

**ROCKY POINT BIRD OBSERVATORY (RDIMS # 150288)  
2010 RESEARCH REPORT**

**Project Title: Rocky Point Bird Observatory Avian Monitoring – Passerine Migration Monitoring**

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Permit #: RDIMS # 150288

Location(s): Rocky Point

**Introduction:**

2011 marked the 17<sup>th</sup> season of passerine migration monitoring at Rocky Point. Monitoring took place within the 90-day period from 24 July until 21 October to maximize coverage during the peak season for the majority of neotropical passerine species migrating through the southern part of Vancouver Island, British Columbia (B.C.).

The migration monitoring projects at Rocky Point collect data on population trends, and over time provide data for determining population changes at the landscape level. Data collected at Rocky Point cover migrants from coastal B.C. and Alaska, and when the data are combined with results collected from the other banding stations across Canada, the status of migrating songbirds can be assessed at a national scale.

**Study Area and Methods:**

Rocky Point Bird Observatory (RPBO) is located at the southernmost tip of Vancouver Island, B.C. on the Canadian Forces Ammunition Depot (CFAD) at Rocky Point. The location of the study area is the riparian zone immediately north of the Building 143 site.

The fall migration monitoring effort at Rocky Point employed 13 mist nets in established positions around the site. Nets were opened 30 minutes before sunrise and operated for six hours each day between 24 July and 21 October. RPBO's protocol calls for daily

monitoring during this period except for days with inclement weather or when access to Rocky Point cannot be obtained due to military use on the site.

Eighteen days, representing 20% of the 90 day monitoring season, were lost to rain and base closures. As a result the total number of net hours (one net hour equals the opening of one standard 12m mist net for one hour) was 5,121, from a total possible maximum of 7,020. The total number of net open hours was therefore about 73% of the total available time. Every year some time is lost due to base closure and inclement weather. Since 2000 the average annual number of net hours has been about 5,570 but the 2011 total was approximately 450 hours less than this (8% less than the average).

Birds captured in the mist nets were identified, banded, measured for a number of morphometric features, sexed and aged using the criteria in Pyle (1997), and released. Each day, a standardized census route was walked and general observations on all birds present in the area were recorded (RPBO 2008).

In addition to the banding effort and daily census, RPBO personnel also recorded personal observations of birds, including those species that were not banded at Rocky Point, at the site.

Additional background information regarding the ecological context at Rocky Point and the methods used to monitor birds is covered in both the final report for 2008 (David 2008) and the RPBO protocol (RPBO 2008).

### **Results:**

A total of 2,734 individuals of 59 species and forms (including two subspecies of Yellow-rumped Warbler (*Dendroica coronata audubonii* and *D. c. coronata*), unidentified Dark-eyed Junco (*Junco hyemalis* sp.), and Traill's Flycatcher – an historical amalgam of Willow and Alder Flycatcher (*Empidonax traillii* and *E. alnorum*)) were banded at Rocky Point in 2011. See Table 2 below for details. The 59 species and forms encountered in 2011 represent the fourth highest diversity recorded since standardized monitoring

began at Rocky Point while the 2,734 individuals represents the 3<sup>rd</sup> lowest total since 2000.

The number of hatch year (HY) birds captured during the monitoring period was, as is typical during the fall migration period, much higher than the number of after hatch year (AHY) birds. An HY bird is one fledged during the 2011 calendar year while an AHY is one fledged earlier. In 2011, 87.4% of birds captured were HY. Details of captures by species and age classification are presented in Table 1.

Table 1. Summary of constant effort mist net captures at RPBO field site by species, band status and age. After Hatch-year - AHY (birds in at least their 2nd calendar year) and Hatch-year - HY (birds in their 1st calendar year) includes recaptured birds but are based on initial annual captures only.

<b>Species</b>	<b>Total number of birds captured</b>	<b>AHY</b>	<b>HY</b>	<b>Unknown age</b>	<b>% of HY birds</b>
American Goldfinch	63	8	55		87
American Robin	11	2	9		82
Audubon's Warbler	3	0	3		100
Barred Owl	1	0	1		100
Bewick's Wren	39	4	38		82
Black-headed Grosbeak	1	0	1		100
Black-throated Grey Warbler	6	1	5		83
Brown Creeper	11	1	10		91
Brown-headed Cowbird	5	0	5		100
Bushtit	10	1	9		90
Cedar Waxwing	2	0	2		100
Chestnut-backed Chickadee	37	10	36		78
Chipping Sparrow	12	0	12		100
Common Yellowthroat	52	3	49		94
Cooper's Hawk	1	0	1		100
Downy Woodpecker	3	1	2		67
Fox Sparrow	150	12	147		92
Golden-crowned Kinglet	83	9	73	2	87
Golden-crowned Sparrow	105	23	82		78
Hammond's Flycatcher	14	11	3		21
Hermit Thrush	90	4	86		96
House Wren	9	5	5		50
Hutton's Vireo	1	0	1		100
Lincoln's Sparrow	138	15	124		89
MacGillivray's Warbler	52	3	49		94
Marsh Wren	4	0	4		100
Myrtle Warbler	8	1	7		88
Northern Saw-whet Owl	2	2	0		-
Northern Waterthrush	1	0	1		100
Olive-sided Flycatcher	1	1	0		-
Orange-crowned Warbler	189	27	163	1	85

Oregon Junco	55	7	48		87
Pacific Wren	155	6	147	2	95
Pacific-slope Flycatcher	260	37	224		86
Pine Siskin	1	0	1		100
Puget Sound White-crowned Sparrow	129	14	118		89
Purple Finch	19	11	8		42
Red-Breasted Nuthatch	2	1	1		50
Red-shafted Flicker	1	1	0		-
Red-winged Blackbird	8	0	8		100
Ruby-crowned Kinglet	200	18	179	4	89
Rufous Hummingbird	7	0	7		100
Savannah Sparrow	28	4	24		86
Sharp-shinned Hawk	5	0	5		100
Song Sparrow	105	15	100		87
Spotted Towhee	35	6	31		84
Steller's Jay	2	0	2		100
Swainson's Thrush	55	9	48		84
Townsend's Warbler	4	1	3		75
Traill's Flycatcher	12	1	11		92
Unidentified Dark-eyed Junco	4	0	4		100
Varied Thrush	5	3	2		40
Warbling Vireo	5	1	4		80
Western Palm Warbler	1	0	1		100
Western Tanager	2	1	1		50
White-throated Sparrow	6	0	6		100
Willow Flycatcher	43	12	31		72
Wilson's Warbler	340	26	315		92
Yellow Warbler	141	23	118		84
<b>TOTAL BANDED</b>	<b>2734</b>	<b>341</b>	<b>2430</b>	<b>9</b>	<b>87</b>

A total of 45 birds of 14 species from previous seasons were recaptured in 2011. The oldest was a Wilson's Warbler originally banded on August 1st, 2006 as a HY female. This individual has been recaptured every year since the initial encounter so it seems likely that this individual nests at, or very near, Rocky Point.

In 2011 two days of the 90-day monitoring period yielded banding totals of 100 or more. These were October 6<sup>th</sup>, with 157 individuals banded of 22 species, and October 14<sup>th</sup>, with 147 individuals banded of 20 species. These dates are 2 and 3 weeks later than the more typical peak migratory period at Rocky Point which usually occurs towards the end of September (Leckie 2008) with September 20<sup>th</sup> and 21<sup>st</sup> usually being the most productive days of banding (David 2008). The unseasonably cold spring experienced throughout the region, with resultant delay in plant and insect development, is a probable cause for this belated migratory peak. Unfavourable weather conditions likely

delayed the arrival and nesting of spring migrants while lower than usual food supplies may have delayed the development and fledging of young. Many of the young Wilson's Warblers captured during 2011 migration monitoring exhibited flight feathers with prominent fault bars. Although there are a variety of reasons why fault bars develop (Murphy et al 1989) in this case they seem consistent with nutrient deficiencies experienced during feather development – likely caused by a lack of available prey insects.

In 2010 the period of September 21<sup>st</sup> through 25<sup>th</sup> yielded 412 birds banded with a capture rate of 121.2 birds per 100 net hours while in 2011 this same period yielded only 61 birds banded with a capture rate of 20.7 birds per 100 net hours. While the number of birds banded is not directly comparable since no banding took place on September 22<sup>nd</sup>, 2011 due to a base closure, the capture rate total is valid and indicative of a delayed migration period.

A total of 170 species were encountered at Rocky Point in 2011 during the standardized census and through casual observation and banding results. The results, and a rough guide to monthly presence/absence, are presented in Table 2 below.

The most numerous species encountered, with a total of 32,380 individual sightings, was California Gull (*Larus californicus*). More than half of these sightings occurred in the latter half of August, corresponding with this species migration from inland breeding sites to their coastal over-wintering sites. Chestnut-backed Chickadee (*Poecile rufescens*) was the most numerous passerine encountered. The bulk of these sightings occurred in July and early August when newly fledged young and family groups abounded.

The results, and a rough guide to monthly presence/absence, are presented in Table 2.

Table 2. Species Observed During Fall 2010 Migration Monitoring at Rocky Point Including Monthly Presence/Absence

Species	Total Obs	Max Obs	Date	Days Recorded	Avg per Day	Presence			
						July	Aug	Sept	Oct
Gr. White-fronted Goose	7	4	Oct-15	3	2.3				X
Cackling Goose	1	1	Oct-21	1	1				X
Canada Goose	848	49	Jul-27	60	14.1	X	X	X	X
American Wigeon	8	3	Sep-13	5	1.6			X	X
Mallard	1251	36	Aug-27, Oct-17	71	17.6	X	X	X	X
Northern Shoveler	4	1	many	4	1		X		X
Northern Pintail	77	22	Oct-07	24	3.2		X	X	X
Green-winged Teal	72	6	Sep-11	28	2.6		X	X	X
Harlequin Duck	124	11	Oct-21	25	5		X	X	X
Surf Scoter	144	62	Oct-15	16	9	X	X	X	X
White-winged Scoter	16	6	Oct-15	7	2.3	X		X	X
Bufflehead	6	4	Oct-17	3	2				X
Hooded Merganser	5	3	Oct-21	2	2.5				X
Red-breasted Merganser	5	2	Oct-13,15	3	1.7				X
Common Merganser	13	8	Oct-06	2	6.5				X
Ruffed Grouse	1	1	Oct-10	1	1				X
California Quail	881	40	Aug-20	65	13.6	X	X	X	X
Pacific Loon	47	31	Oct-15	7	6.7			X	X
Common Loon	19	5	Oct-07	10	1.9		X	X	X
Pied-billed Grebe	1	1	Oct-13	1	1				X
Horned Grebe	3	2	Sep-16	2	1.5			X	
Red-necked Grebe	16	6	Oct-19	8	2			X	X
Western Grebe	4	2	Oct-21	3	1.3			X	X
Sooty Shearwater	1	1	Aug-18	1	1		X		
Brandt's Cormorant	190	25	Sept-8, Oct-7	20	9.5	X	X	X	X
Double-crested Cormorant	1386	162	Oct-15	48	28.9	X	X	X	X
Pelagic Cormorant	146	20	Oct-17	39	3.7	X	X	X	X
Great Blue Heron	142	5	Sep-03	71	2	X	X	X	X
Turkey Vulture	3047	634	Oct-09	70	43.5	X	X	X	X
Osprey	5	2	Sept-02, Oct-15	3	1.7			X	X
Bald Eagle	122	5	many	60	2	X	X	X	X
Northern Harrier	25	2	many	22	1.1	X	X	X	X
Sharp-shinned Hawk	183	23	Oct-15	45	4.1		X	X	X
Cooper's Hawk	81	5	Oct-13	40	2		X	X	X
Northern Goshawk	6	1	many	6	1			X	X
Broad-winged Hawk	11	3	Sept-21, Oct-09	6	1.8			X	X
Swainson's Hawk	2	2	Oct-07	1	2				X
Red-Tailed Hawk	199	28	Oct-07	62	3.2	X	X	X	X
Golden Eagle	3	2	Oct-07	2	1.5				X
American Kestrel	2	1	Sept-08, Oct-15	2	1			X	X
Merlin	23	2	Aug-29	22	1		X	X	X
Peregrine Falcon	17	2	Oct-21,24	15	1.1		X	X	X
Virginia Rail	1	1	Sep-02	1	1			X	
Sora	4	1	many	4	1			X	X
American Coot	1	1	Sep-25	1	1			X	
Sandhill Crane	26	10	Sep-19	4	6.5			X	X
Black-bellied Plover	1	1	Sep-08	1	1			X	
Semipalmated Plover	19	7	Aug-26	9	2.1	X	X	X	
Killdeer	300	19	Aug-05	61	4.9	X	X	X	X
Black Oystercatcher	459	32	Jul-26	68	6.8	X	X	X	X
Greater Yellowlegs	43	11	Oct-10	28	1.5	X	X	X	X
Lesser Yellowlegs	8	2	Sep-08	7	1.1	X	X	X	
Spotted Sandpiper	9	2	Aug-04	8	1.1	X	X		X
Black Turnstone	62	22	Jul-26	9	6.9	X	X	X	X

Surfbird	10	6	Jul-27	3	3.3	X	X		
Semipalmated Sandpiper	3	2	Aug-04	2	1.5		X		
Western Sandpiper	520	100	Aug-10	35	14.9	X	X	X	
Least Sandpiper	272	30	Aug-10	30	9.1	X	X	X	
peeps sp.	237	30	Aug-17	23	10.3	X	X	X	
Pectoral Sandpiper	2	1	Sept-10, Oct-10	2	1			X	X
Dunlin	7	4	Sep-21	3	2.3			X	X
Short-billed Dowitcher	2	1	Aug-19,29	2	1		X		
Long-billed Dowitcher	13	3	Sep-24	8	1.6	X	X	X	X
Dowitcher sp.	20	14	Aug-18	6	3.3		X	X	
Wilson's Snipe	11	5	Oct-20	6	1.8			X	X
Red-necked Phalarope	254	110	Sep-01	11	23.1	X	X	X	
Unid. Phalarope	46	46	Oct-07	1	46				X
Bonaparte's Gull	8523	4060	Oct-15	28	304.4	X	X		X
Heermann's Gull	1549	145	Sep-09	52	29.8	X	X	X	X
Mew Gull	1437	350	Oct-07	52	27.6	X	X	X	X
Ring-billed Gull	3	2	Aug-23	2	1.5		X		
Thayer's Gull	47	40	Oct-07	3	15.7				X
Western Gull	4	1	many	4	1			X	
California Gull	32380	6400	Aug-16	68	476.2	X	X	X	X
Glaucous-winged Gull	8469	2000	Aug-13	73	116	X	X	X	X
Gull sp.	24372	3000	Aug-24	67	363.8	X	X	X	X
Common Murre	10185	2537	Aug-23	47	216.7	X	X	X	X
Pigeon Guillemot	303	41	Aug-11	36	8.4	X	X	X	X
Marbled Murrelet	19	4	Jul-25	10	1.9	X	X	X	
Ancient Murrelet	8	8	Oct-15	1	8				X
Rhinoceros Auklet	4601	1010	Aug-18	61	75.4	X	X	X	X
Band-tailed Pigeon	3037	330	Sep-21	63	48.2	X	X	X	X
Eurasian Collared Dove	10	2	Aug-21	9	1.1	X	X	X	X
Mourning Dove	1	1	Aug-20	1	1		X		
Great Horned Owl	18	2	many	15	1.2		X	X	X
Barred Owl	30	2	many	24	1.3		X	X	X
Northern Saw-whet Owl	6	2	Oct-20	5	1.2		X	X	X
Common Nighthawk	13	2	Aug-06,15	11	1.2	X	X	X	
Black Swift	5	5	Oct-07	1	5				X
Vaux's Swift	218	170	Oct-07	8	27.3			X	X
Anna's Hummingbird	4	1	many	4	1			X	X
Rufous Hummingbird	56	5	July-27, Aug-10	24	2.3	X	X	X	
Belted Kingfisher	151	7	Sep-03	71	2.1	X	X	X	X
Red-breasted Sapsucker	2	1	Oct-09,17	2	1				X
Downy Woodpecker	222	7	Aug-28	71	3.1	X	X	X	X
Hairy Woodpecker	107	5	Sep-09	54	2	X	X	X	X
Red-shafted Flicker	523	23	Oct-07	73	7.2	X	X	X	X
Pileated Woodpecker	59	3	Sept-11, Oct-10	41	1.4	X	X	X	X
Olive-sided Flycatcher	109	9	Aug-06	29	3.8	X	X	X	
Western Wood Pewee	6	2	Aug-11	5	1.2	X	X	X	
Willow Flycatcher	128	12	Aug-11	39	3.3	X	X	X	
Traill's Flycatcher	12	2	Aug-17,28	10	1.2		X	X	
Hammond's Flycatcher	26	3	Sept-01, Oct-07	20	1.3		X	X	X
Pacific-slope Flycatcher	496	41	Aug-11	60	8.3	X	X	X	X
Unidentified Empid.	2	1	Jul-30, Aug-11	2	1	X	X		
Western Kingbird	2	1	Aug-13,29	2	1		X		
Cassin's Vireo	9	2	Aug-07, Sept-13	7	1.3	X	X	X	
Hutton's Vireo	14	2	Sep-09	13	1.1	X	X	X	
Warbling Vireo	59	7	Jul-27	23	2.6	X	X	X	X
Steller's Jay	173	16	Oct-21	28	6.2		X	X	X
Northwestern Crow	117	21	Oct-21	31	3.8	X	X	X	X
Common Raven	294	19	Sep-11	73	4	X	X	X	X
Horned Lark	2	1	Sept-01,09	2	1			X	

Purple Martin	21	4	Sep-09	9	2.3	X	X	X	
Tree Swallow	1	1	Jul-27	1	1	X			
Violet-green Swallow	185	33	Jul-27	28	6.6	X	X	X	
N. Rough-winged Swallow	53	6	many	23	2.3	X	X	X	
Cliff Swallow	8	3	Jul-24	6	1.3	X	X	X	X
Barn Swallow	158	14	Jul-27	32	4.9	X	X	X	
Chestnut-backed Chickadee	2875	127	Jul-24	73	39.4	X	X	X	X
Bushtit	267	30	Oct-07	24	11.1	X	X	X	X
Red-breasted Nuthatch	955	32	Aug-23	73	13.1	X	X	X	X
Brown Creeper	298	16	Jul-27	66	4.5	X	X	X	X
Bewick's Wren	420	16	Aug-06	73	5.8	X	X	X	X
House Wren	212	12	Aug-09	44	4.8	X	X	X	X
Winter Wren	730	68	Oct-15	70	10.4	X	X	X	X
Marsh Wren	79	5	Oct-09,15	46	1.7	X	X	X	X
Golden-crowned Kinglet	875	135	Oct-07	63	13.9	X	X	X	X
Ruby-crowned Kinglet	644	90	Oct-16	24	26.8		X	X	X
Swainson's Thrush	132	8	Jul-24,27	52	2.5	X	X	X	X
Hermit Thrush	123	18	Oct-13	20	6.2		X	X	X
American Robin	2113	360	Oct-14	73	28.9	X	X	X	X
Varied Thrush	124	19	Oct-07	23	5.4			X	X
European Starling	1320	90	Sep-02	48	27.5	X	X	X	X
American Pipit	118	39	Sep-20	12	9.8			X	X
Cedar Waxwing	765	66	Aug-26	61	12.5	X	X	X	X
Orange-crowned Warbler	471	26	Oct-07	62	7.6	X	X	X	X
Yellow Warbler	292	26	Sep-01	48	6.1	X	X	X	X
Audubon's Warbler	64	9	Sep-09	21	3	X	X	X	X
Myrtle Warbler	28	10	Oct-10	6	4.7			X	X
Unid Yellow-rumped Warbler	335	102	Oct-07	30	11.2	X	X	X	X
Black-throated Gray Warbler	14	3	Aug-14	10	1.4		X	X	X
Townsend's Warbler	71	5	July-27, Aug-12	35	2	X	X	X	X
Western Palm Warbler	1	1	Sep-16	1	1			X	
Northern Waterthrush	1	1	Aug-14	1	1		X		
MacGillivray's Warbler	89	8	Aug-06,11	35	2.5	X	X	X	X
Common Yellowthroat	283	17	Sep-01	64	4.4	X	X	X	X
Wilson's Warbler	679	49	Aug-14	59	11.5	X	X	X	X
Spotted Towhee	314	21	Oct-06	67	4.7	X	X	X	X
Chipping Sparrow	89	12	Jul-24	22	4	X	X		
Savannah Sparrow	244	56	Oct-06	38	6.4	X	X	X	X
Fox Sparrow	421	41	Oct-06	32	13.2		X	X	X
Song Sparrow	621	25	Oct-06	73	8.5	X	X	X	X
Lincoln's Sparrow	419	56	Oct-06	47	8.9	X	X	X	X
White-throated Sparrow	12	2	Oct-13,15	10	1.2			X	X
Puget Sound WC Sparrow	1475	94	Oct-06	68	21.7	X	X	X	X
Golden-crowned Sparrow	548	126	Oct-06	27	20.3		X	X	X
Oregon Junco	537	76	Oct-06	57	9.4	X	X	X	X
Western Tanager	29	4	Aug-26	23	1.3	X	X	X	
Black-headed Grosbeak	21	3	Aug-06	13	1.6	X	X		
Red-winged Blackbird	726	51	Oct-16	61	11.9	X	X	X	X
Brewer's Blackbird	15	15	Oct-15	1	15				X
Brown-headed Cowbird	63	11	Jul-29	21	3	X	X	X	
Purple Finch	340	33	Sep-19	53	6.4	X	X	X	X
House Finch	113	8	Aug-20	39	2.9	X	X	X	X
Red Crossbill	627	43	Jul-28	60	10.5	X	X	X	X
Pine Siskin	476	137	Oct-07	33	14.4	X	X	X	X
American Goldfinch	1212	65	Aug-24	70	17.3	X	X	X	X
Evening Grosbeak	35	11	Oct-07	13	2.7	X	X	X	X

Seven species were recorded during every one of the 73 days on which monitoring was conducted. These species, all of which are year-round residents, were Glaucous-Winged Gull (*Larus glaucescens*), Northern “Red-Shafted” Flicker (*Colaptes auratus*), Common Raven (*Corvus corax*), Chestnut-backed Chickadee, Bewick’s Wren (*Thryomanes bewickii*), American Robin (*Turdus migratorius*), and Song Sparrow (*Melospiza melodia*). A further 17 species, representing 10% of the species total, were encountered on only a single day. Many of these species are considered local or regional rarities.

## **Discussion**

A long-term data set quantifying bird migration is a very valuable tool for analyzing species trends, both on a geographic flyway level, and on a site-specific level. Declining and at-risk species and ecosystems can be identified, leading to conservation and/or restoration activities if appropriate. As data collection continues over time, the effect of vagaries in local weather and other anomalies is reduced, making trend analysis more accurate, sensitive, and consequently even more useful.

Rocky Point Bird Observatory has been monitoring fall bird migration through Rocky Point since 1994. Using a mixture of dedicated, skilled volunteers and experienced staff, RPBO has made great contributions in the field of neotropical migrant research, including the quantification of population levels, migration chronology, regional avian breeding success, and migrant use of Garry oak meadow habitat. Given that Bird Studies Canada has identified the northern Pacific coastal rainforest (Bird Conservation Region 5) as a region of high research interest due to the large number of range-limited species and sub-species that occur there; and that RPBO operates the only Pacific coastal migration monitoring station in Canada (Crewe *et al.* 2008); the national and international value of RPBO research cannot be underestimated.

The significance of both RPBO’s research and monitoring activities, and the location in which these are performed, has been well documented (Crewe *et al.* 2008), as have the value of long-term data sets. It is unfortunate then that circumstances adversely affected RPBO’s monitoring program in 2011. **Permission to access the base at Rocky Point for Monitoring Avian Productivity and Survival (MAPS) banding in**

**the Upper Meadow was NOT granted while a prolonged base closure at a significant time in migration negatively impacted RBPO's fall migration monitoring.** As Rocky Point is an active military base, monitoring can only take place on days when there are no scheduled military activities. The function of the base is military and, as such, military activities have precedence. RBPO has been kindly granted access to monitor avian life at Rocky Point when it is safe to do so, but unfortunately there are periods throughout the season when monitoring is not possible. While this is disappointing, it must be remembered that without DND's stewardship of the land at Rocky Point it is unlikely that any of the area's significant Garry oak meadow habitat would still be in existence.

RPBO hopes to continue fall migration monitoring at Rocky Point. In addition, monitoring activities could expand to include the overwintering period and possibly some of the spring migration, to give a more complete picture of the avian use of the site. The former could be accomplished by a combination of banding when weather conditions permit and by a regular census. This would reveal the use of species and individuals of Rocky Point as an overwintering site, and over time with recovery data, individual longevity. This, combined with the Monitoring Avian Productivity and Survivorship (MAPS) data, would provide a more complete measure of ecosystem health for the Garry oak meadow habitat at Rocky Point. Spring migration monitoring, which could be accomplished with a regular census, would give chronology data for spring migration, and identify the species present on the site during the spring.

#### **Conclusions and recommendations:**

RPBO maintains historic datasets and currently collects information on 38 of 54 priority landbird species identified by Bird Studies Canada within a vegetation community (Garry oak) of critical conservation concern (PIF BC/Yukon 2006). These data are invaluable in assessing the historic and current population status of coastal migrant landbird species as RPBO operates the only Pacific coastal migration monitoring effort in Canada (Crewe *et al.* 2008).

With this significant regional conservation responsibility in mind, RPBO recommends: **the funding, design and implementation of a study investigating the origin and**

**destination of landbirds using southern Vancouver Island as a stopover site during migration.** Not only would a study of this nature fill gaps in a growing body of information on migratory connectivity for western landbird species (Carlisle, *et al.* 2009), but also it would add necessary context to the interpretation of abundance and productivity trends derived from mist netting and census efforts conducted to date. In order to assess management actions and climatic effects within Bird Conservation Regions, an understanding of the breeding locations of migrant birds moving through southern Vancouver Island is needed (Dunn *et al.* 2006).

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