

**EAST LIMESTONE ISLAND FIELD STATION:
REPORT ON THE 2008 FIELD SEASON**

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Black Oystercatchers on Reef Island, Photo: Jen Rock

SUMMARY

Laskeek Bay Conservation Society's 19th field season brought 26 volunteers and eight visitor groups (4 schools, 2 tours) to the island. Ancient Murrelet funnel work continued and the number of chicks counted was the lowest recorded to date. We monitored Black Oystercatcher breeding activity in Laskeek Bay and in sections of Gwaii Haanas where we found 19 and 58 territories containing eggs or chicks, respectively. During our surveys we re-sighted 14 banded adult oystercatchers, the oldest of which was 14 years old. Glaucous-winged gull numbers were similar to previous years with 290 nests counted at four colonies in Laskeek Bay. Pigeon Guillemots continue to breed in the nest boxes on Limestone and Fork-tailed Storm Petrel activity is suspected to be increasing. Our peak count of Marbled Murrelets from sea surveys was 164 on 29 June. More Humpback whales were reported than in recent years and groups of Killer whales were followed on three occasions. We monitored fourteen Wildlife Trees containing fifteen nests: one Brown Creeper, two Hairy Woodpecker, two Chestnut-backed Chickadee and ten Red-breasted Sapsuckers. On East Limestone Island we also confirmed nesting by Common Ravens, Northwestern Crows, Bald Eagles and we suspect Peregrine Falcons. One of our rare plants, Menzies' pipsissewa was found blooming after several years of unknown whereabouts.

Overall 2008 marked another terrific season on ELI. We are concerned with the continued decline in Ancient Murrelet numbers and predation surveys suggest that predators may be an important factor affecting this small breeding colony. We will continue to carefully consider the potential negative impacts that human interactions may have on the Ancient Murrelet population however it is also important to note that we are likely the only defence that burrow nesters on Limestone have against the ongoing threat of raccoons.

EDUCATION AND INTERPRETATION PROGRAM

LBCS continues its commitment to raising public awareness of local conservation issues on Haida Gwaii and to providing members of the public of all ages the opportunity to participate in field research. With this goal in mind, the society runs programs that allow volunteers, students and visitors to visit East Limestone Island and learn about our research.

Project Limestone

This was the 18th year of Project Limestone, a program that brings students from island communities to participate in Ancient Murrelet monitoring work. Students participate in an interpretive tour during the afternoon which introduces them to the island, the research and camp life. Students then assist with the capture of Ancient Murrelet chicks from 10:30 pm to 2:30am, before spending the remainder of the night in the visitor interpretation centre and returning to their camp at nearby Vertical Point in the morning. The program is very popular among students, and many return year after year. One student this season had visited seven times in the past!

Six groups from four schools visited the island this year, representing 44 students and 12 staff. GM Dawson (Masset) came on 15 May, Living and Learning School (Queen Charlotte) on 18 May and two groups came from Queen Charlotte Secondary School: the juniors on 21 May and the seniors on 23 May. Anges L. Mathers School (Sandspit) also brought groups to the island on 26 and 27 May. Since the start of Project Limestone in 1991, 517 students have visited the island.

Volunteers

Since the beginning volunteers have played an important role in the operation of the East Limestone field camp. Volunteers work alongside field staff and contribute time and

energy to the many tasks that keep camp running smoothly, while at the same time participating in research activities and learning about Limestone Island and the surrounding area. The generous contribution of time and energy by the volunteers continues to be a very important part of operations on the island.

Twenty six volunteers visited the island this year and contributed a total of 164 volunteer days to projects, both on island and in the surrounding area. Sixteen volunteers were new to the island and 10 had spent time previously on the island. All volunteers stayed for a week, with the exception of 5 members of the hardworking set-up crew who were on island for 3 days. Thirteen volunteers came from Haida Gwaii, four from other places in British Columbia, and the others from Ontario, Washington, Belgium, France, Germany and Australia.

Visitors

The Limestone visitor program provides opportunities for tour groups to visit the island, participate in an interpretive tour and learn about the research. In providing this opportunity it is the society's intent to raise public awareness and appreciation of local conservation issues. The majority of visitors are from off-island and are on ecotourism trips in Gwaii Haanas. They are generally enthusiastic about the opportunity to learn more about the island's ecology and about Ancient Murrelets.

Two groups, representing 25 guests (4 crew) visited the island this season. Both groups were from *s/v Island Roamer* and visits occurred 23 and 25 May. The first group included a film crew from Global TV who were filming for a series on Haida Gwaii.

The research camp on nearby Reef Island was up and running again this year (April-

June). Akiko Shoji, with Motomi Yoneda, Kyle Elliot, and Kerry Woo continued work on Akiko's Master's project on Ancient Murrelets which she began in 2007.

Field Staff

Jen Rock (Camp Supervisor / Biologist) and Jake Pattison (Assistant Biologist / Interpreter) returned to the island for another season. This was Jen's 5th year working on the island and Jake's 4th. This year's field season ran from 3 May to 18 July, totalling 11 weeks (76 days).

RESEARCH AND MONITORING PROGRAMS

Ancient Murrelets

Synthliboramphus antiquus

Monitoring activities

Compared to the research conducted in earlier years our Ancient Murrelet monitoring in 2008 was scaled back to minimize our impact on the breeding population that has been exhibiting a downward trend in numbers across years. As in 2007, no adults were captured and no chicks banded. North Cove was left entirely undisturbed and night time visits to the island were limited to school groups. In 2008 our monitoring activities consisted of chick capture work, gathering ground counts, point counts and predation transects. By adopting a less intrusive approach to monitoring LBCS hopes to minimize our impact on the birds and continue to collect important information concerning population changes, breeding success and the overall condition of birds.

Chick capture work

Beginning 7 May we monitored four funnels (number 5 to 8) at Cabin Cove to record information on chick departures. For each

Haida Gwaii Watchmen

We enjoyed several visits to Skedans, Tanu and Hotsprings during the course of the season. Many thanks to the watchmen at these sites for their hospitality: meals, knowledge and humour. Thanks also for the great tours of the village sites and in turn, the interest in our projects. Hope to see all of you again in future seasons.

chick that arrived at a funnel we recorded the date of departure, time of departure, funnel number and chick mass. As in previous years we carried out chick trapping between 22.30h and 2.30h, adjusting start times after 19 May to 23.00h to accommodate for longer day length. The first night of chick departures was 12 May and, following the usual protocol, nightly trapping continued until the first two consecutive nights when no chicks arrived at any of the funnels, this year 3 June (Fig. 1). A total of 125 chicks arrived at funnels 5 to 8 and compared to the last two years that these funnels have been in use (funnel 7 and 8 were added in 2006), the number of chicks departing the ELI colony this year was low (Table 1).

Funnels 5 and 6 have been monitored since chick capture work was initiated in 1990. This season marked the lowest number of chicks from funnels 5 and 6 (92 chicks, Table 2, Fig. 2). Compared to previous years, both first and peak nights of chick departures in 2008 were normal. However, the peak count of only 13 chicks was low and departures terminated relatively early (Table 2).

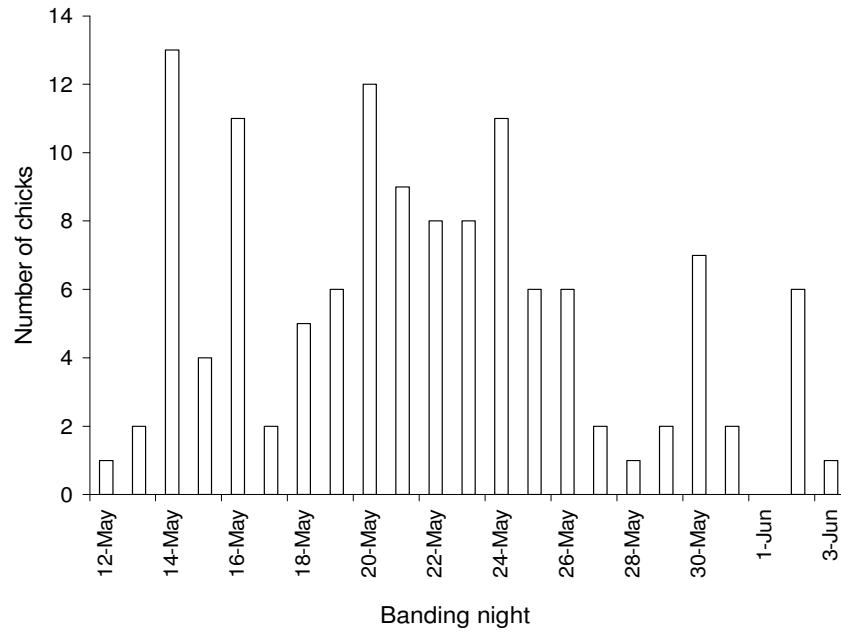


Figure 1
Nightly chick numbers caught at funnels 5 to 8 during 12 May - 3 June 2008

Table 1
Summary of chick departures, peak nights and totals from funnels 5 to 8 on Limestone Island in 2006 to 2008

Year	First night with chicks	Peak night	Peak count	Last night	Total days	Total chicks
2006	10-May	21-May	24	30-May	21	197
2007	15-May	4-Jun	16	12-Jun	29	166
2008	12-May	14-May	13	3-Jun	23	125

Table 2
Summary of chick departures, peak nights and total captures at funnels 5 and 6 on Limestone Island, 1990 to 2008

Year	1st night with chicks	Peak night	Peak count	Last night	Total days	Total chicks
1990	13-May	20-May	28	15-Jun	33	361
1991	10-May	25-May	22	05-Jun	26	232
1992	14-May	22-May	29	02-Jun	19	246
1993	12-May	18-May	39	04-Jun	23	268
1994	08-May	20-May	29	06-Jun	29	238
1995	11-May	23-May	18	12-Jun	32	187
1996	11-May	18-May	17	07-Jun	27	199
1997	13-May	28-May	22	05-Jun	23	186
1998	11-May	20-May	23	20-Jun	40	195
1999	11-May	21-May	22	09-Jun	29	166
2000	11-May	21-May	22	06-Jun	26	201
2001	11-May	19-May	21	15-Jun	35	191
2002	09-May	21-May	33	01-Jun	23	183
2003	11-May	21-May	19	03-Jun	23	167
2004	08-May	16,17-May	15	01-Jun	24	134
2005	07-May	19, 23-May	12	05-Jun	29	152
2006	10-May	21-May	20	31-May	21	149
2007	15-May	04-Jun	16	12-Jun	28	103
2008	13-May	20,22,23-May	8	03-Jun	21	92
Average ± SD	11-May ± 2.1days	21-May ± 4.1days	22 ± 7 chicks	7-Jun ± 5.6 days	27 ± 5 days	192 ± 61 chicks

Gathering grounds

Before flying in to the colony at night Ancient Murrelets aggregate at specific areas on the water located near their breeding sites known as ‘gathering grounds’. To monitor daily attendance at the Limestone I. gathering ground we conducted 10 minute counts of birds gathering each evening on the waters west of Low Island, opposite the East Limestone Island colony. Counts were conducted from 6 May to 20 June. The number of Ancient Murrelets attending the gathering grounds peaked on 15 May when 241 birds were counted. On average we counted 53.4 ± 59.7 (SD) birds on the water each night with numbers tapering off significantly by early June.

Point counts

To monitor nightly adult attendance in the colony we conducted point counts after funnel work (at approximately 02.30h) and recorded the number of birds calling and the number of calls made over a five minute period from 21 May to 5 June. The maximum number of birds that we heard calling was five, counted on the nights of 25 May and 3 June while the maximum number of calls heard was 92, counted on 27 May.

We are hoping that point count and gathering ground count data can be used as a measure of colony attendance and in turn that these data will help us to interpret annual changes chick departure numbers.

Recaptured birds

Although there is no directed effort to capture adult birds on ELI, on occasion adult Ancient Murrelets land in front of staff during funnel work and when this happens we check the adult for bands. This year we

opportunistically caught three banded birds, all of which were banded on Limestone as adults in years: 2000, 1999 and 1994. These individuals were at least 10, 11 and 16 years old, respectively.

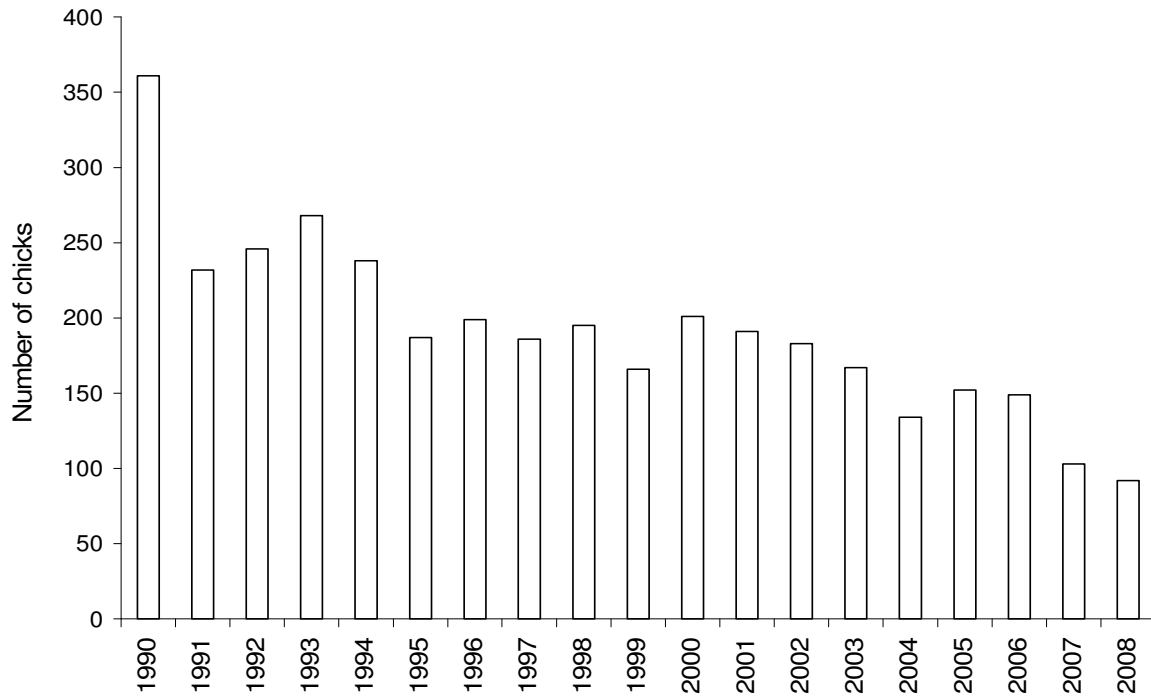


Figure 2
Numbers of Ancient Murrelet chicks caught at funnels 5 and 6 from 1990 to 2008

Recovered bands

Throughout the season we make a point to look for bands among the remains of dead Ancient Murrelets left by predators. In 2008 we recovered one band from a dead bird that was originally banded as an adult on ELI in 2002, meaning that this bird was at least 8 years old.

Recapture and band recovery data provide valuable insights into population parameters and life history for example, last year on Reef I. researchers recaptured a bird that was 22 years old which is, so far, the oldest Ancient Murrelet known.

Predation transects

To generate an estimate of the number of Ancient Murrelets killed by predators we counted the remains of birds located along five, 20m wide strip-transects once per week. We cleared the transect area of remains on 7 May and conducted 5 weekly surveys counting new carcasses and feather piles. From these totals we determined that the minimum number of predated Ancient Murrelet adults was 259 [extrapolating our estimates from the transect area (1.6 ha) to the colony area (12.55 ha)]. This number is slightly higher than 2007 when 220 adult

predations were estimated[†]. Bald Eagles *Haliaeetus leucocephalus*, Common Ravens *Corvus corax*, Peregrine Falcons *Falco peregrinus pealei* and River otters *Lutra canadensis* are all natural predators that breed on ELI and likely contribute to the predations we recorded.

Population trends

The number of Ancient Murrelet chicks departing the Limestone colony continues to decline (Fig. 2) and this trend is consistent with the 2006 colony census that estimated \pm (SE) 509 ± 132 breeding pairs compared to 1273 ± 254 in 1995 (Lemon, Laskeek Bay Research:15). LBCS is very concerned about this downward population trend and we are hoping to gain a better understanding of what factors may be contributing to this decline. Census reports from neighbouring colonies indicate that the number of breeding birds at other sites are stable or increasing (Lemon Laskeek Bay Research: 15) so it appears that the issue is specific to ELI.

One factor that could explain this trend is predation. The 2006 colony census recorded similar predation rates on adult birds as in 1995 despite a more than 50% decline in population, thus indicating an increase in predation on the remaining birds (Lemon, Laskeek Bay Research:15). Based on our predation transects we estimated that between 2007 and 2008 at least 479 adult Ancient Murrelets were predated at the ELI colony. Early studies in Laskeek Bay show that birds killed by predators include a proportionately high number of prospecting

[†] The 2007 predation estimate reported in 'Laskeek Bay Research:15' differs from this estimate because in 2007 predation results were calculated by including feather piles and carcasses as well as the number of wings. Including only feather piles (and not wings) is thought to be a more accurate estimate considering that feather piles and wings could belong to the same bird and thus using both as a measure to count individual birds could result in overestimating mortality associated with predation.

birds versus breeders (Laskeek Bay Research: 3), thus predation could play an important role in shaping the population at this small colony.

Black Oystercatchers

Haematopus bachmani

Occupancy and reproductive success

LBCS has been monitoring breeding activity of Black Oystercatchers in Laskeek Bay since 1992. Beginning in early June we regularly visit known breeding territories and scan for new active sites, looking for occupied nests to count and measure eggs and chicks. We survey from Cumshewa I. to the Lost Islands in Gwaii Haanas and in 2008 we found 36 sites occupied by adult birds, of which 19 were active with either eggs or chicks at some point in the season. Ten sites produced chicks, 14 altogether, nine of which we banded.

As in 2006 and 2007, in 2008 we extended our surveys to include a portion of the northeast section of Gwaii Haanas National Park Reserve and Haida Heritage Site (Gwaii Haanas). These surveys were initiated in 2004 and carried out for three consecutive years to establish baseline data for the region and now, this initiative will be repeated every two years. As in previous years we visited BLOY breeding sites extending from the south end of Laskeek Bay through to Ramsay I. in Juan Perez Sound. We surveyed breeding sites from 14 to 17 June and again on 9 and 12-14 July. We found 64 sites occupied by adult birds and of these, 58 were active with either eggs or chicks at some point in the season and 32 produced chicks: 46 altogether. No chicks were banded inside Gwaii Haanas.

Birds that we banded received a combination of bands including a uniquely numbered metal band and two colour bands that indicate either the year the bird was banded or the general area of the nest site from which the bird was caught. We always scan shorelines for banded adult birds because banding information can help us

understand more about dispersal and life history of these birds. This season we re-sighted 14 banded birds (Table 3) one of

which was banded as a chick in 1994, meaning it was 14 years old.

Table 3
Banded Black Oystercatchers re-sighted in Laskeek Bay in 2008

Band Combination (left – right)	Location seen / Nest site	Year Banded	Banded as Adult or Chick
UB-BK/M	Reef I. / REE-1	2006	chick
W-DB/M	Reef I. / REE-1*	2006	chick
UB-M	Skedans I. / SKE-6	unknown	-
AL-BK/M	Skedans I. / SKE-6	2000	adult
UB-BK/M	South Low I. / SLW-1	2000	Chick or adult
UB-W/M	South Low I. / SLW-4	1994	chick
UB-R/M	South Low I. / SLW-5	2003 or 2004	chick
UB-OR/M	Lost I. / LOS-2	2004	chick
W-Y/M	Reef I., group of 8 birds		
UB-R/M	Reef I., group of 8 birds	2003 or 2004	chick
UB-M	Reef I., group of 8 birds	unknown	-
UB-M	Kingsway Rk., group of 12 birds	unknown	-
UB-M	Tar I. / EM-560-4-2	unknown	-
UB-Or/M	Ramsay Islets, loafing	2004	chick

Band codes: UB = unbanded (birds can lose bands), BK = black, M = metal, W = white, AL = aluminium, R = red, OR = orange, Y = yellow.* seen after territory was abandoned.

Diet

Black Oystercatcher chicks feed on invertebrates and the shell remains of their prey can be found within the breeding territory. We collected and counted invertebrate remains found at breeding sites to determine chick diet composition for

nests located in Laskeek Bay. The average chick diet determined from five nest sites showed that chick diets comprised 54% limpets, 17% mussels and 12% chitons. These results are similar to chick diet composition described in previous years (Fig.3).

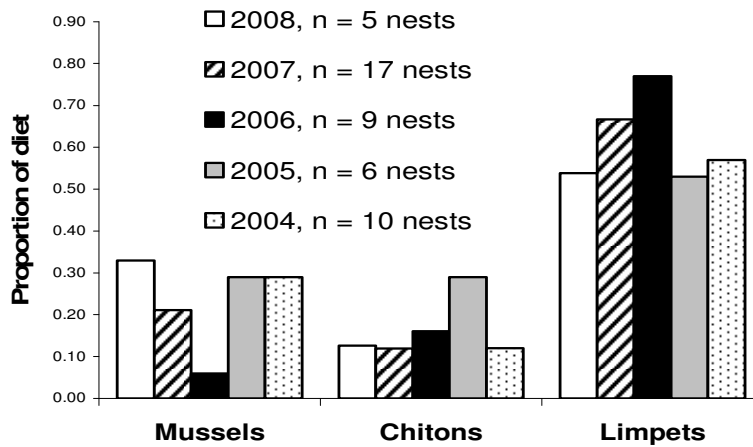


Figure 3
Invertebrate prey remains identified at Black Oystercatcher nest sites in Laskeek Bay, 2004 to 2008

Glaucon-winged Gulls

Larus glaucescens

LBCS has been censusing gull colonies in Laskeek Bay since 1992. Between 22 and 29 June we visited islands in Laskeek Bay where Glaucon-winged gulls have historically nested to count the number of active nests (containing either eggs or chicks). Similar to previous years Lost Is.

supported the largest number of breeding pairs with 236 active nests, followed by Kingsway with 47 active nests. We counted six nests at Low I. and one nest at Skedans Is. All together 290 nests were found in Laskeek Bay which is above the average of (\pm SD) 255.2 ± 72.5 nests counted across years.

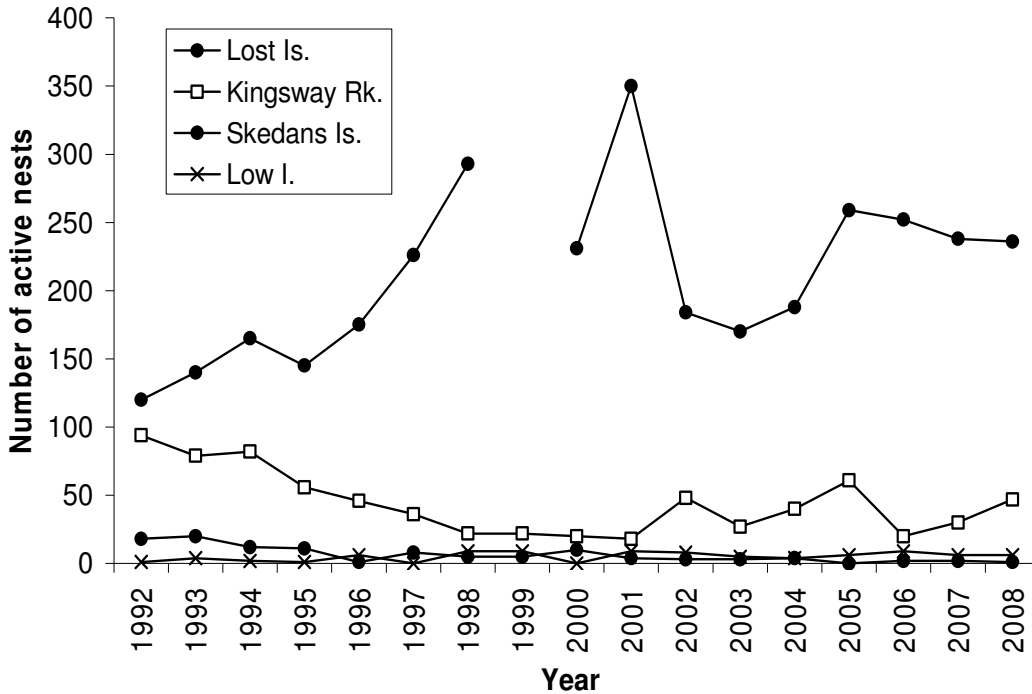


Figure 4
Number of active Glaucon-winged Gull nests (containing chicks or eggs) at four colonies located in Laskeek Bay, 1992 to 2008

Pigeon Guillemots *Cephus columba*

Ten wooden Pigeon Guillemot nest boxes were set up at Lookout Point in 2001 and at the end of each season we check their contents to determine occupancy rates, to

measure eggs and to band chicks. This year seven of the nest boxes were occupied (Fig 5.), five contained chicks (total: seven chicks banded) and 2 contained eggs (total: three eggs measured).

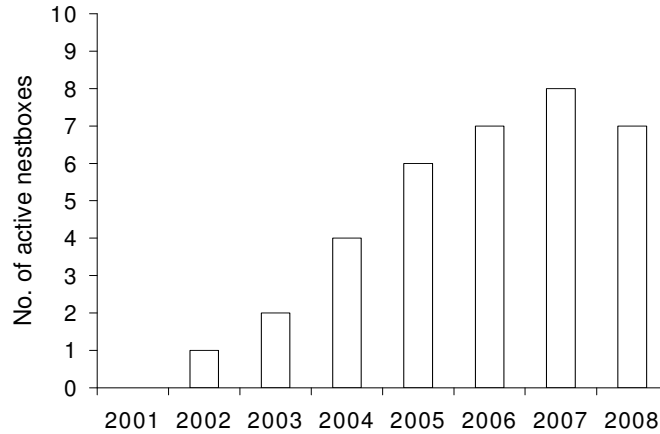


Figure 5
Number of Pigeon Guillemot nest boxes containing either chicks or eggs at East Limestone Island, 2001 to 2008

Cassin’s Auklets and Fork-tailed Storm Petrels

Ptychoramphus aleuticus and *Oceanodroma furcata*

Cassin’s Auklets and Fork-tailed Storm Petrels are burrow nesting seabirds that visit their breeding colonies at night. Small populations of both species have historically nested on ELI but the number of breeding pairs has fluctuated across years, in part due to predation by introduced raccoons. LBCS is interested in the status of the breeding populations of these birds on ELI and each year we attempt to obtain some index of breeding effort on the island.

We monitored Cassin’s Auklet breeding activity at two sites on East Limestone I. in 2008 including the East Coast plots and the Lookout Point. We conducted regular checks for knockdowns at burrow and nest box entrances in an effort to identify which cavities were being used regularly. At the East Coast plots (north and south) we monitored 24 natural burrows in addition to 44 nest boxes that were installed in 2007, plus 2 older boxes that were already in place. At the Lookout Pt. area we monitored 25 nest boxes that were installed last year. Typically it takes several years before seabirds will nest in new nest boxes and this year none of our nest boxes were active.

Out of the 24 natural burrows that we checked regularly, 18 had knock-down activity at least twice during the season and most burrows contained signs of breeding activity such as fresh droppings or feathers at the entrance.

We did not conduct any regular visits to the burrows located at Cassin’s Tower this year because we wanted to reduce our disturbance to the Bald Eagles nesting there. Early in the season we counted 53 burrows on Cassin’s Tower, likely occupied by Cassin’s Auklets or Fork-tailed Storm Petrels.

Storm petrel activity on ELI appears to be on the increase. Birds were heard almost every night during Ancient Murrelet work and there was noticeably more activity in Cabin Cove than in previous years.

At-Sea Surveys

To examine the abundance and distribution of marine birds and mammals in Laskeek Bay we conduct regular boat surveys that follow a series of 100m wide strip transects. Unfortunately, especially rough boating conditions throughout the 2008 season limited our ability to carry out as many surveys as we intended and we completed

only two near shore surveys and one Hecate Strait survey.

Near shore surveys

The primary aim of these surveys is to record the locations of Marbled Murrelet *Brachyramphus marmoratus* because they are red listed by the province and designated threatened by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). The peak number of Marbled Murrelets counted was 164 on 29 June. Numbers of Marbled Murrelets seemed to increase across the season, apparently peaking in July when unfortunately, we were not able to complete a survey. Marbled Murrelets were especially numerous in Breaker Bay. Apart from Marbled Murrelets, we recorded ten bird species including Pigeon Guillemots, Pelagic Cormorants *Phacrocorax pelagicus*, Pacific Loons *Gavia pacifica*, Rhinoceros Auklets *Cerorhinca monocerata*, Harlequin Ducks *Histrionicus histrionicus*, Black Oystercatchers, Ancient Murrelets, Glaucous-winged Gulls, Long-tailed Ducks *Clangula hyemalis* and White-winged Scoters *Melanitta fusca*.

Hecate Strait surveys

We require especially calm conditions to conduct offshore surveys that take us several miles out in to the Hecate Strait. This survey provides an opportunity to spot species that are typically pelagic and consequently less often seen near the coast. During our sole trip in to the Hecate Strait this season we saw six species of birds: Sooty Shearwaters *Puffinus griseus*, Cassin's Auklets, Rhinoceros Auklets, Common Murres *Uria aalga*, Ancient Murrelets and Black Turnstones *Arenaria melanocephala*.

Marine Mammals

Each day we record all marine mammal sightings (Table 4) that result from sea watches, sea surveys or opportunistic encounters. Compared to the last five years we did not report very many different types of marine mammals this year (Table 4) and this may be explained by consistent rough sea conditions that occurred throughout the field season that may have reduced the chance of sightings.

Table 4
Total counts of marine mammals reported by ELI crew from sea surveys, sea watches and opportunistic encounters, 2004 to 2008[†]

<i>Species (common name)</i>	<i>Scientific name</i>	2008	2007	2006	2005	2004
Dall's porpoise	<i>Phocoenoides dalli</i>	0	0	0	1	0
Northern elephant seal	<i>Mirounga angustirostris</i>	0	0	0	0	0
Fin whale	<i>Balaenoptera physalis</i>	0	0	0	0	0
Grey whale	<i>Eschrichtius robustus</i>	0	0	1	1	1
Harbour porpoise	<i>Phocoena phocoena</i>	0	1	4	3	12
Humpback whale	<i>Megaptera novaeangliae</i>	261	203	91	15	19
Killer whale	<i>Orcinus orca</i>	18	26	4	11	13
Minke whale	<i>Balaenoptera acutorostrata</i>	1	3	1	0	2
Pacific white-sided dolphin	<i>Lagenorhynchus obliquidens</i>	0	81	365	8	0
California sea lion	<i>Zalophus californianus</i>	0	4	0	1	1

[†]Harbour seal *Phoca vitulina* and Steller's sea lion *Eumetopias jubatus* sightings are not reported here.

Humpback whales

This season marks an all time high for the number of humpback whales recorded in Laskeek Bay (Table 4). As in 2007, May brought daily reports of humpbacks and during one sea watch from Lookout Point we counted 63 individuals. Most days we could hear whales blowing, tail lobbing and even vocalizing as they fed. Our most spectacular encounter took place in Juan Perez Sound when one individual breached clear out of the water four times in a row!

Killer whales

Killer whales were encountered three times this season and each time we followed the groups in our boat to obtain photos for identification. We take photos of the dorsal fin and saddle patch from the left side of the animal because individuals can be distinguished based on these features. Group sizes ranged from three to six and two of the groups included a small juvenile.

Steller's sea lions

We regularly count sea lions that haul out at both on rocks to the southeast of Reef I. and on the easternmost point of Skedans Is. This year the maximum number of individuals recorded at both haul-outs was 537

individuals at the Reef I on 17 May and 98 at Skedans on the same day. Typically our highest counts occur during the early part of our field season (April or May) and this year 17 May was our earliest visit to the haul-outs.

Researchers in Alaska sometimes brand Steller's sea lions to mark individuals for identification. This year we spotted one branded individual: F1229 on 29 June located at the Skedans haul-out. Interestingly, this was not the first time that we have reported this sea lion in the area: in 2000 it was spotted at Reef Island rocks.

Wildlife Trees

Cavity nesting birds rely on dead, standing trees for breeding sites and this year on Limestone we located 14 snags, containing 15 nests: one Brown Creeper *Certhia americana*, two Hairy Woodpecker *Dendrocopus villosus*, two Chestnut-backed Chickadee *Poecile rufescens* and ten Red-breasted Sapsuckers *Sphyrapicus rubra* (Table 5). One tree (#107) contained two nests, one occupied by a pair of Chestnut-backed Chickadees and the other by Red-breasted Sapsuckers.

Table 5
Wildlife tree activity on East Limestone Island in 2008.[†]

Tree #	Cavity Nester	Tree Species	Fledge Date
17	RBSA	Ss	18-June
33	RBSA	Ss	20-June
45	RBSA	Ss	11-June
113	RBSA	Hw	18-June
112	RBSA	Hw	18-June
72	RBSA	Ss	20-June
111	RBSA	Hw	18-June
86	RBSA	Hw	14-June
118	RBSA	Ss	22-June
107	RBSA	Ss	14-June
107	CBCH	Ss	18-June
120	CBCH	Ss	18-June
119	BRCR	Cedar	18-June
117	HAWO	Ss	06-June
103	HAWO	Hw	18-June

[†]RBSA = Red-breasted Sapsucker, CBCH = Chestnut-backed Chickadee, NOFL = Northern Flicker, HAWO = Hairy Woodpecker, BRCR = Brown Creeper, Ss = Sitka spruce, Hw = Western hemlock

The Laskeek Bay Conservation Society first started monitoring cavity nesters in 1992, on a fairly opportunistic basis but since 1995 the crew has been collecting data more systematically and putting a concerted effort towards locating all active trees each season. This long-term data set offers interesting information about tree use across years and allows us to determine how often particular snags are used by cavity nesters. For

example, our three ‘oldest’ trees that were active this season were first recorded as active in 1993, 1995 and 1996 respectively (Table 6). Each of these trees has been home to at least three different bird species across the years (Table 6), reminding us that these rotten snags represent important breeding habitat for a variety of bird species over time.

Table 6
History of cavity nesting activity by bird species[†] at wildlife trees #17, #33 and #45 on East Limestone Island

Year	Wildlife Tree #		
	17	33	45
1993	RBSA		
1994			
1995		RBSA	
1996	RBSA	RBSA	RBSA
1997	CBCH	RBSA	
1998		NOFL	
1999	RBSA	RBSA & HAWO	
2000	RBSA	RBSA	RBSA
2001		RBSA	RBSA
2002	RBSA		RBSA
2003	RBSA		RBSA
2004	RBSA	RBSA	RBNU
2005	RBSA		CBCH
2006	NOFL		RBSA
2007			RBSA
2008	RBSA	RBSA	RBSA

[†]RBSA = Red-breasted Sapsucker, CBCH = Chestnut-backed Chickadee, NOFL = Northern Flicker, HAWO = Hairy Woodpecker

NATURAL HISTORY

Daily Bird Checklist

Throughout the field season we keep a daily record of all birds heard or seen. We noted 58 different species across the season with peak counts of 35 species recorded on 17 May and 11 July. Among the less common species reported were Red-necked Grebes *Podiceps grisegena*, Sooty shearwaters, Red-breasted Mergansers *Mergus serrator*,

Whimbrels *Numenius phaeopus*, Northern Flicker, Western Sandpiper *Calidris mauri* and Short-billed Dowitcher *Limnodromus griseus*.

Birds of Prey

In 2008 Common Ravens, Northwestern Crows *Corvus caurinus*, Bald Eagles and we

suspect Peregrine Falcons nested on East Limestone Island. Common Ravens nested in the same tree as in 2007 and by 31 May at least two chicks are thought to have fledged from this nest. A good view of the nest was near impossible to achieve because it was located high up, among dense branches. No Northwestern Crow nest was found but two young fledglings were spotted in late June on the SW side of the island. We suspect that the nest was located somewhere along the Ridge Trail area, not necessarily visible because of the cliffs.

Bald Eagles nested on Cassin's Tower this season (BAEA nest #5). On 25 May we saw two downy chicks in the nest and by 11 July the two young birds were feathering in and looking healthy. Peregrine Falcons were heard and seen regularly throughout the field season, almost exclusively near the cliffs on the SW side of the island and we suspect the birds were breeding but were unable to locate the nest among the dense vegetation.

Plants

Flowering plants on ELI are restricted to areas where browsing deer cannot reach them and throughout the field season we keep a lookout for first bloom dates of the various wildflowers on the island. We also try to keep track of the rare plant species that occur on Limestone, the presence of which is attributed to the limestone substrate that is relatively uncommon in the archipelago. This year we were especially excited to find blooming plants of showy Jacob's ladder *Polemonium pulcherrimum* and Menzies' pipsissewa *Chimaphila menziesii*. These two rare plant species are known to occur on ELI however they have not been located every year.

River Otters *Lontra canadensis*

In most years the ELI crew has reported regular sightings of river otters on the island. This year was no different and reports of single adult otters were relatively common. However, on 25 June seven adults were seen swimming off the SW side of the island and

a juvenile otter could be heard nearby. To our knowledge seven is the most adult otters noted on the island at any one time.

Introduced Species

Sitka Black-tailed Deer

Odocoileus hemionus

Humans introduced deer to Haida Gwaii in the early 1900s to provide a new source of food. Because deer are virtually free from predators in the archipelago their population is robust and their subsequent browsing pressure is having significant effects on the local vegetation, effectively altering the forest community (see:

<http://www.rgisbc.com> – Research Group on Introduced species). We are able to illustrate this story to people by visiting the three 20m x 20m deer exclosures present on the ELI. Inside the exclosures we find plants that otherwise are consumed by deer and are mostly absent from the forest understory, for example, hemlock saplings, sword fern, young huckleberry, salal, salmonberry and lady fern. Deer have reached almost all of the islands in the archipelago and can travel relatively easily by swimming. This season we watched three deer make their way from neighbouring Louise I. to ELI.

Raccoons *Procyon lotor*

Raccoons were introduced to the islands in the 1940s to supplement the dwindling fur resources after sea otter populations were decimated. At this time raccoons are considered among one of the principle threats to ground nesting birds in Haida Gwaii. Raccoons eat seabird adults, chicks and eggs, all of which are particularly vulnerable to raccoons because most have evolved free from mammalian predators and subsequently have no natural defence.

Conservation officers visited the ELI area in March to look for raccoons on the Limestone Islands and adjacent areas on Louise. It is critical that these early efforts to control raccoons are continued because Ancient Murrelets first arrive at their

breeding colonies in March and by the time the ELI crew arrives in late April / early May, raccoons present on the island would likely already have seriously affected the colony.

Throughout the Ancient Murrelet breeding season we survey ELI by foot to look for signs of raccoon activity. When tides and weather permit we also conduct night time boat surveys around the East and West Limestone coastlines, extending to the shore on opposite Louise I. This year we completed one boat survey on 30 May. There was no compelling evidence to suggest that raccoons were active on Limestone this season. Dug up burrows were found throughout the season but this type of behaviour is not necessarily evidence of raccoon presence and we suspect that

river otters and perhaps, in some cases, ravens, may be responsible.

Red Squirrels *Sciurus vulgaris*

Squirrels were introduced to the islands in 1947 to facilitate cone gathering for the forestry industry. Squirrels have known negative effects on terrestrial birds and consume eggs and nestlings (see: <http://www.rgisbc.com> – Research Group on Introduced species). In 2007 we re-instated squirrel surveys on ELI to measure the annual abundance of squirrels on the island. We are interested in describing annual fluctuations in squirrel populations on ELI which may in turn help us to understand direct and indirect consequences of this introduced species.

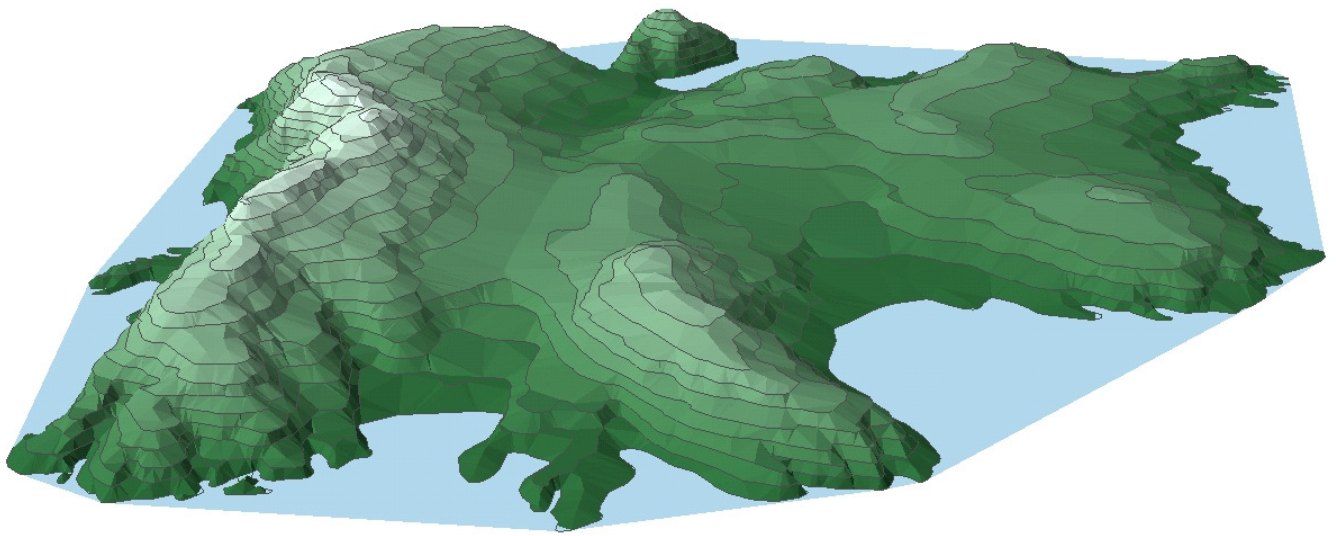
CONCLUSION

This year marked the 19th season on Limestone and without the dedication of our directors, staff, volunteers and visitors the 2008 field program would not have been a success. We leave the season with ongoing concerns about the decline in the number of Ancient Murrelets breeding on East Limestone Island and with questions regarding what factors are contributing to this decline.

Predation could explain the downward population trend underway on ELI although it is not clear what role each predator group plays. Ancient Murrelets are preyed on by birds of prey and river otters that breed on the island and it is possible that raccoon predation in previous years may be having lasting effects.

We have not ruled out the possibility that our monitoring practices may affect breeding birds and we will continue to weigh our decisions carefully between protecting the birds and carrying on with our long-term studies. It is important to note however, that the human presence on ELI is likely the sole defence that this small breeding population has against predation by introduced raccoons.

As far as our other monitoring programs, 2008 marked a very successful year in which we continued to build on our long-term data sets, establishing baselines and describing annual trends. Thanks to everyone that was involved in 2008, we are looking forward to 2009!



3D Model of East Limestone Island Derived from Contour Map
By: Kelly Runyon