bandings of 500 (average plus) and 855 (lowest since inception of full monitoring in 1995) were achieved for the spring and fall programs, respectively.

The IBS Monitoring Avian Productivity and Survival (MAPS) site was operated again in 2011, the 19th replicate since 1992. An analysis of IBS MAPS results through 2008 was undertaken in 2009 (Smith et al. 2009 – see 2009 and 2010 ATRs and website).

2011 marked the 7th year of full Northern Saw-whet Owl migration monitoring at a site in the foothills southwest of Calgary. A total of 149 Northern Saw-whet Owls were captured and banded between 19 September and 31 October in 31 nights (623 net-hrs). Of these 46% were HY and 63% were female. New owls per net-hour since inception are 0.25, 0.29, 0.27, 0.23, 0.21, 0.14 and 0.24 in 2004, 2005, 2006, 2007, 2008, 2010 and 2011 respectively. Monitoring did not occur in 2009.

Pilot migration monitoring (Elkwater site), MAPS (3 sites) and Northern Saw-whet Owl monitoring (2 sites) was continued in 2011 at Cypress Hills Interprovincial Park. Mist-nets were operated on 36 of the 43 days between 1 May and 12 June (2052 net-hrs) and 62 of the 71 days between 4 August and 13 October (3743 net-hrs). Total new bandings of 952 and 1550 were achieved for the spring and fall programs, respectively. The three MAPS stations established in 2010 were continued. A total of 81 Northern Saw-whet Owls and 2 Long-eared Owls and 76 Northern Saw-whet Owls were captured and banded at the Spring Creek and Elkwater sites respectively between 18 September and 31 October. Capture rates were relatively low averaging approximately 7 NSWOs/100 net-hours.

After a two-year hiatus in conducting migration studies in Central America the CBBS initiated pilot spring migration monitoring at La Selva Biological Station (LSBS) in northeastern Costa Rica. Banding occurred from 26 March through 24 April in the succession plots at LSBS and

resulted in 667 new captures, including 125 Neotropical migrants and 247 hummingbirds, in 2052 net-hrs.

Trend analysis was undertaken by Bird Studies Canada (Tara Crewe) on all species occurring as migrants at IBS and captured in sufficient quantity to allow analysis. During fall migration from 1995-2011 only one species, Cedar Waxwing, appears to have a significant ($P < 0.05$) positive trend while 7 species had a significant negative trend (Belted Kingfisher, Red-eyed Vireo, Connecticut Warbler, MacGillivray's Warbler, Mourning Warbler, Palm Warbler and American Tree Sparrow). During spring migration from 2002-2011 one species, Traill's Flycatcher, evidenced a significant positive trend.

During 2011 membership in CBBS totaled 86. Banders-in-Charge and volunteers contributed 363 person-days or approximately 2904 hours to CBBS projects.

Both the number of mortalities during CBBS banding projects, primarily (42%) due to predation, and the injury rate remained low at 0.29% and 0.30% respectively.



***Great Blue Heron – Inglewood Bird Sanctuary
(Photo by Anne Weerstra)***

INTRODUCTION

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

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

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

- a Monitoring Avian Productivity and Survivorship (MAPS) station was established at IBS in 1992 and continued in 1993 and 1995-2004 and 2006-2011;
- spring banding was initiated in 1997 at Dunbow Road approximately 22-km SSE of the City of Calgary and continued in 1998 and 1999;
- spring and fall banding/migration monitoring was initiated at the Cominco Natural Area in 2000 with spring banding continued in 2001;
- colour-banding and relocation of Red-tailed and Swainson's Hawks at Calgary International Airport was initiated in cooperation with the Calgary Airport Authority in 2000 and continued through 2004;
- pilot spring migration monitoring was initiated at Las Caletas on the Osa Peninsula, Costa Rica in 2002, continued in 2003 and full migration monitoring initiated in 2004 and continued in 2005, 2007 and 2008;
- pilot spring migration monitoring was initiated in 2011 at La Selva Biological Station, Costa Rica;
- pilot spring migration monitoring, MAPS (3 sites), pilot fall migration monitoring and Northern Saw-whet Owl migration monitoring (2 sites) was initiated in 2010 and continued in 2011 at Cypress Hills Interprovincial Park (CHIP);
- pilot Monitoreo de Sobrevivencia Invernal (MoSI) was undertaken in Costa Rica both at Las Caletas and another site on Isla Violin in 2006 and continued at Las Caletas 2007-2008;
- a pilot Northern Saw-whet Owl migration monitoring pilot program was carried out at Inglewood Bird Sanctuary in 2000;
- pilot Northern Saw-whet Owl migration monitoring was carried out in 2003 and full migration monitoring was initiated in 2004 and has continued except for 2009 at the De Wit ranch in the foothills southwest of Calgary;
- pilot MAPS was undertaken at Dinosaur Provincial Park (DPP) in 2006; and
- pilot spring migration monitoring was undertaken at DPP in 2007.

As of 1998 the Calgary Bird Banding Society's Inglewood Bird Sanctuary site is a fully designated member of the Canadian Migration Monitoring Network (CMMN) a cooperative initiative of the member stations, Canadian Wildlife Service and Bird Studies Canada. This formal association of migrant monitoring sites across Canada significantly enhances the value of the work conducted at each site. The Calgary Bird Banding Society and Inglewood Bird Sanctuary hosted the 2003 CMMN national meeting and the initial face-to-face meeting of the CMMN Steering Committee in November 2006 as well as sending delegates to all other biennial national meetings..

Canadian Migration Monitoring Network (CMMN)



- 1 Rocky Point Bird Observatory
- 2 Tatlayoko Lake Bird Observatory
- 3 Vaseux Lake Bird Observatory
- 4 Mackenzie Nature Observatory
- 5 Yukon Bird Observatories (Albert Creek and Teslin Lake)
- 6 Lesser Slave Lake Bird Observatory
- 7 Beaverhill Bird Observatory
- 8 Inglewood Bird Observatory
- 9 Last Mountain Bird Observatory
- 10 Delta Marsh Bird Observatory
- 11 Thunder Cape Bird Observatory
- 12 Whitefish Point Bird Observatory
- 13 Bruce Peninsula Bird Observatory

- 15 Long Point Bird Observatory
- 16 Haldimand Bird Observatory (Ruthven)
- 17 Tommy Thompson Park Bird Research Station
- 18 Prince Edward Point Bird Observatory
- 19 Innis Point Bird Observatory
- 20 McGill Bird Observatory
- 21 Observatoire d'oiseaux de Tadoussac
- 22 Point Lepreau Bird Observatory
- 22 Greenlaw Mountain Hawk Watch
- 23 St. Andrew's Bird Banding Station
- 24 Atlantic Bird Observatory
- 25 Brier Island Bird Migration Research Station

14 Pelee Island Bird Observatory

FUNDING AND ACKNOWLEDGEMENTS

Funding sources other than membership dues and member donations during 2011:

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

Funds were used to provide a per diem to Banders-in-Charge (BICs), purchase mist-nets, produce the Annual Technical Report, fund the pilot program at CHIP, fund a pilot program at La Selva Biological Station in Costa Rica and cover migration monitoring miscellaneous costs (field data sheets, batteries, film and processing, storage etc.).

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

Sincere appreciation goes out to all CBBS members who have helped make 2011 successful for CBBS. In addition, many non-members have helped immensely by volunteering at our casinos, participating in the Baillie Birdathon and providing expertise such as carpentry and electrical.



***Volunteer Kathryn Manry and BIC Bill Taylor – Inglewood Bird Sanctuary
(Photo by Mike Potter)***

PROGRAMS AT INGLEWOOD BIRD SANCTUARY

Migration Monitoring

Background

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

Inglewood Bird Sanctuary (IBS) is a federal Migratory Bird Sanctuary and is an important site for migrating passerines. IBS is strategically located within 80-km of the Rocky Mountains (Figure 1) and is a unique and valuable member of the Canadian Migration Monitoring Network. IBS is located within Calgary which greatly facilitates member involvement. Pilot monitoring, covering only a portion of the fall migration, was undertaken in 1992 and 1994. Full spring and fall migration monitoring have occurred since 2002 and 1995, respectively, and 2011 marks the Calgary Bird Banding Society's 17th 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

Spring and fall migration of Neotropical migrants were monitored in 2011 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 2.6-m high x 30-mm mesh mist-nets were operated in permanent net lanes for approximately 6 hours each day beginning at sunrise.

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

Schedule and Coverage

Spring

Spring migration monitoring at IBS was conducted from 1 May to 6 June 2011. This was the 10th year of full spring migration monitoring at IBS. Mist-netting occurred on 33 of the 37 target days (89% coverage) for a total of 1988 net-hours (Table 1a, Figure 3a). Inclement weather resulted in 4 days of the monitoring period without banding. Fifteen other days had a reduced number of net-hours from the daily target of approximately 72 – one significantly due to weather and another 9 (28 May – 5 June) due to flooding.

Fall

Fall migration monitoring at IBS was conducted from 28 July to 7 October 2011. In addition to standardized constant-effort mist-netting, observations of other birds present in the reserve were noted. Mist-netting occurred on 66 of the 72 target days (92% coverage) for a total of 4639 net-hours (Table 1b, Figure 3b). Inclement weather (5 days) and no volunteer (1 day) resulted in 6 days of the monitoring period without banding. In addition there were 7 days with a reduced number of net-hours from the daily target of approximately 72.

New Bandings

Spring

A total of 500 (average plus) new bands were placed on birds of 47 species (Table 2a, Appendix 1a). Greater than 20 new bandings occurred on 6 days and greater than 70 new bandings occurred on 2 days (Figure 3a). New banding totals by species at IBS are presented in Table 2a.

The 20 most frequently banded species in spring over all years, and during 2011, are identified in Appendix 2. The top five in 2011 in descending order were Yellow-rumped Warbler, Swainson's Thrush, Lincoln's Sparrow, American Robin and Orange-crowned Warbler. Yellow-rumped Warbler, Swainson's Thrush, Lincoln's Sparrow, American Robin, and Clay-colored Sparrow are the top five species since 2002.

Fall

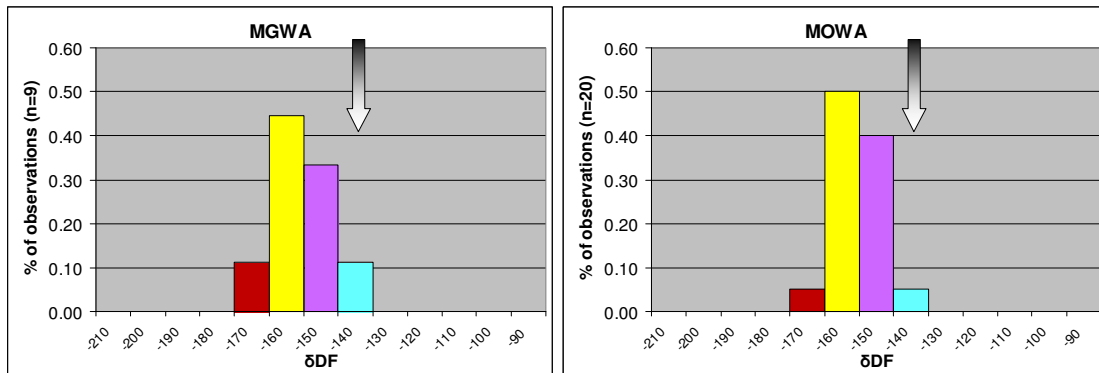
A total of 855 (lowest since inception in 1995) new bands were placed on birds of 62 species (Table 2b, Appendix 1b). At least 30, 40 and 90 new bandings occurred on 8, 2 and 1 days, respectively (Figure 3b). Approximately 34% of new bandings occurred in August and 59% in September. The level of new bandings that occur in August versus September at IBS varies from year to year. For example during 2006 new bandings were equally weighted between August and September (44% in each month) compared to the heavy weighting in August in 2009 and the heavy weighting in September this year. New bandings at IBS from 1992-2011 are presented in Table 2b.

The 20 most frequently banded species in fall over all years, and during 2011, are identified in Appendix 2. The top five during fall 2011 in descending order were Yellow-rumped Warbler, Orange-crowned Warbler, Cedar Waxwing, House Wren and Wilson's Warbler. Yellow-rumped Warbler, Wilson's Warbler, Orange-crowned Warbler, Yellow Warbler and Tennessee Warbler are the top five species since 1995.

Insight from Mist-netting

Mist-netting can substantially add to understanding the avifauna at a site particularly in detection of rare or elusive species. First spring bandings at IBS of Mourning Warbler, Palm Warbler and Spotted Towhee took place during spring 2011.

A number of warbler species often difficult to detect and identify in the field particularly in fall. During 2011 fall migration monitoring at IBS, 2 Connecticut Warblers, 4 Mourning Warblers and 2 MacGillivray's Warblers were banded. Although the expectation might be that Mourning Warblers banded at IBS would be from areas farther north than MacGillivray's Warblers, stable isotope analysis of rectrices collected at IBS in 2003, 2004 and 2008 suggests similar geographic origins. IBS is in an area of hybridization of these species (Hall 1979) and the similarity of their apparent origin may be an artifact of the difficulty in speciating hybrids.



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

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

Stable Isotope Ecology

Stable isotope ecology, through identifying the geographic origin of birds captured, offers the possibility of confirming the hypothesis that CMMN sites, including IBS, monitor birds from a wide area north of their respective locations. Preliminary results involving 1999 samples from Delta Marsh Bird Observatory and Atlantic Bird Observatory indeed indicated that CMMN stations are capturing birds from a broad area, not simply from a small region close to the station. To investigate the origin of birds captured at IBS during the fall migration, feather samples were collected from 54 resident and migrant birds of six species during 2003. A total of 919 feather samples were collected from 28 species at IBS during 2004 while an additional 1028 were collected from 33 species in 2008. The majority of these samples have been analyzed and interpretation is underway in an effort to characterize the breeding and/or natal geographic areas of origin for species monitored at IBS.

Recaptures

Recaptures at IBS during migration monitoring totaled 317 of at least 236 different birds of 34 species (see table on following page). Recapture numbers were highest in three resident species, House Wren, Tree Swallow and Yellow Warbler and two migrants, Northern Waterthrush and Yellow-rumped Warbler. Migrants with high recapture rates may be using IBS for moulting or extended “re-fuelling”.

Fourty-seven (47) birds banded at IBS in previous years were recaptured in 2011. Year-to-year recaptures from 1992-2011 are presented in Appendix 3. Most year-to-year recaptures occur in the year following banding. However in a few cases birds are recaptured in several subsequent years and occasionally re-appear a number of years after banding. For example an American Robin banded in 2003 was recaptured in 2011 after not being detected since 2004 and a Black-capped Chickadee banded in 2007 was recaptured in 2011 for the first time.



First Swainson's Hawk banded – Inglewood Bird Sanctuary

(Photo by Bill Taylor)

Individuals Recaptured at Inglewood Bird Sanctuary during Spring and Fall MM 2011					
Species	Recap	Banded	Species	Recap	Banded
Belted Kingfisher	2	9	Tennessee Warbler	3	25
Downy Woodpecker	3	8	Orange-crowned Warbler	11	96
Hairy Woodpecker	1	1	MacGillivray's Warbler	1	2
Traill's Flycatcher	2	32	Common Yellowthroat	1	5
Least Flycatcher	1	23	American Redstart	1	4
Eastern Kingbird	1	5	Yellow Warbler	21	59
Tree Swallow	21	10	Blackpoll Warbler	2	10
Black-capped Chickadee	19	8	Yellow-rumped Warbler	44	373
White-breasted Nuthatch	5	4	Canada Warbler	1	2
House Wren	49	69	Wilson's Warbler	9	53
Swainson's Thrush	11	71	Clay-colored Sparrow	5	20
Hermit Thrush	3	8	Fox Sparrow	1	2
American Robin	18	55	Song Sparrow	3	7
Gray Catbird	3	12	Lincoln's Sparrow	11	74
Cedar Waxwing	12	64	White-throated Sparrow	14	35
Ovenbird	4	15	White-crowned Sparrow	5	19
Northern Waterthrush	28	37	Brown-headed Cowbird	3	5

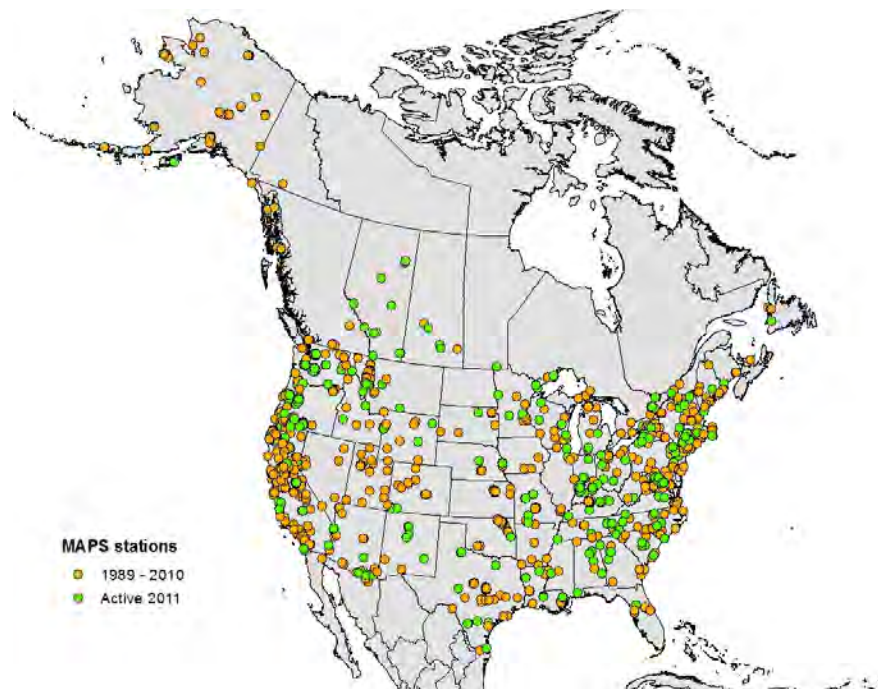


Gray Catbird – Cypress Hills Interprovincial Park
(Photo by Arthur Wieckowski)

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 2011 field season was MAPS 23rd 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 local breeders. IBS MAPS data is provided to the Institute for Bird Populations in Point Reyes, CA where it is integrated with data from more than 500 other North American stations.

Objectives

The overall objective of the MAPS Program is to contribute to an integrated avian population monitoring system for selected North American 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-variables such as climatic factors, habitat type, and management practice; and
- refine current population models and develop new ones.

Methods

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

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

Schedule and Coverage

2011 marked the 19th year of the MAPS Program at IBS since 1992. A shortage of qualified personnel precluded gathering data in 1994. Record rainfall and flooding in 2005 limited effort to 121 net-hours, all during the first two periods and precluded further access to the site until late July. Although MAPS during period 4 is no longer required at stations at the latitude of IBS we have continued with it in most years out of tradition.

Results

The number of each species banded, by date, during 2011 are summarized in Table 3. The number of each species that was banded is presented in Table 4 and Figure 4 for 2011 as well as the 18 previous years. Note that 7 of the 10 MAPS nets are also MM nets and therefore many new bandings are both MM and MAPS birds and included in tables and appendices in this report for both projects.

New MAPS bandings totaled 43 individuals of 12 species, the 2nd lowest and lowest total respectively since inception. Year-to-year recaptures are an important part of MAPS. In 2011 there were a total of 28 recaptures many of which were birds banded in previous years (see Appendix 3).

Discussion

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

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

NORTHERN SAW-WHET OWL MONITORING NEAR BRAGG CREEK

Background

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

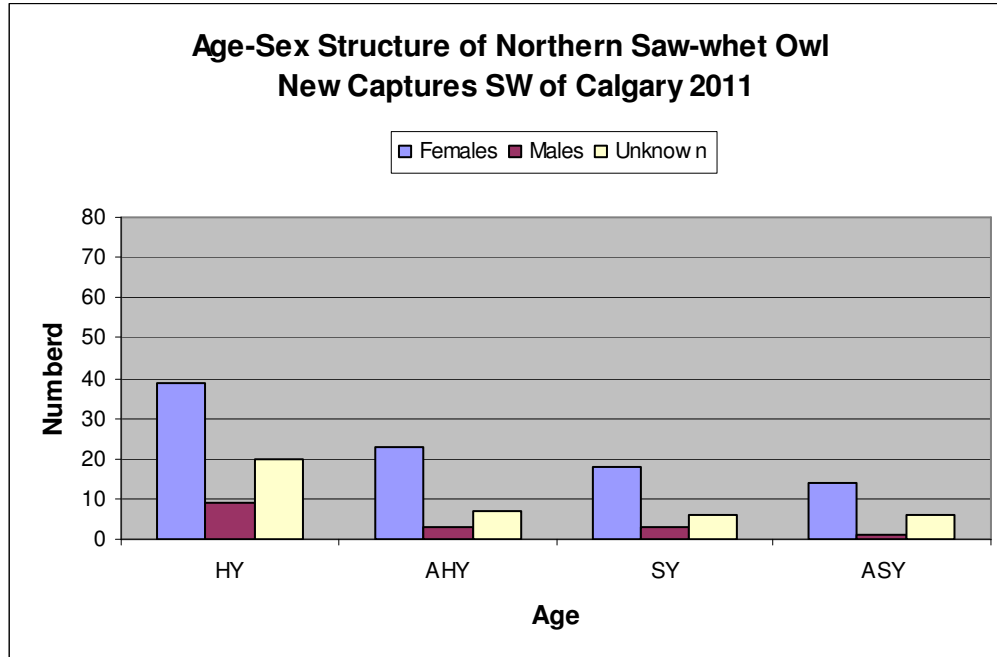
Methods

Monitoring began 19 September and continued through 31 October when the majority of Northern Saw-whet Owl movement occurs. A continuous recording of Northern Saw-whet Owl calls was played at 80% volume in a portable CD “boom box” from the center of an array (double H) of five 12-m long x 2.6-m high x 60-mm mesh mist-nets. The array was placed beneath a thick canopy of mature spruce trees. The area has been subject to cattle grazing and the understory and tree branches as high as a cow can rub are absent. Call playback commenced approximately 0.5-hrs after sunset and continued for 4-hrs, weather and other factors permitting. Nets were checked at least every 0.75-hrs by a Bander-in-Charge (BIC) and one or more volunteers. Sex, age and morphometric data were collected on all owls captured. Basic weather data (wind direction and speed, sky conditions and temperature) were noted at start and finish each evening.

Results

A total of 149 Northern Saw-whet Owls were captured and banded during 623 luring hours on 31 of 47 possible evenings between 15 September and 29 October (Figure 5). Of the 16 evenings when monitoring did not occur 6 were due to access being denied by the landowner and the rest (N=10) were due to weather or lack of a bander-in-charge and a volunteer. Peak movement occurred between 26 September and 19 October although owls were captured as early as 19 September and as late as 31 October.

Of the 149 new Northern Saw-whet Owl bandings, HY, AHY, SY and ASY age birds comprised 46%, 22%, 18% and 14%, respectively (see histogram below). Females comprised 63% and males 11%, while 26% could not be sexed with confidence. The number of Northern Saw-whet Owls per net-hour since inception is **0.25, 0.29, 0.27, 0.23, 0.21, 0.14 and 0.24** in 2004, 2005, 2006, 2007, 2008, 2010 and 2011 respectively. Monitoring did not occur in 2009. The low per net-hour in 2010 almost certainly reflects a poor breeding season as evidenced by the low numbers of HY birds encountered.



One owl that was originally banded on 25 October was recaptured on 28 October. An owl banded as HY-F at Millet, AB on 24 September 2010 was captured on 18 October 2011, 256-km SSW (196°) from the banding location (see Significant Re-encounters section).

Discussion

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

PROGRAMS AT CYPRESS HILLS INTERPROVINCIAL PARK

Cypress Hills Interprovincial Park is strategically located to compliment the array of migration monitoring member stations across Canada and has been the object of CBBS interest for a number of years. During 2010 and again in 2011 CBBS decided to undertake, on a pilot basis, several bird monitoring programs within CHIP.

Migration Monitoring

Spring

Spring Migration at CHIP occurred from 1 May to 12 June at the Elkwater Lake location (Figure 7) for 36 mornings of coverage (84%) with 6 and 1 mornings lost to weather and no personnel respectively (Table 5a, Figure 8a). Up to 12 nets contributed a total of 2052 net hours and captured 952 new birds banded of 59 species and forms (Table 6a, Appendix 4a). There were 156 recaptures of 89 different birds. Five days of ≥ 70 new bandings accounted for 41% of all new bandings. The top 5 most frequently banded species were Cedar Waxwing (269), Chipping Sparrow (106), Yellow Warbler (89), Least Flycatcher (77) and Traill's Flycatcher (33). A second year male Summer Tanager observed near the banding station on 25 May was the 4th record for Alberta.

Fall

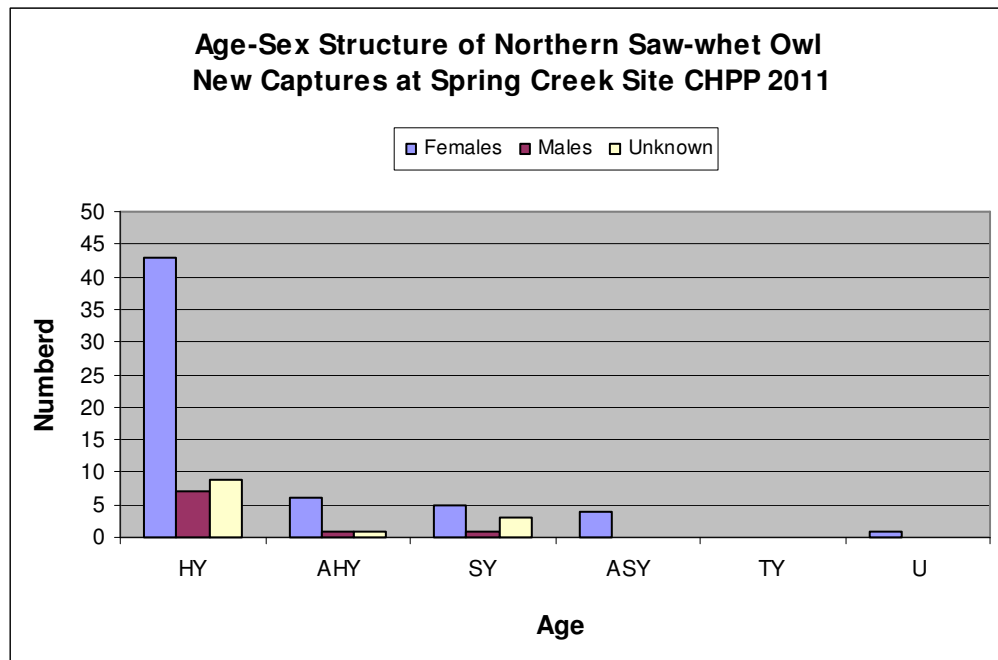
Fall migration monitoring began on 4 August and continued through 13 October at the Elkwater Lake site (Figure 7) for 62 days of coverage with 4 days lost due to lack of a qualified bander and 5 days were lost due to inclement weather. Wind is an issue at this site and resulted in 15 of 62 days achieving less than 50 net-hrs. A maximum of 12 nets resulted in 1550 birds of 71 species/forms being banded in 3743 net-hrs (Figure 8b Tables 5b, 6b Appendix 4b). A Blue-gray Gnatcatcher on 21 August was the first ever Alberta banding. There were 293 recaptures of 209 different birds. Approximately 47%, 40% and 13% of new bandings occurred in August, September and October respectively. As in 2010 there appears to be a significant push of birds in early October at this location. The top 5 most frequently banded species were Yellow Warbler (259), Myrtle Warbler (220), Least Flycatcher (188), Orange-crowned Warbler (203) and Clay-colored Sparrow (54).

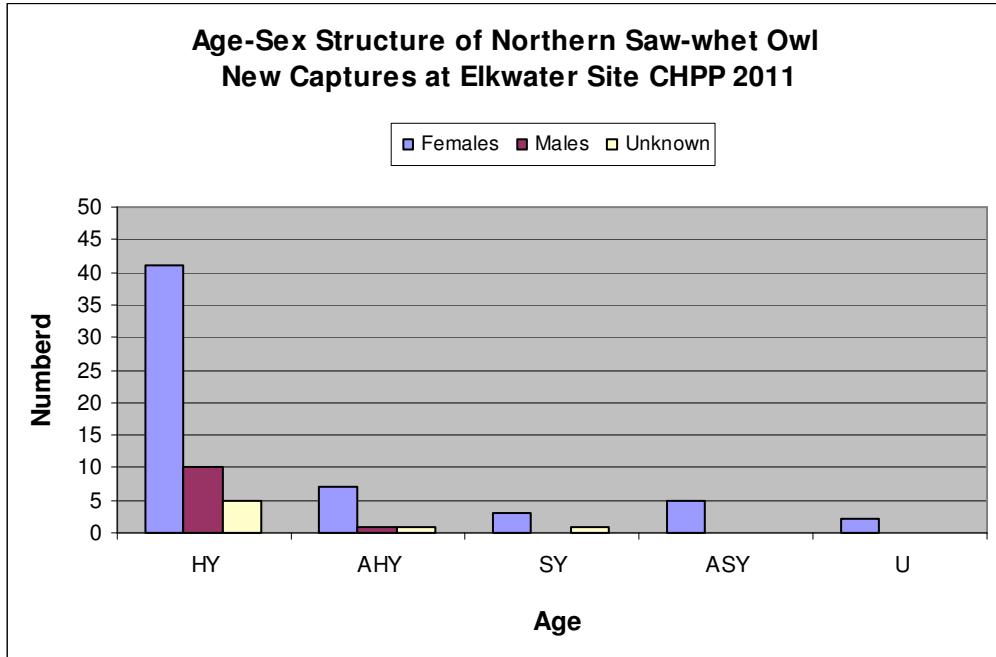
Monitoring Avian Productivity and Survivorship (MAPS)

Three locations along the north slope of the Cypress Hills were selected in 2010 for MAPS with 7 nets being used at each site (Figure 7). The Rodeo Grounds and Old Baldy location are situated at approximately 1200-m. The Spruce Coulee site is at 1300-m with a similar habitat to Old Baldy but receives more moisture. Total new bandings at each site by species is presented in Table 7. Recaptures were 45, 36 and 27 at Old Baldy, Rodeo Grounds and Spruce Coulee respectively totaling 108 of 83 different birds.

Northern Saw-whet Owl Migration Monitoring

Northern Saw-whet Owl Monitoring was undertaken from 18 September through 31 October at two sites, Spring Creek and Elkwater. A total of 81 Northern Saw-whet Owls and 2 Long-eared Owls were captured in 8 nets and 1099 net-hours at Spring Creek (7.4 NSWOs/100 net-hours compared to 8.2 in 2010) while a total of 76 Northern Saw-whet Owls were captured in 7 nets and 1277 net-hours at Elkwater (6.0 NSWOs/100 net-hours). Percentage of HYs, AHYs, SYs and ASYs totaled 73, 10, 11, 5 and 74, 12, 5, 7 at Spring Creek and Elkwater respectively. Percentage of Fs, Ms, and Us totaled 73, 11, 16 and 76, 15, 9 at Spring Creek and Elkwater respectively. These two banding sites are approximately 5-km apart and differ in elevation by 200-m.





***Alberta's first banding of Blue-gray Gnatcatcher – Cypress Hills Interprovincial Park
(Photo by Jeremiah Kennedy)***

PILOT SPRING MM AT LA SELVA BIOLOGICAL STATION, COSTA RICA

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

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

Monitoring at LSBS occurred every morning from 26 March to 24 April within the succession plots at LSBS. Up to 20 30-mm nets (Figure 10), opened from dawn for 6 hours weather permitting, contributed a total of 2052 net hours and resulted in 415 new bandings, 252 captures that were not banded (primarily hummingbirds) and 148 recaptures (Appendix 6). Of the new captures (new bandings and unbanded), comprised of 87 species, 125 were Neotropical migrants, 295 were residents other than hummingbirds and 247 were hummingbirds. Neotropical migrant new captures included:

Alder Flycatcher	1	Tennessee Warbler	3
Trail's Flycatcher	4	Chestnut-sided Warbler	9
Willow Flycatcher	1	Ovenbird	4
Philadelphia Vireo	1	Northern Waterthrush	2
Red-eyed Vireo	7	Kentucky Warbler	4
Yellow-green Vireo	4	Mourning Warbler	3
Swainson's Thrush	54	Canada Warbler	11
Wood Thrush	11	Yellow-breasted Chat	1
Gray Catbird	1	Summer Tanager	3
Golden-winged Warbler	1		

Although the diversity of Neotropical migrants is encouraging only 4 were captured in sufficient quantities to suggest that statistically robust trend analysis is possible over time. Another year of pilot migration monitoring will be undertaken in 2012 to investigate numbers of Neotropical migrants that are present later in April and the first two weeks of May.

SIGNIFICANT RE-ENCOUNTERS

All recaptures of birds at CBBS study sites and banded prior to 2011 are indicated in Appendix 3. No recaptures of migrants suggesting stopover site fidelity were recorded. The choice of which recaptures to include below is somewhat arbitrary, although species for which there are many recaptures over the years (e.g. Yellow Warbler, House Wren) are not included unless inferred age is > 5 years. Other species that are recaptured infrequently and for which longevity data are lacking may be included even if inferred age is < 5 years.

Northern Saw-whet Owl 1014-39945 Banded as HY-F at Millet, AB by Hardy Pletz on 24 September, 2010. Recaptured SW of Calgary on 18 October 2011. 256-km SSW (196°) in 22 days.

Eastern Kingbird 1871-73181 Banded as SY-M by Pat Mitchell at Inglewood Bird Sanctuary on 30 May 2005. Recaptured there in 2006, 2007, 2008, 2010 and 2 June 2011. At least 7-years 2-months old.

Tree Swallow 2321-98643 Banded as SY-U by Pat Mitchell near Bottrel (51 29.325 N, 114 28.832W) on 5 July 2009. Recaptured at Inglewood Bird Sanctuary as AHY-U on 9 May 2011. 3-years old and 62-km SE (144°).

American Robin 0942-93654 Banded as SY-M by Greg Meyer at Inglewood Bird Sanctuary 2 May 2003. Recaptured there in 2004 and during May 2011. 9-years old.

Yellow Warbler 2490-22575 Banded as HY-F at Inglewood Bird Sanctuary on 4 August 2007. Recaptured at Strathcona Science Park 5 June 2011. 3-years 10-months old. 285-km N (8°).



Red Crossbill - Cypress Hills Interprovincial Park
(Photo by Arthur Wieckowski)

TREND ANALYSES

Table 8 and Appendix 5 present the results of trend analysis on species monitored at Inglewood Bird Sanctuary during spring (green dots) and fall migration (orange triangles). During fall migration from 1995-2011 only one species, Cedar Waxwing, appears to have a significant ($P < 0.05$) positive trend while 7 species show a significant negative trend (Belted Kingfisher, Red-eyed Vireo, Connecticut Warbler, MacGillivray's Warbler, Mourning Warbler, Palm Warbler and American Tree Sparrow). During spring migration from 2002-2011 one species, Traill's Flycatcher, evidenced a significant positive trend.

Trend analysis is based on total captures from 1995-2011 for fall migration and 2002-2011 for spring migration and was performed by Bird Studies Canada (Tara Crewe). Note that scientific investigation normally requires a P level of < 0.05 and preferably < 0.01 in order to consider results significant. A P level of < 0.10 can be considered nearly significant. For each species analyses are based on migration "windows" that have been statistically calculated to reflect the period within which 95% of the birds were detected in a particular migration season. Restricting analyses to these windows eliminates birds that are counted very early and/or very late in the season (e.g., outliers that can include wintering birds and/or local breeders). Annual indices and trends were estimated using Generalized Additive Models with Poisson distribution in R-Project. Because the p-value of the trend based on an analysis of all data is overly optimistic, a Monte Carlo style re-sampling (1000 times for each species) was used, with years randomized to estimate a p-value for the trend. The charts in Appendix 5 show the estimated annual indices of abundance with a Loess curve plotted.

Although the trends with $P < 0.05$ and even < 0.10 are likely real, the cause behind them is open to interpretation. Only time and comparison to other CMMN stations and interpretation in the context of other data sets will indicate whether significant trends are due to changes in regional populations or to other confounding variables such as weather or local habitat change.

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

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

Broad regional similarities in population trends were supported by positive between-station correlations of annual indices at relatively short inter-station distances. However, correlations were zero or even negative beyond about 2000 km. Furthermore, trends within a region were more similar than trends among regions, with more positive trends in Ontario (spring and fall) and Western (fall) regions and more negative trends in Prairie (spring and fall) and Eastern (fall) regions. Taken together across the country, population trends were not affected by migration

strategy (temperate vs neotropical migrant) or by ecoregional association (boreal vs non-boreal). Hence, at the national level, roughly equal proportions of neotropical migrants and temperate migrants were declining or increasing. However, regional differences did occur in these patterns. For example, more species in the Prairie region exhibited negative trends in spring and fall for both neotropical and temperate migrants (including species breeding in the boreal forest) than in other regions of Canada.

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



Cypress Hills Interprovincial Park
(Photo by Arthur Wieckowski)

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 a limited number of people are in the reserve at one time, in order to minimize impact. Thus, on any given day, a Bander-in-Charge and from 1-4 volunteers carry out the banding. CBBS projects not based in IBS are not subject to this restriction. All participants in CBBS projects at IBS are required to complete the IBS orientation each year. In addition before participating in any CBBS project including those at IBS, members are required to complete the CBBS orientation each year.

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 volunteers listed in Table 9 who contributed approximately 8 hours in the field on each day indicated (363 person-days or 2904 hours).

Banders-in-Charge (BIC)

CBBS has no salaried staff. However, a per diem is available to all Banders-in-Charge during most CBBS projects (a contract bander and assistant were hired to carry out pilot migration monitoring at CHIP). This arrangement provides an incentive for qualified individuals to assume the BIC duties and imposes accountability on the BIC to complete field data sheets and input data to computer files. No per diems or the final payment due on a contract are paid until all duties of the BIC, including data entry, have been fully completed. Banders-in-Charge and contract banders and assistants contributed approximately 8 hours in the field on each day indicated (515 person-days or 4120 hours).



Black-crowned (Western Slaty-) Antshrike – La Selva Biological Station, Costa Rica

(Photo by Ken Foster)

MORTALITIES AND INJURIES

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

Table 10 presents all casualties during 2011 for all programs, including IBS, Northern Saw-whet Owl, MAPS, LSBS and CHIP. 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 was 0.29% primarily (56%) due to predation and the injury rate was 0.30% (Figure 11).

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



Royal Flycatcher – La Selva Biological Station, Costa Rica

(Photo by CBBS)

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See website

www.calgarybirdbandingsociety.org



Cinnamon Becard – La Selva Biological Station, Costa Rica

(Photo by Ken Foster)

FIGURES

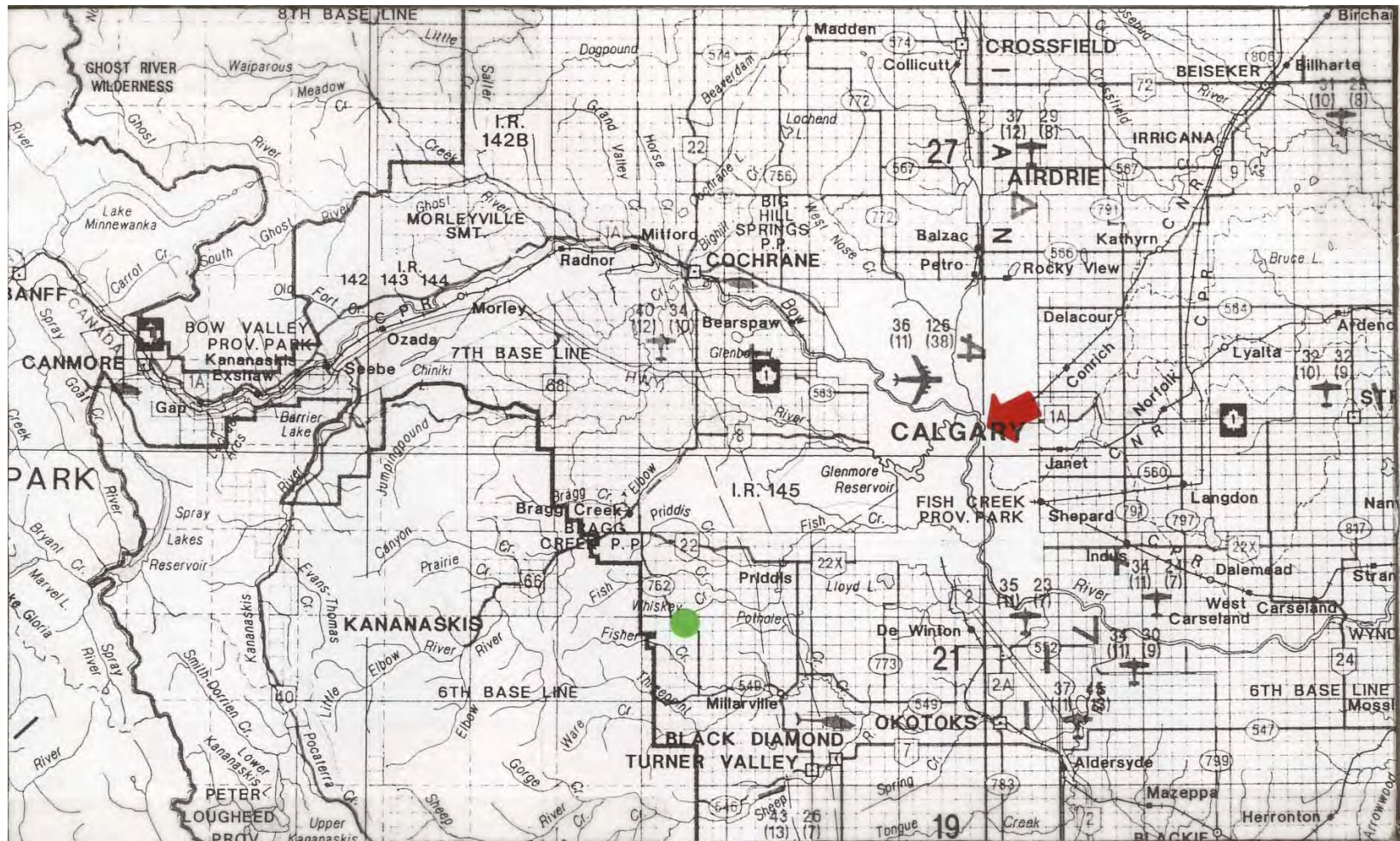


Figure 1: 1:250,000 NTS topographic map segment showing regional context of Inglewood Bird Sanctuary (red arrow) and the CBS Northern Saw-whet Owl migration monitoring site (green dot)



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

Figure 3a. New bandings at Inglewood Bird Sanctuary - Spring 2011

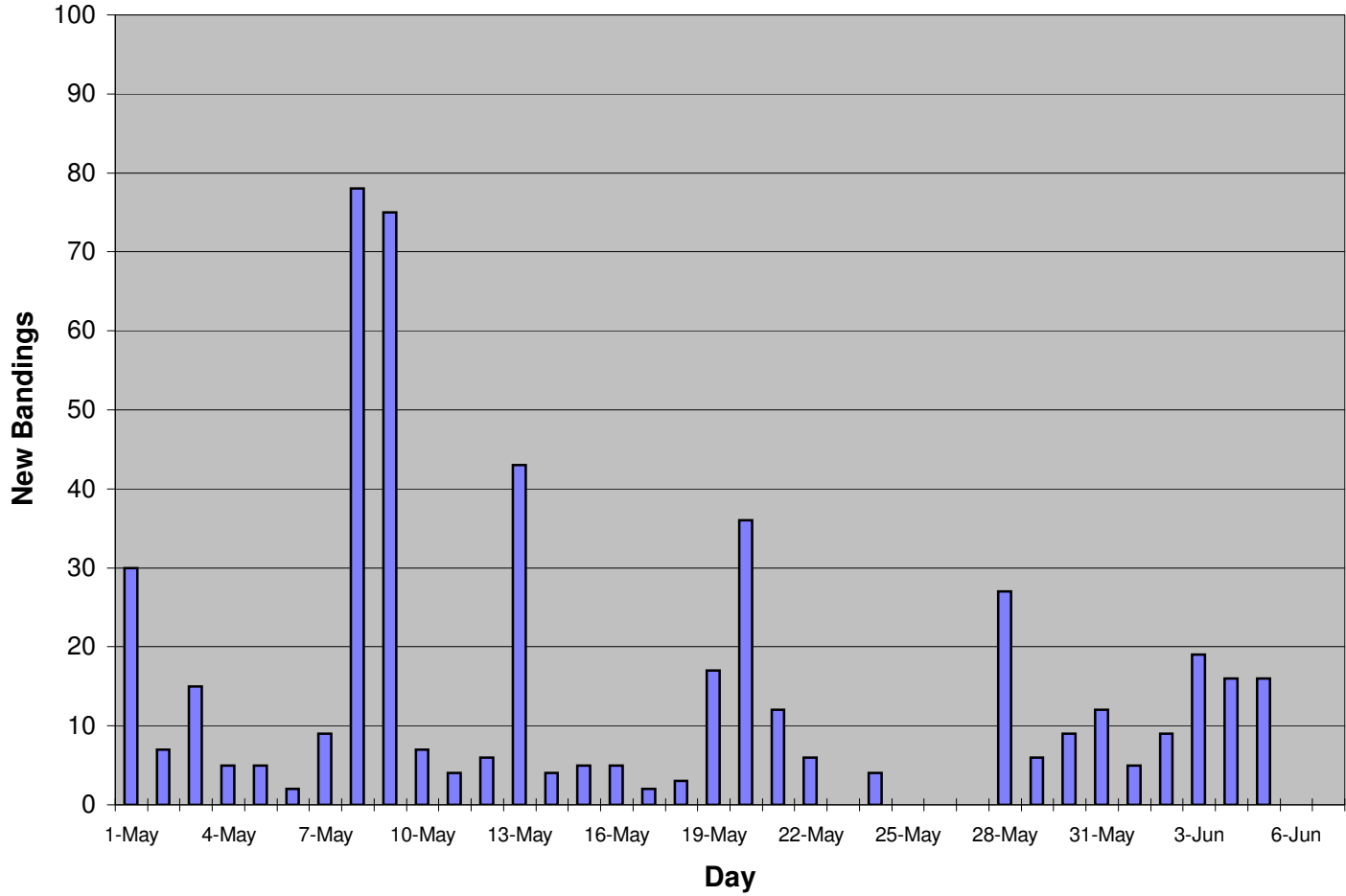


Figure 3b. New Bandings at Inglewood Bird Sanctuary - Fall 2011

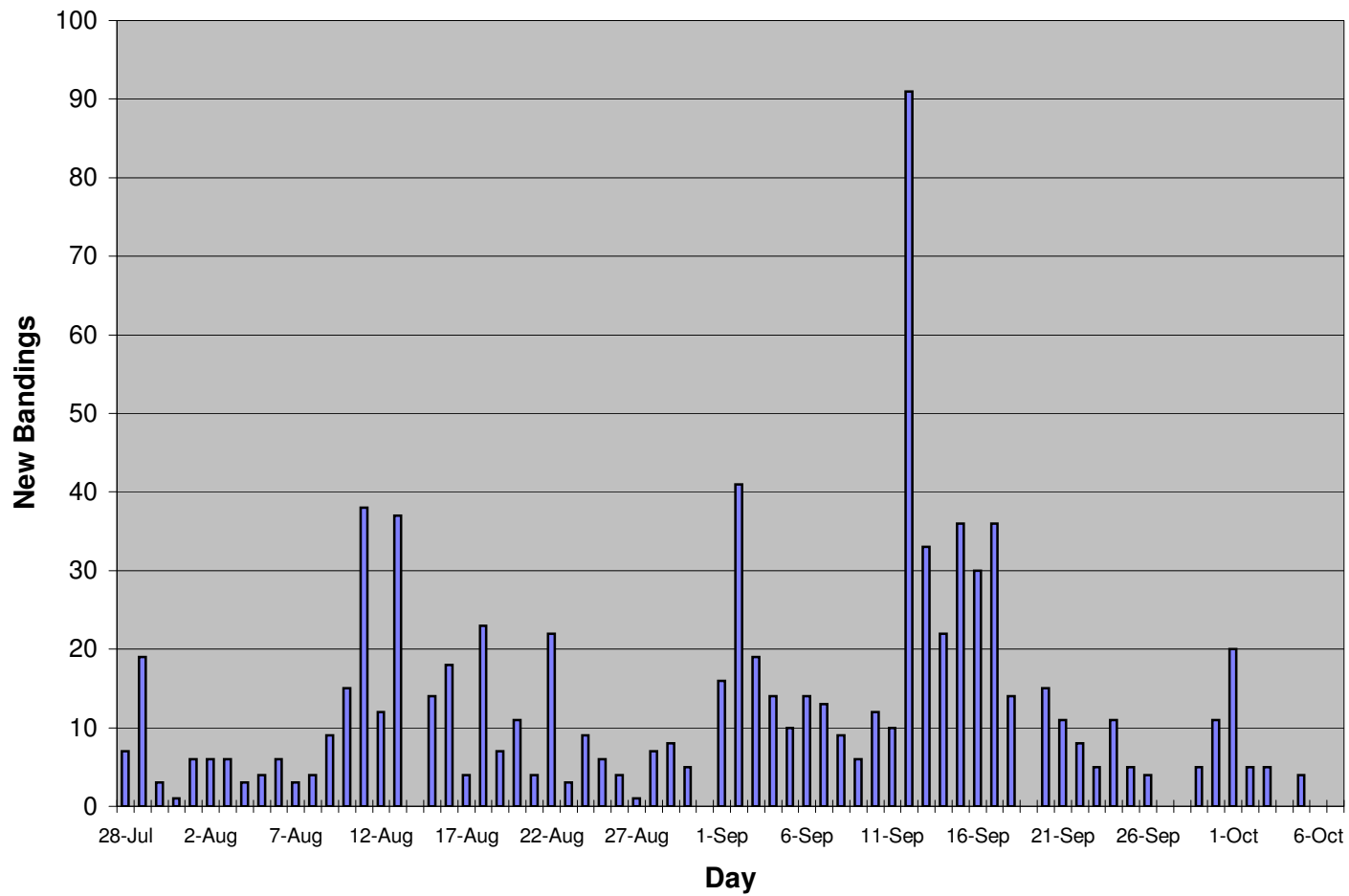


Figure 4. MAPS at Inglewood Bird Sanctuary

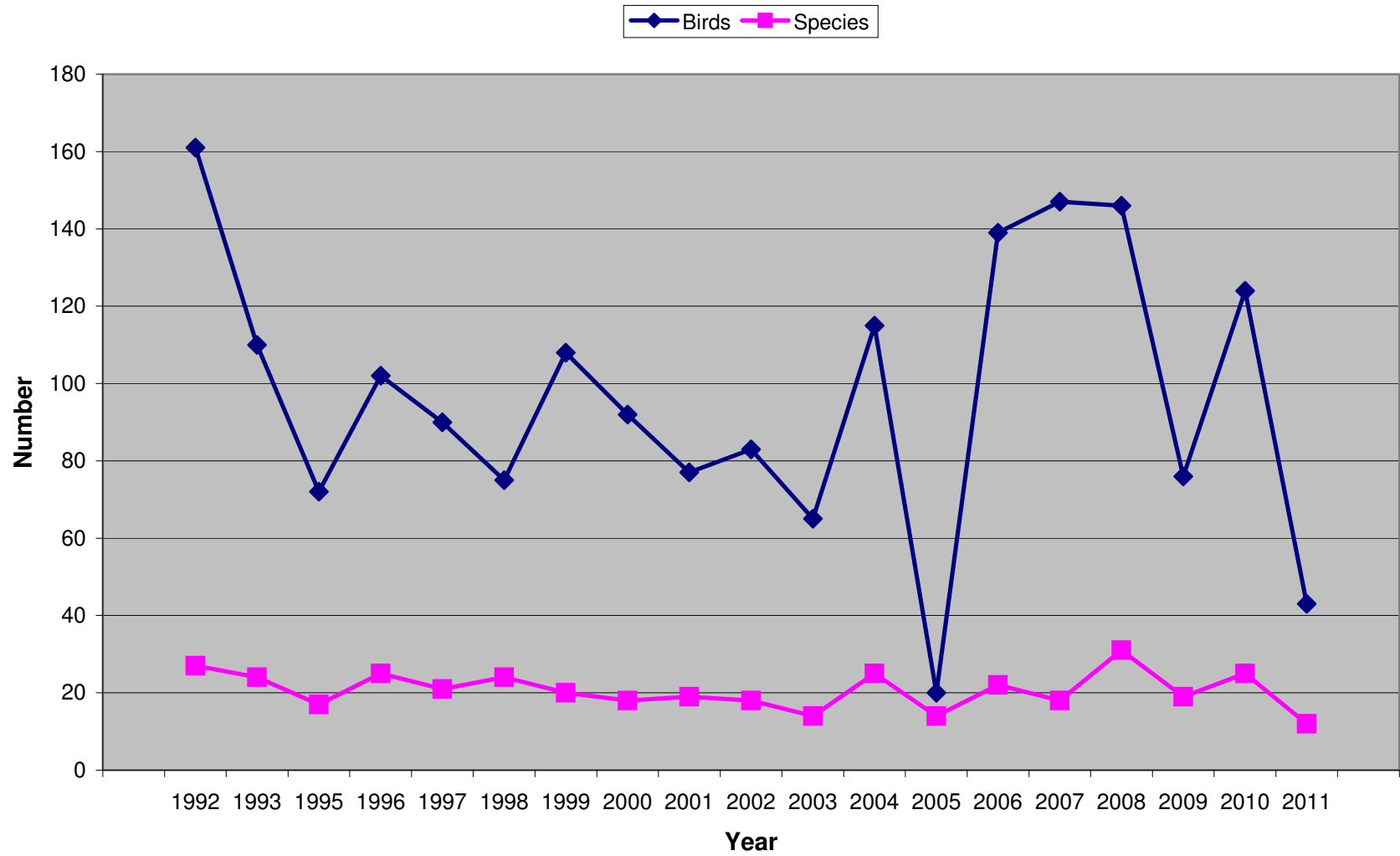
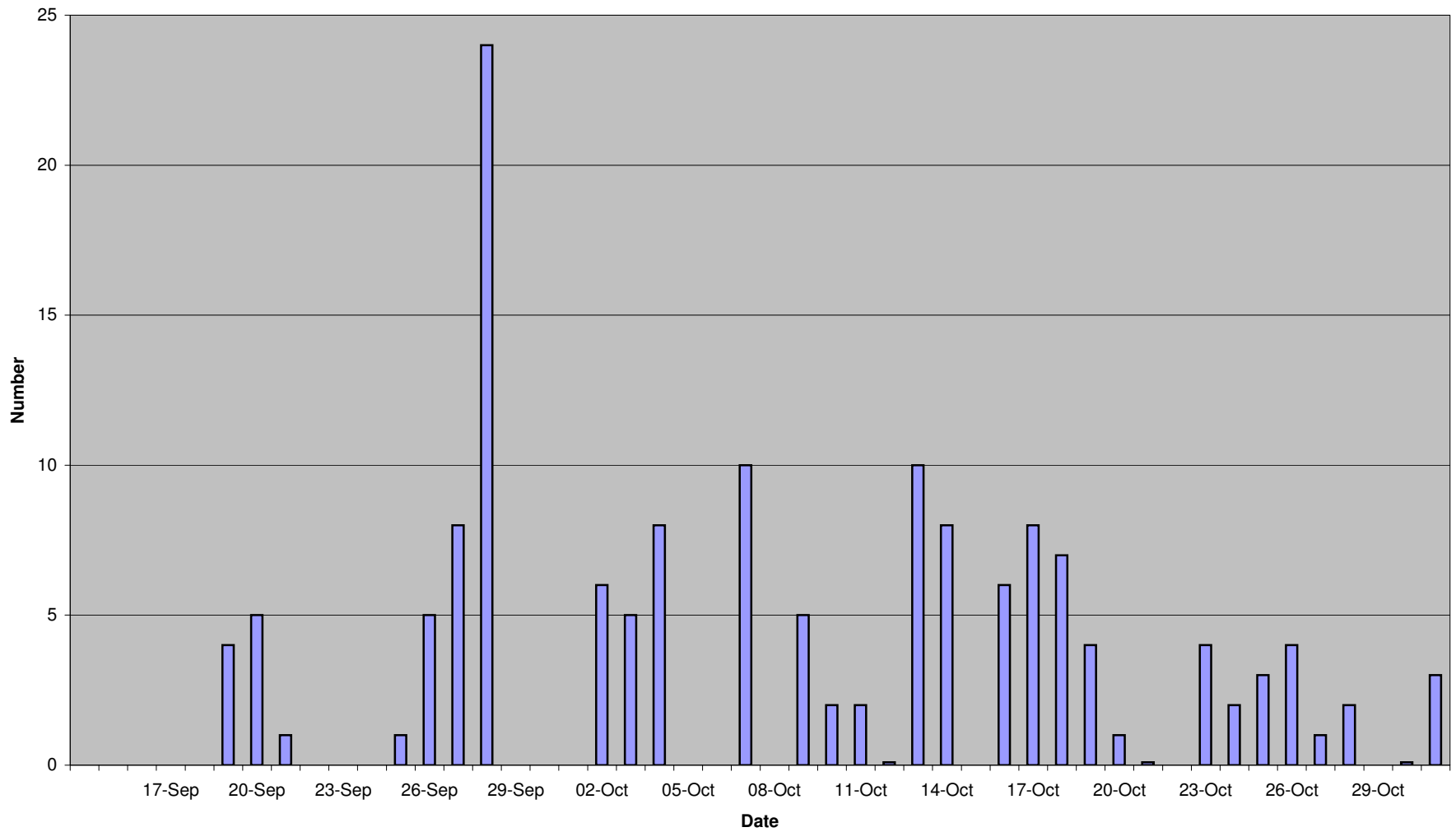


Figure 5. Northern Saw-whet Owl New Captures 2011
(new bands=148, foreign recapture=1)
Number = 0.1 indicates nets up but no owls captured



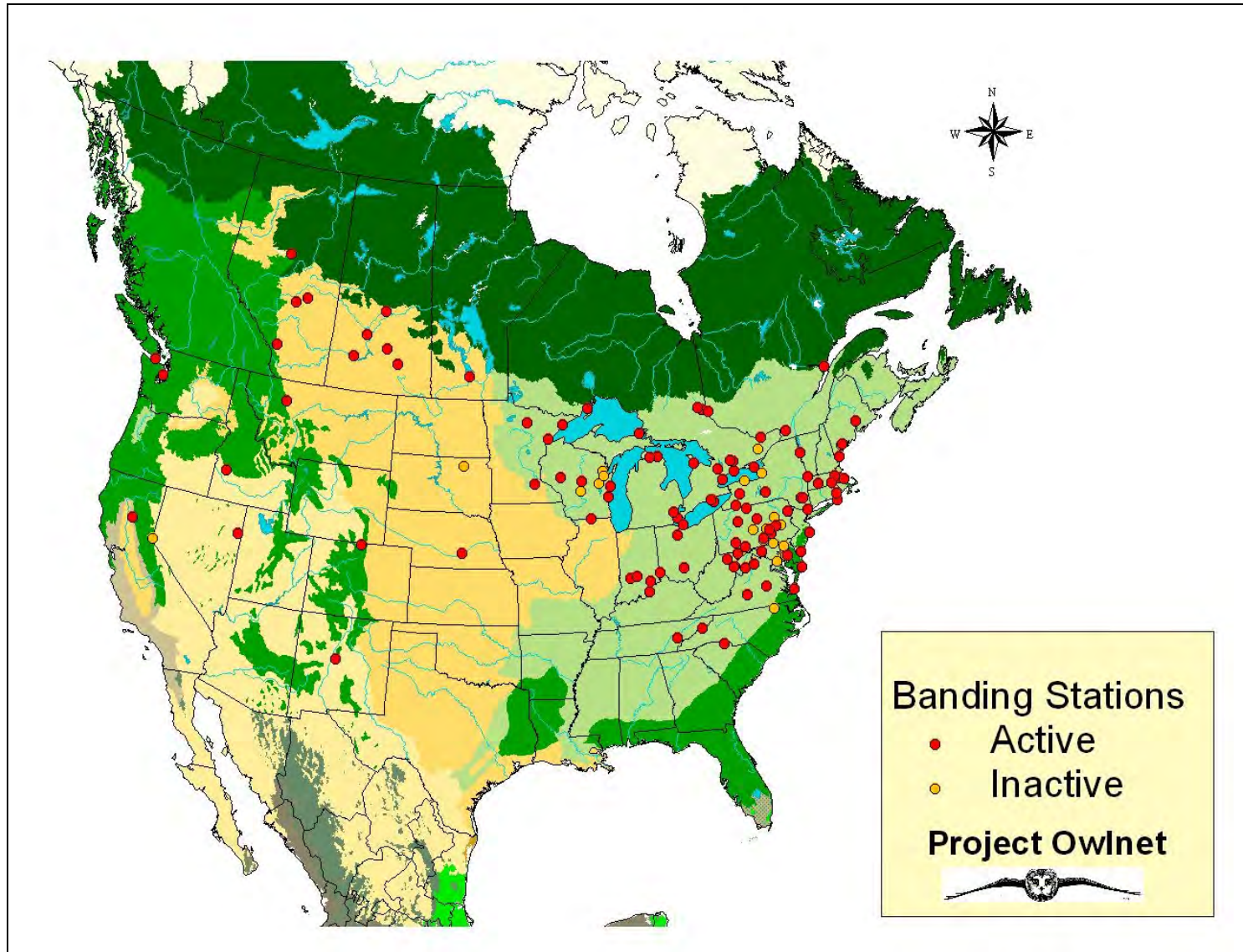


Figure 6. Northern Saw-whet Owl Migration Monitoring Stations Across North America

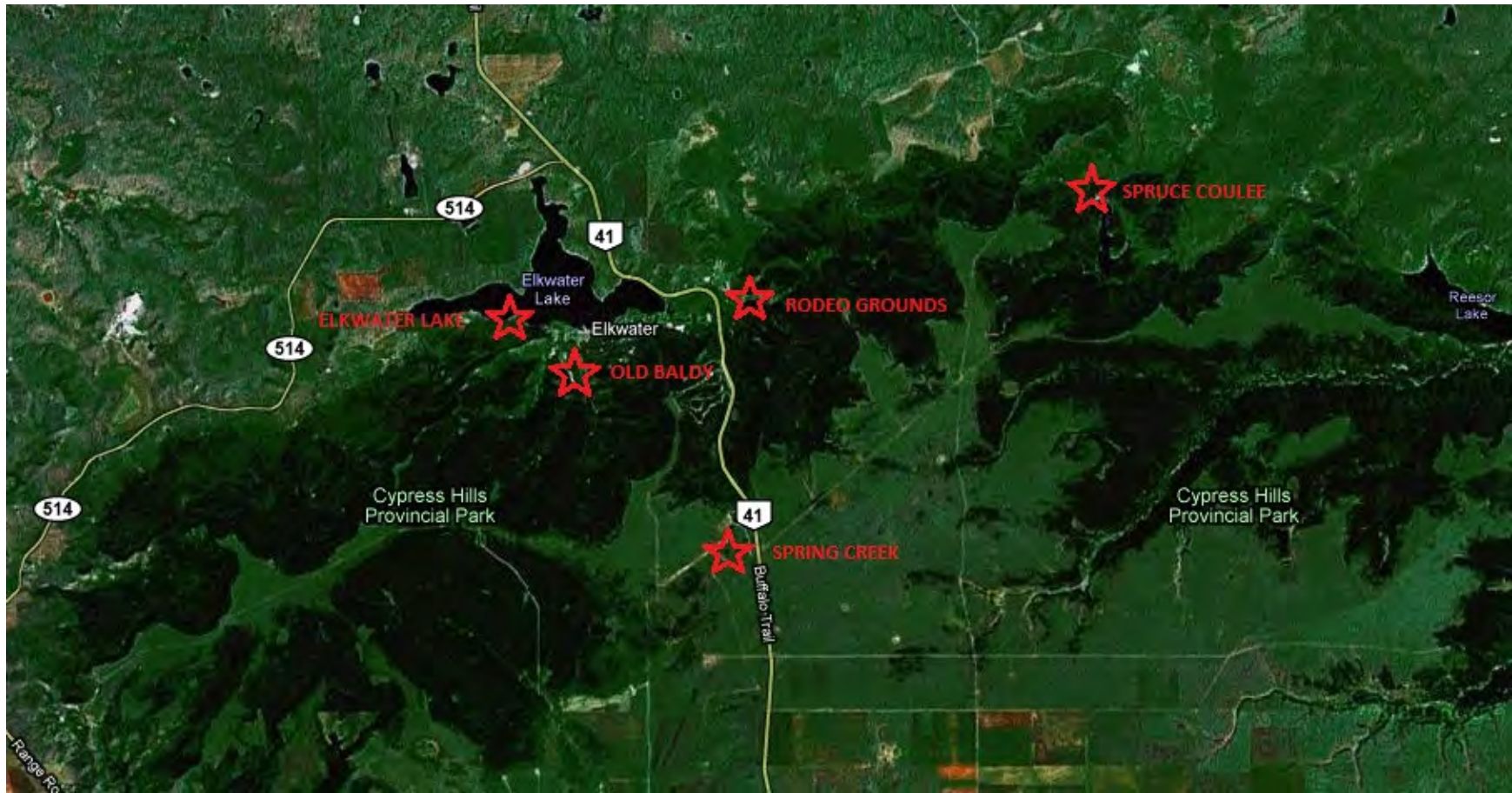


Figure 7. Cypress Hills Interprovincial Park Monitoring Locations

Figure 8a. New bandings at Cypress Hills Interprovincial Park - Spring 2011

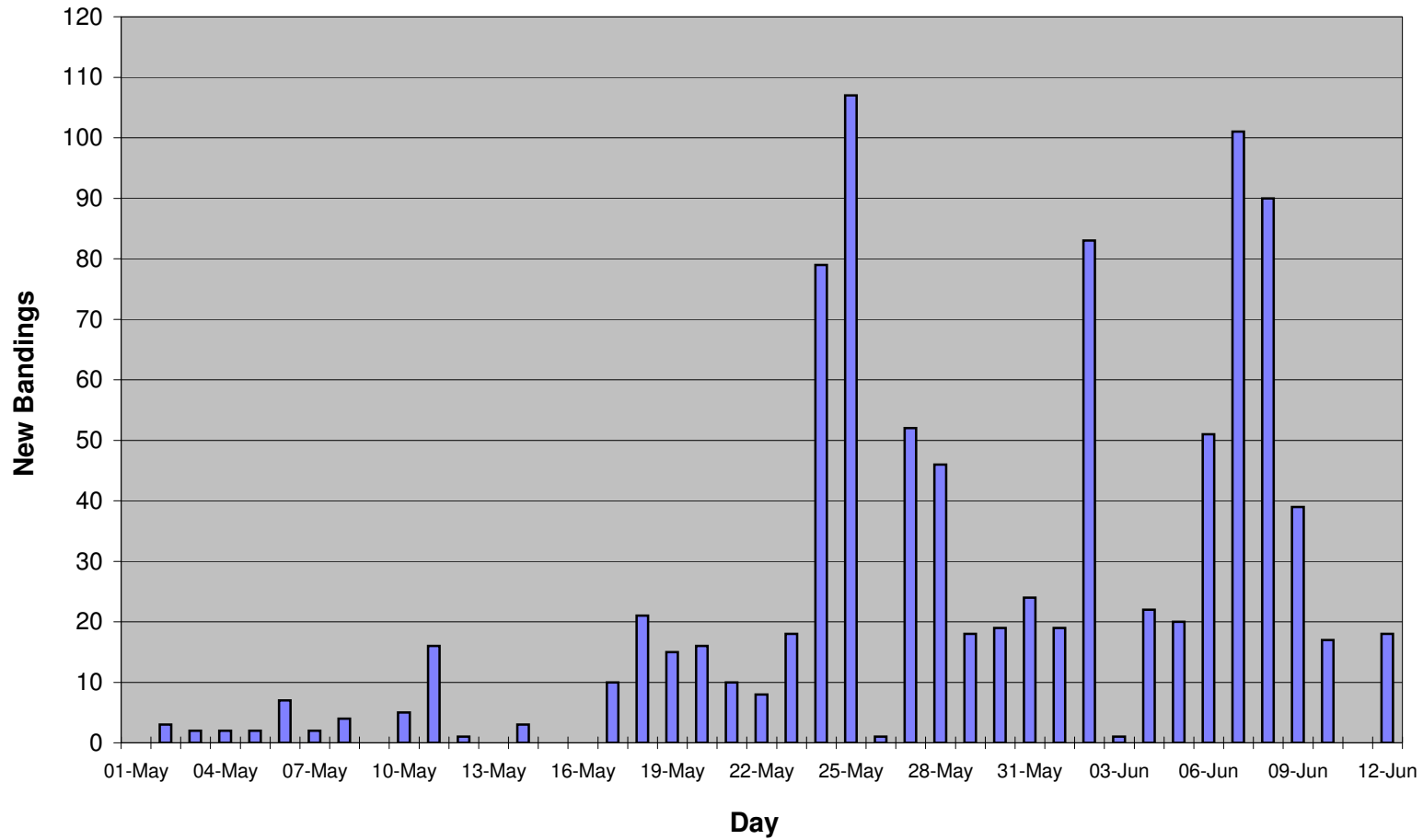
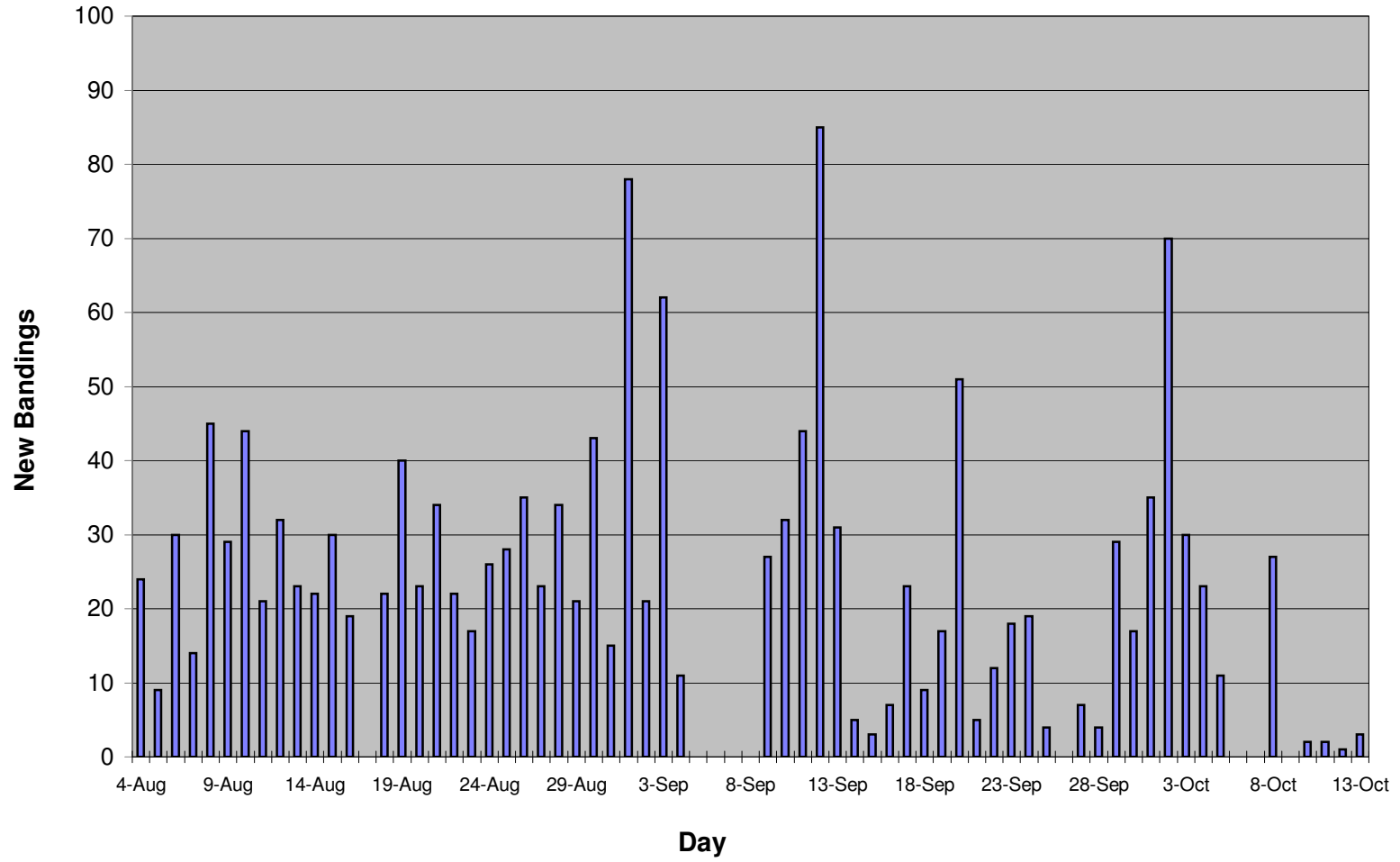
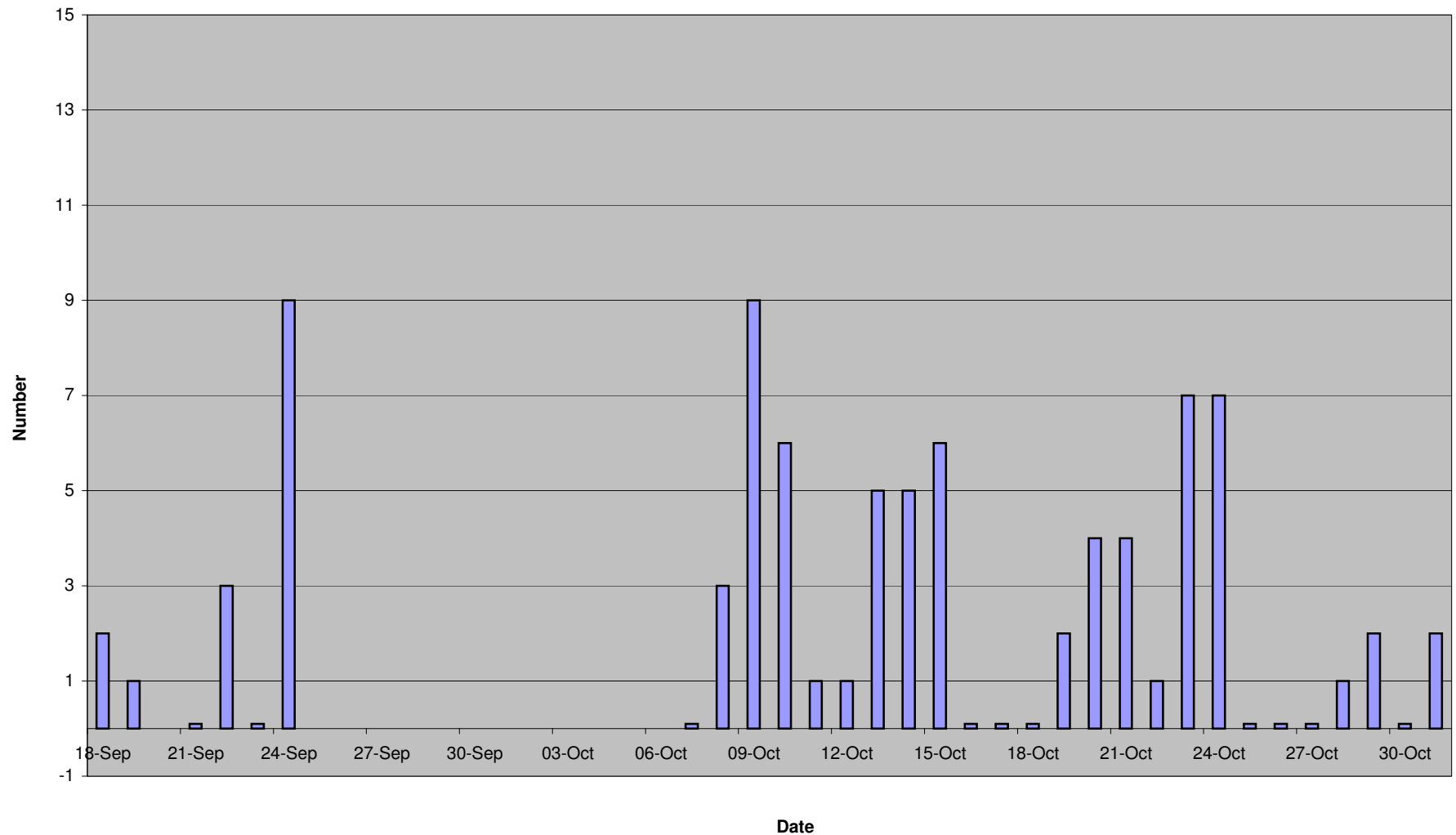


Figure 8b. New Bandings at Cypress Hills Interprovincial Park- Fall 2011



**Figure 9a. Northern Saw-whet Owl New Captures at Spring Creek Site
Cypress Hills PP 2011
(new bands=81)**

Number = 0.1 indicates nets up but no owls captured



**Figure 9b. Northern Saw-whet Owl New Captures at Elkwater Site
Cypress Hills PP 2011
(new bands=76)**

Number = 0.1 indicates nets up but no owls captured

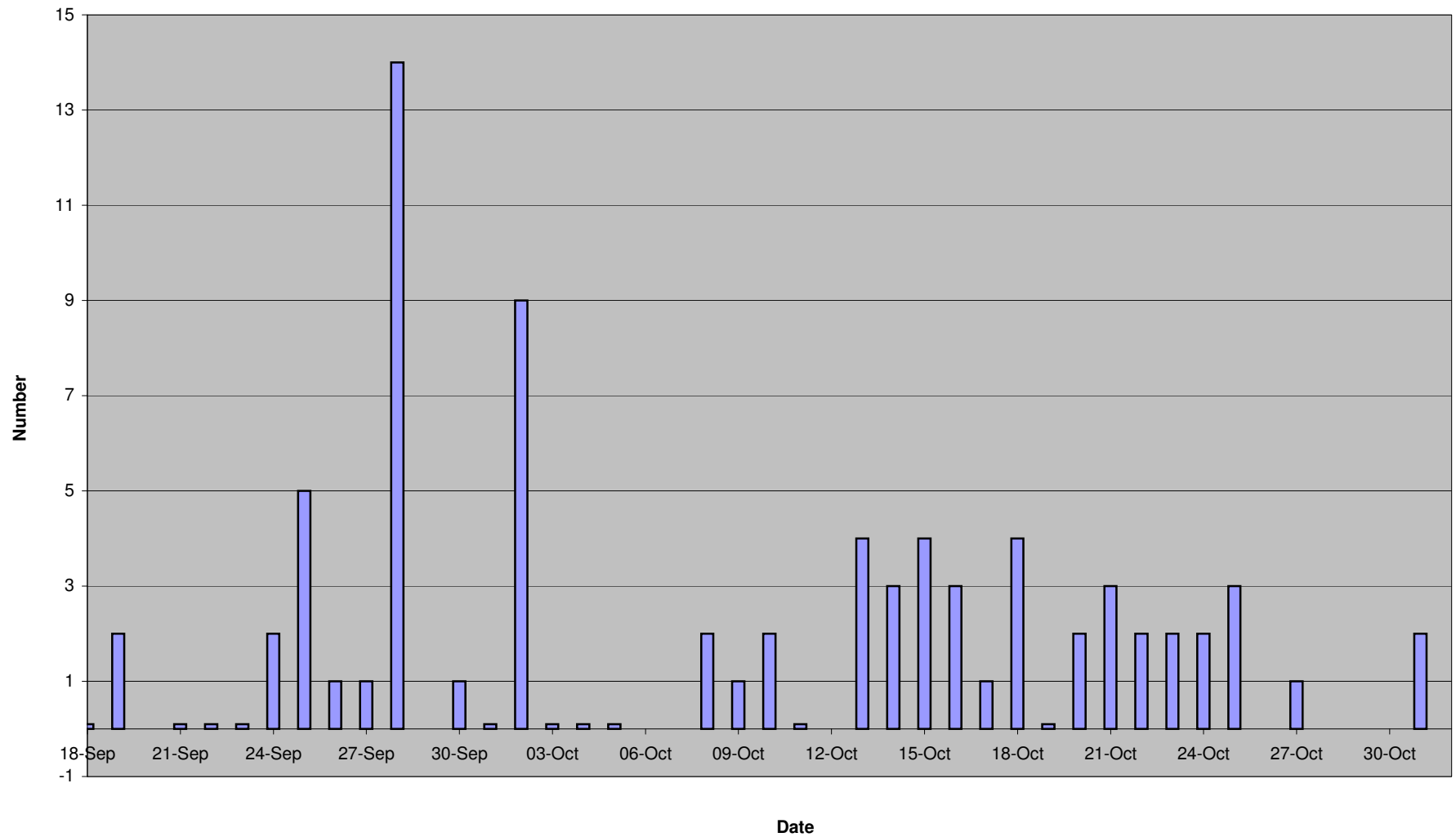
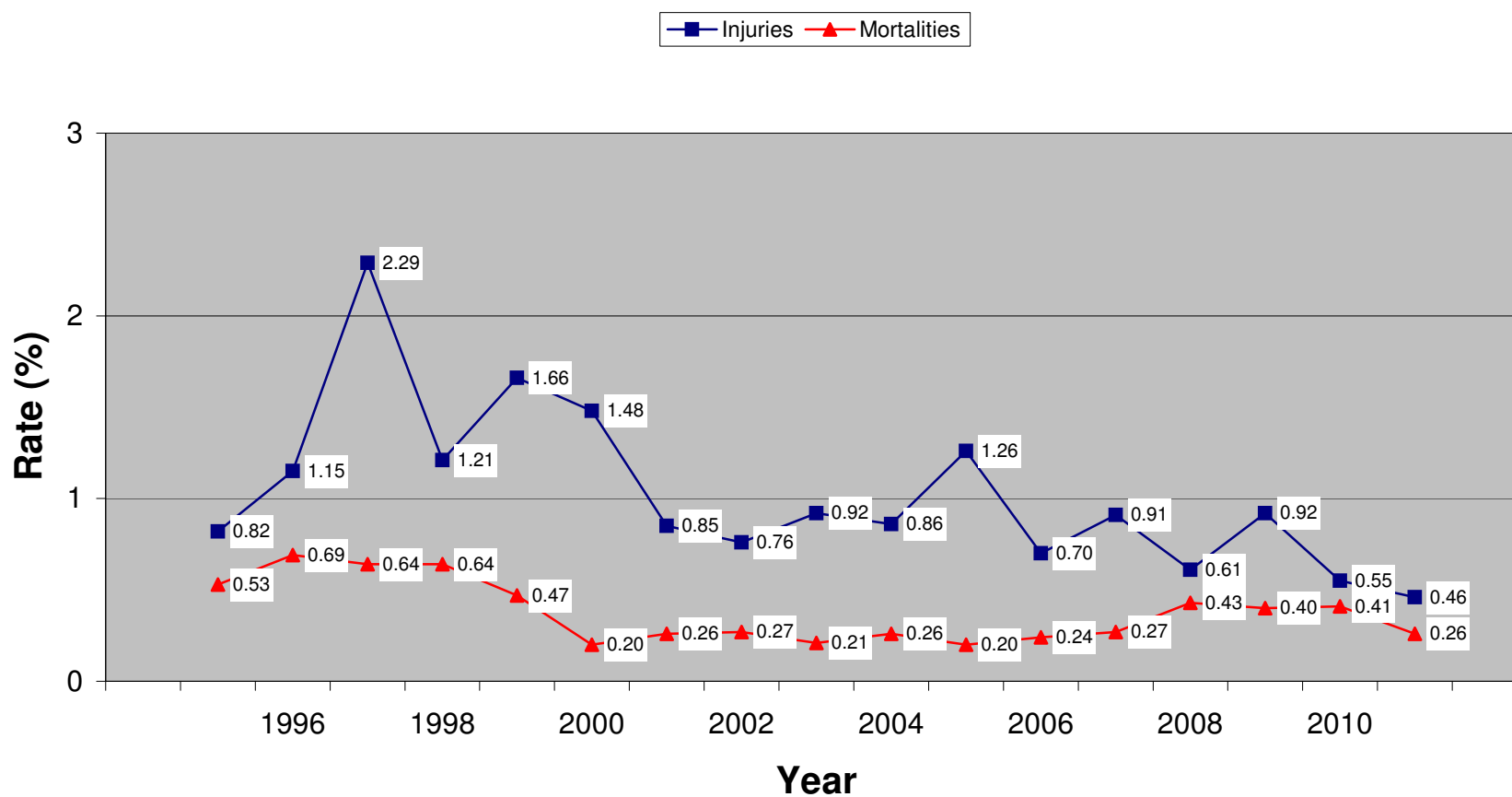




Figure 10. Net lane locations within succession plots at La Selva Biological Station, Costa Rica 2011 (red circle is banding station)

Figure 11. Casualty Rates for all CBBS Projects



TABLES

Table 1a. Coverage and Capture Rates During 2011 Spring MM at IBS

Date	Net-hours	Captures				Total	Captures/100 Net-hours	
		New Bandings	Recaptures	Escapes/unbanded	Mortalities			
01-May	72.3	30	10	1	1	42	58.1	
02-May	72.1	7	2	1		10	13.9	
03-May	72.2	15	3			18	24.9	
04-May	64.3	5	6	4		15	23.3	
05-May	72.0	5	4	4		13	18.1	
06-May	72.4	2	1	3		6	8.3	
07-May	72.1	9	3	2		14	19.4	
08-May	75.6	79	12	1	1	93	123.0	
09-May	73.8	75	14	4		93	126.0	
10-May	72.5	7	3	1	1	12	16.6	
11-May	67.2	4	2			6	8.9	
12-May	72.4	6		2		8	11.0	
13-May	72.4	43	4	2		49	67.7	
14-May	44.2	4	1			5	11.3	
15-May	50.5	5	1			6	11.9	
16-May	72.1	5	1			6	8.3	
17-May	72.2	2	2			4	5.5	
18-May	72.5	3	2			5	6.9	
19-May	72.4	17	2	2		21	29.0	
20-May	72.5	36	9	2		47	64.8	
21-May	72.0	12	9			21	29.2	
22-May	72.2	6				6	8.3	
23-May	8.9	weather					0	0.0
24-May	65.9	4	3	1		8	12.1	
25-May	weather					0		
26-May	weather					0		
27-May	weather					0		
28-May	42.0	27	1	1		29	69.0	
29-May	42.1	6	2			8	19.0	
30-May	42.2	12	5	1		18	42.7	
31-May	42.5	9	5	1		15	35.3	
01-Jun	42.3	5	5	1		11	26.0	
02-Jun	42.0	9	3			12	28.6	
03-Jun	43.4	19	6	1		26	59.9	
04-Jun	42.1	16	7	1		24	57.0	
05-Jun	42.4	16	4			20	47.2	
06-Jun	weather					0		
Total	1988	500	132	36	3	671	33.8	

< 72 net-hrs

Table 1b. Coverage and Capture Rates During 2011 Fall MM at IBS

Date	Net-hours	Captures				Total	Captures/100 Net-hours
		New Bandings	Recaptures	Escapes	Mortalities		
28-Jul	60.0	7	2			9	15.0
29-Jul	68.2	19	1			20	29.3
30-Jul	72.0	3				3	4.2
31-Jul	72.1	1	2			3	4.2
01-Aug	72.2	6				6	8.3
02-Aug	64.1	6	1			7	10.9
03-Aug	73.4	6	3			9	12.3
04-Aug	71.9	3	1			4	5.6
05-Aug	71.8	4				4	5.6
06-Aug	72.1	6	1			7	9.7
07-Aug	72.0	3	5			8	11.1
08-Aug	71.5	4	1			5	7.0
09-Aug	71.8	9	1			10	13.9
10-Aug	72.6	15	4	1		20	27.5
11-Aug	72.1	38	7			45	62.4
12-Aug	72.1	12	3			15	20.8
13-Aug	74.2	37	7			44	59.3
14-Aug		weather				0	
15-Aug	71.0	9	2			11	15.5
16-Aug	72.0	18	4			22	30.6
17-Aug	72.1	4	2	1		7	9.7
18-Aug	72.5	23	5			28	38.6
19-Aug	72.4	7				7	9.7
20-Aug	72.0	11	2			13	18.1
21-Aug	72.3	4	3			7	9.7
22-Aug	72.6	22	2			24	33.1
23-Aug	71.6	3	3			6	8.4
24-Aug	72.2	9	1			10	13.9
25-Aug	73.4	6	1			7	9.5
26-Aug	72.2	4	1			5	6.9
27-Aug	72.0	1				1	1.4
28-Aug	72.2	7	3	1		11	15.2
29-Aug	74.2	8	1	3		12	16.2
30-Aug	71.2	5				5	7.0
31-Aug		weather				0	
01-Sep	72.2	16	5			21	29.1
02-Sep	72.8	41	2	1		44	60.4
03-Sep	74.1	19	6			25	33.7
04-Sep	72.4	14	1			15	20.7
05-Sep	72.6	10	3			13	17.9

Table 1b. Coverage and Capture Rates During 2011 Fall MM at IBS

Date	Net-hours	Captures				Total	Captures/100 Net-hours
		New Bandings	Recaptures	Escapes	Mortalities		
06-Sep	73.1	14	11			25	34.2
07-Sep	72.8	13	7	2		22	30.2
08-Sep	72.4	9	2		1	12	16.6
09-Sep	72.1	6	4			10	13.9
10-Sep	73.3	12				12	16.4
11-Sep	71.9	10				10	13.9
12-Sep	69.3	91	4	2		97	140.0
13-Sep	71.9	33	7	1	1	42	58.4
14-Sep	67.0	22	6	3		31	46.3
15-Sep	72.3	36	5	3		44	60.9
16-Sep	73.7	30	4			34	46.1
17-Sep	72.7	36	3			39	53.6
18-Sep	72.2	14	7			21	29.1
19-Sep		weather				0	
20-Sep	71.1	15	3			18	25.3
21-Sep	72.3	11	3			14	19.4
22-Sep	68.9	8	3			11	16.0
23-Sep	72.4	5	2	2		9	12.4
24-Sep	72.0	11	1	1		13	18.1
25-Sep	73.1	5	2			7	9.6
26-Sep	67.2	4	3			7	10.4
27-Sep		no volunteer				0	
28-Sep	49.3	0	1			1	2.0
29-Sep	59.6	5	0	1	0	6	10.1
30-Sep	72.1	11	2			13	18.0
01-Oct	72.3	20	4	1		25	34.6
02-Oct	72.3	5	4			9	12.4
03-Oct	50.2	5	2			7	13.9
04-Oct	34.9					0	0.0
05-Oct	72.0	4	4	1		9	12.5
06-Oct		rain				0	
07-Oct		rain				0	
Total	4639	855	180	24	2	1061	23

< 72 net-hrs

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

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Total
Start	01-May	01-May	01-May	01-May	01-May	01-May	01-May	01-May	01-May	01-May	
Finish	07-Jun	07-Jun	07-Jun	07-Jun	07-Jun	05-Jun	06-Jun	05-Jun	06-Jun	06-Jun	
# Days	27	31	31	31	33	32	30	33	32	32	
Total	597	230	440	370	311	528	589	700	573	500	4838
Species	46	36	41	41	41	44	46	45	41	47	78
Net-hours	1884	2138	2177	2248	2273	2113	1744	2374	2240	1988	21179
Bandings/100 Net-hours	31.7	10.8	20.2	16.5	13.7	25.0	33.8	29.5	25.6	25.2	22.8
Wilson's Snipe									1		1
Sharp-shinned Hawk			1	1	1						3
Cooper's Hawk				1			1				2
American Kestrel	1										1
Killdeer						1					1
Solitary Sandpiper	1						1	4			6
Spotted Sandpiper	2		2		1			2	2	1	10
Belted Kingfisher	1			1	3	1	3			1	10
Red-naped Sapsucker				1							1
Downy Woodpecker	5	1	1	4	1	4	1	3	4	2	26
Hairy Woodpecker							1	1			2
Northern Flicker	1		1	1			2	2		1	8
Olive-sided Flycatcher			1								1
Western Wood-Pewee	5	1	5		4	4	1	13	1	1	35
Alder Flycatcher	6	4	6	5	1	8	5	11	32	13	91
Willow Flycatcher				1		1		1	3	1	7
Least Flycatcher	16	6	6	7	5	16	20	25	13	11	125
Eastern Phoebe	1										1
Eastern Kingbird		3	1	2	3	2			1	1	13
Blue-headed Vireo	2	1									3
Warbling Vireo	4	2			1	3	3	4	5	1	23
Red-eyed Vireo		1									1
Black-billed Magpie			2	1		2	1		1		7
Tree Swallow	18	6	11	18	14	12	25	36	19	10	169

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

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Total
N Rough-winged Swallow	5		4	5	4	3	5	9	6	4	45
Bank Swallow		1	1	1			2				5
Barn Swallow	1										1
Black-capped Chickadee	3		2	2	1	2	2				12
Red-breasted Nuthatch	1		4	1		1		1			8
White-breasted Nuthatch	2				2	1			1	2	8
House Wren	13	15	8	13	10	18	28	18	21	10	154
Ruby-crowned Kinglet		2			3	1	3	1		4	14
Golden-crowned Kinglet					1						1
Gray-cheeked Thrush					1	2	1				4
Swainson's Thrush	54	38	5	25	46	44	44	54	80	60	450
Hermit Thrush	2	2	1	2		2		2	2	1	14
Veery		1					1				2
American Robin	28	35	32	4	37	38	26	40	27	35	302
Varied Thrush							1			1	2
Gray Catbird	13	13	11	1	15	9	19	13	6	8	108
Brown Thrasher					1			1	1		3
Cedar Waxwing	3		12	8	8	1	4	3	59	1	99
Ovenbird			1	1	1	1	1			1	5
Northern Waterthrush	8	3	7	2	3	4	1	5	3	3	39
Black-and-white Warbler								1			1
Tennessee Warbler									3	1	4
Orange-crowned Warbler	19	6	12	18	1	18	24	11	10	21	140
Connecticut Warbler									1		1
MacGillivray's Warbler			1		1	1					3
Mourning Warbler										1	1
Common Yellowthroat	21	6	12	4	6	2	7	4	17	2	81
American Redstart	2	1			2	2	7	2	3	1	20
Magnolia Warbler						1					1
Yellow Warbler	33	2	13	2	21	23	10	23	44	12	183
Blackpoll Warbler	3	2	1	1			4	7	6	4	28
Palm Warbler										1	1

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

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Total
Yellow-rumped Warbler	249	1	136	43	45	61	231	210	32	203	1211
Wilson's Warbler	4	1	3		3	3	2	3	3		22
Spotted Towhee										1	1
Chipping Sparrow	3	6	1		6	108	14	30	26	4	198
Clay-colored Sparrow	15	9	1	1	6	63	16	45	54	15	225
Brewer's Sparrow								1			1
Savannah Sparrow	3		2	2	2		5	15	3	5	37
Fox Sparrow		1									1
Song Sparrow	3	1	8	7		2	1	3	6	2	33
Lincoln's Sparrow	19	31	37	42	16	20	32	62	52	36	347
White-throated Sparrow	5	2	7	7	2	2	13	7	6	1	52
White-crowned Sparrow	6	7	7	42	16	17	12	10	9	4	130
Dark-eyed Junco	1						1	2		1	5
Western Tanager	1		6	1		4	3	1	1	1	18
Rose-breasted Grosbeak	1					1	1	1	2	1	7
Lazuli Bunting				1				1			2
Red-winged Blackbird	3	5	1	8	5	4	1	1	1	3	32
Brewer's Blackbird									1		1
Common Grackle				1	2	3		1			7
Brown-headed Cowbird	5	3	7	8	4	8	2	4	5	4	50
Baltimore Oriole	4	7	6		6	3	1	6		1	34
American Goldfinch	1	4		2		2				2	11

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

New species in 2011

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

Year	1992	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Total	
Start	03-Aug	18-Aug	01-Aug	31-Jul	31-Jul	25-Jul	26-Jul	01-Aug	25-Jul	27-Jul	28-Jul	28-Jul	29-Jul	28-Jul	28-Jul	28-Jul	28-Jul	28-Jul	28-Jul	all	
Total	841	466	1549	1121	1455	1898	1276	1262	1402	1466	1452	1872	1335	1625	1670	1679	1066	1949	855	26239	
Species	52	48	61	59	64	64	66	68	64	66	60	73	67	64	68	69	58	60	62	106	
Net-hours	934	1078	3456	4547	4608	4371	4426	3842	5152	4838	4928	4944	4387	4509	4665	4789	4662	4682	4639	79457	
Bandings/100 Net-hours	90.0	43.2	44.8	24.7	31.6	43.4	28.8	32.8	27.2	30.3	29.5	37.9	30.4	36.0	35.8	35.1	22.9	41.6	18.4	33.0	
Wood Duck			1																		1
Mallard							1														1
Green Heron												1									1
Sharp-shinned Hawk	2	2		1	5	4	3	1	1	3		1	2	3	1	3	6	2	1	41	
Cooper's Hawk				1	1			1		1											4
Northern Goshawk				1																	1
Broad-winged Hawk						1									1						2
Swainson's Hawk																				1	1
Spotted Sandpiper		1	2		3	3	2			5	1	4	4	3	6	1	7		6		48
Solitary Sandpiper	3	2	3	14	13	14	2	8	4	12	5	8	11	7	7	8	8	3	4		136
Common Snipe								1		1								1			3
Mourning Dove												1									1
Belted Kingfisher	2	2	8	8	6	8	10	7	2	5	6	7	4	15	7	11	7	7	8		130
Yellow-bellied Sapsucker			1							1						1					3
Downy Woodpecker		1	2	3	5	7	3	9	9	13	12	16	9	7	13	18	11	15	6		159
Hairy Woodpecker								1		1		2		1		1		1	1		8
Northern Flicker	2	1	4	8	7	3	11	2		4	7	6	3	3	1	2	1	2	5		72
Olive-sided Flycatcher	3		3		5	2		2		2		2	3	1	3	1	1	1			29
Western Wood-Pewee	6	4	11	2	33	8	10	7	14	14	11	16	17	11	18	19	9	11	2		223
Yellow-bellied Flycatcher			1				1					2			2				1		7
Trail's Flycatcher*	24	16	29	25	50	36	24	40	46	45	32	197	173	71	99	26	15	35	18		1001
Least Flycatcher	16	5	16	9	30	14	11	21	20	21	9	40	45	43	51	20	16	44	12		443
Hammond's Flycatcher																1			1		2
Dusky Flycatcher			2	1									2				1				6
Pacific-slope Flycatcher			1		1							1									3
Eastern Phoebe		1						1			1		1					1			5
Great Crested Flycatcher									1												1
Eastern Kingbird	1	2	7	18	17	19	2	7	17	7	15	17	11	17	15	7	4	4	4		191
Yellow-throated Vireo											1										1
Blue-headed Vireo	1		1	1	2			1		2		2		1	1	1		2			15
Warbling Vireo	8	15	13	18	27	18	8	7	12	9	17	12	1	17	25	24	10	18	6		265
Philadelphia Vireo	1							1	1		1	1			2		2				9
Red-eyed Vireo	3	1	2	4	3	12	2	4	2	2	4		3	4	5	2		2	1		56

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

Year	1992	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Total
Start	03-Aug	18-Aug	01-Aug	31-Jul	31-Jul	25-Jul	26-Jul	01-Aug	25-Jul	27-Jul	28-Jul	28-Jul	29-Jul	28-Jul	28-Jul	28-Jul	28-Jul	28-Jul	28-Jul	all
Blue Jay				1				1												2
Black-billed Magpie			2	1	8	2	2	1	3	1	3	3	3		2	3	3	1	4	42
Tree Swallow										1			7		5	7				20
N Rough-winged Swallow					2							1	2		2	3				10
Bank Swallow													1		1	1				3
Black-capped Chickadee	9	12	7	17	5	19	10	19	14	13	19	20	28	27	20	13	19	10	8	289
Red-breasted Nuthatch		3		2		4	2	20	7	1	2	4	2	3	3	15	1	3	1	73
White-breasted Nuthatch	1	1	6		4	4	4	5	5	5	7	5	2	2	5	6	5	3	2	72
Brown Creeper	1						1	1				1	1	6						11
House Wren	3	3	50	45	52	49	33	57	59	72	58	138	96	59	99	100	107	67	59	1206
Winter Wren								1				2		1						4
Golden-crowned Kinglet	2		2	1	1	1	2	1		2		1	2	5						20
Ruby-crowned Kinglet	3	1	10	18	20	14	5	11	15	14	24	18	11	29	20	13	3	11	7	247
Townsend's Solitaire				1					1		1			1				1	1	6
Veery	2					1						1								4
Gray-cheeked Thrush	1					1		1												3
Swainson's Thrush	34	13	17	52	10	28	19	13	30	13	19	31	27	17	34	29	15	37	11	449
Hermit Thrush	4		3	14	6	9	9	4	11	11	5	8	4	3	4	9	3	7	7	121
American Robin	5	11	114	81	81	31	60	32	105	37	89	28	43	29	46	56	57	26	20	951
Varied Thrush									1			5								6
Gray Catbird		1		5	7	6	5	4	14	8	19	14	14	13	12	14	15	15	4	170
Brown Thrasher					3							1		1						5
European Starling			2						4						1					7
Bohemian Waxwing							1													1
Cedar Waxwing	12	1	42	14	67	11	25	26	49	27	21	43	22	24	71	153	71	124	63	866
Ovenbird	22	6	10	30	11	38	11	11	24	7	18	37	16	26	28	16	8	18	14	351
Northern Waterthrush	22	8	23	56	46	26	41	34	44	33	29	78	67	43	53	39	50	44	34	770
Black-and-white Warbler	4	1	1	2		3			2	3	3	1	2	1	2	3	2	1		31
Tennessee Warbler	43	5	33	30	52	74	106	167	46	76	147	98	58	43	87	96	56	56	24	1297
Orange-crowned Warbler	24	36	177	116	86	207	91	84	58	71	115	45	45	154	163	123	32	407	75	2109
Nashville Warbler				1	2	1	1	2	1	1			1	3		1			1	15
Connecticut Warbler	2	2	4	4	1	3	3	3	4	1		6	1	5	4	2	1	1	2	49
MacGillivray's Warbler	2		3	8	10	6	2	5	4	4	5	6	4	4	2	1	3	5	2	76
Mourning Warbler	4	2	5	10	3	9	1	4	5	7	10	7	5	5	6	3	3	3	4	96
Common Yellowthroat		1	6	1	8	10	8	4	12	8	9	7	2	9	7	5	6	13	3	119
American Redstart	19	4	3	6	4	20	5	3	16	27	18	19	7	16	14	7	8	19	3	218
Cape May Warbler											2									2
Magnolia Warbler	9	4	2	2	4	4	2	2	1	9	6	4	5	6	5	3		3	2	73

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

Year	1992	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Total
Start	03-Aug	18-Aug	01-Aug	31-Jul	31-Jul	25-Jul	26-Jul	01-Aug	25-Jul	27-Jul	28-Jul	28-Jul	29-Jul	28-Jul	28-Jul	28-Jul	28-Jul	28-Jul	28-Jul	all
Bay-breasted Warbler			1				1	1			1									4
Yellow Warbler	56	19	44	62	137	91	138	89	101	119	82	165	126	75	154	113	60	154	47	1832
Chestnut-sided Warbler	1						1				1	1			1		1			6
Blackpoll Warbler	17	5	17	8	6	30	5	8	11	7	7	1	11	7	12	14	2	16	6	190
Palm Warbler		3	7	4	3	8	7	1	6	4	1	2	1	4				3	3	57
Yellow-rumped Warbler	293	171	496	92	191	638	195	200	246	248	223	148	73	412	207	256	100	200	170	4559
Townsend's Warbler	1				1	2	3	1	2	2		1	2	2	1	1	1	3		23
Black-throated Green Warbler					1	1	1													3
Canada Warbler	1			2	1	3	1	1	1	2		8		1	4	2		2	2	31
Wilson's Warbler	121	68	102	175	119	113	100	167	152	145	224	251	12	168	136	159	114	339	53	2718
American Tree Sparrow			10	3	3	7	2	1	1	2	4	4	3	5	2	3	1	2	2	55
Chipping Sparrow	4	1	29	14	151	27	83	50	47	92	23	155	34	1	34	43	80	60	9	937
Clay-colored Sparrow		1	1	6	21	37	26	9	30	26	6	12	14	15	10	11	23	12	5	265
Brewer's Sparrow							1													1
Savannah Sparrow		1			2			1	1					1			3		1	10
Fox Sparrow	1	1	1			2	1		2	1	1	2			1	4			2	19
Song Sparrow		1	9	9	15	18	21	9	3	13	5	15	21	14	13	10	11	16	5	208
Lincoln's Sparrow	9	7	53	28	13	59	48	30	39	88	43	30	44	58	45	65	25	29	38	751
Swamp Sparrow				2		7	3		1	2	1	2		2	1	3			2	26
White-throated Sparrow	13	11	73	28	39	77	54	18	35	51	25	40	34	67	24	27	14	27	34	691
Harris' Sparrow			1						1			1	1							4
White-crowned Sparrow	5	4	20	24	22	21	22	23	27	30	18	31	36	17	11	14	20	23	15	383
Dark-eyed Junco	5	3	15	15	3	10	8	6	1	6	3	11	4	14		5	2	6	1	118
Western Tanager	1	1	12	1	3	2	4	1	5	6	3	5	3		4	8	1	9	3	72
Rose-breasted Grosbeak	6				1	3	2	3	1	3	7	5	3	2	1	5		5	1	48
Red-winged Blackbird			4				2			3		1			1				2	13
Rusty Blackbird															1	1				2
Common Grackle			3								1		2	4		5	5		14	34
Brown-headed Cowbird			1	2	2	1		2	4	5	1	4	3			4	2	4	1	36
Baltimore Oriole	4		21	12	12	8	5	1	8	9	20	7	11	2	11	7	12	3	3	156
Purple Finch		1			2	1	1	2	6				2	1	1	2				19
House Finch													9	2	35	45	12	11		114
Pine Siskin					2							1			2	2	6		8	21
American Goldfinch	3			2	4	2	2	1	4	2		2	1	2	5		4		2	36
House Sparrow									3							4				7

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

New species in 2011

Table 3. Inglewood Bird Sanctuary MAPS New Bandings - 2011

Species	09-Jun	18-Jun	28-Jun	07-Jul	17-Jul	28-Jul	05-Aug	Total
Least Flycatcher	1							1
Eastern Kingbird	1	2						3
Warbling Vireo	1					3	4	8
Swainson's Thrush	1							1
American Robin	3	1			1	1		6
Gray Catbird	4							4
Cedar Waxwing	2	2	3	2				9
Yellow Warbler		1	1	2			1	5
Clay Coloured Sparrow			2					2
Song Sparrow		1		1				2
Western Tanager						1		1
Baltimore Oriole	1							1
Total birds	14	7	6	5	1	5	5	43
Total species	8	5	3	3	1	3	2	12

Table 4. Inglewood Bird Sanctuary MAPS Summary

Species	New Bandings																			Total
	1992	1993	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	
American Kestrel			1																	1
Downy Woodpecker	1	3	1	5	4	1			1		1	3		5		6	5	6		42
Hairy Woodpecker	1	1	1			1														4
Northern Flicker	1	1	3	2			2							2	3	1				15
Western Wood-Pewee	6	1	1	1	1	2		1	3			3		2		1	1			23
Traill's Flycatcher				3	3		1	1	4	1	1	2	3	2		2	2	1		26
Least Flycatcher	14	8	3	2	3	4	2	1	2	1			1	5	9	3		3	1	62
Eastern Kingbird	2	1			3	1	3		2	1		3	1	1		1		1		20
Warbling Vireo	7	7	1	4	2		2	2	1	4	3		1	2	1	2	3	1	3	46
Philadelphia Vireo																		1		1
Red-eyed Vireo	1																			1
Black-billed Magpie				1	2							2								5
Tree Swallow	3						2					4		8		2		3		22
Northern Rough-winged Swallow																1		1		2
Bank Swallow	1																			1
Black-capped Chickadee	5	7	5	9	2	3	5	4	4	2	4	10	2	8	5	11	1			87
White-breasted Nuthatch	3	4		2						1		2		2	1		1			16
House Wren	5	11	9	9	13	8	9	18	11	2	11	9	1	15	30	26	9	23	8	227
Veery	2					1														3
Swainson's Thrush	10	8	6	4	3	1	4		3	1	1	4	1	4		7	4	1	1	63
Hermit Thrush								1												1
American Robin	21	6	26	25	23	10	8	14	20	19	19	21	1	45	18	21	7	7	6	317
Gray Catbird	3			1	1	4	8	1	6	16	9	12	1	4	8	6	5	7	4	96
European Starling			1																	1
Cedar Waxwing	27	8		6	1	9	5	7	5	13	3	17	3	8	20	9	19	35	9	204
Tennessee Warbler	1	6		7	1	3	4	22	1	1	1	5		5	11	13	2	2		85
Orange-crowned Warbler						1						1								2
Yellow Warbler	20	14	7	2	6	9	24	13	4	7	9	4	2	10	26	6	8	13	5	189
Yellow-rumped Warbler	10					2		2	1		1	1			3	3		1		24

Table 4. Inglewood Bird Sanctuary MAPS Summary

Species	New Bandings																			Total	
	1992	1993	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011		
American Redstart		1									1			2		1	1			6	
Ovenbird	3			1		1										1	1			7	
Northern Waterthrush						1	1		1							1			1	5	
Mourning Warbler	1																			1	
Common Yellowthroat												1	1			1			2	5	
Wilson's Warbler				2		1	1					1							1	6	
Chipping Sparrow		7			1							1		1	2				1	13	
Clay-colored Sparrow		1				6	17	1	2							1	2	1	4	2	37
Song Sparrow		1		1		1	4				1		1		1	1			1	2	14
Lincoln's Sparrow		3	1	2	5	2		1				2				4	2			22	
White-throated Sparrow				2							1	2				2				7	
White-crowned Sparrow																1				1	
Western Tanager		1	3	1	2		4					1								1	13
Rose-breasted Grosbeak				1																	1
Red-winged Blackbird															1						1
Common Grackle			1		2						1										4
Brown-headed Cowbird	6				3			1	1	2		2	1	2		3			1		22
Baltimore Oriole	3	7	2	8	9	1	2	1	5	9		2			3	1	3	1	1		58
Purple Finch		1						1													2
House Finch														5	4	6	1		6		22
American Goldfinch	2	2		1						1				1		1					8
House Sparrow	2					2															4
Total	161	110	72	102	90	75	108	92	77	83	65	115	20	139	147	146	76	124	43	1845	
Species	27	24	17	25	21	24	20	18	19	18	14	25	14	22	18	31	19	25	12	47	

Table 5a. Coverage and Capture Rates During 2011 Spring MM at CHIP

Date	Net-hours	Captures				Total	Captures/100 Net-hours
		New Bandings	Recaptures	Escapes/unbanded	Mortalities		
01-May	57.0					57	100
02-May	66.0	3		1		4	6
03-May	11.0	2				2	18
04-May	32.0	2				2	6
05-May	66.0	2	1			3	5
06-May	66.0	7	1			8	12
07-May	38.5	2				2	5
08-May	66.0	4				4	6
09-May		weather				0	
10-May	52.5	5	3			8	15
11-May	53.0	16	1			17	32
12-May	5.0	1				1	20
13-May		weather				0	
14-May	10.8	3		1		4	37
15-May		weather				0	
16-May		weather				0	
17-May	40.3	10	2	2		14	35
18-May	66.0	21	3	2		26	39
19-May	40.0	15	4			19	48
20-May	66.0	16	2	3		21	32
21-May	60.0	10	5	1		16	27
22-May	61.8	8	2	1		11	18
23-May	60.0	18	1	1	1	21	35
24-May	54.0	79		3	2	84	156
25-May	66.0	107	3	1		111	168
26-May		1	weather			1	
27-May	66.0	52	12			64	97
28-May	77.0	46	13			59	77
29-May	66.0	18	5			23	35
30-May	66.0	19	4			23	35
31-May	72.0	24	8			32	44
01-Jun	44.0	19	4			23	52
02-Jun	66.0	83	8			91	138
03-Jun		1	weather			1	
04-Jun	69.0	22	6			28	41
05-Jun	72.0	20	12			32	44
06-Jun	66.0	51	6			57	86
07-Jun	62.2	101	2			103	166
08-Jun	72.0	90	5			95	132
09-Jun	72.0	39	8			47	65
10-Jun	72.0	17	6			23	32
11-Jun		no monitoring					
12-Jun	72.0	18	13			31	43
Total	2052	952	140	16	3	1168	57

<66 or 72 net-hrs

Table 5b. Coverage and Capture Rates During 2011 Fall MM at CHIP

Date	Net-hours	Captures				Total	Captures/100 Net-hours
		New Bandings	Recaptures	Escapes	Mortalities		
04-Aug	72.0	24	3			27	38
05-Aug	72.0	9	6			15	21
06-Aug	72.0	30	2			32	44
07-Aug	72.0	14	4			18	25
08-Aug	72.0	45	5			50	69
09-Aug	72.0	29	6			35	49
10-Aug	72.0	44	5			49	68
11-Aug	66.0	21	2			23	35
12-Aug	72.0	32	6			38	53
13-Aug	72.0	23	4			27	38
14-Aug	72.0	22	3			25	35
15-Aug	72.0	30	4			34	47
16-Aug	72.0	19	3			22	31
17-Aug		no BIC				0	
18-Aug	69.0	22	11			33	48
19-Aug	72.0	40	5			45	63
20-Aug	72.0	23	5			28	39
21-Aug	72.0	34	10			44	61
22-Aug	72.0	22	2			24	33
23-Aug	60.0	17	2			19	32
24-Aug	72.0	26	7			33	46
25-Aug	72.0	28	8	1		37	51
26-Aug	70.0	35	12			47	67
27-Aug	72.0	23	9			32	44
28-Aug	72.0	34				34	47
29-Aug	72.0	21				21	29
30-Aug	74.0	43	8	2		53	72
31-Aug	36.0	15	6			21	58
01-Sep	74.0	78	24			102	138
02-Sep	45.0	21	5			26	58
03-Sep	37.8	62	8			70	185
04-Sep	48.2	11	1	1		13	27
05-Sep		no BIC				0	
06-Sep		no BIC				0	
07-Sep		no BIC				0	
08-Sep		no BIC				0	
09-Sep	74.0	27	1			28	38
10-Sep	76.2	32	8			40	52
11-Sep	72.0	44	1			45	63
12-Sep	75.6	85	9			94	124
13-Sep	72.0	31	8			39	54

Table 5b. Coverage and Capture Rates During 2011 Fall MM at CHIP

Date	Net-hours	Captures				Total	Captures/100 Net-hours
		New Bandings	Recaptures	Escapes	Mortalities		
14-Sep	14.5	5	2			7	48
15-Sep	20.5	3	4			7	34
16-Sep	55.0	7	5	2		14	25
17-Sep	66.0	23	2			25	38
18-Sep	61.0	9	1			10	16
19-Sep	59.0	17				17	29
20-Sep	70.0	51	4			55	79
21-Sep	23.9	5	1			6	25
22-Sep	11.6	12				12	103
23-Sep	53.5	18				18	34
24-Sep	68.0	19	1	1		21	31
25-Sep	43.7	4	4	6		14	32
26-Sep		wind				0	
27-Sep	52.0	7				7	13
28-Sep	59.4	4	2			6	10
29-Sep	56.3	29	0	1	0	30	53
30-Sep	60.7	17	2			19	31
01-Oct	70.0	35	5			40	57
02-Oct	71.0	70	4	2		76	107
03-Oct	43.5	30				30	69
04-Oct	45.0	23	3	1		27	60
05-Oct	48.0	11	7			18	38
06-Oct		rain				0	
07-Oct		rain/wind				0	
08-Oct	72.0	27	2	1		30	42
09-Oct		wind				0	
10-Oct	72.0	2	4			6	8
11-Oct	48.5	2	1			3	6
12-Oct	16.0	1				1	6
13-Oct	20.0	3				3	15
Total	3743	1550	257	18	0	1825	49

<72 net-hrs

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

Year	2010	2011	Total
Start	01-May	01-May	
Finish	10-Jun	12-Jun	
# Days	30	36	
Total	839	952	1791
Species & Forms	62	59	77
Net-hours	1671	2052	3723
Bandings/100 Net-hours	50.2	46.4	48.1
Mallard		1	1
Spotted Sandpiper		2	2
Belted Kingfisher		2	2
Red-naped Sapsucker	17	5	22
Downy Woodpecker	1		1
Hairy Woodpecker	2	1	3
"Red-shafted" Flicker	1	1	2
Olive-sided Flycatcher	1	2	3
Western Wood-Pewee	9		9
Yellow-bellied Flycatcher	1		1
"Traill's" Flycatcher	44	33	77
Least Flycatcher	125	77	202
Dusky Flycatcher	13	1	14
Western Kingbird	1	1	2
Eastern Kingbird	3		3
Warbling Vireo	1	5	6
Red-eyed Vireo	8	11	19
Black-billed Magpie		2	2
American Crow		1	1
Tree Swallow	1	3	4
Bank Swallow		1	1
Black-capped Chickadee	5	1	6
House Wren	8	12	20
Ruby-crowned Kinglet	7	2	9
Mountain Bluebird	1		1
Veery	3	7	10
Gray-cheeked Thrush		1	1
Swainson's Thrush	25	18	43
Hermit Thrush	1		1

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

Year	2010	2011	Total
Start	01-May	01-May	
Finish	10-Jun	12-Jun	
# Days	30	36	
Total	839	952	1791
Species & Forms	62	59	77
Net-hours	1671	2052	3723
Bandings/100 Net-hours	50.2	46.4	48.1
American Robin	26	29	55
Gray Catbird	22	13	35
Brown Thrasher		2	2
Cedar Waxwing	44	269	313
Ovenbird	3	1	4
Northern Waterthrush	1	4	5
Black-and-white Warbler		2	2
Tennessee Warbler	6	18	24
Orange-crowned Warbler	30	22	52
MacGillivray's Warbler	17	4	21
Mourning Warbler	4		4
Common Yellowthroat	25	12	37
American Redstart	30	3	33
Cape May Warbler	1		1
Magnolia Warbler	1		1
Bay-breasted Warbler	1		1
Yellow Warbler	84	89	173
Blackpoll Warbler	16	25	41
Palm Warbler		1	1
"Myrtle" Warbler	15	23	38
"Audubon's" Warbler	45	12	57
"Unidentified" Yellow-rumped Warbler	2	2	4
Townsend's Warbler	1		1
Wilson's Warbler	1		1
Yellow-breasted Chat	1		1
Spotted Towhee	5		5
Chipping Sparrow	44	106	150
Clay-colored Sparrow	16	15	31
Brewer's Sparrow		1	1
Savannah Sparrow	7	1	8

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

Year	2010	2011	Total
Start	01-May	01-May	
Finish	10-Jun	12-Jun	
# Days	30	36	
Total	839	952	1791
Species & Forms	62	59	77
Net-hours	1671	2052	3723
Bandings/100 Net-hours	50.2	46.4	48.1
Song Sparrow	4	2	6
Lincoln's Sparrow	12	1	13
White-throated Sparrow	8		8
"Eastern" White-crowned Sparrow	30	15	45
"Gambel's" White-crowned Sparrow	2	3	5
"Pink-sided" Junco	5		5
"Oregon" Junco		2	2
"Unidentified" Dark-eyed Junco	1		1
Western Tanager	7	3	10
Rose-breasted Grosbeak	3	6	9
Black-headed Grosbeak	2		2
Lazuli Bunting		1	1
Red-winged Blackbird	11	14	25
Common Grackle		5	5
Brown-headed Cowbird	15	29	44
Baltimore Oriole		14	14
Pine Siskin	4	5	9
American Goldfinch	9	8	17
	839	952	1791

New species in 2011

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

Species/Form	Year	2010	2011	Total
	Start	29-Jul	04-Aug	
	Finish	16-Oct	13-Oct	
	# Days	68	62	
	Total	1390	1550	2940
	Species and forms	64	71	81
	Net-hours	3377	3743	7120
	Bandings/100 Net-hours	41	41	41
Sharp-shinned Hawk		3	2	5
Cooper's Hawk			1	1
Spotted Sandpiper		1		1
Belted Kingfisher		2	6	8
Yellow-bellied Sapsucker		1		1
Red-naped Sapsucker		11	25	36
Downy Woodpecker		5		5
Hairy Woodpecker			3	3
"Yellow-shafted" Flicker		1	2	3
"Red-shafted" Flicker		1		1
<i>Flicker Intergrade</i>		1		1
Western Wood-Pewee		14	18	32
"Trail's" Flycatcher		151	52	203
Least Flycatcher		155	188	343
Dusky Flycatcher		8		8
Eastern Kingbird			2	2
Northern Shrike		1		1
Warbling Vireo		6	15	21
Philadelphia Vireo			3	3
Red-eyed Vireo		6	8	14
Black-billed Magpie			1	1
Black-capped Chickadee		85	13	98
Red-breasted Nuthatch		4	2	6
House Wren		32	39	71
Marsh Wren			1	1
Blue-gray Gnatcatcher			1	1
Ruby-crowned Kinglet		6	21	27
Veery		3	10	13
Gray-cheeked Thrush			1	1

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

Species/Form	Year	2010	2011	Total
Swainson's Thrush		21	8	29
Hermit Thrush			1	1
American Robin		41	11	52
Gray Catbird		31	19	50
Brown Thrasher		1	1	2
Cedar Waxwing		29	25	54
Ovenbird		4	4	8
Northern Waterthrush		9	7	16
Black-and-white Warbler		3	5	8
Tennessee Warbler		6	18	24
Orange-crowned Warbler		203	134	337
Nashville Warbler			2	2
MacGillivray's Warbler		4	11	15
Mourning Warbler		4	2	6
Common Yellowthroat		21	48	69
American Redstart		5	15	20
Magnolia Warbler		1	3	4
Yellow Warbler		124	259	383
Chestnut-sided Warbler			1	1
Blackpoll Warbler		6	7	13
"Western" Palm Warbler		1	1	2
"Myrtle" Warbler		108	220	328
"Audubon's" Warbler		3	9	12
"Unidentified" Yellow-rumped Warbler		2	5	7
Canada Warbler		1	3	4
Wilson's Warbler		51	46	97
Yellow-breasted Chat			1	1
Spotted Towhee			1	1
American Tree Sparrow		6	16	22
Chipping Sparrow		19	14	33
Clay-colored Sparrow		21	54	75
Savannah Sparrow		2	3	5
Song Sparrow		20	39	59
Lincoln's Sparrow		13	14	27
Swamp Sparrow			1	1
White-throated Sparrow		10	9	19
"Eastern" White-crowned Sparrow		9	9	18
"Gambel's" White-crowned Sparrow		2	3	5

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

Species/Form	Year	2010	2011	Total
White-crowned Sparrow		53	35	88
"Slate-colored" Junco		7	16	23
"Pink-sided" Junco		3	3	6
"Unidentified" Dark-eyed Junco		16	7	23
Western Tanager			1	1
Rose-breasted Grosbeak		1		1
Red-winged Blackbird		4		4
Brown-headed Cowbird			3	3
Baltimore Oriole		1	1	2
Purple Finch		1		1
Red Crossbill			2	2
White-winged Crossbill		4	11	15
Pine Siskin		14	23	37
American Goldfinch		8	5	13

New species/form

1550

**Table 7. New Bandings During MAPS at
Cypress Hills Interprovincial Park 2011**

Species/Forms	Locations			Total
	Rodeo Grounds	Old Baldy	Spruce Coulee	
Red-naped Sapsucker	9	10	2	21
Downy Woodpecker	1	1	1	3
Hairy Woodpecker	1			1
Western Wood-Pewee		4	1	5
Least Flycatcher	12	16	22	50
Dusky Flycatcher		1	18	19
Pacific-slope Flycatcher		1		1
Warbling Vireo	2	5	4	11
Red-eyed Vireo	2			2
Black-capped Chickadee	1		2	3
House Wren	6	15	14	35
Veery	6	3	10	19
Swainson's Thrush		7		7
American Robin	5	12	2	19
Gray Catbird	6	3	1	10
Cedar Waxwing	5	13	6	24
Ovenbird	1	3	4	8
Tennessee Warbler			1	1
Orange-crowned Warbler		1	2	3
MacGillivray's Warbler	1	6		7
Common Yellowthroat	4		1	5
American Redstart	17	6	9	32
Yellow Warbler	11	14	7	32
Chipping Sparrow	1	2	3	6
Clay-colored Sparrow	1	8	5	14
Savannah Sparrow	1			1
Song Sparrow	1			1
Eastern White-crowned Sparrow	3	9	8	20
White-crowned Sparrow	2	2	2	6
Black-headed Grosbeak		2		2
Brown-headed Cowbird	1	2	4	7
Pine Siskin	3	2		5
American Goldfinch		7	4	11
Totals	103	155	133	391

Table 8. PopulationTrend Analysis of Species Monitored at Inglewood Bird Sanctuary 1995-2011

Species	Trend	P
	%/year	
Fall	1995-2011	
Sharp-shinned Hawk	-4.6%	0.35
Solitary Sandpiper	9.3%	0.31
Belted Kingfisher	-4.8%	0.03
Olive-sided Flycatcher	-10.4%	0.08
Western Wood-Pewee	-2.8%	0.40
Traill's Flycatcher	2.2%	0.67
Least Flycatcher	4.3%	0.15
Eastern Kingbird	-5.0%	0.06
Blue-headed Vireo	0.9%	0.90
Warbling Vireo	0.5%	0.84
Red-eyed Vireo	-11.7%	0.01
House Wren	4.0%	0.06
Ruby-crowned Kinglet	-0.6%	0.81
Swainson's Thrush	-0.4%	0.90
Hermit Thrush	-4.3%	0.08
American Robin	1.2%	0.72
Gray Catbird	2.1%	0.42
Cedar Waxwing	8.9%	0.02
Ovenbird	-0.2%	0.94
Northern Waterthrush	0.5%	0.80
Black-and-white Warbler	-5.1%	0.27
Tennessee Warbler	-1.1%	0.71
Orange-crowned Warbler	3.2%	0.45
Connecticut Warbler	-6.2%	0.05
MacGillivray's Warbler	-10.1%	0.00
Mourning Warbler	-7.5%	0.00
Common Yellowthroat	-4.3%	0.13
American Redstart	-0.6%	0.84
Magnolia Warbler	-3.5%	0.20
Yellow Warbler	0.6%	0.78
Blackpoll Warbler	-2.6%	0.51
Palm Warbler	-12.2%	0.01
Yellow-rumped Warbler	-0.4%	0.89
Canada Warbler	-5.0%	0.37

Table 8. PopulationTrend Analysis of Species Monitored at Inglewood Bird Sanctuary 1995-2011

Wilson's Warbler	2.3%	0.32
American Tree Sparrow	-10.1%	0.01
Chipping Sparrow	-2.6%	0.53
Clay-colored Sparrow	-2.1%	0.50
Song Sparrow	-0.8%	0.78
Lincoln's Sparrow	1.3%	0.57
Swamp Sparrow	-7.0%	0.34
White-throated Sparrow	-3.3%	0.21
White-crowned Sparrow	-0.2%	0.86
Dark-eyed Junco	-5.2%	0.19
Western Tanager	-8.8%	0.31
Rose-breasted Grosbeak	-0.8%	0.88
Baltimore Oriole	-6.0%	0.07
Spring	2002-2011	
Western Wood-Pewee	12.0%	0.64
Traill's Flycatcher	29.1%	0.03
Least Flycatcher	10.9%	0.10
House Wren	5.7%	0.20
Swainson's Thrush	7.7%	0.07
American Robin	-4.5%	0.28
Gray Catbird	-2.1%	0.54
Northern Waterthrush	-9.2%	0.21
Orange-crowned Warbler	-0.5%	0.95
Common Yellowthroat	-13.7%	0.07
Yellow Warbler	1.6%	0.82
Yellow-rumped Warbler	-8.0%	0.43
Clay-colored Sparrow	17.1%	0.10
Lincoln's Sparrow	5.5%	0.36
White-throated Sparrow	-0.7%	0.93
White-crowned Sparrow	-1.3%	0.84
P Values (significance of trend)		
<0.1		
<0.05		

Table 9. Bander-in-Charge and Volunteer Effort 2011

Member/Guest	Bander-in-Charge (days)						Volunteer (days)					
	Inglewood			NSWO	LSBS	CHIP	Inglewood			NSWO	LSBS	CHIP
	Spring MM	MAPS	Fall MM				Spring MM	MAPS	Fall MM			
Lynda Alderman									3			
Angie Arrau									1			
Yousif Attia												6
Nick Bartok									2	4		
Christine Bennett							1		2			
Vivian Brissette*										5		
Doug Collister									1		20	
David Cousins										1		
Erin Dann									4			
Jim Davis***						19				1		
Nancy Davis									1			
Kelly Day							1					
Charlene Donohue									2	1		
Katie Donohue									10	1		
Alexandra Dubrovna								1	7	6		
Callum Duncan***						80						
Danielle Ethier***						37						
Danusha Foster									1			
Ken Foster											20	
Marcel Gahbauer										1		3
Matt Ginn										1		
Chris Godwin											20	
Jim Gregg							7	1	10			
Steve Herrero										1		
Steven Hildebrand								1		9		
Greg Holmes								11	1	11		3
Garry Hornbeck										1		
Jeremiah Kennedy**						89						
Susan Konopnicki									1	4		
Carol Knox								3	1	8		
Stephen Lane	11	2	15		30							
Lea Lapka*											1	
Stephanie Lapka								3	1	4	4	
Kathryn Manry								7	2	5		10
Christine McDonald								2		1		
Alan McLeod*											1	
Shonna McLeod	5		9	21								
Greg Meyer	4	2	19				4					
Pat Mitchell	4	1	5	10								
Mike Mulligan							2			2		
David Musto										2		
Kristen O'Connell											1	
Francisca Olaya											2	
El Peterson								3				10
Maddy Pinto								4				
Jane Potter								1			1	
Mike Potter								6		7	1	7
David Russum										3		
Josh Sayers**						96						
Aynsley Sherriff*											1	
Jen Sipkens								3	2	6		
Gwen Smiley								1				10
Don Stiles										6	1	2
Jen Stroh***							28					
Bill Taylor	9	2	17									
Clarisse Thornton								2				
Barry Trakalo										1	1	
Celina Waight								5	1			
Donna Wieckowski												4
Arthur Wieckowski												4
Anne Weerstra								2		3	2	
Linda Wiggins											1	
Bruce Wilson								2		4		
Mark Zimmerman								1	1			
Total	33	7	65	31	30	349	72	12	121	39	90	29

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

Table 10. Injuries and Mortalities During 2011 CBBS Projects

Species	Captures	Injuries		Mortalities	
		Number	Type	Number	Cause
Gray-chested Dove	6	1	dislocated leg		
Dove spp.				1	Semiplumbeous Hawk predation
Squirrel Cuckoo	3	1	cut tongue		
Band-tailed Barbthroat	24	1	wing strain	1	dead in net
Belted Kingfisher	24	1	wing abrasion		
Downy Woodpecker	15	1	wing strain		
Wedge-billed Woodcreeper	13			1	dead in net
Ochre-bellied Flycatcher	56	1	stressed, tired		
Least Flycatcher	350	1	wing strain	1	SSHA predation
White-collared Manakin	42	1	cut toe		
Black-capped Chickadee	50			1	died in holding bag
Veery	35	1	neck abrasion		
Swainson's Thrush	109	1	cut tongue		
American Robin	151	1	cut tongue		
		1	abdominal wound		
		3	wing abrasion		
Cedar Waxwing	413			1	SSHA predation
Ovenbird	30	1	injured foot		
Orange-crowned Warbler	267			1	dead in net
Yellow Warbler	537	1	cold stress	1	deer predation
		1	broken leg		
Yellow-rumped Warbler	698			1	unknown predation
				1	dead in net
Chipping Sparrow	141	1	wing strain	1	died in holding bag
Song Sparrow	54	1	injured foot		
Lincoln's Sparrow	108			1	weasel predation
White-throasted Sparrow	146			1	red squirrel predation
White-crowned Sparrow	150	1	dislocated tibiotarsal joint	1	dead in net
				1	died in bag
Thick-billed Seed-Finch	21	1	wing strain		
Variable Seedeater	75			1	unknown predation
Blue-black Grassquit	11	1	wing strain		
Buff-throated Saltator	6	1	dislocated leg		
Red-winged Blackbird	17	1	wing abrasion		
Common Grackle	20	1	cut tongue		
Scarlet-rumped Cacique	4	1	cut tongue		
White-winged Crossbill	10	1	stressed, tired		
American Goldfinch	29	1	dislocated wing		
Total	6260	29	0.46%	16	0.26%

**TABLE 11. CALGARY BIRD BANDING SOCIETY
2011 MEMBERSHIP LIST**

Achuff, Peter	Olaya, Francisca
Alderman, Lynda	Patey Ledrew, Susan
Arrau, Angie	Pengelly, Chris
Attia, Yousif	Peterson, El
Bartok, Nick	Peterson, Kevin
Bennett, Christine	Pinto, Madalena
Bezushko, Darren	Potter, Jane
Brennan, Liz	Potter, Michael
Collister, Doug	Prins, Colton
Cousins, David	Reist, Ron
Dann, Erin	Routledge, Allison
Davis, Nancy	Russell, Kent
Davis, Jim	Russum, Dave
Day, Kelly	Russum, Susan
De Bruyn, Nathan	Shakibaei, Simon
Donohue, Charlene	Sims, Lisa
Donohue, Katie	Sipkens, Jennifer
Drut, Marty	Smiley, Gwen
Dubrovna, Alexandra	Smith, Cyndi
Duncan, Paula	Spitzer, Milt
Ebel, Rainer	Stauffer, Dick
Flynn, Lenora	Stiles, Don
Flynn, Richard	Stroh, Jennifer
Foster, Danusha	Taylor, Bill*
Foster, Ken	Thomas, Ian
Gahbauer, Marcel	Thornton, Clarisse
Ginn, Matt	Tietz, Gwen
Godwin-Sheppard, Christine	Trakalo, Barry
Gratz, Lynn	Truch, Mike
Gregg, Jim	Waight, Celina (Praymak)
Hachey, Carole	Weerstra, Anne
Herrero, Steve	Wiggins, Linda
Hildebrand, Steven	Wieckowski, Donna
Holmes, Greg	Wieckowski, Arthur
Hornbeck, Garry	Wilson, Amy
Hunter, Mary Jane	Wilson, Bruce
Knox, Carol	Wilson, Scott
Konopnicki, Sue	Wyer, Carla
Lane, Stephen*	Young, Colin
Lapka, Stephanie	Zimmerman, Mark
Maidment, Suzanne	
Manry, Kathryn	* non-voting member
McDonald, Christine	
McKenzie-Brown, Peter	Executive
McKenzie-Brown, Bernie	President – Doug Collister
McLane, Adam	Vice President – Ken Foster
McLeod, Shonna*	Treasurer – Jennifer Sipkens
Meyer, Greg*	Secretary – Garry Hornbeck
Mitchell, Pat*	Director-at-Large – Christine Godwin
Moore, Amy	Director-at-Large – Marcel Gahbauer
Mulligan, Mike	Director-at-Large – El Peterson
Musto, David	Director-at-Large – Yousif Attia
O'Connell, Kristin	Director-at-Large – El Peterson

Appendix 1

Appendix 2

Appendix 2. Top 20 New Bandings at Inglewood Bird Sanctuary

Spring				
Species	Total 2002-2011		2011	
	Rank	Number	Rank	Number
Yellow-rumped Warbler	1	1211	1	203
Swainson's Thrush	2	450	2	60
Lincoln's Sparrow	3	347	3	36
American Robin	4	302	4	35
Clay-colored Sparrow	5	225	6	15
Chipping Sparrow	6	198	14-19	4
Yellow Warbler	7	183	8	12
Tree Swallow	8	169	10-11	10
House Wren	9	154	10-11	10
Orange-crowned Warbler	10	140	5	21
White-crowned Sparrow	11	130	14-19	4
Least Flycatcher	12	125	9	11
Gray Catbird	13	108	12	8
Cedar Waxwing	14	99		
Traill's Flycatcher*	16	91	7	13
Common Yellowthroat	15	81		
White-throated Sparrow	17	52		
Brown-headed Cowbird	18	50	14-19	4
N Rough-winged Swallow	19	45	14-19	4
Northern Waterthrush	20	39	20	3
Savannah Sparrow			13	5
Ruby-crowned Kinglet			14-19	4
Blackpoll Warbler			14-19	4

Fall				
Species	Total 1995-2011		2011	
	Rank	Number	Rank	Number
Yellow-rumped Warbler	1	4559	1	170
Wilson's Warbler	2	2718	5	53
Orange-crowned Warbler	3	2109	2	75
Yellow Warbler	4	1832	6	47
Tennessee Warbler	5	1297	10	24
House Wren	6	1206	4	59
Traill's Flycatcher	7	1001	12	18
American Robin	8	951	11	20
Chipping Sparrow	9	937	18	9
Cedar Waxwing	10	866	3	63
Northern Waterthrush	11	770	8	34
Lincoln's Sparrow	12	751	7	38
White-throated Sparrow	13	691	9	34
Swainson's Thrush	14	449	17	11
Least Flycatcher	15	443	16	12
White-crowned Sparrow	16	383	13	15
Ovenbird	17	351	14-15	14
Black-capped Chickadee	18	289	19-21	8
Clay-colored Sparrow	19-20	265		
Warbling Vireo	19-20	265		
Common Grackle			14-15	14
Belted Kingfisher			19-21	8
Pine Siskin			19-21	8

* includes Alder and Willow Flycatcher

Appendix 3

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

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

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

first record for each species
 banding location different than recapture location

Northern Saw-whet Owl	1204-23480	De Wit ranch																	B	d		FD in next L-L N		
Northern Saw-whet Owl	1204-25371	De Wit ranch														B	x	r						
Northern Saw-whet Owl	0924-21506	De Wit ranch														B	r							
Northern Saw-whet Owl	0924-21813	De Wit ranch													B	x	x	r						
Northern Saw-whet Owl	1204-25383	De Wit ranch													B	x	x	r						
Northern Saw-whet Owl	092445655	De Wit ranch																	B	x	r			
Belted Kingfisher	1283-88929	IBS															B	r						
Belted Kingfisher	1363-70918	IBS			B	r																		
Belted Kingfisher	1363-70961	IBS											B	r										
Belted Kingfisher	1363-71000	IBS														B	r							
Belted Kingfisher	200346139	IBS																			B	r		
Yellow-bellied Sapsucker	8051-65119	Dunbow						B	r															
Yellow-bellied Sapsucker	8001-77959	DPP															B	r						
Yellow-bellied Sapsucker	8001-77960	DPP															B	r						
Red-naped Sapsucker	8041-54901	Dunbow						B	r															
Downy Woodpecker	1451-67033	IBS				B	r	r	x	x	x	r												
Downy Woodpecker	1461-02314	IBS					B	r	r	r														
Downy Woodpecker	1461-05307	Dunbow						B	x	r														
Downy Woodpecker	1461-50837	Cominco										B	r											
Downy Woodpecker	1461-63690	IBS			B	r																		
Downy Woodpecker	1461-84563	Cominco										B	r											
Downy Woodpecker	1761-28014	Cominco										B	r											
Downy Woodpecker	1791-28009	IBS												B	r	r								
Downy Woodpecker	1791-28131	IBS											B	r	r	r								
Downy Woodpecker	1811-73700	IBS													B	x	r							
Downy Woodpecker	1871-73165	IBS														B	r							
Downy Woodpecker	1871-73196	IBS														B	r							
Downy Woodpecker	1871-73382	IBS														B	r							
Downy Woodpecker	1871-73457	IBS														B	r	r						
Downy Woodpecker	1901-94964	IBS																B	x	r				
Downy Woodpecker	1901-94973	IBS																B	r	r				

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

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Downy Woodpecker	2201-45482	IBS																	B	r		
Downy Woodpecker	2291-32298	IBS																	B	r		
Downy Woodpecker	2291-32764	IBS																			B	r
Downy Woodpecker	2291-33295	IBS																				B
Downy Woodpecker	2291-33248	IBS																				B
Hairy Woodpecker	0922-89596	IBS																		B	x	r
Hairy Woodpecker	0962-90911	IBS				B	x	x	x	x	r	x	r									
Hairy Woodpecker	1152-38713	IBS							B	x	r	x	r									
Hairy Woodpecker	8041-83240	IBS												B	x	r						
Northern Flicker	1383-76804	IBS							B	x	x	r										
Northern Flicker	1383-76830	IBS											B	r	r	x	x	x	x	r	x	r
Northern Flicker	1453-31301	IBS				B	r															
Western Wood-Pewee	2160-19068	IBS							B	x	x	r										
Western Wood-Pewee	2160-19487	IBS								B	x	r										
Western Wood-Pewee	2190-10406	IBS										B	r									
Western Wood-Pewee	2200-47351	IBS										B	r	r	r	r						
Western Wood-Pewee	2290-37207	IBS														B	r					
Western Wood-Pewee	2290-88513	IBS												B	r							
Western Wood-Pewee	2500-72334	IBS																	B	r		
Yellow-bellied Flycatcher	2300-06703	Las Caletas											B	r								
Least Flycatcher	2050-70767	Dunbow						B	x	r												
Least Flycatcher	2290-37714	DPP														B	r					
Least Flycatcher	2290-37255	IBS														B	r					
Least Flycatcher	2340-94532	IBS																			B	r
Least Flycatcher	2410-05519	IBS																			B	x
Least Flycatcher	2430-31064	IBS														B	r					
Least Flycatcher	2490-22361	IBS															B	r				
Least Flycatcher	2490-22502	IBS															B	x	x	r		
Eastern Kingbird	1451-38640	IBS	B	x	x	r																
Eastern Kingbird	1461-31482	IBS							B	x	x	x	r									
Eastern Kingbird	1461-50853	Cominco									B	r		recaptured at IBS								
Eastern Kingbird	1461-50898	Cominco									B	r		recaptured at IBS								
Eastern Kingbird	1461-50899	Cominco									B	r										
Eastern Kingbird	1461-63719	IBS					B	r	x	r	x	x	r									
Eastern Kingbird	1461-63727	IBS					B	x	x	x	r											

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

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Eastern Kingbird	1461-63750	IBS						B	r	r	x	x	r									
Eastern Kingbird	1761-28292	IBS										B	r									
Eastern Kingbird	1791-21021	IBS										B	x	r	r	x	x	x	r	x	r	
Eastern Kingbird	1811-73189	IBS												B	x	x	r					
Eastern Kingbird	1871-73181	IBS													B	r	r	r	x	r	r	
Eastern Kingbird	1871-73452	IBS												B	r							
Eastern Kingbird	1901-94517	IBS														B	r					
Eastern Kingbird	2291-32788	IBS																			B	x
Warbling Vireo	1950-45045	IBS			B	r																
Warbling Vireo	1950-45076	IBS			B	x	r	r	r													
Warbling Vireo	1950-48110	IBS		B	x	r																
Warbling Vireo	1990-57936	IBS									B	x	r	r								
Warbling Vireo	2050-70837	IBS						B	r													
Warbling Vireo	2050-70961	IBS					B	x	r													
Warbling Vireo	2091-55780	IBS													B	r	r					
Warbling Vireo	2161-14605	IBS				B	x	x	r													
Warbling Vireo	2171-56330	Cominco									B	r										
Warbling Vireo	2190-10445	IBS										B	r									
Warbling Vireo	2220-34455	Cominco									B	r										
Warbling Vireo	2270-23115	IBS											B	x	r	r						
Warbling Vireo	2270-80426	IBS												B	r							
Warbling Vireo	2290-22442	IBS																B	x	r		
Warbling Vireo	2490-22596	IBS																B	r			
Warbling Vireo	2500-72037	IBS																	B	r		
Warbling Vireo	2500-72125	IBS																	B	r	r	
Warbling Vireo	2580-26745	IBS																		B	r	
Warbling Vireo	3101-45254	IBS								B	r											
Warbling Vireo	3101-89999	IBS								B	x	x	r									
Warbling Vireo	3121-21265	Cominco									B	r										
Black-billed Magpie	0624-79522	IBS												B	x	x	x	r				
Black-billed Magpie	1363-70976	IBS													B	x	x	r				
Tree Swallow	1671-56106	IBS													B	r						
Tree Swallow	1671-56108	IBS													B	x	x	r				
Tree Swallow	1671-56126	IBS													B	r	r	x	x	r		
Tree Swallow	2161-08849	IBS													B	x	x	r				

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

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Tree Swallow	2161-08859	IBS													B	r	r					
Tree Swallow	2161-08860	IBS													B	r						
Tree Swallow	2161-08869	IBS													B	r						
Tree Swallow	2161-08872	IBS													B	r						
Tree Swallow	2171-56486	IBS											B	x	r							
Tree Swallow	2171-56493	IBS											B	x	r							
Tree Swallow	2181-72921	IBS															B	r				
Tree Swallow	2181-72922	IBS															B	r				
Tree Swallow	2181-72930	IBS															B	r				
Tree Swallow	2181-72931	IBS															B	x	x	r		
Tree Swallow	2181-72952	IBS															B	r				
Tree Swallow	2181-72955	IBS															B	r				
Tree Swallow	2221-30533	IBS																B	r	r		
Tree Swallow	2221-82420	IBS																	B	r		
Tree Swallow	2221-82460	IBS																	B	r		
Tree Swallow	2221-82471	IBS																	B	r		
Tree Swallow	2221-82529	IBS																		B	x	x
Tree Swallow	2221-82530	IBS																			B	r
Tree Swallow	2221-82531	IBS																		B	x	r
Tree Swallow	2221-82545	IBS																		B	r	
Tree Swallow	2321-24749	IBS																			B	r
Tree Swallow	2321-24754	IBS																			B	r
Tree Swallow	2321-24749	IBS																			B	x
Tree Swallow	2321-24761	IBS																			B	r
Tree Swallow	2430-31969	IBS																	B	x	x	r
Northern Rough-winged Swallow	2290-88401	IBS													B	r						
Northern Rough-winged Swallow	2290-37070	IBS														B	x	r				
Northern Rough-winged Swallow	2290-37386	IBS														B	r					
Northern Rough-winged Swallow	2580-26717	IBS																		B	r	
Black-capped Chickadee	1950-45065	IBS			B	r																
Black-capped Chickadee	1950-45186	IBS			B	r	r	r														
Black-capped Chickadee	1950-45254	IBS			B	r	r	x	x	r	r	r										
Black-capped Chickadee	1950-45255	IBS			B	x	x	x	x	x	r	r										
Black-capped Chickadee	1950-45256	IBS			B	r	r															
Black-capped Chickadee	1950-45258	IBS			B	r	r	r	r													

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

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	
Black-capped Chickadee	1950-45786	IBS					B	r															
Black-capped Chickadee	1980-79991	IBS				B	r	r	r	r	r	r											
Black-capped Chickadee	1990-57154	IBS						B	r														
Black-capped Chickadee	2050-70142	IBS				B	x	r															
Black-capped Chickadee	2050-70427	IBS					B	r															
Black-capped Chickadee	2050-70848	IBS						B	x	x	x	x	x	x	x	x	x	r					
Black-capped Chickadee	2050-70849	IBS						B	r														
Black-capped Chickadee	2120-00102	Dunbow						B	r	r													
Black-capped Chickadee	2120-00103	Dunbow						B	r														
Black-capped Chickadee	2120-00105	Dunbow						B	r	r													
Black-capped Chickadee	2120-00107	Dunbow						B	r	r													
Black-capped Chickadee	2120-00109	Dunbow						B	r	r													
Black-capped Chickadee	2120-00110	Dunbow						B	r														
Black-capped Chickadee	2120-00113	Dunbow						B	r														
Black-capped Chickadee	2120-00114	Dunbow						B	r														
Black-capped Chickadee	2120-00117	Dunbow						B	r	r													
Black-capped Chickadee	2120-00124	Dunbow						B	x	r													
Black-capped Chickadee	2120-00125	Dunbow						B	r														
Black-capped Chickadee	2120-00128	Dunbow						B	r														
Black-capped Chickadee	2120-00197	Dunbow						B	r														
Black-capped Chickadee	2160-18085	Dunbow							B	r													
Black-capped Chickadee	2160-18119	IBS							B	x	x	x	x	x	x	x	x	r					
Black-capped Chickadee	2160-18180	IBS						B	r														
Black-capped Chickadee	2160-18704	IBS							B	r													
Black-capped Chickadee	2160-19059	IBS							B	r													
Black-capped Chickadee	2160-19120	IBS							B	r	r	r	r	r									
Black-capped Chickadee	2160-19174	IBS							B	r													
Black-capped Chickadee	2160-19522	IBS								B	r	r	r	r									
Black-capped Chickadee	2190-10126	IBS									B	r	r										
Black-capped Chickadee	2190-10128	IBS									B	x	r										
Black-capped Chickadee	2200-47365	IBS										B	r										
Black-capped Chickadee	2220-13397	IBS											B	x	x	x	x	x	r				
Black-capped Chickadee	2220-34017	Cominco									B	r											
Black-capped Chickadee	2220-34132	Cominco									B	r											
Black-capped Chickadee	2220-34593	Cominco									B	r											

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

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Black-capped Chickadee	2270-23454	IBS											B	r	r	r	r					
Black-capped Chickadee	2270-80108	IBS											B	r	r	r						
Black-capped Chickadee	2270-80454	IBS												B	r	r	r	r				
Black-capped Chickadee	2270-80480	IBS												B	r							
Black-capped Chickadee	2270-80687	IBS												B	r							
Black-capped Chickadee	2270-80989	IBS													B	r						
Black-capped Chickadee	2270-81230	IBS														B	r					
Black-capped Chickadee	2270-81297	IBS														B	x	r				
Black-capped Chickadee	2270-81338	IBS															B	r				
Black-capped Chickadee	2290-37241	IBS															B	r				
Black-capped Chickadee	2290-37640	IBS															B	r				
Black-capped Chickadee	2290-37793	DPP															B	r				
Black-capped Chickadee	2290-88414	IBS													B	x	x	r				
Black-capped Chickadee	2290-88658	IBS													B	r	r	r	r	x	r	r
Black-capped Chickadee	2290-92058	IBS												B	r							
Black-capped Chickadee	2290-92141	IBS												B	r	r	r	x	r			
Black-capped Chickadee	2290-92174	IBS												B	r							
Black-capped Chickadee	2290-37242	IBS															B	r				
Black-capped Chickadee	2290-37348	IBS														B	r					
Black-capped Chickadee	2340-94549	IBS																			B	r
Black-capped Chickadee	2390-30780	IBS										B	r									
Black-capped Chickadee	2390-30780	IBS										B	x	r								
Black-capped Chickadee	2390-30962	IBS											B	r								
Black-capped Chickadee	2430-31003	IBS															B	r				
Black-capped Chickadee	2430-31738	IBS																B	x	r		
Black-capped Chickadee	2490-22420	IBS																B	x	x	x	r
Black-capped Chickadee	2490-22455	IBS																B	r	r	r	r
Black-capped Chickadee	2490-22713	IBS																B	r			
Black-capped Chickadee	2500-72065	IBS																	B	r		
Black-capped Chickadee	2500-72501	IBS																B	r	r	r	r
Black-capped Chickadee	2500-72065	IBS																	B	r		
Black-capped Chickadee	2500-72088	IBS																	B	r		
Black-capped Chickadee	2580-26801	IBS																		B	r	r
Black-capped Chickadee	2580-26827	IBS																		B	r	r
Black-capped Chickadee	2580-26831	IBS																		B	r	

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

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Black-capped Chickadee	2580-26934	IBS																		B	r	
Black-capped Chickadee	2640-21086	IBS																				B
Black-capped Chickadee	3500-89670	Dunbow						B	r	r												
White-breasted Nuthatch	1461-31479	IBS						B	r	r												
White-breasted Nuthatch	1461-84757	IBS				B	r	x	r													
White-breasted Nuthatch	1761-15767	IBS										B	r									
White-breasted Nuthatch	1791-28150	IBS									B	r										
White-breasted Nuthatch	1811-73193	IBS											B	x	r							
White-breasted Nuthatch	1901-94527	IBS															B	r	r			
White-breasted Nuthatch	2221-45958	IBS																B	r			
White-breasted Nuthatch	2291-32012	IBS																	B	r	x	r
House Wren	1910-52261	IBS	B	r	x	r	r	r	r													
House Wren	1950-45790	IBS					B	r														
House Wren	1950-45886	IBS					B	r														
House Wren	1950-48126	IBS		B	x	r																
House Wren	1990-57803	Cominco									B	r										
House Wren	1990-57943	IBS									B	r										
House Wren	1990-57981	IBS									B	r	r	r	r	r						
House Wren	2060-28447	IBS						B	r													
House Wren	2160-18063	Dunbow							B	r												
House Wren	2160-18082	Dunbow							B	r												
House Wren	2160-19002	Dunbow							B	r												
House Wren	2190-10308	IBS									B	r										
House Wren	2190-10325	IBS									B	r										
House Wren	2200-47352	IBS									B	r										
House Wren	2200-47377	IBS									B	r	r	r								
House Wren	2220-13252	IBS										B	x	r	x	r						
House Wren	2220-13258	IBS										B	x	r								
House Wren	2270-23312	IBS										B	r									
House Wren	2270-23375	IBS										B	r									
House Wren	2270-23485	IBS										B	r									
House Wren	2270-80132	IBS										B	r									
House Wren	2270-80192	IBS											B	r								
House Wren	2270-80296	IBS											B	x	x	r						
House Wren	2270-80297	IBS											B	r	r							

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

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
House Wren	2270-80314	IBS												B	x	r						
House Wren	2270-80336	IBS												B	r							
House Wren	2270-80346	IBS												B	r							
House Wren	2270-80400	IBS												B	r							
House Wren	2270-80454	IBS												B	r							
House Wren	2270-81375	IBS															B	r				
House Wren	2270-81418	IBS													B	x	r					
House Wren	2270-81468	IBS													B	x	x	x	x	r		
House Wren	2290-37017	IBS														B	r					
House Wren	2290-37184	IBS														B	r					
House Wren	2290-37206	IBS															B	x	r			
House Wren	2290-37286	IBS															B	r				
House Wren	2290-37293	IBS															B	r				
House Wren	2290-37313	IBS														B	x	r				
House Wren	2290-37331	IBS														B	r					
House Wren	2290-37483	IBS														B	r					
House Wren	2290-37489	IBS														B	r	r				
House Wren	2290-37638	IBS																B	r			
House Wren	2290-37710	DPP															B	r				
House Wren	2290-37724	DPP															B	r				
House Wren	2290-37732	DPP															B	r				
House Wren	2290-37748	DPP															B	r				
House Wren	2290-37762	DPP															B	r				
House Wren	2290-37770	DPP															B	r				
House Wren	2290-88409	IBS													B	r						
House Wren	2290-88460	IBS													B	r						
House Wren	2290-88533	IBS													B	x	x	r	r			
House Wren	2290-91805	IBS																			B	r
House Wren	2290-91869	IBS																			B	r
House Wren	2290-92112	IBS												B	r							
House Wren	2290-92203	IBS												B	r							
House Wren	2340-94544	IBS																			B	r
House Wren	2340-94564	IBS																			B	r
House Wren	2340-94573	IBS																			B	
House Wren	2430-31067	IBS															B	r	r			

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

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
House Wren	2490-22377	IBS																B	r			
House Wren	2490-22484	IBS																B	r	r		
House Wren	2490-22526	IBS																B	r			
House Wren	2500-72030	IBS																	B	r		
House Wren	2500-72047	IBS																	B	r		
House Wren	2500-72097	IBS																	B	r		
House Wren	2500-72525	IBS																B	r	r		
House Wren	2500-72564	IBS																B	r			
House Wren	2500-72584	IBS																B	r			
House Wren	2580-26681	IBS																		B	r	
House Wren	2580-26683	IBS																		B	r	
House Wren	2580-26700	IBS																		B	x	r
House Wren	2580-26759	IBS																		B	r	
House Wren	2580-26760	IBS																		B	x	r
House Wren	2580-26768	IBS																		B	r	
House Wren	2580-26841	IBS																		B	r	
House Wren	2580-26881	IBS																		B	r	
House Wren	2640-21003	IBS																				B
House Wren	2640-21013	IBS																				B
House Wren	2640-21065	IBS																				B
House Wren	2640-21440	IBS																				B
Swainson's Thrush	1451-67159	IBS					B	x	r													
Swainson's Thrush	1461-63572	IBS						B	r													
Swainson's Thrush	1461-63682	IBS			B	x	r															
Swainson's Thrush	1461-63692	IBS			B	x	x	r														
Swainson's Thrush	1461-63741	IBS					B	r														
Swainson's Thrush	1461-69595	IBS					B	r														
Swainson's Thrush	1541-17673	IBS							B	r	x	r										
Swainson's Thrush	1871-73214	IBS													B	x	r					
American Robin	0942-93625	IBS											B	d								
American Robin	0942-93635	IBS											B	r								
American Robin	0942-93643	IBS											B	r								
American Robin	0942-93654	IBS											B	r	x	x	x	x	x	x	x	r
American Robin	0942-93655	IBS											B	r	x	r						
American Robin	0942-93660	IBS											B	r								

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

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
American Robin	0942-93686	IBS												B	x	x	x	d				
American Robin	0942-93694	IBS												B	x	d						
American Robin	0942-93747	IBS												B	r							
American Robin	0942-93786	IBS												B	x	r						
American Robin	0962-90991	IBS				B	x	r														
American Robin	0972-30082	IBS										B	r									
American Robin	0972-30083	IBS										B	r	r								
American Robin	0972-30087	IBS										B	r									
American Robin	0972-30095	IBS										B	x	r								
American Robin	0972-30466	IBS				B	x	r														
American Robin	0942-93731	IBS												B	x	x	r					
American Robin	1142-10240	IBS																				B
American Robin	1142-49046	IBS						B	r													
American Robin	1142-49201	Dunbow						B	r													
American Robin	1142-49212	Dunbow						B	x	r												
American Robin	1142-49217	Dunbow						B	r													
American Robin	1142-49221	Dunbow						B	r													
American Robin	1142-49261	IBS											B	r		r						
American Robin	1142-49270	IBS											B	x	r							
American Robin	1142-49272	IBS											B	x	x	x	r					
American Robin	1142-55013	IBS										B	x	x	x	x	r					
American Robin	1142-55058	IBS										B	x	x	x	x	r	x	x	r		
American Robin	1152-38703	Dunbow							B	r												
American Robin	1152-38721	IBS							B	x	x	x	x	x	r	r	r					
American Robin	1152-38740	IBS							B	r	x	r	x	r								
American Robin	1152-38773	IBS								B	x	x	x	x	x	x	x	x	x	r		
American Robin	1152-38887	IBS									B	r										
American Robin	1202-13232	IBS													B	r						
American Robin	1202-13233	IBS														B	r					
American Robin	1202-13232	IBS													B	r						
American Robin	1202-13243	IBS													B	r						
American Robin	1202-13272	IBS													B	r	r					
American Robin	1202-13302	IBS														B	r	r	x	r		
American Robin	1202-13308	IBS														B	r					
American Robin	1202-13333	IBS														B	r					

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

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
American Robin	1202-13337	IBS														B	r					
American Robin	1202-13338	IBS														B	r					
American Robin	1202-13340	IBS														B	x	r				
American Robin	1202-13345	IBS														B	r					
American Robin	1202-13368	IBS														B	r					
American Robin	1202-13384	IBS														B	r					
American Robin	1202-13386	IBS														B	r	r	r			
American Robin	1202-13389	IBS														B	x	x	x	x	r	
American Robin	1202-13431	IBS															B	r	x	x	r	r
American Robin	1202-13475	IBS															B	r				
American Robin	1202-13476	IBS															B	r				
American Robin	1202-13520	IBS																B	r			
American Robin	1202-13521	IBS																B	r			
American Robin	1202-13524	IBS																B	r			
American Robin	1202-13528	IBS																B	r			
American Robin	1202-13530	IBS																B	x	x	r	
American Robin	1202-13570	IBS																B	x	x	r	
American Robin	1202-13571	IBS																B	r			
American Robin	1202-13572	IBS																B	r			
American Robin	1202-13576	IBS																B	r			
American Robin	1202-13581	IBS																B	r			
American Robin	1202-13617	IBS																	B	x	r	
American Robin	1202-13634	IBS																	B	d		
American Robin	1202-13649	IBS																	B	r		
American Robin	1202-13656	IBS																	B	r	r	
American Robin	1202-13693	IBS																	B	x	x	x
American Robin	1232-09027	IBS																			B	r
American Robin	1232-09028	IBS																			B	r
American Robin	0922-89575	IBS																		B	r	
Gray Catbird	1681-67028	Cominco									B	r										
Gray Catbird	1681-67080	IBS										B	r									
Gray Catbird	1681-67087	IBS										B	r			r						
Gray Catbird	1871-73213	IBS													B	r						
Gray Catbird	2231-66314	IBS																	B	r	r	r
Gray Catbird	2231-66335	IBS																	B	r		

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

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	
Gray Catbird	2231-66398	IBS																			B	r	r
Gray Catbird	2421-71258	IBS																					B
Gray Catbird	8001-77934	DPP															B	r					
Gray Catbird	8001-77944	DPP															B	r					
Gray Catbird	8001-77952	DPP															B	r					
Gray Catbird	8001-77955	DPP															B	r					
Gray Catbird	8041-54948	IBS							B	r													
Gray Catbird	8041-54987	IBS								B	x	r	x	r									
Gray Catbird	8041-59443	Cominco										B	x	x	x	x	r						
Gray Catbird	8041-83021	Cominco									B	r											
Gray Catbird	8041-83028	Cominco									B	r			recaptured at IBS								
Gray Catbird	8041-83041	Cominco									B	r											
Gray Catbird	8041-83086	IBS											B	r									
Gray Catbird	8041-83101	IBS												B	r								
Gray Catbird	8041-83211	IBS													B	x	x	r					
Gray Catbird	8041-83301	IBS														B	x	r	r				
Gray Catbird	8041-83314	IBS															B	x	r	r			
Gray Catbird	8041-83348	IBS															B	x	x	r			
Gray Catbird	8041-83381	IBS																B	r	r			
Gray Catbird	8041-83383	IBS																			B	r	
Gray Catbird	8041-83447	IBS																			B	r	
Gray Catbird	8041-83452	IBS																			B	x	r
Cedar Waxwing	1461-50802	Cominco									B	r											
Cedar Waxwing	1461-63733	IBS					B	r															
Cedar Waxwing	2291-32386	IBS																			B	r	
Cedar Waxwing	2291-32417	IBS																			B	r	
Cedar Waxwing	2291-32423	IBS																			B	r	
Cedar Waxwing	2291-32871	IBS																				B	r
Cedar Waxwing	2291-32938	IBS																				B	x
Cedar Waxwing	2291-33215	IBS																					B
Northern Waterthrush	2270-80501	Las Caletas												B	x	x	x	r	r				
Northern Waterthrush	2290-37603	Las Caletas														B	r						
Northern Waterthrush	2401-76353	LSBS																					B
Tennessee Warbler	2300-06276	IBS														B	r						
Tennessee Warbler	2410-05077	IBS																B	x	r			

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

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Orange-crowned Warbler	2160-18542	IBS							B	r												
Yellow Warbler	1910-52230	IBS	B	x	x	r																
Yellow Warbler	1950-45519	IBS				B	r	x	r													
Yellow Warbler	1950-45878	IBS					B	r	r													
Yellow Warbler	1950-48086	IBS		B	x	r																
Yellow Warbler	1950-48129	IBS		B	x	r	r															
Yellow Warbler	1950-48133	IBS		B	x	r																
Yellow Warbler	1980-79983	IBS				B	r	r	r	r												
Yellow Warbler	1990-57104	Dunbow						B	r													
Yellow Warbler	1990-57734	Cominco									B	r										
Yellow Warbler	1990-57738	Cominco									B	r										
Yellow Warbler	1990-57802	Cominco									B	r										
Yellow Warbler	1990-57864	Cominco									B	r										
Yellow Warbler	1990-57898	Cominco									B	r										
Yellow Warbler	1990-57916	Cominco									B	r										
Yellow Warbler	1990-57935	IBS									B	x	r									
Yellow Warbler	2050-70144	IBS				B	r															
Yellow Warbler	2070-42756	IBS						B	r													
Yellow Warbler	2120-00181	Dunbow						B	r													
Yellow Warbler	2160-19158	IBS							B	r												
Yellow Warbler	2160-18045	Dunbow							B	r												
Yellow Warbler	2160-18068	Dunbow							B	r												
Yellow Warbler	2160-18077	Dunbow							B	r												
Yellow Warbler	2160-19059	IBS							B	r												
Yellow Warbler	2160-19576	IBS								B	x	r										
Yellow Warbler	2160-19766	IBS								B	r	r										
Yellow Warbler	2190-10407	IBS									B	x	r									
Yellow Warbler	2200-47358	Cominco									B	x	r									
Yellow Warbler	2200-47371	IBS									B	x	x	r								
Yellow Warbler	2200-47400	IBS									B	r										
Yellow Warbler	2220-13037	IBS										B	r									
Yellow Warbler	2220-13250	IBS										B	r									
Yellow Warbler	2220-13252	IBS										B	x	x	x	r	r					
Yellow Warbler	2220-13258	IBS										B	r									
Yellow Warbler	2220-13262	IBS										B	r									

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

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Yellow Warbler	2220-13397	IBS											B	r								
Yellow Warbler	2220-34098	Cominco									B	r										
Yellow Warbler	2220-34171	Cominco									B	r										
Yellow Warbler	2220-34293	Cominco									B	r										
Yellow Warbler	2220-34320	Cominco									B	r										
Yellow Warbler	2220-34370	Cominco									B	x	x	x	x	x	r					
Yellow Warbler	2220-34423	Cominco									B	r										
Yellow Warbler	2220-34438	Cominco									B	r										
Yellow Warbler	2270-23132	IBS											B	r								
Yellow Warbler	2270-23288	IBS											B	r								
Yellow Warbler	2270-23333	IBS											B	r								
Yellow Warbler	2270-23346	IBS											B	r								
Yellow Warbler	2270-23419	IBS											B	x	x	r	x	r	r			
Yellow Warbler	2270-80288	IBS												B	r	r						
Yellow Warbler	2270-80303	IBS												B	x	x	r					
Yellow Warbler	2270-80307	IBS												B	r							
Yellow Warbler	2270-80319	IBS												B	x	x	x	r				
Yellow Warbler	2270-80347	IBS												B	x	r						
Yellow Warbler	2270-80421	IBS												B	r							
Yellow Warbler	2270-80447	IBS												B	x	x	r					
Yellow Warbler	2270-80596	IBS													B	x	r					
Yellow Warbler	2270-80777	IBS													B	r	r					
Yellow Warbler	2270-80781	IBS													B	r						
Yellow Warbler	2270-80785	IBS													B	x	r					
Yellow Warbler	2270-80861	IBS													B	r						
Yellow Warbler	2270-81400	IBS															B	r				
Yellow Warbler	2290-37023	IBS														B	r					
Yellow Warbler	2290-37050	IBS														B	r					
Yellow Warbler	2290-37231	IBS															B	r				
Yellow Warbler	2290-37253	IBS															B	r				
Yellow Warbler	2290-37258	IBS															B	r				
Yellow Warbler	2290-37297	IBS															B	r				
Yellow Warbler	2290-37311	IBS														B	r					
Yellow Warbler	2290-37383	IBS														B	r					
Yellow Warbler	2290-37757	DPP															B	r				

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

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Yellow Warbler	2290-37761	DPP															B	r				
Yellow Warbler	2290-88365	IBS													B	x	r	r	r	r		
Yellow Warbler	2290-88550	IBS													B	r	r	r				
Yellow Warbler	2290-91931	IBS																			B	r
Yellow Warbler	2290-91971	IBS																			B	r
Yellow Warbler	2290-92164	IBS												B	x	x	r					
Yellow Warbler	2290-92197	IBS												B	r	r						
Yellow Warbler	2390-30570	IBS										B	r	x	r	x	x	r				
Yellow Warbler	2340-94619	IBS																			B	r
Yellow Warbler	2340-94757	IBS																			B	r
Yellow Warbler	2340-94555	IBS																			B	r
Yellow Warbler	2340-94904	IBS																			B	r
Yellow Warbler	2340-94965	IBS																			B	r
Yellow Warbler	2430-31256	IBS															B	x	r			
Yellow Warbler	2440-33222	Cominco															B	x	x	x	r	
Yellow Warbler	2490-22209	IBS																B	r	r	r	
Yellow Warbler	2490-22320	IBS																B	x	r		
Yellow Warbler	2490-22329	IBS																B	r			
Yellow Warbler	2490-22344	IBS																B	r			
Yellow Warbler	2490-22349	IBS																B	r			
Yellow Warbler	2490-22356	IBS																B	r	r		
Yellow Warbler	2490-22383	IBS																B	r	x	x	d
Yellow Warbler	2490-22424	IBS																B	r			
Yellow Warbler	2500-72382	IBS																	B	x	x	r
Yellow Warbler	2500-72401	IBS																	B	r		
Yellow Warbler	2500-72435	IBS																	B	r		
Yellow Warbler	2500-72504	IBS																B	x	d		
Yellow Warbler	2500-72656	IBS																B	r			
Yellow Warbler	2500-72604	IBS																B	r	r		
Yellow Warbler	2580-26816	IBS																		B	r	
Yellow Warbler	2580-26883	IBS																		B	r	
Yellow Warbler	2640-19977	IBS																				B
Yellow Warbler	2640-19995	IBS																			B	r
Yellow Warbler	2640-21002	IBS																			B	r
Yellow Warbler	2640-21075	IBS																				B

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

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Yellow Warbler	3500-89667	Dunbow						B	x	r												
Chestnut-sided Warbler	2300-06803	Las Caletas														B	r					
Yellow-rumped Warbler	1910-52603	IBS	B	r																		
Yellow-rumped Warbler	2290-37137	IBS														B	r					
Yellow-rumped Warbler	2490-22589	IBS																B	x	r		
Spotted Towhee	8001-77974	DPP															B	r				
Clay-colored Sparrow	1990-57805	Cominco									B	x	x	r								
Clay-colored Sparrow	2050-70675	Dunbow						B	x	r												
Clay-colored Sparrow	2120-00157	Dunbow						B	r	r												
Clay-colored Sparrow	2120-00170	Dunbow						B	x	r												
Clay-colored Sparrow	2120-00176	Dunbow						B	r													
Clay-colored Sparrow	2160-18022	Dunbow							B	r												
Clay-colored Sparrow	2160-18028	Dunbow							B	r												
Clay-colored Sparrow	2160-18030	Dunbow							B	r												
Clay-colored Sparrow	2160-19504	IBS								B	x	x	r									
Clay-colored Sparrow	2220-34456	Cominco									B	r										
Clay-colored Sparrow	2220-34615	Cominco									B	r										
Clay-colored Sparrow	2270-23483	IBS									B	r										
Clay-colored Sparrow	2270-81350	IBS															B	r				
Clay-colored Sparrow	2340-94532	IBS																			B	r
Clay-colored Sparrow	2390-30503	IBS									B	x	r									
Clay-colored Sparrow	2500-72705	IBS																B	x	x	r	
Clay-colored Sparrow	2640-21032	IBS																				B
Vesper Sparrow	1461-05331	Dunbow						B	r													
Vesper Sparrow	1461-31412	Dunbow							B	r												
Savannah Sparrow	2171-56304	Cominco									B	r										
Song Sparrow	1541-17836	Cominco									B	r										
Song Sparrow	1541-17895	Cominco									B	r										
Song Sparrow	1861-68929	IBS													B	r						
Song Sparrow	1871-73157	IBS														B	r					
Song Sparrow	1871-73227	IBS														B	r					
Song Sparrow	1901-94717	IBS															B	r				
Song Sparrow	2291-32829	IBS																			B	r
Lincoln's Sparrow	1671-56128	IBS												B	r							
Lincoln's Sparrow	2091-55732	IBS														B	r					

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

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Lincoln's Sparrow	2161-14607	IBS				B	r															
Lincoln's Sparrow	2221-82428	IBS																	B	r		
Lincoln's Sparrow	2221-82466	IBS																	B	x	r	
Lincoln's Sparrow	3121-21261	Cominco									B	r										
White-throated Sparrow	1791-28046	IBS											B	r								
White-throated Sparrow	1871-73465	IBS													B	r						
White-throated Sparrow	146179092	IBS				B	x	x	x	x	x	x	x	x	x	x	x	x	x	x	r	
Red-winged Blackbird	8041-83032	Cominco									B	r										
Brown-headed Cowbird	1461-05333	Dunbow						B	r													
Brown-headed Cowbird	1461-31414	Dunbow							B	r												
Brown-headed Cowbird	1541-17842	Cominco									B	r										
Brown-headed Cowbird	1681-67124	IBS											B	x	x	x	x	r				
Brown-headed Cowbird	1761-28251	IBS									B	r										
Brown-headed Cowbird	1791-28013	IBS											B	r	r	r	r					
Brown-headed Cowbird	1811-73610	IBS												B	x	x	x	x	r			
Brown-headed Cowbird	1811-73648	IBS												B	r							
Brown-headed Cowbird	1871-73167	IBS													B	r						
Brown-headed Cowbird	1871-73199	IBS													B	r						
Brown-headed Cowbird	1901-94903	IBS																B	r	r	r	r
Brown-headed Cowbird	1901-94914	IBS																B	r			
Brown-headed Cowbird	8041-54991	Cominco									B	r										
Brown-headed Cowbird	8041-54992	Cominco									B	r										
Brown-headed Cowbird	8041-83003	Cominco									B	r										
Brown-headed Cowbird	8041-83005	Cominco									B	r										
Brown-headed Cowbird	8041-83019	Cominco									B	r										
Brown-headed Cowbird	8041-83245	Cominco													B	x	r					
Brown-headed Cowbird	8041-83500	IBS																			B	x
Baltimore Oriole	8041-54908	IBS							B	r												
Baltimore Oriole	8041-83030	Cominco									B	r										
Baltimore Oriole	8041-83090	IBS											B	r	r							
Baltimore Oriole	8041-83201	IBS												B	r							
Baltimore Oriole	8041-83221	IBS												B	r	x	x	r	r			
Baltimore Oriole	8041-83222	IBS												B	x	r						
Baltimore Oriole	8041-83274	IBS													B	r	r					
Baltimore Oriole	8041-83312	IBS														B	x	x	x	r		

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

Species	Band	Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Baltimore Oriole	8041-83326	IBS															B	x	r	r		
Baltimore Oriole	8041-83383	IBS																B	x	x	r	
Baltimore Oriole	8041-83384	IBS																B	x	r		
Baltimore Oriole	8041-83388	IBS																B	r			
Baltimore Oriole	8051-65131	IBS						B	r													
House Finch	2291-32198	IBS																	B	x	d	
American Goldfinch	1990-57875	Cominco									B	r										
American Goldfinch	2120-00188	Dunbow						B	x	r												
American Goldfinch	2190-10309	IBS										B	x	r	r	r						
American Goldfinch	2220-34131	Cominco									B	r										
American Goldfinch	2220-34245	Cominco									B	r										
American Goldfinch	2270-23364	IBS											B	x	r							
American Goldfinch	2270-80350	Cominco												B	r							
American Goldfinch	2270-80353	Cominco												B	r							
American Goldfinch	2290-37381	IBS														B	r					
American Goldfinch	2490-22598	IBS																B	x	r		
American Goldfinch	2500-72519	IBS																B	r	r		
American Goldfinch	2500-72588	IBS																B	r			

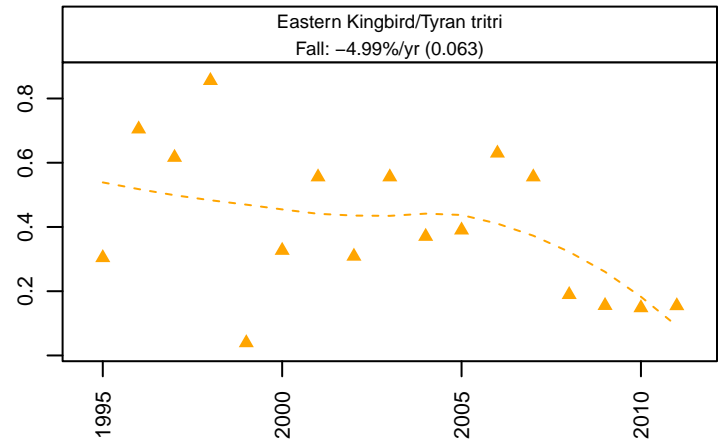
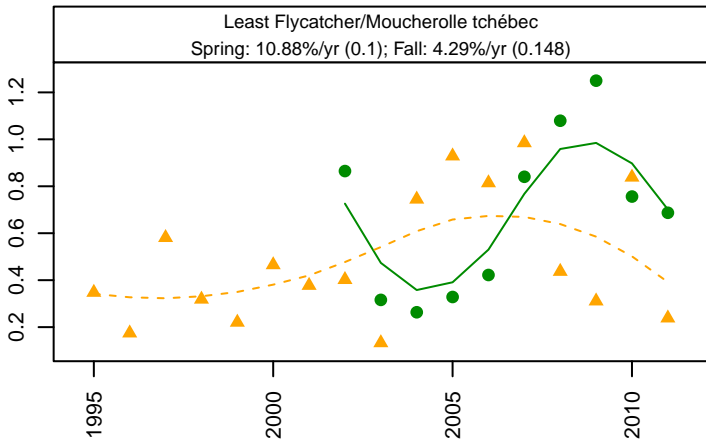
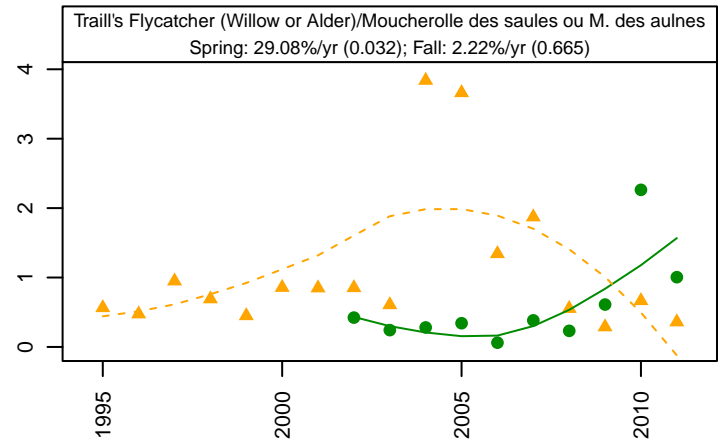
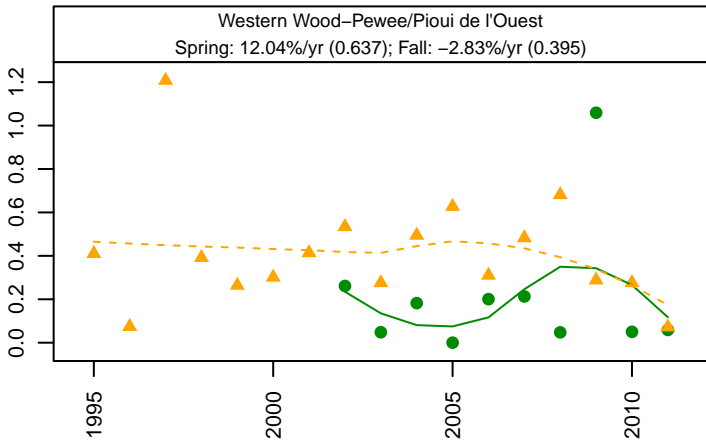
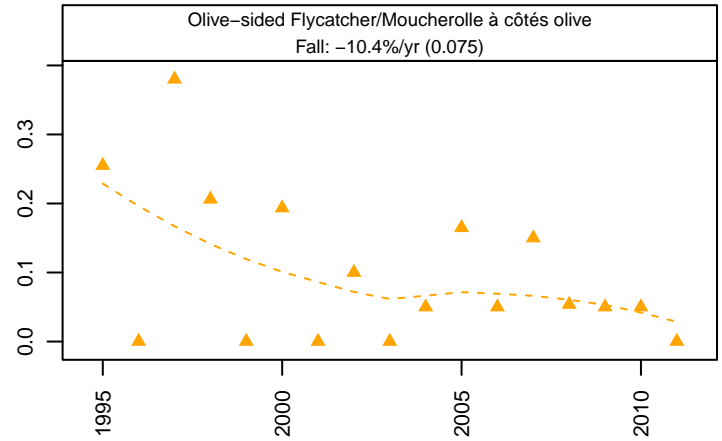
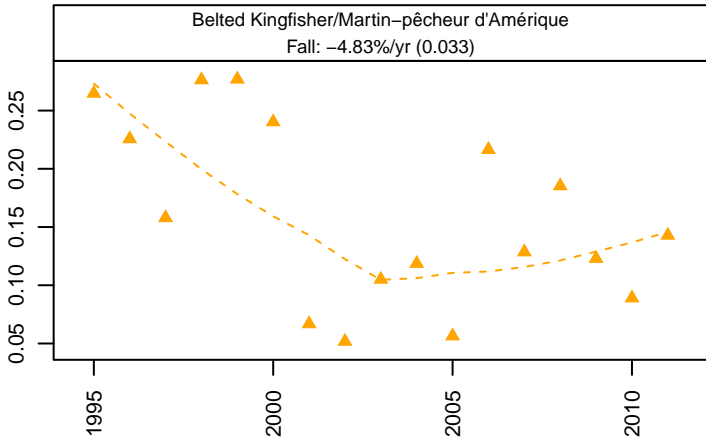
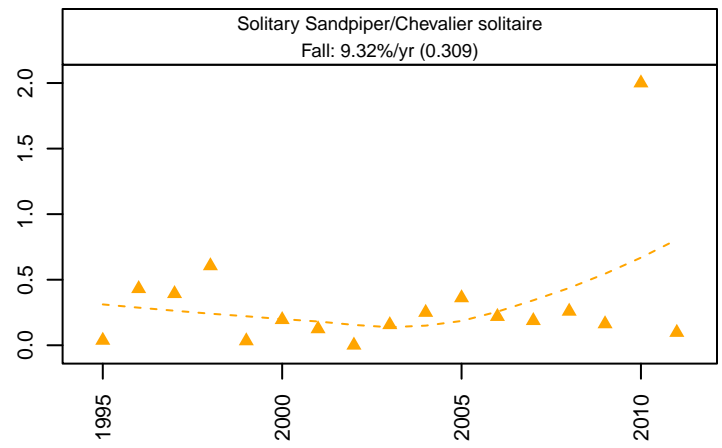
Appendix 4

APPENDIX 5

Trend Analyses Charts

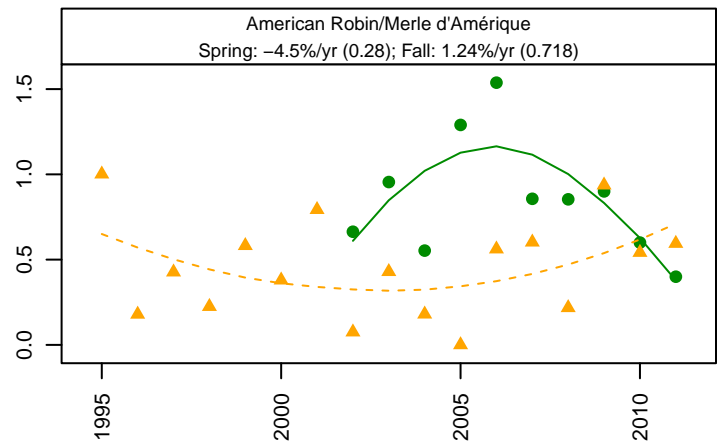
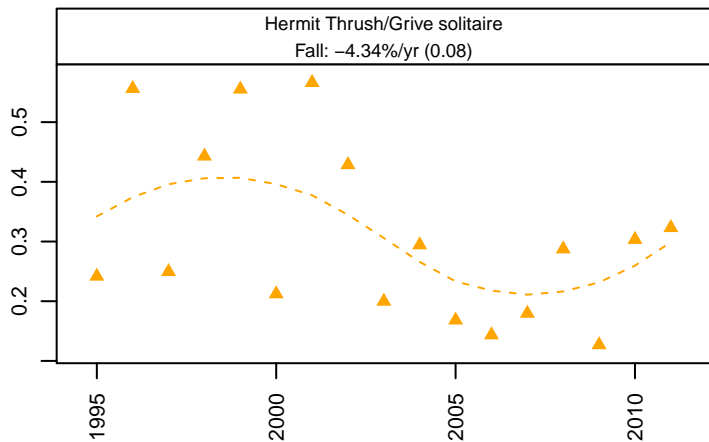
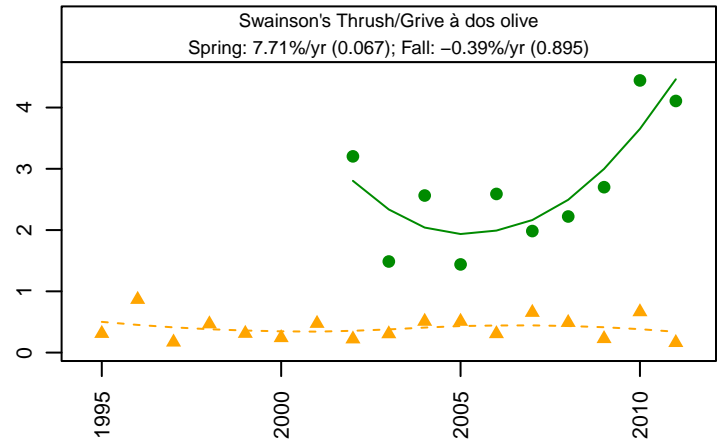
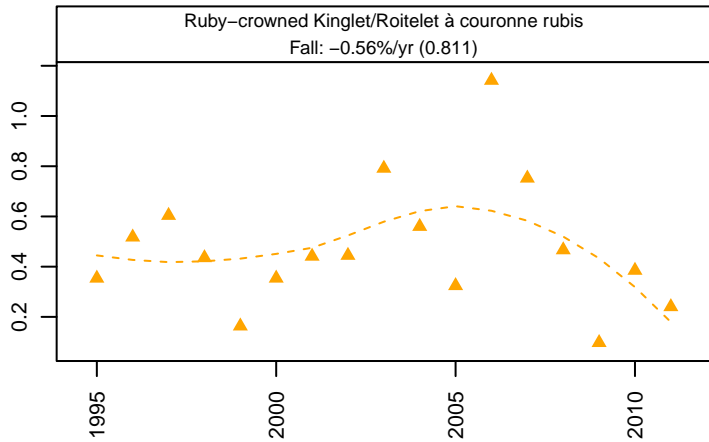
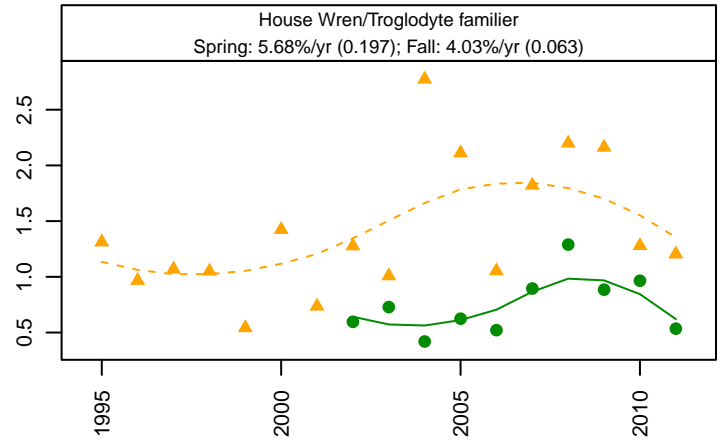
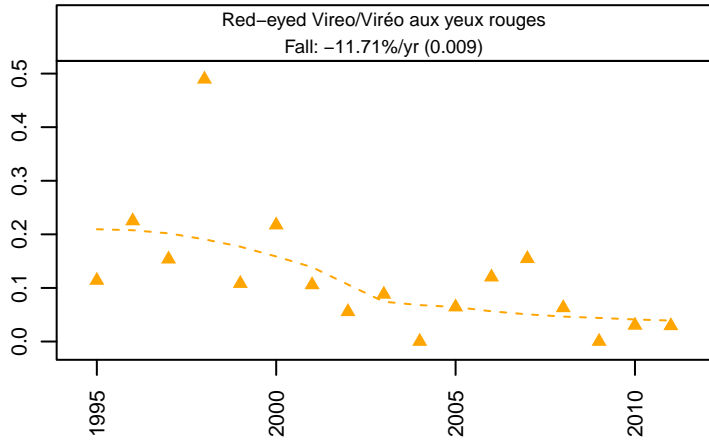
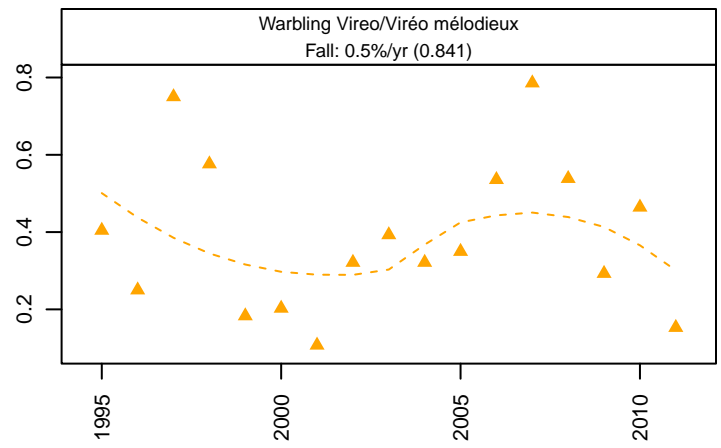
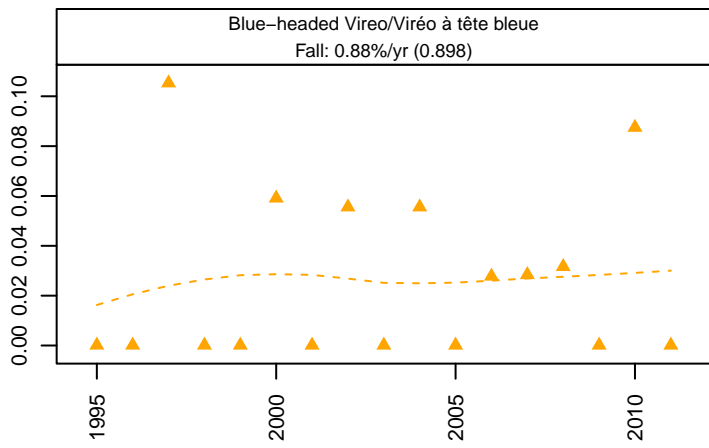
**(Spring – green solid line and circles
Fall – yellow dashed line and triangles)**

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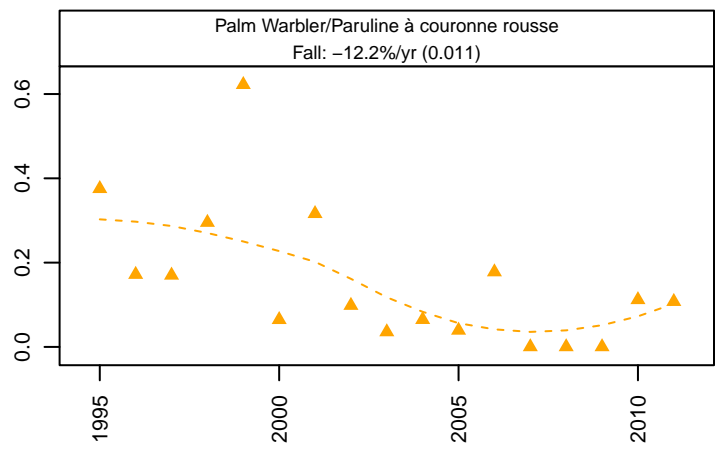
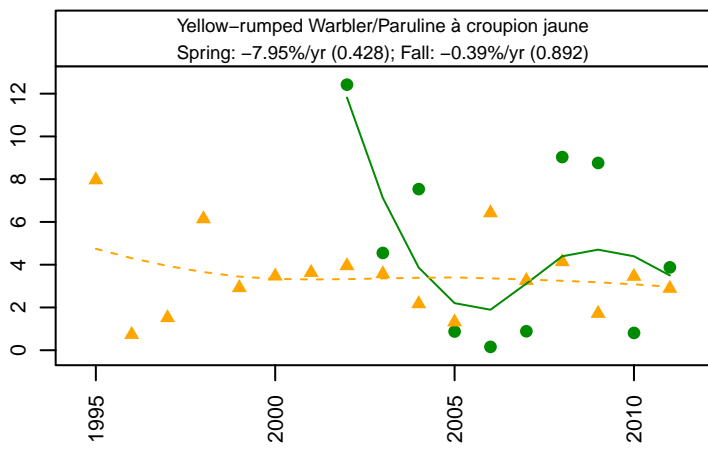
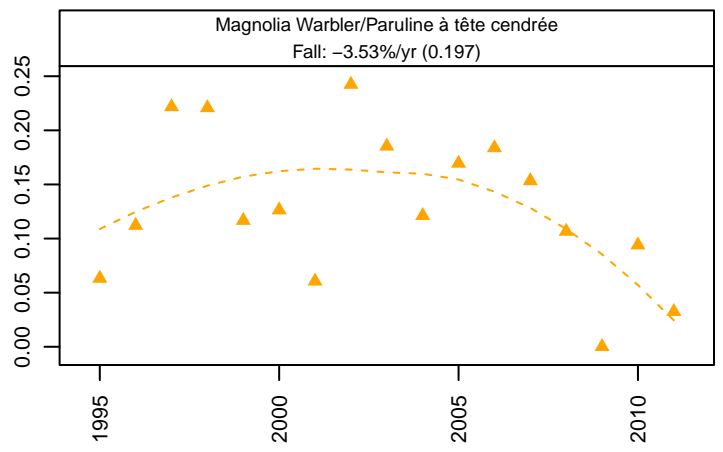
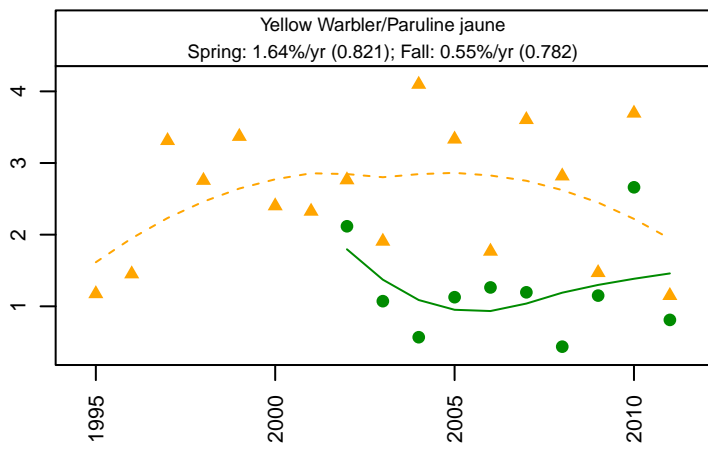
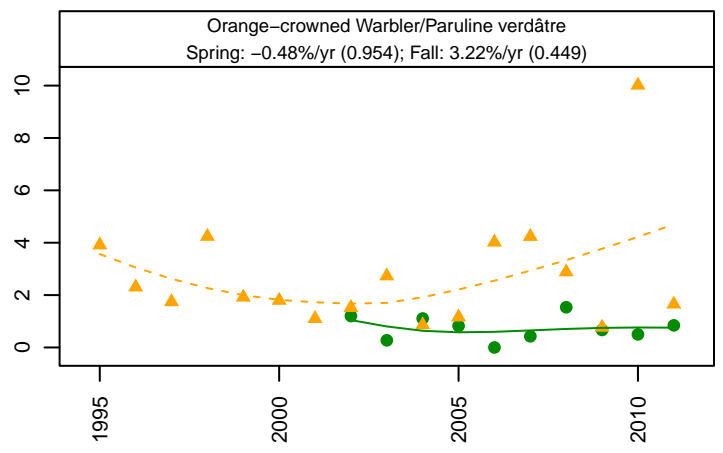
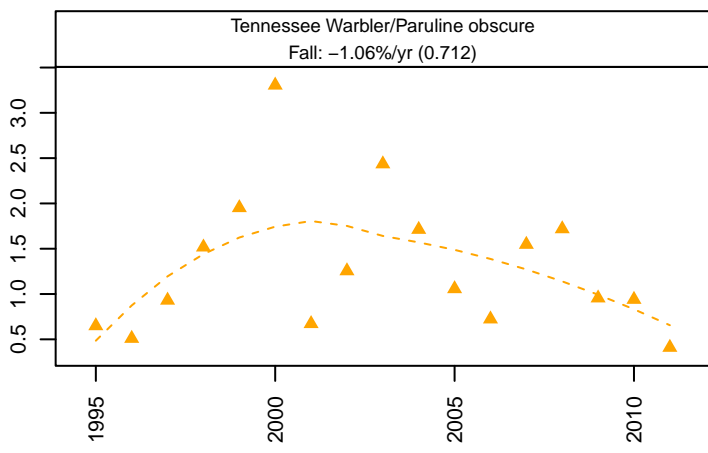
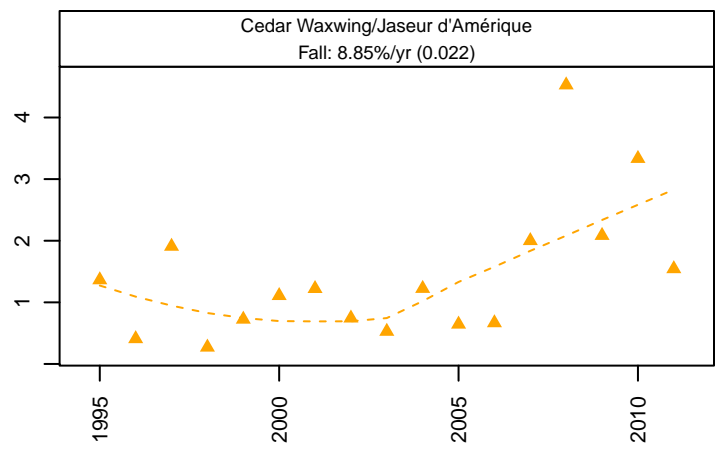
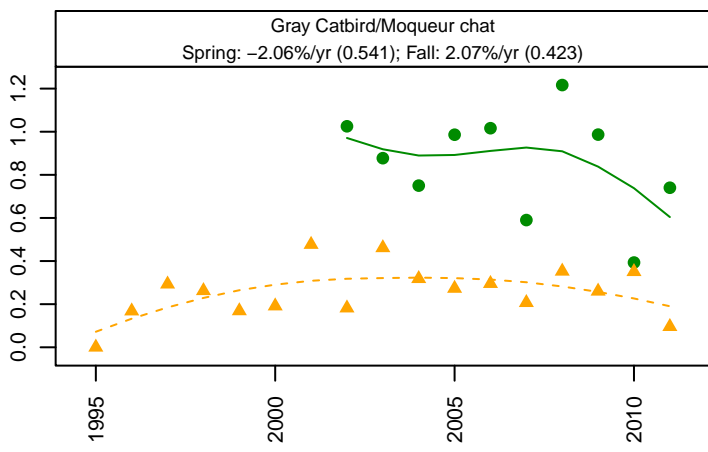


Year

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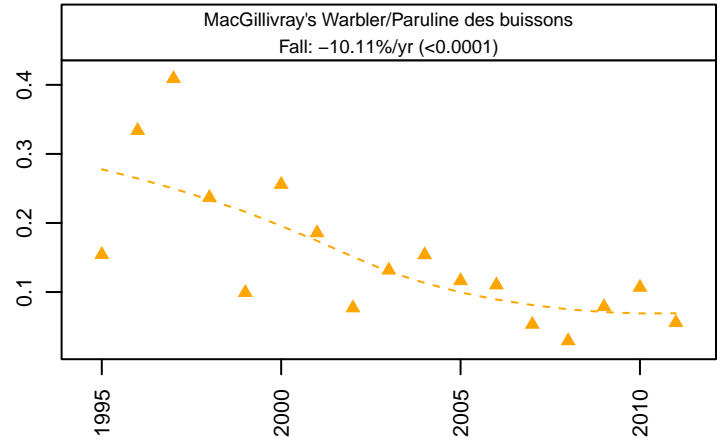
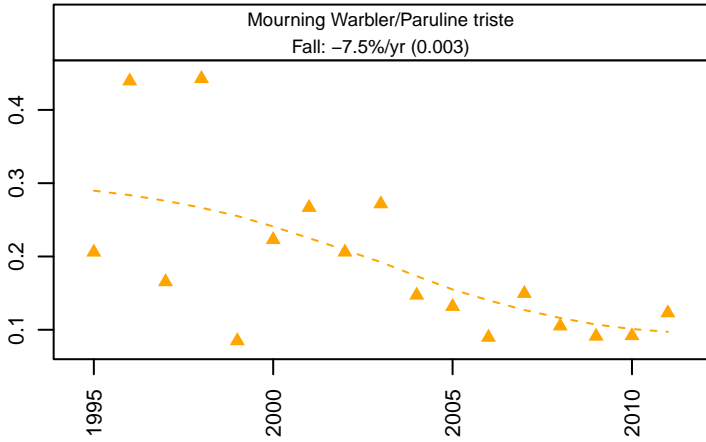
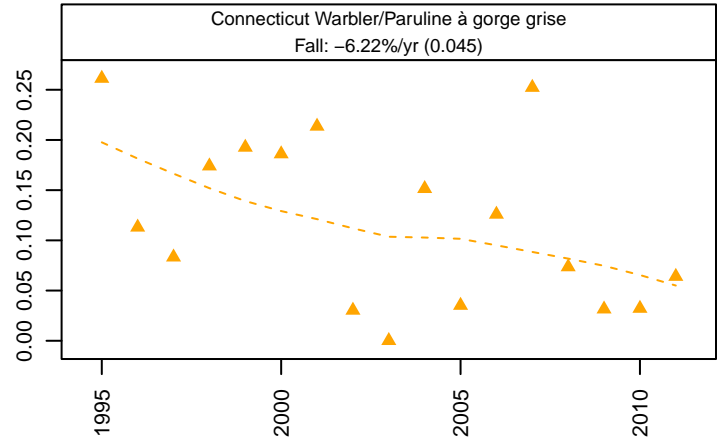
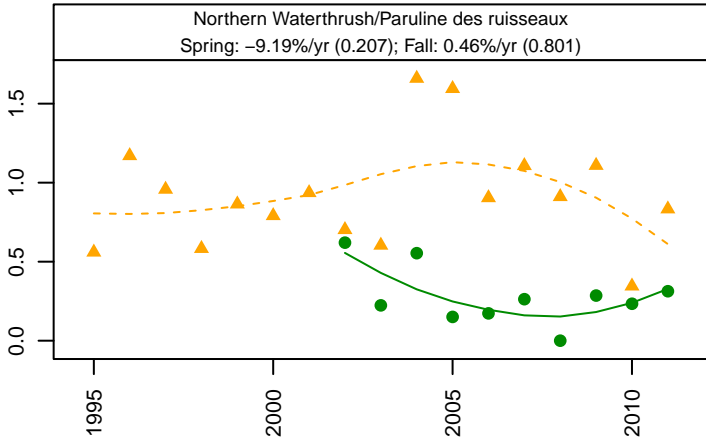
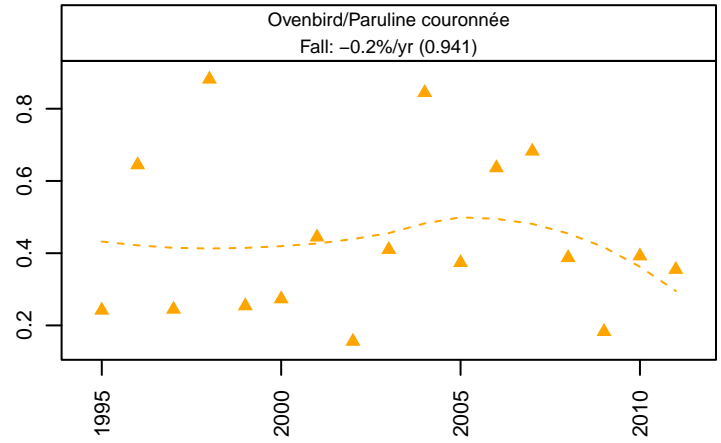
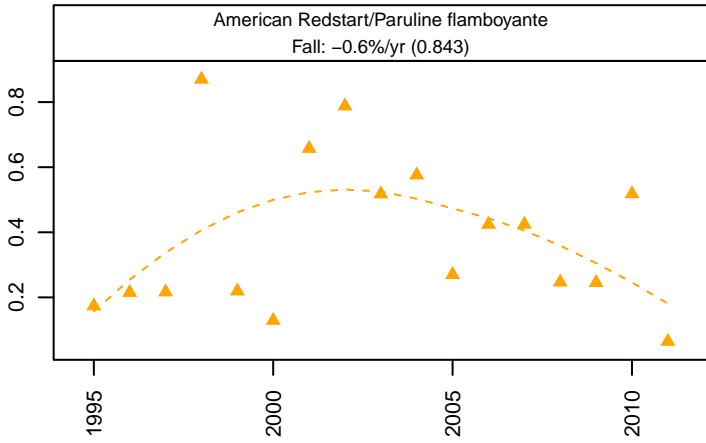
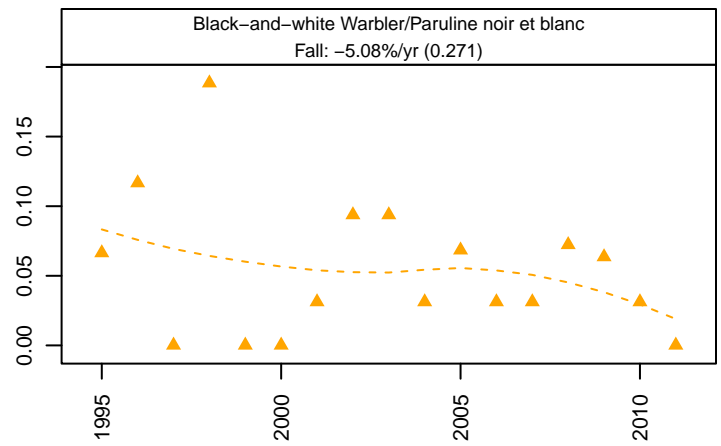
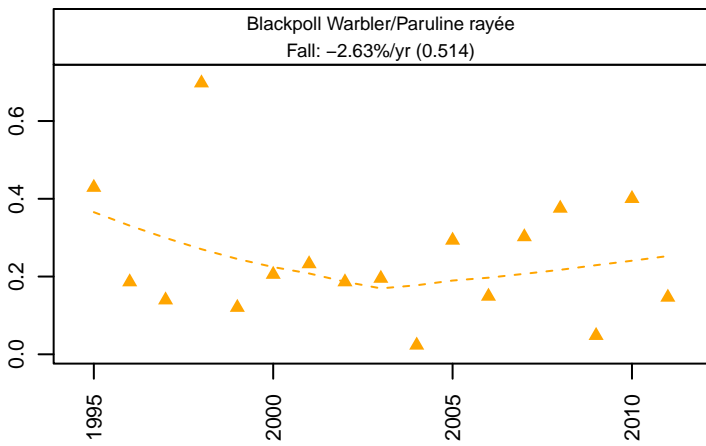


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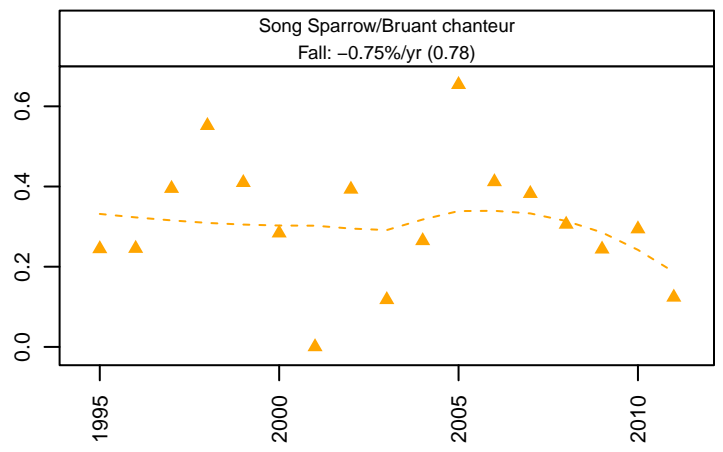
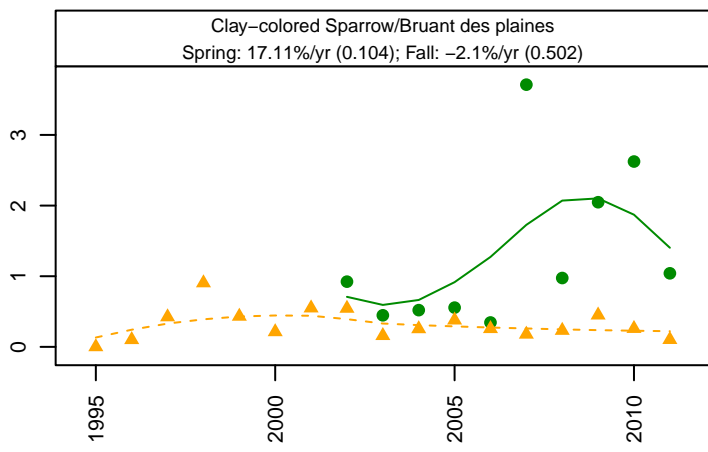
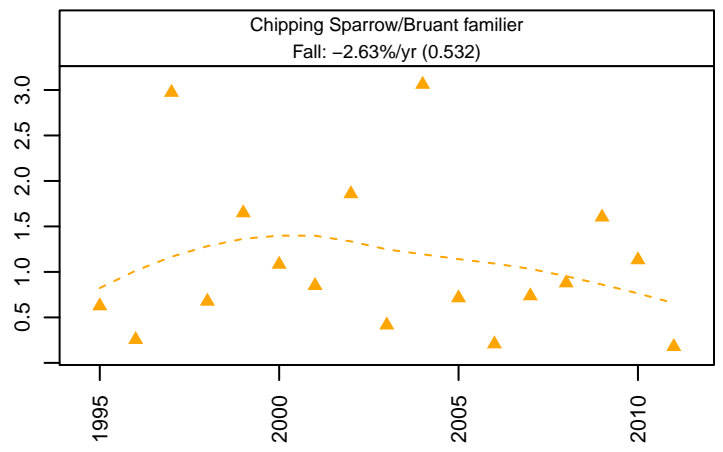
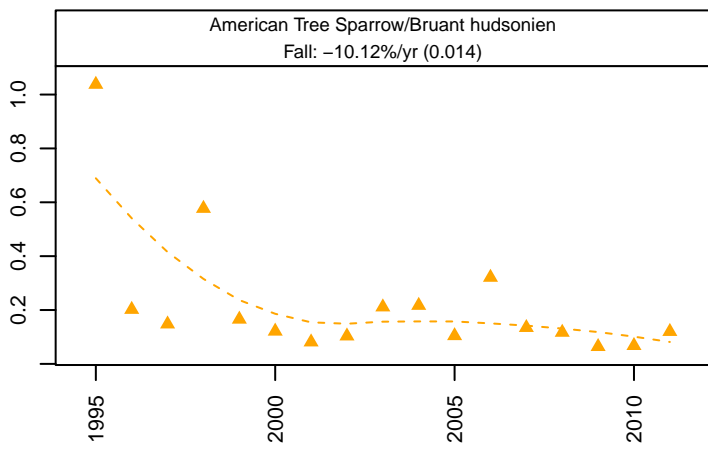
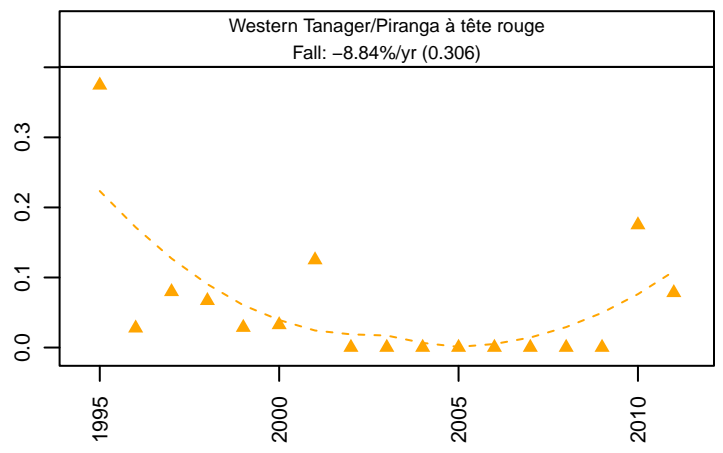
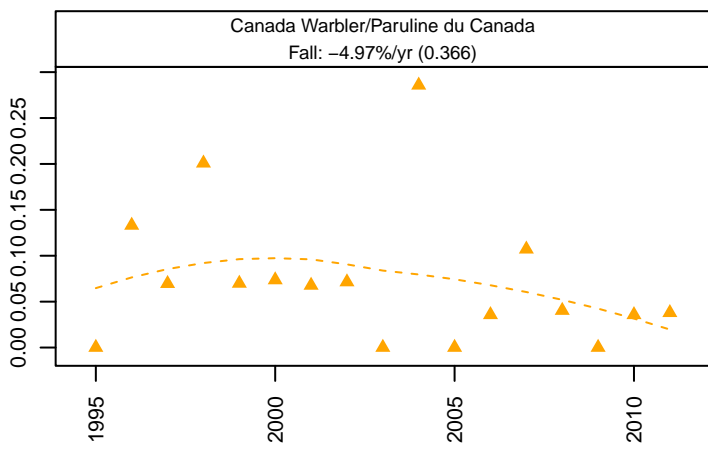
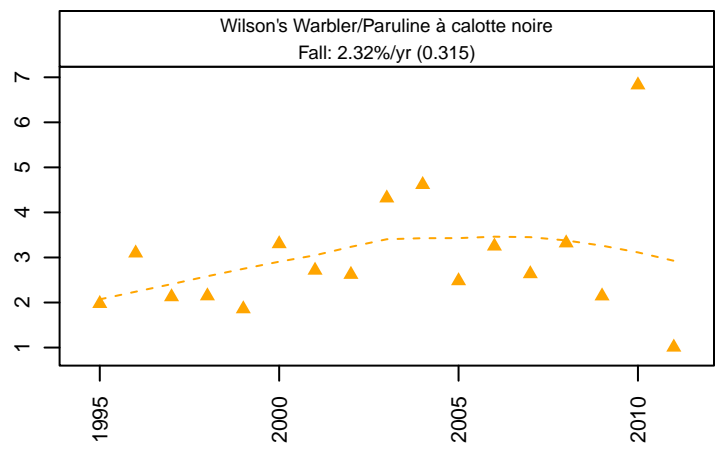
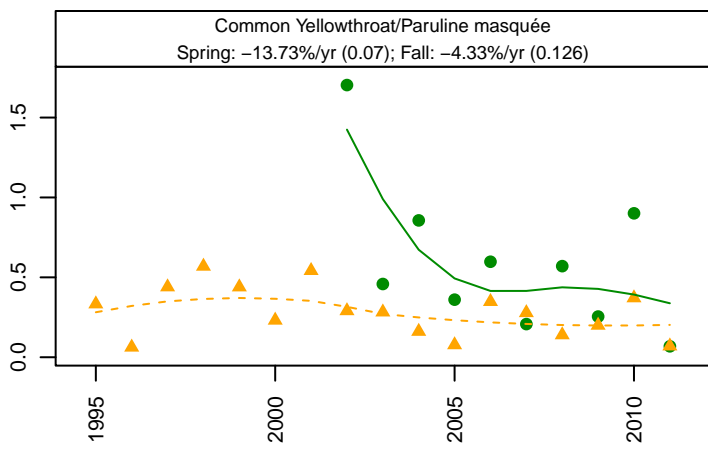


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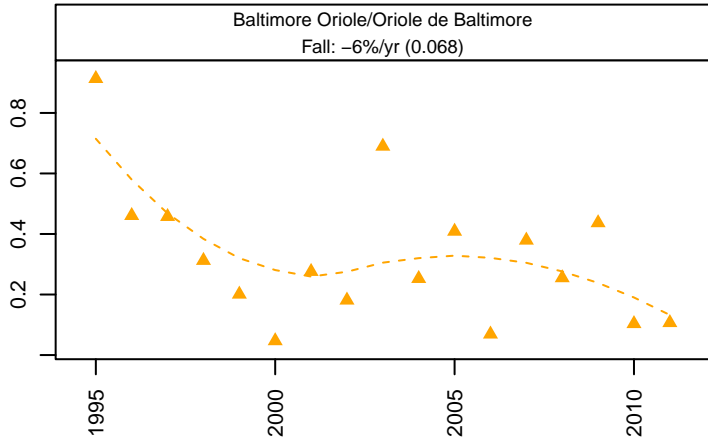
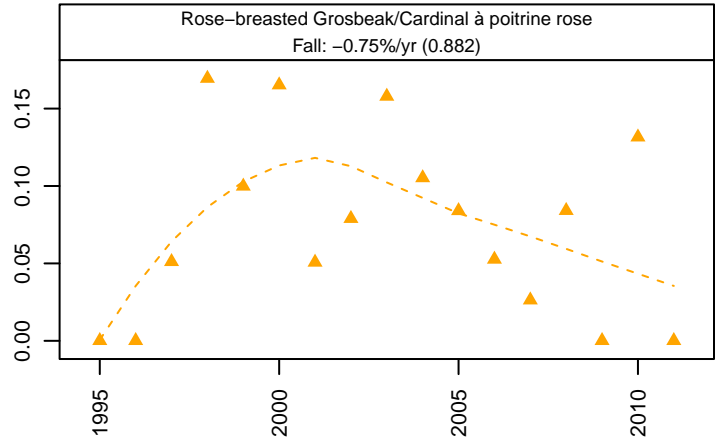
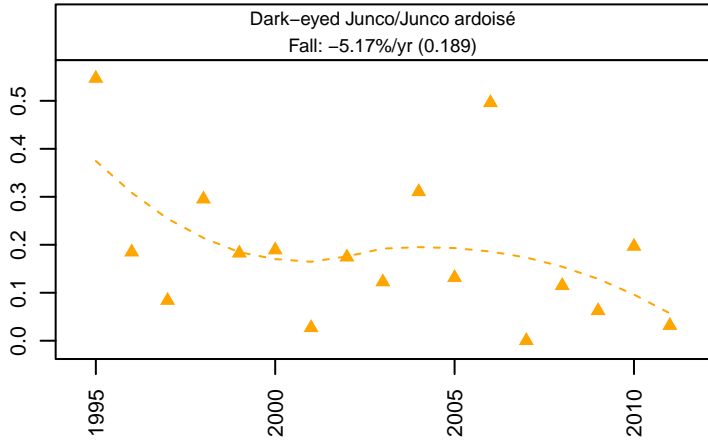
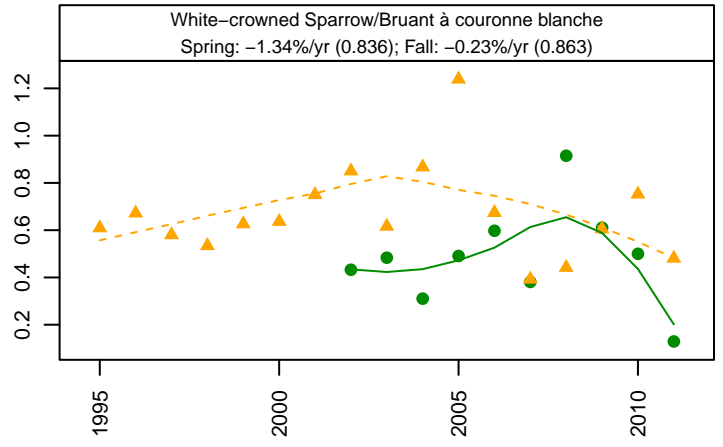
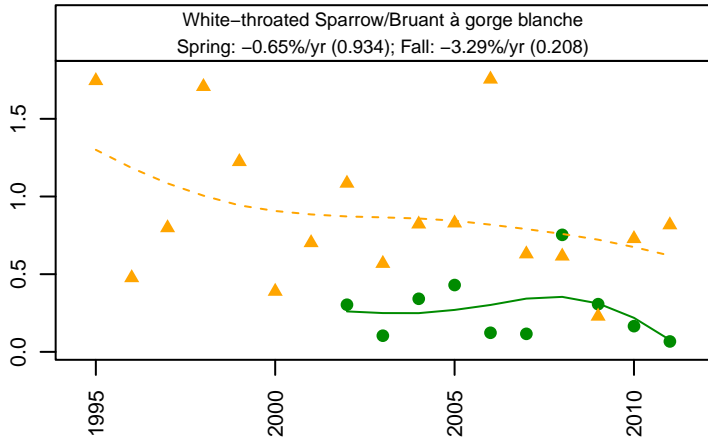
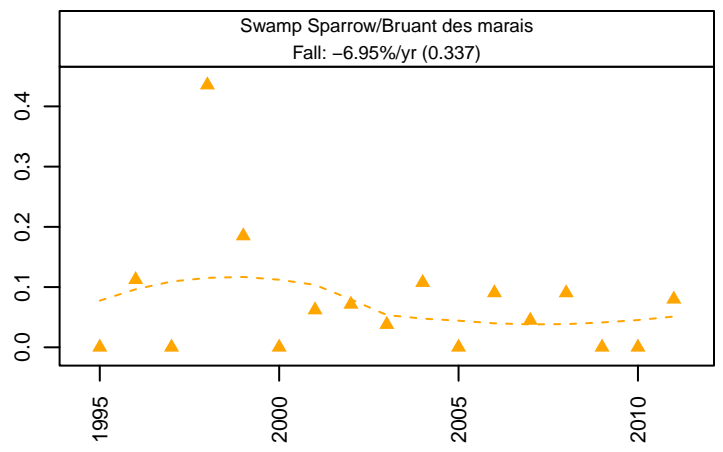
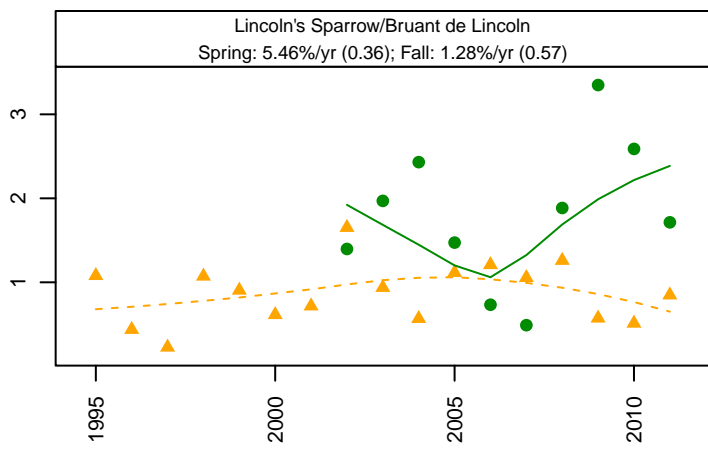
Migration Index



Year



Year



Year

Appendix 6

Appendix 6. Captures at La Selva Biological Station 2011

	Total	26-Mar	27-Mar	28-Mar	29-Mar	30-Mar	31-Mar	01-Apr	02-Apr	03-Apr	04-Apr	05-Apr	06-Apr	07-Apr	08-Apr	09-Apr	10-Apr	11-Apr	12-Apr	13-Apr	14-Apr	15-Apr	16-Apr	17-Apr	18-Apr	19-Apr	20-Apr	21-Apr	22-Apr	23-Apr	24-Apr
New Bandings																															
Little Tinamou	1																1														
White-throated Crane	1																1														
Gray-chested Dove	6				1		1				2							1		1											
Ruddy Quail-Dove	2															1											1				
Squirrel Cuckoo	2									1																			1		
Groove-billed Ani	4		1	1		1																									1
Long-billed Hermit	1			1																											
Rufous-tailed Hummingbird	3			3																											
Black-throated Trogon	2							1							1																
White-whiskered Puffbird	1												1																		
Rufous-tailed Jacamar	1							1																							
Plain-brown Woodcreeper	2						1	1																							
Wedge-billed Woodcreeper	8					2	1		1		1												1					1	1		
Northern Barred Woodcreeper	1																			1											
Cocoa Woodcreeper	1																					1									
Fasciated Antshrike	1																														1
Barred Antshrike	1																			1											
Western Slaty-Antshrike	4						1										1											1		1	
Dusky Antbird	3	1						1													1										
Chestnut-backed Antbird	2					1																									
Ocellated Antbird	1																			1											
Yellow Tyrannulet	8	1							1				2												1	1	1	1			
Olive-striped Flycatcher	2																														2
Ochre-bellied Flycatcher	22	1	2	2		1			1	1					2		3	1	2				1		2		2		1		
Black-capped Pygmy-Tyrant	1																													1	
Northern Bentbill	2		1																						1						
Yellow-margined Flycatcher	1																				1										
Royal Flycatcher	1														1																
Alder Flycatcher	1																													1	
Trail's Flycatcher	4																							1						2	1
Willow Flycatcher	1																											1			
Bright-rumped Attila	6						1	1	1			1											1	1							
Rufous Mourner	4							1	2													1									
Gray-capped Flycatcher	1																											1			
Cinnamon Becard	3		1	1									1																		
White-winged Becard	1		1																												
White-collared Manakin	25	6	4	2		1		2			1		1		1				2	2			1				1			1	
Red-capped Manakin	2																											1			
Philadelphia Vireo	1																						1								
Red-eyed Vireo	7											1				1				1	1								2	1	
Yellow-green Vireo	4	1										1									1						1				
Lesser Greenlet	2			1																	1										
Black-throated Wren	1	1																													
Bay Wren	8						2			1	2									1			1				1				

Appendix 6. Captures at La Selva Biological Station 2011

	Total	26-Mar	27-Mar	28-Mar	29-Mar	30-Mar	31-Mar	01-Apr	02-Apr	03-Apr	04-Apr	05-Apr	06-Apr	07-Apr	08-Apr	09-Apr	10-Apr	11-Apr	12-Apr	13-Apr	14-Apr	15-Apr	16-Apr	17-Apr	18-Apr	19-Apr	20-Apr	21-Apr	22-Apr	23-Apr	24-Apr
Stripe-breasted Wren	1						1																								
House Wren	2																								1				1		
White-breasted Wood-Wren	2		1		1																										
Long-billed Gnatwren	2			1									1																		
Swainson's Thrush	54			1					1	2	1	1				2		4	1		1	3	4	5	9	1	1	5	5	4	3
Wood Thrush	11	3		2	3						1		1									1									
Clay-colored Thrush	5			1		2	1									1															
Gray Catbird	1																				1										
Golden-winged Warbler	1											1																			
Tennessee Warbler	3	1				1									1																
Chestnut-sided Warbler	9	1	3	1																								2			
Ovenbird	3	1						1																			1				
Northern Waterthrush	2						1																							1	
Kentucky Warbler	4	1		1						1					1																
Mourning Warbler	3																						1				1	1			
Olive-crowned Yellowthroat	3																1			1			1								
Canada Warbler	11																					1	1	2	1		2	1	1	1	1
Yellow-breasted Chat	1		1																												
Dusky-faced Tanager	3				1	1							1																		
Red-throated Ant-Tanager	5				1			2												1							1				
Summer Tanager	3														1											1	1				
Crimson-collared Tanager	1						1																								
Passerini's Tanager	19	3	3	4	1	1	1	1	2					1														1		1	
Blue-black Grassquit	5														1						1		1	1			1				
Variable Seedeater	63	2	2	2	3	2	3	2	3		2		5		2	2	2	4	1		5	2	2	3	2	3			4	3	2
Thick-billed Seed-Finch	21	4	1	1				1	2	1		2	1	1		1	1	1		2	1			1							
Orange-billed Sparrow	1																					1									
Grayish Saltator	1							1																							
Buff-throated Saltator	4						1		1														1		1						
Black-headed Saltator	1																											1			
Blue-black Grosbeak	7				1			1				2						1	1				1								
Black-cowled Oriole	3																								1					2	
Scarlet-rumped Cacique	4												1							1	1	1									
Species	77	14	12	16	8	11	16	12	8	6	7	7	10	2	10	5	8	10	11	8	9	9	13	7	9	8	12	7	11	10	6
Total new bandings	415	27	21	25	12	14	19	16	12	7	10	9	15	2	12	7	11	17	13	9	13	12	17	14	19	10	14	12	19	18	9

Appendix 6. Captures at La Selva Biological Station 2011

	Total	26-Mar	27-Mar	28-Mar	29-Mar	30-Mar	31-Mar	01-Apr	02-Apr	03-Apr	04-Apr	05-Apr	06-Apr	07-Apr	08-Apr	09-Apr	10-Apr	11-Apr	12-Apr	13-Apr	14-Apr	15-Apr	16-Apr	17-Apr	18-Apr	19-Apr	20-Apr	21-Apr	22-Apr	23-Apr	24-Apr	
Other unbanded captures																																
Semiplumbeous Hawk	1						1																									
Bronzy Hermit	21		3		2	1	1								1		1	1				1			4	1		3		1	1	
Band-tailed Barbthroat	24		3	5		2	2				1	2	2				1					1									1	
Long-billed Hermit	49		2	3		3		3	4	2	1		2		3	2		1	2	2	1	1	2	4	2		1	1	2	3	2	
Stripe-throated Hermit	22		4	1		3	1	1			1	1				3		1		1		2	1			1					1	
White-tipped Sicklebill	1						1																									
Scaly-chested Hummingbird	2						1																								1	
White-necked Jacobin	5							1																				2	2			
Violet-headed Hummingbird	3					1												1									1					
Violet-crowned Woodnymph	13		1	1		1	1				1		1				1						1	1		1	2					
Blue-throated Goldentail	1												1																			
Blue-chested Hummingbird	13		1					1			1	1			1								2	2			1	2	1			
Rufous-tailed Hummingbird	81		6	7		2	2	4	6	5	5	4		2	2	2	1	3	2	2	1	4	1	1	3	1	4		5	1	3	2
Bronze-tailed Plumeleteer	8		1	1				2	3																							
Wedge-billed Woodcreeper	1			1																												
Ochre-bellied Flycatcher	1																								1							
Ovenbird	1		1																													
Passeini's Tanager	1		1																													
Variable Seedeater	4						1				1											1										1
Total unbanded other captures	252	20	22	0	12	8	14	14	11	10	9	3	4	5	11	1	8	6	7	2	8	6	8	13	3	9	7	11	9	8	3	
Total new captures	667	47	43	25	24	22	33	30	23	17	19	12	19	7	23	8	19	23	20	11	21	18	25	27	22	19	21	23	28	26	12	
Net hrs	3214	79.3	90.0	89.7	89.7	94.2	120.6	119.9	119.9	119.5	52.5	119.7	120.0	106.7	120.7	55.5	122.3	118.4	119.9	120.0	121.5	120.0	121.5	120.3	120.4	119.5	120.0	120.0	107.7	120.3	43.8	
New captures/net-hour	0.21	0.59	0.48	0.28	0.27	0.23	0.27	0.25	0.19	0.14	0.36	0.10	0.16	0.07	0.19	0.14	0.16	0.19	0.17	0.09	0.17	0.15	0.21	0.22	0.18	0.16	0.18	0.19	0.26	0.22	0.27	

< 120 net-hrs

Appendix 6. Captures at La Selva Biological Station 2011

	Total	26-Mar	27-Mar	28-Mar	29-Mar	30-Mar	31-Mar	01-Apr	02-Apr	03-Apr	04-Apr	05-Apr	06-Apr	07-Apr	08-Apr	09-Apr	10-Apr	11-Apr	12-Apr	13-Apr	14-Apr	15-Apr	16-Apr	17-Apr	18-Apr	19-Apr	20-Apr	21-Apr	22-Apr	23-Apr	24-Apr
Recaptures																															
Gray-chested Dove	1																											1			
Squirrel Cuckoo	1																				1										
Rufous-tailed Jacamar	1									1																					
Plain-brown Woodcreeper	1								1																						
Wedge-billed Woodcreeper	4												1						1				2								
Western Slaty-Antshrike	1																													1	
Dusky Antbird	1		1																												
Olive-striped Flycatcher	2																												2		
Ochre-bellied Flycatcher	33		2	2		1	1	2		2		1	1	3	1	3	1	1	2		1		2	1		1	3	1		1	
Northern Bentbill	1																1														
Trall's Flycatcher	1																													1	
Yellow-margined Flycatcher	1																									1					
Bright-rumped Attila	3											1														1		1			
White-collared Manakin	17		1	1	1				2	2				1				1	3	3							1			1	
Black-throated Wren	10	1	3	1	1	1								1			1														
Bay Wren	5		1																	1	1		1				1				
Stripe-breasted Wren	2														1														1		
White-breasted Wood-Wren	3															1				2											
Long-billed Gnatwren	1						1																								
Swainson's Thrush	4																						1					1		1	
Wood Thrush	4												1							1					1	1					
Chestnut-sided Warbler	5		1	1		1					1					1															
Ovenbird	3		1	1									1																		
Northern Waterthrush	1																								1						
Kentucky Warbler	1																		1												
Mourning Warbler	2																										1	1			
Olive-crowned Yellowthroat	3																1									2					
Canada Warbler	1																											1			
Yellow-breasted Chat	2								1	1																					
Red-throated Ant-Tanager	1																			1											
Passerini's Tanager	10	1	3	1		1							1	2														1			
Variable Seedeater	8								2								2						2				2				
Thick-billed Seed-Finch	5		1										1			1									1		1				
Buff-throated Saltator	2								1																					1	
Blue-black Grosbeak	6				1								1						1	1									2		
Black-cowled Oriole	1																													1	
	148																														
Total recaptures	148	2	14	7	3	4	2	2	7	6	1	2	7	8	1	8	4	5	12	4	2	1	7	4	4	5	8	5	2	4	7
Total new captures + recaptures	815	49	57	32	27	26	35	32	30	23	20	14	26	15	24	16	23	28	32	15	23	19	32	31	26	24	29	28	30	30	19
New captures																															
Migrants	125	9	4	5	3	1	2	0	1	3	2	4	1	0	4	2	0	5	3	2	2	5	8	7	11	3	6	9	9	5	
Residents	295	20	18	16	9	13	19	16	11	5	8	5	14	2	8	5	11	12	10	7	12	7	9	8	8	7	8	3	10	9	5
Hummingbirds	247	18	21	4	12	8	12	14	11	9	9	3	4	5	11	1	8	6	7	2	7	6	8	12	3	9	7	11	9	8	2