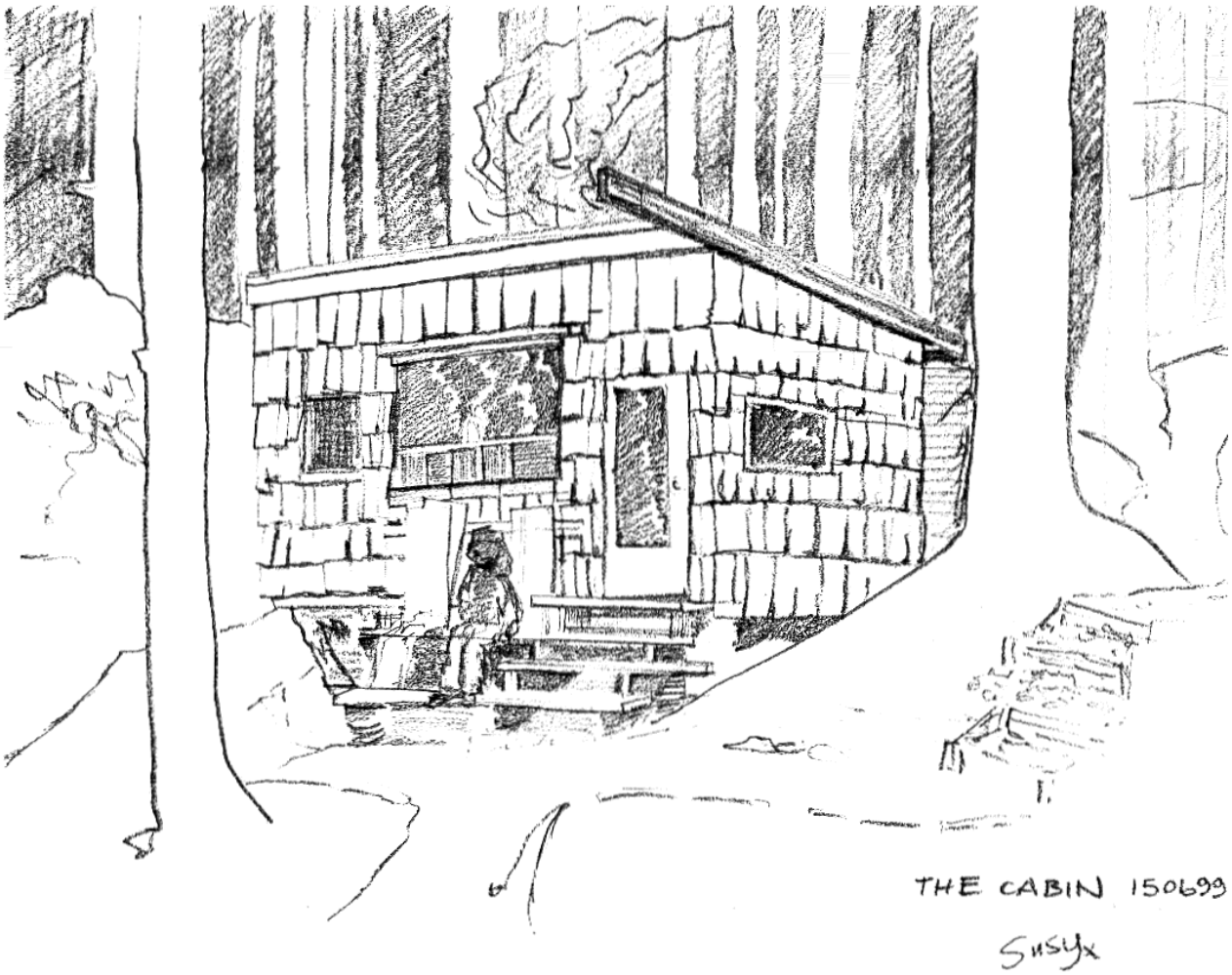
Laskeek Bay Conservation Society

Report From the 1999 Field Season



Drawing by Susy Feltham

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1. SUMMARY

1999 was a landmark year for LBCS. It was our 10th field season of doing biological research and monitoring projects at East Limestone Island (ELI) with the help of many dedicated volunteers. We now have 15 years of long term monitoring of the Ancient Murrelets (AnMu) in Laskeek Bay, including the original 5-year research project on Reef. This report summarizes the activities of the 1999 season and compares them to results from previous years. All of the ongoing monitoring programs such as seabird banding, burrow monitoring and sea surveys were continued. Highlights were increased numbers of chick fledging compared to the last three years, and numerous whale sightings including a pod of 25-30 Humpbacks. This season marked the second year of the Science Intern program which gives local post-secondary students experience with field biology. Several high school groups visited the field camp through the Project Limestone school outreach program, and one student did his work experience at Limestone. In addition to these activities, LBCS continued its partnership with the Research Group on Introduced Species (RGIS), studying the effects of introduced species here on Haida Gwaii.

2. EDUCATIONAL PROGRAM

At ELI, keen volunteers with an interest in natural history or field research participate in ongoing ecological research . 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 biological monitoring to cabin maintenance. Local school groups, tour boats, and other visitors come to the island, usually for less than 24-hours to learn first hand about Ancient Murrelet life history, coastal forest ecology, and bird banding.

2.1 Limestone Island Field Station

The cabin on East Limestone Island was remodeled this year. Enclosing the porch provided a lot more interior space in which to work and relax. This project was primarily the work of volunteer Lao Peerless. The cabin now has two doors with the old screen door becoming a back door access to the storage area. Staff and volunteers continue to sleep in tents, using the cabin for an office, kitchen and social centre.

2.1.1 Society Staff and Board of Directors

Former volunteers Janet Gray and Joelle Fournier came on board as Camp Supervisor and Research Assistant respectively, working from April 2 to July 25 in camp. Administrator Greg Martin works in Queen Charlotte City providing field camp logistical support and managing the affairs of the Society year round. There are nine volunteer directors.

2.1.2 Volunteer Program

This year 25 volunteers contributed 190 days at Limestone Island. The average stay was 7.6 days. Most people volunteered for one week; six people came for two weeks and five people came for less than a week to help pack up camp. Thirteen volunteers were from Haida Gwaii, ten were from the rest of Canada, one from Argentina and one from England. Clayton Uliana, a grade 11 student from Queen Charlotte Secondary School, volunteered for one week as part of the school's work experience program. He was a great help with the research, data collection and camp maintenance.

2.1.3 Science Intern Program

This was the second year of the Science Intern Program. The six-week stay on ELI is designed to provide local post-secondary students with enhanced skills and extensive experience in biological monitoring and conservation. Carla Russ from Skidegate was the first intern this year, working from April 30th to June 11$^{th.}$ on ELI. The second intern was Christine Bentley, also from Skidegate. Christine participated on Limestone from June 18th to July 25th. Both science interns took part in the biological monitoring, collection of data, natural history interpretation, and volunteer training.

2.1.4 Project Limestone

Project Limestone is a school outreach program in which small groups of local students come to East Limestone Island to gain hands-on experience in research and conservation. Started in 1991 by teachers Kevin Borserio and Sheila Douglas as an outdoor education

program, 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: two from Queen Charlotte Secondary, two from George M. Dawson Secondary, and one from the Living & Learning School.

2.1.5 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. Students from the Northwest Community College Ecotourism Program came for a daytime visit to learn about how the field station operates using low impact camp guidelines.

2.1.6 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. RGIS field camp on Reef Island ran from May 11th to July 25th, with two to 18 people in camp. RGIS researchers worked on many islands in Laskeek Bay during the research season, including East Limestone.

3. SCIENTIFIC MONITORING

Monitoring and research of seabirds, marine mammals, flora and fauna continued on East Limestone Island in 1999. This is the 10th year of the program, providing 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. The research projects aim to provide important data as well as being valuable hands-on education for volunteers.

3.1 ANCIENT MURRELET RESEARCH

Haida Gwaii contains over half of the world's Ancient Murrelet breeding population, and nesting sites on the archipelago are at risk due to introduced raccoons 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. Population numbers in 1999 were higher than in 1998, which was a record low year due to El Nino. However, there seems to have been little overall change in the second half of the 1990's, following the sharp decline in the early 1990's brought about by predation by raccoon.

3.1.1 Adult Banding

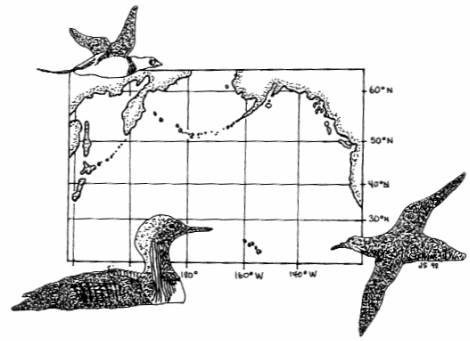
Adult Ancient Murrelet survivorship is measured with an annual banding program during the breeding season. Large knockdown nets are used in three locations, two on the east side of the island and one on the north. Adults were caught from 6-9 April, and then from 15 May to 11 of June, when nesting was almost over. Banding is stopped in mid-April to minimize disturbance during egg laying and incubation. Table 1 shows that the total number of murrelets caught was 323 in 12 nights, which was comparable to 1998 and 1997.

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

Year	Banding # nights	New Net	New Burrow	Retraps Net	Retraps Burrow	Total	Breeder	Non-breeder	Unknown
1999	12	158	9	120	8	295	148	110	37
1998	13	162	5	120	9	296	160	120	16
1997	18	201	8	118	13	340	89	209	42

Birds are considered breeders if they are caught before April 15th, 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 15th -20th or when brood patches are 10-19mm. The "Retraps" column does not represent birds caught on more than one occasion each year.

Valuable information such as survivorship, fecundity, mate fidelity and site fidelity can be determined from recapturing previously banded birds. Table 2 shows that this year we retrapped 128 birds; 107 were banded as adults and 21 were banded as chicks. Note that three 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 two years old when banded, because Ancient Murrelets typically 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).



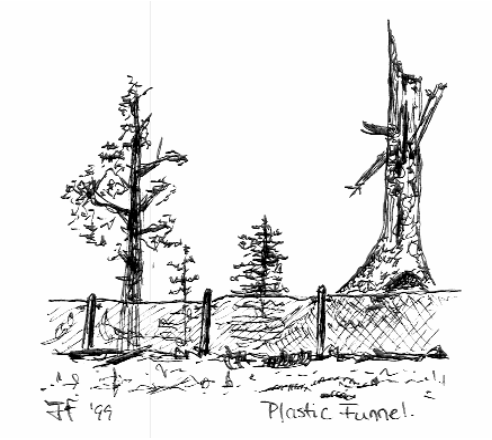
Drawing by Joanna Smith

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	0	6	3	0	3	7	0	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		26						
1999									
TOTAL	119	21	140	115	11	126	119	13	131

3.1.2 Chick Banding

This year 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 May 9th to June 12th and the first chicks appeared on May 11th. Table 3 shows that numbers peaked on May 21st with 54 chicks, and reduced to two chicks on June 11th. Chick departure was monitored for 32 days, and a total of 567 chicks were banded at the funnels. Additionally, 23 chicks were banded in burrows or at the adult flight nets.



Drawing by Joelle Fournier

Table 3. A comparison chick banding variables and dates including all monitoring years. Note that there are 3 different time protocols to be considered.

Variable	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Start monitoring	May 12			May 9	May 7	May 7	May 10	May 8	May 7	May 9
End monitoring	June 15			June 15	June 8	June 11	June 10	June 12	June 23	June 12
Protocol time in 24hr clock	2300 - 0200 +	2300 - 0200 +	2300 - 0200 +	2300 - 0200 +	2300 - 0200 +	2300 - 0200 +	2300 - 0200	2300 - 0230	2300 -0230	2300 -0230
Total days	35			38	33	36	31	35	48	34
1st night of chicks	May 12			May 10	May 7	May 10	May 11	May 11	May 11	May 11
Peak date & #	May 22 (65)			May 18 (70)	May 22 (52)	May 22 (64)	May 19 (48)	May 24 (41)	May 20 (55)	May 21 (54)
Last chick night	June 15			June 15	June 8	June 11	June 9	June 11	June 22	June 11
Days with chicks	35			37	33	33	29	31	43	31
Total chicks	**873**	**562**	**674**	**653**	**618**	**617**	**588**	**527**	**495**	**567**

3.1.3 Burrow Monitoring

Monitoring of burrows began on April 7th. The first eggs were found on April 7th and the last ones were found on May 18th. Seventeen burrows were occupied this year and three nests were abandoned during incubation. Table 5 shows that although the occupancy rate this year was low, fledging success was quite high and there were few nest abandonments.

Table 5. Occupancy and fledging success of Ancient Murrelet chicks from monitored 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, eight were retraps and nine were new adults. One pair has successfully bred in C21 for three years, one of the pair having bred

in the same burrow for four years. Another pair has successfully bred in C43 for two years, one adult having bred in the burrow for four years. An adult has successfully bred in S12 for six years with no consistent mate. Also, staff made ten recordings of vocalizations by departing Ancient Murrelet families.

3.1.4 Gathering Ground Counts

Gathering Ground Counts were done from April 11th to June 25th, using a spotting scope focused on the water in front of Low Island. The highest count for each month was 129 on April 20th, 299 on May 28th and 238 on June 14th. Seventeen counts were missed due to rough weather.

3.2 MARINE SURVEYS

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

3.2.1 Seabird Surveys

Due to poor weather conditions, only four inshore and no offshore surveys were completed. Large rafts of Ancient Murrelets were seen off Skedans Islands during two 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 was 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 fewer surveys, 38 was the peak on June 7th.

3.2.2 Marine Mammal Surveys

Marine Mammal watches were conducted from a set location on Lookout Point. A total of 19 surveys were done between April 13th and July 18th, for a total of 20.5 hrs of sea watch effort.

Steller's Sea Lions were counted at the Skedans and Reef Island haul-outs. Peak numbers for Skedans occurred on May 2 with 112 individuals counted, and peak numbers for Reef occurred on June 22nd with 511 individuals counted. Peak for 1998 was 735 on May 26; peak for 1997 was 300 on June 18. Sightings of particular interest include one California Sea Lion off Lookout point on April 27th, three branded Stellar Sea Lions and one California Sea Lion at Reef Island haulout on June 8th.

Killer Whales were seen in Laskeek Bay on three occasions. Photographs of one pod were sent to Graeme Ellis at Pacific Biological Station in Nanaimo for identification.

A large pod of humpback whales consisting of 25-30 individuals was also photographed for Kathy Heise, a marine mammal biologist doing a research project in the Laskeek Bay and Gwaii Haanas areas.

3.2.3 Black Oystercatcher Census and Banding

Eight islands in the Laskeek Bay area are surveyed for breeding oystercatchers each year. Nest checks began on May 22nd and finished on July 23rd. Initially 35 active nests with eggs were found, however quite a few were later predated. Eleven chicks were banded, with many adults still on eggs when camp closed. Records from 1994 to 1999 show that it is not uncommon for some adults to still be on eggs in mid-July.

3.2.4 Glaucous-winged Gull Colony Census

Glaucous-winged Gull nests were counted on five islands: 102 nests contained 1-3 eggs each. Table 6 shows that in comparison to last year, nest counts decreased on Lost and Skedans, stayed the same on Low and increased on Kingsway. Note that this year's total count is the lowest count ever taken. The low numbers recorded on Lost are most likely due to an incomplete survey of the extreme NE side (due to bad weather).

Colony	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**
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
TOTAL	**233**	**234**	**261**	**213**	**228**	**270**	**329**	**137**
Cumshewa	-	-	7	4	2	6	2	0
Reef	-	-	-	-	-	-	-	2

3.3 TERRESTRIAL PLANTS AND ANIMALS

3.3.1 Songbird Banding and Species Counts

Songbird Banding took place again this year on East Limestone Island, Reef Island, Vertical Point and Low Island. The banding took place in order to monitor adult/juvenile ratios on islands with and without introduced species, and to establish a marked population for long-term monitoring and survival estimates. Last year 749 birds were caught in total, including 269 birds from 12 species on East Limestone Island and 64 birds from 14 species on Vertical Point. This year 410 birds were caught in total, including 100 birds from 14 species on East Limestone Island and 109 birds from 15 species on Vertical Point.

A daily checklist of bird species continued again this year, resulting in 72 different species recorded. The maximum number of species counted for any one day was 35 on April 20th. 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 carcass was found in April, and there appeared to be no nesting activity at the main trail site. One burrow at Cassin's Tower had Fork-tailed Storm Petrels incubating an egg, however 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 Limestone Island. In May an active eagle nest was located on the Lookout trail. Adult eagles were first seen feeding newly hatched young on May 23rd. Feeding continued until late July, after which only the adults were seen.

3.3.2 Red-breasted Sapsucker Nest 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 cavity nested in two, and two Hairy Woodpecker nests were also found. Two wildlife trees were found to have 2 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 April 13th, the first chicks were heard on May 27th and chicks fledged from June 6th to July 8th.

3.3.3 Introduced Animals

Ten squirrel surveys were done from May 3rd to June 23rd 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 May 24th. As in previous years, the majority of squirrels noted were on the Main Trail.

Several shoreline surveys for raccoon sign were conducted throughout the season, as well as two night surveys. No evidence of raccoon was found on East Limestone Island in 1999, although a raccoon was sighted on Louise Island and scat was found at nearby Vertical Point on several occasions.

3.3.4 Plant Inventory

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

4. CONCLUSION

Despite cold and rather inclement weather, the 1999 field season went well. Data comparable with earlier years was 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 about changes in environmental conditions over time. The Science Interns and hard working volunteers contributed immensely to the success of the camp, as did 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.

5. ACKNOWLEDGEMENTS

Established in 1990, the Laskeek Bay Conservation Society is a grass roots, non-profit organization based in Haida Gwaii, BC. The Society relies heavily on volunteers to run its programs. The goal is to continue increasing the awareness and understanding of the marine and terrestrial ecosystems of Haida Gwaii through research and education

programs. This is possible due to the generous contributions from the following groups and individuals:

- W.Alton Jones Foundation for their continued financial assistance for the interpretive program.
- Canadian Wildlife Service (National Research Center, Ottawa, and Pacific and Yukon Region, Delta) for financial assistance and long-term equipment loans.
- South Moresby Forest Replacement Account for financial assistance to RGIS projects.
- Gwaii Trust for funding the *Science Intern Program* and *Project Limestone*, the program for Haida Gwaii school students
- Ministry of Environment, Lands and Parks Skeena Region for permission to conduct research in the Wildlife Management area

Thanks also go to the following individuals and groups who gave generously of their time to the Society:

- Tony Gaston for his valuable advice and guidance throughout the field season.
- Jean-Louis Martin, Tony Gaston, Rob Kelly, Isabel Butler for their continued help in the songbird project on Limestone Island.
- Greg Wiggins, SMFRA coordinator.
- Graeme Ellis for providing us with a camera and film to document killer whales.
- Haida Gwaii Watchmen at Skedans, Mandy and Joe, for their kind and generous hospitality.
- Crew and guests of the vessels Island Roamer and Maple Leaf for generously supporting our project with their visits and t-shirt purchases.
- Nathalie Macfarlane at the Haida Gwaii Museum, for continuing to provide a venue to promote the Society's work.
- Greg Martin for numerous hours of volunteer time to keep the Society going.
- Barb Rowsell, RGIS coordinator for generous help whenever required.
- LBCS directors for their time and efforts in keeping the Society rolling for 10 years, for finding funding for the field camp, the scientific projects and the educational programs.
- All of the volunteers who participated in the Limestone Island camp, purchased t-shirts, made donations, or helped out in town.

Finally, thanks go to the owners, staff and crew of South Moresby Air Charters, m/v Wanderlust, m/v Western Flyer, s/v Anvil Cove, m/v Kingii, and m/v Akko Chan for their professional services in transporting gear and people from Queen Charlotte City to Limestone Island.

Thank you all, please come and celebrate Limestone's 11th year in 2000.

Report prepared by Janet Gray, Camp Supervisor/Biologist and edited by LBCS.

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