

## **EAST LIMESTONE ISLAND CAMP: REPORT ON THE 1999 FIELD SEASON**

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### **SUMMARY**

This report summarizes research and monitoring activities carried out in Laskeek Bay in 1999 and compares them to results from previous years. All of the ongoing monitoring programmes, such as seabird banding, burrow monitoring and sea surveys were continued. The spring and summer of 1999 were unusually cold, with mean daily temperatures for may lower than in any year since 1980. This resulted in a very poor breeding season for land birds, especially warblers. The other unusual feature of 1999 was the very large number of Humpback Whales seen, with a group of 25-30 being by far the largest recorded in Laskeek Bay since 1984. For the Laskeek Bay Conservation Society, this season marked the second year of the student apprentice program, designed to give local post secondary students experience with field biology. Several high school groups visited the field camp through Project Limestone to participate in the chick banding program and one student came to Limestone Island for his work experience project. In addition to these activities, the society continued its partnership with the Research Group on Introduced Species (RGIS), to study the effects of introduced species on Haida Gwaii.

### **EAST LIMESTONE ISLAND FIELD PROGRAM**

Laskeek Bay Conservation Society enables interested people to participate in ongoing ecological research at East Limestone Island. Volunteers stay on island with the staff for a minimum of one week. The volunteers are given an orientation to the field camp and field training so that they can aid in all aspects of camp life from the biological monitoring to cabin maintenance. Local school groups, tour boats, and other visitors come to the island for usually less than 24 hours. These parties learn about Ancient Murrelet life history, coastal forest ecology, and bird banding.

#### **Limestone Island Field Station**

The cabin on East Limestone Island underwent an addition this year. The existing north wall was removed, and the porch was enclosed. The old screen door was installed on the west side of the porch and a glass door was installed on the east side. The addition provides a lot more

interior space for staff and volunteers to work and relax.

#### **Volunteer Program**

This year 24 volunteers contributed 190 days at Limestone Island. Most people volunteered for one week; six people came for two weeks and four people came for less than a week to help pack up camp. Eight volunteers were from Haida Gwaii, fourteen were from the rest of Canada, and there was one volunteer from Argentina and one from England. Clayton Uliana, a Queen Charlotte City grade 11 student, was the work-experience student this year, volunteering on Limestone for one week during chick banding. He was a great help with the research, data collection and camp maintenance. The resident staff, Janet Gray and Joelle Fournier, worked for 14 weeks in camp.

#### **Student Apprenticeship Program**

This was the second year of the Student Apprenticeship Program, designed to

provide local post-secondary students with skills and experience in biological monitoring and conservation. Carla Russ from Skidegate was the first apprentice this year, her work experience taking place from 30 April to 11 June. The second apprentice this year was Christine Bentley, also from Skidegate. Christine participated on Limestone from 18 June to 25 July. Both student apprentices took part in the biological monitoring, collation of data, natural history interpretation, and volunteer training.

### **Project Limestone**

Initially set up in 1991 by Kevin Borserio and Sheila Douglas, Project Limestone consists of small groups of local students coming to East Limestone Island to gain hands on experience with research and conservation. Project Limestone students camp with their teachers at nearby Vertical Point on Louise Island. During the afternoon of their first day, the group visits Limestone Island and is given an orientation to become familiar with the procedures involved in chick banding, and the life history of Ancient Murrelets. The students return to Limestone later that night, catching the chicks and helping with the recording of data. Five school groups came this year: 2 from Queen Charlotte Secondary, 2 from George M Dawson Secondary, and one from the Living Learning School.

### **Tour Groups and Other Visitors**

Visiting East Limestone Island is a highlight for tour boat operators, as guests are able to take part in seabird research and see Ancient Murrelet chicks depart. The sailing vessels Island Roamer and Maple Leaf have brought groups to East Limestone Island for many years and in 1999 they brought 40 visitors ashore. Guests and crew are given a guided tour of the island in the afternoon, to learn about the old growth forest that supports the

Ancient Murrelet colony. The groups return to the island later the same day and walk to the banding area on the North Cove to help catch and weigh chicks. We also had a visit this year from the Northwest Community College Eco-tourism Class that was camping on Vertical Point for an extended period.

### **Collaborating Scientists**

Laskeek Bay continues to be a research partner with the Research Group on Introduced Species (RGIS). Drs Sean Sharpe, Jean-Louis Martin, and Tony Gaston are the primary researchers. This five year project focuses on the impact of introduced species on the ecology of the Queen Charlotte Islands. The RGIS field camp on Reef Island ran from 4 May to 25 July, with 2 to 18 people in camp. RGIS researchers worked on many islands in Laskeek Bay during the research season, including East Limestone Island.

### **ANCIENT MURRELET RESEARCH**

Haida Gwaii contains about half of the world's Ancient Murrelet breeding population, nesting sites on the archipelago are at risk due to introduced racoons and rats. Ancient Murrelets are blue-listed in British Columbia and designated as vulnerable by the Council on the Status of Endangered Wildlife in Canada (COSEWIC). This means that the populations are thought to be declining throughout their range and may become endangered unless the factors responsible for their decline (such as introduced species) are addressed.

### **Adult Banding**

Adult Ancient Murrelet survivorship is measured with a yearly banding program during the breeding season. Large knockdown nets are used in three locations, two on the east side of the island and one on the north. Adults were caught from 6-9

April, and then from 15 May to 11 June, when nesting was almost over. Banding is stopped in mid-April to minimize disturbance during egg laying and

incubation. We caught a total of 323 murrelets in 12 nights, comparable to numbers trapped in the past 2 years (Table 1).

**Table 1. Comparison of adult banding totals and breeding status for 1997-1999.**

Year	Banding # nights	New		Retraps		Total	Breeder	Non-breeder	Unknown
		Net	Burrow	Net	Burrow				
1999	12	158	9	148	8	323	175	115	37
1998	13	162	5	120	9	296	160	120	16
1997	18	201	8	118	13	340	89	209	42

NB. Birds are considered breeders if they are caught before 15 April, if they have a brood patch >19mm, or if they are in burrows with eggs or chicks. Breeding status is unknown if birds are caught from April 15<sup>th</sup> -20<sup>th</sup> or when brood patches are 10-19mm.

Valuable information such as survivorship, fecundity, mate fidelity and site fidelity can be determined from recapturing previously banded birds. In 1999, we recaptured 156 birds, of which 135 were banded as adults and 21 were banded as chicks (Table 2). Note that 3 birds from Reef Island were captured this year. One from Reef Island was banded in 1987 as an adult, which

means that it is 14 or 15 years old. It is difficult to age adults, but the bird was at least 2 when banded because typically Ancient Murrelets return to breed at two or three years of age. Still no chicks banded in 1993 have been recovered, and only a few have been recaptured from 1991 and 1992 (El Nino years).

**Table 2. Numbers of Ancient Murrelet adults recaptured in 1997, 1998 and 1999 as well as the year of banding and the life stage when banded.**

YEAR BANDED	1999			1998			1997		
	Banded as ADULT	Banded as CHICK	TOTAL RETRAPS	Banded as ADULT	Banded as CHICK	TOTAL RETRAPS	Banded as ADULT	Banded as CHICK	TOTAL RETRAPS
1987 (Reef)	1	1	2						
1988	-	-	-	-	-	-	-	-	-
1989	6	-	6	3	-	3	7	-	7
1990	4	3	7	10	3	13	12	2	14
1991	5	0	5	6	1	7	12	1	13
1992	5	0	5	5	0	5	12	1	13
1993	6	0	6	7	0	7	7	0	7
1994	5	3	8	6	2	8	7	7	14
1995	0	6 (1Reef)	6	9	2	11	7	2	9
1996	41	4	45	37	3	40	54	0	54
1997	20	4	24	32	0	32	-	-	-
1998	26	0	26	-	-	-	-	-	-
TOTAL	119	21	140	115	11	126	119	13	131

### Chick Banding

In 1999, chicks were banded with either a black stainless steel band or a blue plastic band. The two bands were used alternately throughout the banding period so that equal numbers of stainless steel and plastic bands were used. Funnels were monitored from 9 May to 12 June and the first chicks appeared

on 11 May. Numbers peaked on 21 May, when 54 chicks were captured, and the last 2 chicks were caught on 11 June, a spread of 32 days, during which 567 chicks were banded at the funnels (Table 3). Another 23 chicks were banded in burrows or at the adult flight nets.

**Table 3. A comparison of chick banding variables and dates including all monitoring years, note that 3 different time protocols have been used.**

Variable	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Start monitoring	12 May	7 May	7 May	9 May	7 May	7 May	10 May	8 May	7 May	9 May
End monitoring	15 June	9 June	5 June	15 June	8 June	11 June	10 June	12 June	23 June	12 June
Period of observations	2300 - 0200+	2300 - 0200+	2300 - 0200+	2300 - 0200+	2300 - 0200+	2300 - 0200+	2300 - 0200	2300 - 0230	2300 - 0230	2300 - 0230
Total days	35	30	23	38	33	36	31	35	48	34
1st night of chicks	12 May	10 May	13 May	10 May	7 May	10 May	11 May	11 May	11 May	11 May
Peak date & #	May 22 (65)	27 May (50)	22 May (85)	May 18 (70)	May 22 (52)	May 22 (64)	May 19 (48)	May 24 (41)	May 20 (55)	May 21 (54)
Last chick night	15 June	8 June	4 June	15 June	8 June	11 June	9 June	11 June	22 June	11 June
Days with chicks	35	30	23	37	33	33	29	31	43	31
<b>Total chicks</b>	<b>873</b>	<b>562</b>	<b>674</b>	<b>653</b>	<b>618</b>	<b>617</b>	<b>588</b>	<b>527</b>	<b>495</b>	<b>567</b>
<b>Total chicks, 2300-0200 only</b>	<b>743</b>	<b>478</b>	<b>627</b>	<b>559</b>	<b>588</b>	<b>463</b>	<b>598</b>	<b>520</b>	<b>447</b>	<b>513</b>

### Burrow Monitoring

Monitoring of burrows began on 7 April, when one egg was present. The last was found on 18 May. Seventeen burrows were occupied this year and 3 nests were

abandoned during incubation. Although the occupancy rate this year was low, fledging success was quite high and there were few nest abandonments compared with 1998 (Table 4).

**Table 4. Occupancy and fledging success of Ancient Murrelet chicks from burrows on East Limestone Island 1996-1999.**

	1996		1997		1998		1999	
Burrows monitored	89		72		62		86	
Burrows occupied	28	(31%)	21	(29%)	17	(27%)	17	(20%)
Burrows fledged 2 chicks	22	(79%)	14	(67%)	6	(35%)	14	(82%)
Burrows fledged 1 chick	4	(14%)	1	(5%)	3	(18%)	0	(0%)
Nest abandonment 1 egg	2	(7%)	6	(28%)	6	(35%)	0	(0%)
Nest abandonment 2 eggs	0	(0%)	0	(0%)	2	(12%)	3	(18%)

Of the 17 breeders captured in monitored burrows, 8 were recaptures and 9 were new. One pair has successfully bred in C21 for 3 years, one of the pair having bred in the same burrow for 4 years. Another pair has

successfully bred in C43 for two years, one adult having bred in the burrow for 4 years. An adult has successfully bred in S12 for 6 years with no consistent mate. We made 10

recordings of vocalizations by departing Ancient Murrelet families.

### **Gathering Ground Counts**

Counts of birds assembled on the Gathering Grounds between East Limestone and Low islands were made at approximately 2 h before sunset from 11 April to 25 June, using a spotting scope focused on the water in front of Low Island. The highest monthly counts were 129 on 20 April, 299 on 28 May, and 238 on 14 June. Seventeen counts were missed because of rough seas.

### **MARINE SURVEYS**

Surveys for marine birds and mammals continued as part of the monitoring efforts in the Laskeek Bay area. During these surveys, seabirds are counted along established transects, seals and sea lions are counted at seasonal haul-outs.

### **Seabird Surveys**

Due to poor weather conditions, 4 inshore and no offshore surveys were completed. Large rafts of Ancient Murrelets were seen off of Skedans Islands during 2 of the surveys. Twenty-one species of birds were counted: six auks, three gulls, two loons, two cormorants, two grebes, and one species each of duck, phalarope, eagle, oystercatcher, turnstone and crow.

Particular attention is paid to Marbled Murrelets because they are provincially red-listed and designated as threatened in Canada by COSEWIC. Marbled Murrelet numbers in past years have peaked in the hundreds, however due to the lack of surveys this year, our peak count was only 38 on 7 June.

### **Marine Mammal Surveys**

Marine Mammal watches were conducted from a set location at Lookout Point. A total of 19 surveys were made between 13 April and 18 July, adding up to 20.5 h of sea watch effort.

Steller's Sea Lions were counted at the Skedans and Reef Island haul-outs. Peak numbers for Skedans occurred on 2 May, with 112 individuals counted, and peak numbers for the Reef Island rocks occurred on 22 June, with 511 individuals counted. The peak count for 1998 was 735 on 26 May; for 1997 it was 300 on 18 June. No California Sea Lions were seen this year.

Killer whales were seen in Laskeek Bay on three occasions. One pod was photographed for later identification by Graeme Ellis at Pacific Biological Station, Nanaimo. A large group of humpback whales consisting of 25-30 individuals was also photographed for Kathy Heise, a marine mammal biologist.

### **Black Oystercatcher Census and Banding**

Eight islands in the Laskeek Bay area are surveyed for breeding oystercatchers each year. Nest checks began on 22 May and finished on 23 July. Initially, 35 active nests with eggs were found, but many were later predated. Eleven chicks were banded, with many adults still sitting on eggs (replacement clutches) when camp closed.

### **Glaucous-winged Gull Colony Census**

Glaucous-winged Gull nests were counted at five islands, 102 nests contained 1-3 eggs. In comparison to last year, nest counts decreased at Skedans, stayed the same on Low Island and increased on Kingsway Rock (Table 5). Trends for Lost island could not be assessed because only a partial count was made at that colony.

**Table 5. Counts of Glaucous-winged Gull nests in the Laskeek Bay area since 1992.**

<b>Colony</b>	<b>1992</b>	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>
Lost	120	140	165	145	175	226	293	[96]
Kingsway	94	79	82	56	46	36	22	32
Skedans	18	20	12	11	1	8	5	0
Low	1	4	2	1	6	0	9	9
<b>TOTAL</b>	<b>233</b>	<b>234</b>	<b>261</b>	<b>213</b>	<b>228</b>	<b>270</b>	<b>329</b>	<b>[137]</b>
Cumshewa	-	-	7	4	2	6	2	0
Reef	-	-	-	-	-	-	-	2

## **TERRESTRIAL PLANTS AND ANIMALS**

### **Songbird Banding and Species Counts**

Songbird trapping and banding took place again this year on East Limestone Island, Reef Island, Vertical Point, Louise Island and Low Island. The trapping is performed using mist-nets situated at fixed sites and opened for specified periods of time every few days, rotating among different islands. The main aim is to monitor juvenile:adult ratios as a measure of reproduction on islands with and without introduced species. We also hope to establish a marked population for long-term monitoring and survival estimates. In 1998, 749 birds were caught in total, including 269 birds of 12 species on East Limestone Island, and 64 birds of 14 species at Vertical Point. This year 410 birds were caught in total, including 100 birds of 14 species on East Limestone Island, and 109 birds of 15 species at Vertical Point.

A daily checklist of bird species continued again this year, with 72 different species being recorded in the Laskeek Bay area. The maximum species counted for any one day was 35 on 20 April. Peregrine Falcons were absent from their nest on the south cliff most times it was viewed and there were no fledglings seen. A Sharp-shinned Hawk carcass was found in April, and there

appeared to be no nesting activity at the main trail site. On Cassin's Tower one burrow was occupied by a Fork-tailed Storm Petrel incubating an egg, but the nest was later abandoned. Two burrows were found with Cassin's Auklets adults incubating eggs, one nest was abandoned and the other fledged a chick. Northern Saw-whet Owls were heard and seen on both the west and east sides of East Limestone Island.

### **Wildlife tree surveys**

There were 16 active wildlife trees this year on East Limestone Island. Red-breasted Sapsuckers were found breeding in 15 trees. Chestnut-backed Chickadees nested in two, and two Hairy Woodpecker nests were also found. Two wildlife trees were found to have more than one species nesting. Tree #61 had active sapsucker and chickadee nests, and tree #33 had active sapsucker and woodpecker nests. The sapsuckers began nest excavation on 13 April, the first chicks were heard on 27 May, and chicks fledged from 6 June to 8 July.

### **Introduced Animals**

Ten squirrel surveys were done from 3 May to 23 June to examine the distribution of squirrels on East Limestone Island, in the various habitat types. In total there were 85 records of squirrels, 27 of which occurred in the 20m radius study plots. Observations of squirrels varied over the season, with the high count of 15 on 24 May. As in previous

years, the majority of squirrels noted were on the Main Trail.

Several shoreline surveys for racoon sign were conducted, as well as two spotlight surveys at night. No evidence of racoon was found on East Limestone Island, but one racoon was sighted on Louise Island and a scat was found at Vertical Point.

### **Plant Inventory**

The total number of plants inventoried for East Limestone Island (including some mosses and lichens) remains at 120. Ten species were added to the list of marine algae in 1999.

### **CONCLUSION**

The 1999 field season went well, despite cold and rather inclement weather. Data comparable with earlier years were obtained for most monitoring projects, extending the series to ten years. Our results demonstrate that perseverance with simple, low-tech and environmentally friendly biological monitoring can yield important information on changes in environmental conditions over time. The student apprentices and hard working volunteers contribute immensely to the success of the camp, as do the in town staff, scientific advisors and Board of Directors. We look forward to another field season filled with shared experiences of staff, volunteers, school groups and other visitors.

