

EAST LIMESTONE ISLAND CAMP: REPORT ON THE 2000 FIELD SEASON

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SUMMARY

In 2000, Laskeek Bay Conservation Society conducted its 11th field season of research, monitoring and education at East Limestone Island. All of the monitoring and research programs, such as seabird monitoring, boat surveys at sea, observations of wildlife trees and introduced species surveys were continued. Compared with 1999, this year was warmer and weather, especially in May and June, was generally good. The season was noteworthy for a continuing increase in the numbers of Ancient Murrelet chicks trapped on East Limestone Island: the highest total since 1995. This season marked the third year of the science intern program, designed to give local post-secondary students experience with biology work. Several high school groups visited the field camp through Project Limestone to participate in the chick banding program. In addition to these activities, the society continues its partnership with the Research Group on Introduced Species (RGIS) with its field camp located on near by Reef Island. LBCS welcomed a number of international scientists and grad students associated with RGIS to Limestone Island this year.

EAST LIMESTONE ISLAND FIELD PROGRAM

Laskeek Bay Conservation Society enables interested people participate in ongoing environmental monitoring and research at East Limestone Island. Volunteers stay on the island with the staff for a minimum of one week. They are given an orientation to the field camp and field training so that they can fully engage in all aspects of camp life from biological monitoring to camp maintenance. Local school groups, tour groups, and other visitors come to the island for shorter stays, usually less than 24 hours. These parties learn about coastal forest ecosystems and the work of the society on Limestone Island.

Volunteer Program

This year 31 volunteers contributed 240 days at Limestone Island through our weekly volunteer program. The average length of stay was 7.7 days. Most people volunteered for one week; 2 people came for two weeks, 2 people came for 10 days, and 1 person came for only 3 days due to health problems. 13 volunteers were from Haida Gwaii, 16 were from the rest of Canada, and there was one volunteer from Germany and

one from Tasmania. In addition, Beverly McBride from Canadian Wildlife Service, Hull, Quebec, volunteered for 25 days to help with the songbird banding work. Field Camp Supervisor Janet Gray returned for a 15 week season and research assistant / interpreter Chris Lindberg worked for 10 weeks in camp.

Science Intern Program

The Science Intern Program is designed to assist Haida Gwaii post-secondary students to gain biological and conservation skills and experience. In this third year of the program operation, Dana Nyeholt from Port Clements who attends University of Victoria, worked on Limestone Island from 5 May to 16 June. She took part in biological monitoring, collation of data, natural history interpretation, and volunteer training. Her main interests were wildlife tree monitoring and Ancient Murrelet chick banding.

Project Limestone

This program has been running for ten years, and is designed to give local students hands on experience with research and conservation. This year three school groups

participated: two from Queen Charlotte Secondary (fourteen students total), and one from George M. Dawson Secondary (six students).

Tour Groups and Other Visitors

Visiting East Limestone Island is a highlight of a South Moresby trip for many 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. This year, the Island Roamer brought 91 visitors ashore on 6 trips, while the Maple Leaf visited twice bringing 26 visitors. An additional tour boat, Copper Sky also came ashore twice this year, bringing 18 visitors. We also had a visit from a private vessel with a crew of four from Prince Rupert. Guests and crew were given guided tours of the island in the afternoon or evening, to learn about the old growth forest that supports the Ancient Murrelet colony. The groups returned to the island later the same day and walked to the banding area on the North Cove to help catch chicks and record data. In total, 139 people visited Limestone this year via tour boat, and 49 t-shirts were sold.

Collaborating Scientists

Laskeek Bay continues to be a 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 this year ran from 6 May to 28 July, with 2-8 staff in camp at various times through the season. Limestone staff and volunteers assist in number of their field projects that include work on Limestone Island and Laskeek Bay. Twenty-six people converged on Reef Island for the Summit 2000 weekend 26-28 May.

RESEARCH AND MONITORING

Monitoring and research of seabirds, marine mammals, flora and fauna continued on East Limestone Island, extending what is one of the longest continuously run data sets for seabird research in British Columbia. The LBCS Scientific Advisory Panel has established research questions and protocols, putting the annual monitoring program on a sound scientific footing as well as providing valuable hands-on education for volunteers.

ANCIENT MURRELET RESEARCH

Adult Banding

Adult Ancient Murrelet survivorship is measured with a yearly banding program during the breeding season. In 2000, adults were caught from 6-9 April, and again from 15 May - 11 June, by which time nesting was almost over. Table 1 shows that total number caught was 260 in 15 nights, slightly more effort for fewer birds compared to the past three years.

Table 1. Comparison of adult banding totals and breeding status for 1997-2000.

Year	Banding # nights	New		Retraps		Total	Breeder	Non-breeder	Unknown
		Net	Burrow	Net	Burrow				
2000	15	129	8	117	6	260	130	93	37
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

We recaptured 99 birds in 2000, of which 81 were banded as adults and 18 as chicks. Note the consistency in high numbers of recaptures banded as adults versus those banded as chicks. This reflects the fact that chicks have a much higher mortality rate than adults. Additionally adults are likely to return to the same area of a colony to breed year after year, in the vicinity of the net in which they were originally banded. Chicks

are much less likely to return to the same area of the colony from where they departed, and may choose to breed on another colony entirely. Still no chicks banded in 1993 have been recovered, and only a few have been recaptured from 1991 and 1992 (years that were marked by prolonged warm-water conditions).

Table 2. Numbers and age at banding of Ancient Murrelet adults recaptured in 1997, 1998, 1999 and 2000.

Year banded	2000 Retraps			1999 Retraps			1998 Retraps			1997 Retraps		
	Banded as Adult	Banded as Chick	Total Retraps	Banded as Adult	Banded as Chick	Total Retraps	Banded as Adult	Banded as Chick	Total Retraps	Banded as Adult	Banded as Chick	Total Retraps
Total	81	18	99	135	21	156	115	11	126	119	13	131

Chick Banding

This year chicks were banded with either a black stainless steel band or a white plastic band. The two bands were used alternately throughout the banding period. Funnels were monitored from 11 May to 12 June, with the first two chicks appearing on 11 May. Numbers peaked on 20 May (Table 3) with 62 chicks; the first night with 0 chicks was 12 June, a spread of 32 days, during which 595 chicks were banded at the funnels. Another 25 chicks were banded in burrows, outside the funnels, or at the adult flight nets.

Burrow Monitoring

Monitoring of burrows at East Limestone Island began on 2 April. The first eggs were found on 6 April and the last ones were

found on 9 May. Eighteen burrows were occupied this year. Fledging success in 2000 was lower than in any year except the major El Nino year of 1998 (Table 4). Five nests were abandoned after only one egg had been laid, suggesting that conditions for feeding were poor and females were unable to complete their clutches. Two of the 20 eggs incubated to full term failed to hatch: a rather high rate of infertility. In both cases the unhatched eggs were found to be totally undeveloped. One single-egg clutch was deserted after it had been incubated to "full term"; the embryo was found to be fully developed with down, and a hard bill. The remainder of those abandoned either were not incubated at all, or only incubated for a short time before abandonment.

Table 3. A comparison of chick banding variables and dates among years; note that there are 3 different time protocols involved.

Variable	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Start date	May 12	7 May	7 May	May 9	May 7	May 7	May 10	May 8	May 7	May 9	May 11
End date	June 15	9 June	5 June	June 15	June 8	June 11	June 10	June 12	June 23	June 12	June 12
Monitoring period	2300 - 0200+	2300 - 0200+	2300 - 0200+	2300 - 0200+	2300 - 0200+	2300 - 0200+	2300 - 0200	2300 - 0230	2300 - 0230	2300 - 0230	2300- 0230
Total days	35	30	23	38	33	36	31	35	48	34	32
1st night of chicks	May 12	10 May	13 May	May 10	May 7	May 10	May 11	May 11	May 11	May 11	May 11
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)	May 20 (62)
Last night	June 15	8 June	4 June	June 15	June 8	June 11	June 9	June 11	June 22	June 11	June 11
Days with chicks	35	30	23	37	33	33	29	31	43	31	31
Total chicks	873	562	674	653	618	617	588	527	495	567	595

Table 4. Occupancy and hatching success of Ancient Murrelet chicks from monitored burrows on East Limestone Island 1996-2000.

Burrows	1996	1997	1998	1999	2000
Monitored	89	72	62	86	75
Occupied	28 (31%)	21(29%)	17(27%)	17 (20%)	18 (24%)
Fledged 2 chicks	22 (79%)	14(67%)	6 (35%)	14 (82%)	8 (44%)
Fledged 1 chick	4 (14%)	1(5%)	3 (18%)	0 (0%)	2 (11%)
Abandoned 1 egg	2 (7%)	6 (28%)	6 (35%)	0 (0%)	5(39%)
Abandoned 2 eggs	0 (0%)	0 (0%)	2 (12%)	3 (18%)	3(17%)

No eggs laid after 22 April hatched. The burrow in which the first egg was laid, was also one of the last to successfully hatch two chicks, which departed on 30 May. Incubation in this burrow began on 19 April; hence it took 42 days from incubation to departure (normal duration 31-33 days). The total time between when the first egg was laid and the date of departure was 55 days compared to the normal 38-44 days. Altogether, this seems to have been a difficult year for breeding, although not as bad as 1998.

Gathering Ground Counts

Gathering Ground Counts were performed from 2 April to 20 June, using a spotting scope focused on the water in front of Low

Island. The highest monthly counts were 186 on 8 April, 511 on 19 May, and 127 on 4 June. Eight counts were missed due to rough weather. The peak count of 511 stands as the highest count recorded from Limestone since the project began. As birds on the staging area are believed to be mainly pre-breeders, this high count augurs well for future recruitment to the colony.

MARINE SURVEYS

Seabird Surveys

Five inshore surveys were completed. No offshore surveys were completed due to sea conditions and mechanical problems with the boat. Large rafts of Ancient Murrelets were seen close to Skedans Islands during

two of the surveys. On a separate boat trip to Lost Islands a family party of Ancient Murrelets, comprising two parents and two chicks, was observed up close, feeding and travelling together. Twenty-six species of birds were counted: seven auks, four gulls, three loons, two cormorants, five ducks, and one species each of shearwater, phalarope, eagle, oystercatcher, and crow. The peak count of Marbled Murrelets this year was 167 on 25 June, a relatively low number compared to counts of several hundreds in past years. However, the difference is partly accounted for by the lack of offshore surveys.

Marine Mammal Surveys

Marine Mammal watches were conducted from a set location on Lookout Point. A total of 29 surveys were done between April and July, adding up to 28 h of effort. Highlights for volunteers were the occasions when humpback whales were sighted in groups of 2 and 3 actively jumping and lunge feeding. Also of interest, was one decomposing Grey Whale carcass (male), marked with orange spray paint, floating into the kelp at Cabin Cove where it stayed for approximately 18 h before the current took it northward. Orcas were sighted on a few occasions, small groups travelling quickly and therefore not allowing us photo identification opportunities.

Steller Sea Lions were counted at the Skedans and Reef Island haul-outs. Peak numbers for Skedans occurred in May with 120 individuals counted (Table 5). Peak numbers for Reef also occurred in May with 400 individuals counted. No California Sea Lions or marked individuals were recorded this season.

Table 5. Peak counts from the two main sea lion haul out sites in Laskeek Bay 1997-2000

Sea lion haul out	1997	1998	1999	2000
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Skedans Islands	180	72	112	120
Reef Island	300	735	511	400

Black Oystercatchers

It is important to monitor Black Oystercatchers because BC and Alaska together support 80-85 % of the world's population. By banding both adults and chicks it is possible to determine site fidelity, mate fidelity, individual breeding success, and adult survivorship. Eight islands in the Laskeek Bay area are surveyed for breeding pairs and their success each year. This year nest checks began in May and finished in July. Our surveys found 34 active nest sites this year with approximately 30% of those sites later experiencing some degree of predation/unsuccessful chick rearing. A total of 16 chicks were banded and 3 previously banded individuals were sighted at the same locations as last year. This year an adult banding program was begun by Stephanie Hazlitt of Bird Studies Canada. A total of 8 adults were marked in the Laskeek Bay Area.

Glaucous-winged Gull

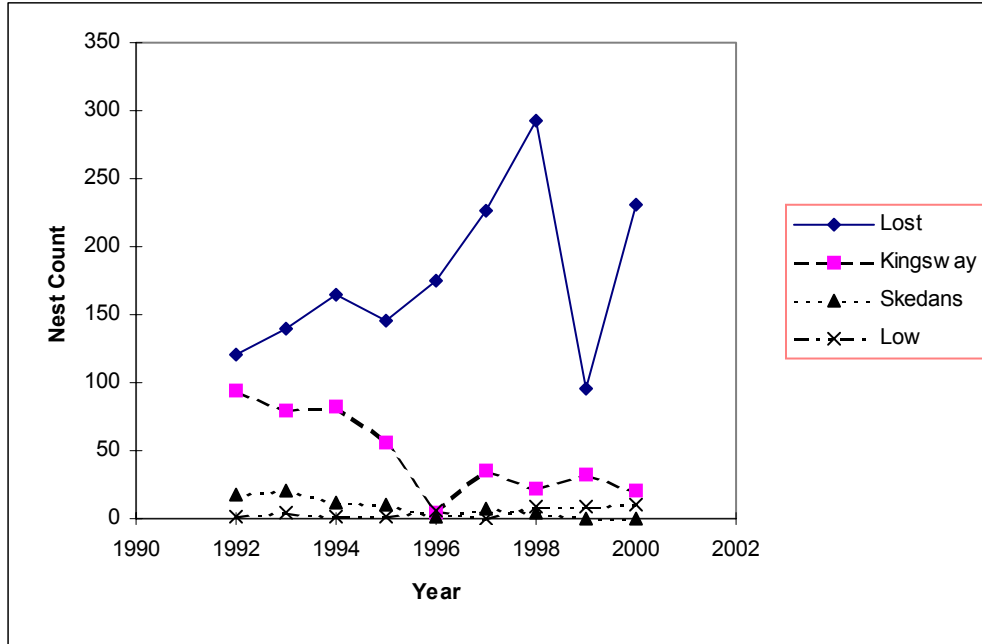
Glaucous-winged Gull nests were counted on five islands and 244 nests containing 1-3 eggs each were found. In comparison to last year, nest counts increased on Low island, and decreased on Kingsway Rock (Table 6). The total number of nests this year is equal to the count in 1994, but lower than those in 1997 and 1998. Comparisons with 1999 are not possible because counts at Lost Island in 1999 were incomplete. This year large congregations of 50-80 Bald Eagles were seen at Low Island, which may account for the low numbers of nesting sites in the area. On Skedans, Kingsway and Cumshewa, fresh

otter scat and prints were found through the gull colonies. Figure 1. Indicates that over the 8 years of surveys, Lost Islands nest counts are rising while those on Kingsway are declining. The low number of nests

counted in 1999 on Lost Islands are likely a reflection of the inability to count all colony

locations due to prevailing weather conditions.

Figure1. Chart of Glaucous-winged Gull colony censuses in Laskeek Bay 1992-2000.



TERRESTRIAL PLANTS AND ANIMALS

Songbird Banding and Species Counts

Songbird banding is carried out primarily to determine differences in juvenile/adult ratios on islands with and without introduced species, and to establish a marked population for long-term monitoring and survival estimates. Banding took place at six stations:

East Limestone Island, Reef Island camp area (site13), Reef Island south shore (site 16), Vertical Point, Low Island and West Skedans, with the Limestone Island crew being responsible for East Limestone, Vertical Point and West Skedans. Table 6

shows the number of birds banded by the Laskeek Bay Conservation Society field crew over the last three years, as well as the species totals. An interesting recapture in 2000 was a Hermit Thrush originally banded on Vertical Point in 1999 and recaptured at the Limestone Island station. Numbers of juveniles this year were much higher than in 1999, though not as high as in 1998, suggesting a breeding season more successful than last year, but not as successful as the very warm summer of 1998.

Table 6. Songbird banding totals from 3 monitored islands in Laskeek Bay 1998-2000.

Year	East Limestone		Vertical Point		West Skedans	
	Species	Total	Species	Total	Species	Total
1998	12	269	14	64	-	-
1999	14	100	15	109	-	-
2000	12	234	14	91	12	315

The daily checklist of birds recorded 74 different species. The maximum species counted on a single day was 34 on both 11 April and 8 May. As in 1999, the 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 was seen several times near Boat Cove, however for the second year there appeared to be no nesting activity at the Main Trail site. A new Bald Eagle's nest was constructed on Cassin's Tower this year, successfully fledging two young. Because the nest was located in the spruce right on Cassin's Tower, surveys of Cassin's Auklet and Fork-tailed Storm Petrel burrows on the tower were not done. Northern Saw-whet Owls were heard and seen on both the west and east sides of Limestone Island.

Wildlife tree surveys

There were 23 active wildlife trees this year on East Limestone Island, 10 of which were previously unused for cavity nesting. Red-Breasted Sapsuckers were found breeding in 22 of trees and Hairy Woodpeckers were found using one tree. The sapsuckers began nest excavation in April, the first chicks were heard in early May, and chicks fledged from 13-23 June.

Introduced animals

Ten squirrel surveys were carried out between 21 April - 23 June to examine the distribution of squirrels on East Limestone Island, in the various habitat types. There were 27 records of squirrel presence, 10 of which occurred in the 20m-radius study plots. Observations of squirrels varied over the season, with the high count of 6 on 13

May. As in previous years, the majority of squirrels noted were along the Main Trail. On several occasions squirrels were seen chasing sapsuckers away from sap wells and then feeding on the sap.

A deer collared with a radio transmitter by RGIS researchers on Limestone in July 1999 was seen several times at the field camp this year. The deer was also tracked over last winter in various locations on Louise Island and Limestone Islands. On one occasion, two deer without collars were seen swimming from the south side of Limestone to nearby Vertical Point.

Several shoreline surveys for racoon sign were conducted. No evidence of racoons was found on East Limestone Island, however the participants of Project Limestone found scat at Vertical Point.

Plant inventory

The total number of plants inventoried for East Limestone Island (including some mosses and lichens) remains at 120, with no new plant species found in 2000. Dr. Erwin Brodo of the Canadian Museum of Nature, visited Limestone Island to make a lichen collection of the island. We hope to have a comprehensive lichen inventory for the 2001 report. Algal collections and presses were also made this season to aid Parks Canada in species occurrence and distribution within the Laskeek Bay area.

