

East Limestone Island

Volunteer Guide

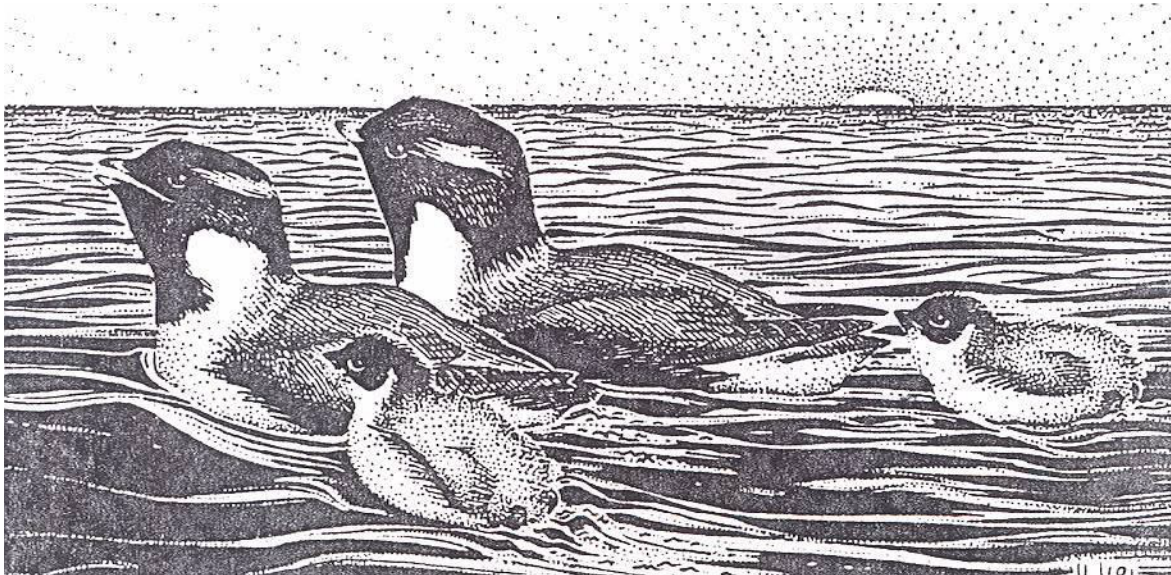


Laskeek Bay
CONSERVATION SOCIETY

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Thanks to the numerous volunteers and the LBCS staff who have provided the photos that are used in this guide. Thanks also to Ian Jones for allowing us the use of his line drawings.

INTRODUCTION

WELCOME to East Limestone Island. Thank you for volunteering. The Laskeek Bay Conservation Society believes the work we do on East Limestone Island is a step in the right direction towards raising public awareness of conservation of the coastal marine environment and temperate rainforest. Accordingly, we make every effort to ensure that our presence here does not unduly disturb wildlife, the environment, or other people in the area. During your stay you will learn a great deal about the natural world of Haida Gwaii and develop a deeper awareness of the importance of practicing good stewardship. Our hope is that you will share this knowledge with others when you leave.

You have received an orientation and safety briefing upon your arrival by staff. It is hard to remember all of the orientation and there is a lot more to learn during your short stay. We developed this guide to:

- supplement the information provided by staff
- help you step into your role as a volunteer
- use at any time to help you cope with information overload
- help you learn about the activities on Limestone Island during the rest of the season
- ensure that you leave the island knowing more about our work and its value
- make your time here rewarding

A few key points for you to ponder and practice while on Limestone Island:

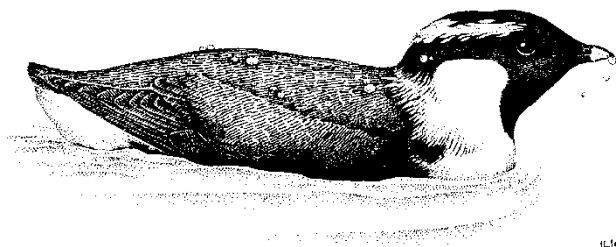
Safety First– Please travel carefully. Limestone Island is a remote wilderness location and a long way from medical and emergency help. At all times work within your abilities and comfort level. If you feel unsafe or unsure about an activity please refrain from the activity and/or discuss your concern with the Field staff. The safety of everyone on Limestone is very important to us; please be careful.

Tread Softly – The environment is fragile, so stay on the paths and leave things as you find them.

Get Involved –Look for marine mammals. Enter data. Look for plants. Listen for sapsuckers. There is a lot to do!

Observe and Record – Look and listen. Make notes. Report wildlife sightings or other interesting phenomena.

If you have any questions after reading this guide, please ask us. We are very pleased you are here.



The Limestone Story



It all started around a campfire back in 1989 when Dr. Tony Gaston of the Canadian Wildlife Service (CWS), was talking to some local friends about the end of his six-year research project on Ancient Murrelets on Reef Island. A handful of people were intrigued by this work, and realized there was a need for long-term monitoring of a specific species that would go on for 25 years or more. Such a project would be important to understanding the dynamic interactions between ocean and forest. An idea developed on how to carry on Dr. Gaston's work and grew into a vision of an opportunity to involve local people and visitors to the islands in a long-term monitoring project as volunteers. Volunteers would be given training in scientific field techniques and by their participation, learn more about the ecology of the Laskeek Bay area.

By the next year the Laskeek Bay Conservation Society had formed. In the spring of 1990, volunteers built a tiny cabin on East Limestone Island, hired a camp coordinator, and bought enough food and supplies to run a nine-week field research program. Local volunteers helped collect data, made observations and worked on the Ancient Murrelet project.

Originally, the focus was on continuing Dr. Gaston's monitoring of seabird populations but opportunities to diversify into other projects soon arose. Our field season on Limestone now runs for three months and undertakes many different programs. We have field staff and a year-round administrator. Over the years we have built a trail system and put in wooden nest boxes. Our 'Project Limestone' program brings local schoolchildren to Limestone each year to experience first-hand biological research.

However, Ancient Murrelet monitoring is still "the heart and soul" of it all with yearly data collection since 1990 – making it one of the longest, continuous-running seabird data sets in Canada. The Ancient Murrelet remains important for two reasons: Since over half of the world's population breeds on Haida Gwaii, it is globally significant; and it is one example of the many links between offshore marine and coastal rainforest.

The Society collaborates with several agencies involved in studying the changes caused by introduced deer, raccoons, and squirrels on the native plants and animals of the Islands. LBCS became interested in introduced species when raccoons were discovered eating eggs and killing adults on Limestone Island in 1991.

The Society has run its camp on East Limestone Island every year since 1990. Over the years, hundreds of volunteers, students and visitors have taken part in the Limestone program. Our activities have grown into year-round programs of public education on the biology of the marine and terrestrial ecosystems of Haida Gwaii and in raising public awareness about the

LBCS Volunteer Guide

conservation of the native species of Haida Gwaii. We now have a website, news-letters and other publications. We have been part of two conferences on conservation of native species: The Cedar Symposium, 1996 and The Abalone Stewardship Workshop 2001.

Our dedicated volunteers are local youth and adults as well as people from elsewhere in British Columbia and around the globe. Without them, we would not be able to accomplish all that we do. Our work is enabled and enhanced by partnerships with other organizations and research groups. They include: Haida Gwaii Museum, French National Center for Scientific Research of France and Dr. Jean-Louis Martin, Canadian Wildlife Service, Research Group on Introduced Species, Gwaii Haanas National Park Reserve, National Marine Conservation Area Reserve, and Haida Heritage Site, Ministry of Environment, Ministry of Forests, School District #50, and the Council of the Haida Nation. We have a Science Advisory Committee of biology experts to advise us on our research. This advisory committee is chaired by Dr. Tony Gaston, who has continued to lend us his professional support and time for all these years.

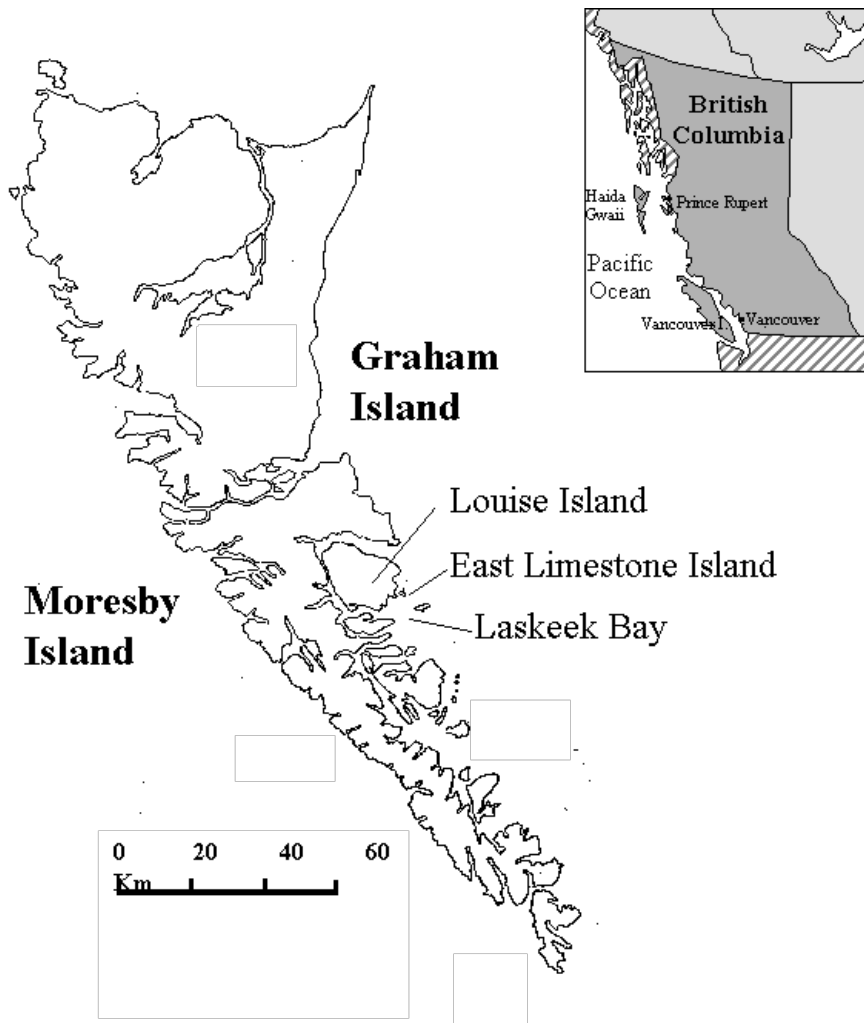


Work party building the original cabin on East Limestone in May of 1990

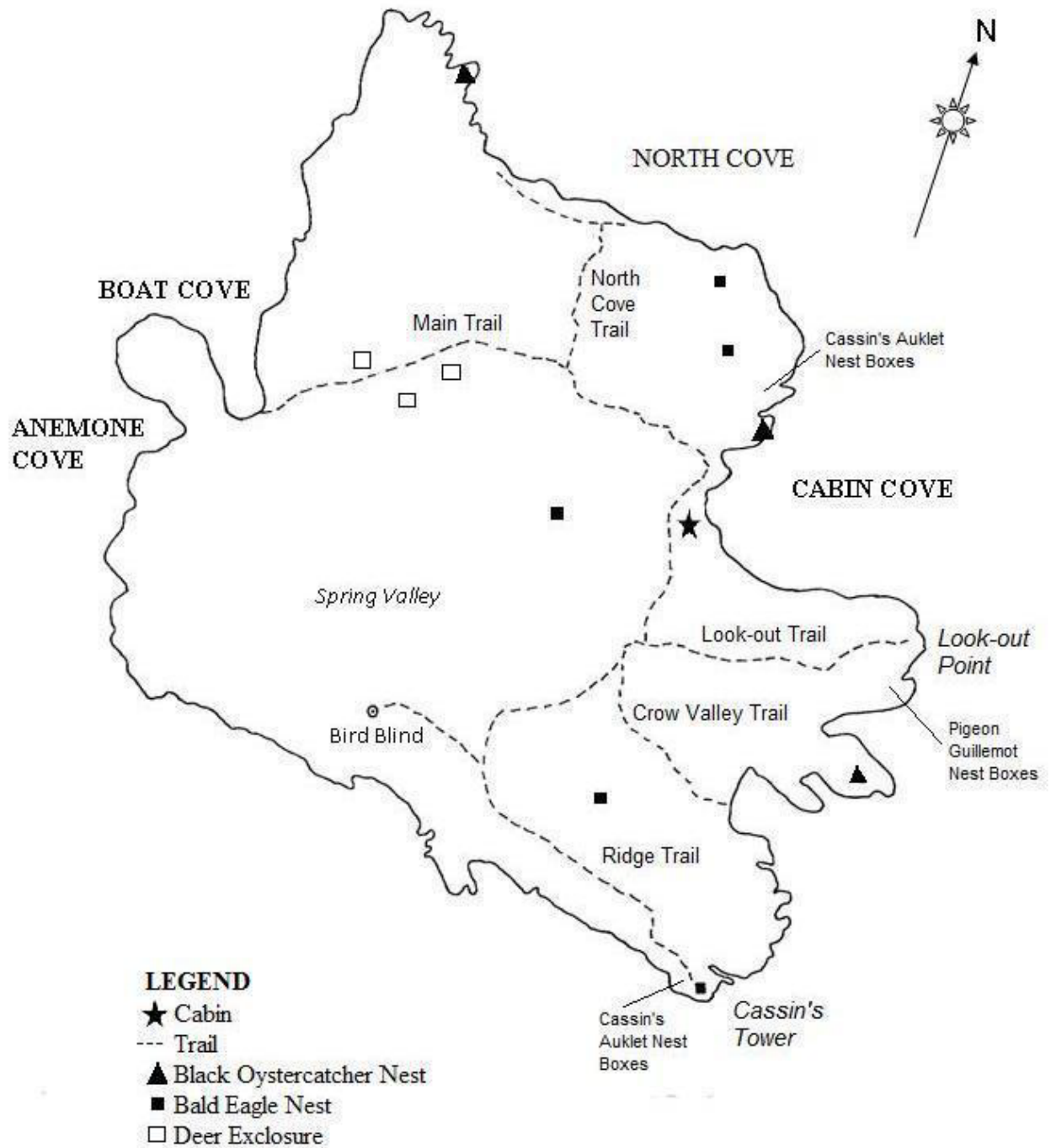
Haida Gwaii

East Limestone Island is the center for Laskeek Bay Conservation Society's (LBCS) field activities. Laskeek Bay surrounds Limestone and is at the center of the Haida Gwaii (also called the Queen Charlotte Islands) Archipelago. Haida Gwaii is located in the center of the coastal temperate rainforest of the North Pacific Ocean.

The Limestone Islands are a hotspot for biological productivity in the area and are within the Kuuna Gwaii Conservancy set aside for the protection of wildlife, particularly seabirds. The BC Ministry of Environment, Lands and Parks manages the area and issues LBCS with a permit to conduct research and interpretation programs.



Map of East Limestone Island



Roles of Volunteers

Get involved in the research and camp life by listening carefully, following directions, asking questions and being curious. Active participation is the key to your role as a volunteer in the field camp. You will enrich your experience by getting involved, you will walk away with a greater understanding of living and working in a fragile ecosystem. As well, you will develop an appreciation of the importance of the conservation of native species and ecosystems of the Haida Gwaii archipelago.

RESEARCH AND MONITORING

You have come here to take part in our research program. What projects you do, depends on when you are on East Limestone Island. For further information on what projects are ongoing during your stay, check the research section of this guide.

What Volunteers Do

Primarily, volunteers help with monitoring activities, data collection and recording, wildlife observations, data entry, and daily updates to the camp log. Staff will direct you as to what you will be doing each day. You will be taught the methods, skills and techniques needed. It is very important to make detailed observations, record the information accurately and report any unusual details to staff. After recording your observations, check for errors. The information you enter forms part of a permanent record.

Remember to work within your abilities and comfort level, and to ask questions.

CABIN CHORES

Chores are distributed evenly. Everyone helps to keep the crew fed and the cabins warm, clean, and tidy. A weekly roster sets out specific tasks to be done by each person each day. Check the roster daily to find out what chores you will do. The tasks are:

Housekeeping

Each person (including staff) takes turns doing dishes, sweeping and keeping the cabins tidy. Individuals clean up their own mess and put all food away in the appropriate storage areas.

Meals

Dinner duty is shared, while breakfast and lunch are generally up to the individual. When it is your turn to cook dinner, try to make enough for everyone to be full without a lot left over. There is no refrigeration, so cooked food should be used up within a day. To help you with planning your menu, there are a few cookbooks on the bookshelf.

Firewood

Keep the wood box filled when it is your turn. Firewood is in the wood shed in front of the main cabin near the beach. Use older, drier firewood first.

OTHER ACTIVITIES

To carry out our work in research and monitoring, an infrastructure needs to be in place and maintained. Some volunteers have special skills that are useful to the smooth functioning of the camp and the equipment we use. If you see a project waiting to be done and you know how to do it, let a staff member know.

Manual Labour

You may be asked to do some manual labour. Trail building, boat and equipment maintenance, building projects, loading and unloading boats, packing gear across the island are ongoing tasks that may need to be done at any time.

Leisure Time

Although you are quite busy when you are on East Limestone Island, you will have some free time. During your free time you may wish to explore the island, take photographs, draw, watch wildlife, or write in a journal. We encourage you to get outside and make the most of the opportunity to experience this incredible place. There is also nothing wrong with reading a book or having a nap.



Sunset over Laskeek Bay

PERSONAL

Responsibilities of Volunteers

Health Problems and Medication

If you have not already notified staff about any problems such as allergies to food, medications and/or bee stings; medical conditions such as asthma, diabetes or heart conditions; or any other relevant medical concerns, please do so now. If you are taking medication regularly, please note this on the medical information form; it is your responsibility to store and take your medication appropriately. Ensure your tetanus shot is not overdue before you come to remote East Limestone, these need to be updated every 10 years.

2022 Covid Update - ensure you are fully vaccinated against Covid-19. Out of province volunteers need to check travel insurance to make sure remote evacuation (Med-evac) is covered in case of emergency. All volunteers will be asked to submit to a Red Cross Covid Rapid Test, provided by Laskeek staff prior to departure to East Limestone Island, and follow guidelines given by the Laskeek Bay Conservation Society's Field Camp Supervisor.

Footwear

Wear comfortable shoes, rubber boots, or boots with soft soles, while walking the island in order to minimize disturbance to the moss, soft ground and wet soils. Shoes with good grip are important for walking on slippery rocks. You will need rubber boots for all travel and work by boat. Sandals and holey-soles are popular footwear for leisure time around camp.

Photography

The taking of photographs intended for commercial purposes is only permitted with approval of the LBCS Board before you begin your volunteer week. If you do receive permission to take commercial photos, remember your work as a volunteer comes first! LBCS would greatly appreciate receiving digital copies of photos that you take.

Outdoor photography at night using lights or flash is not permitted, as it disturbs the chicks. Please check with the camp supervisor before any night-time photography.

Collections

Collecting plant or animal material from East Limestone Island for personal use is not allowed.

HARMONY

While living and working in a small camp with limited personal comforts, it is particularly important to have consideration for other people. Work and live in a respectful, courteous manner with the volunteers and staff. The following points are camp etiquette:

Personal Hygiene

An outside wash station and shower stall is set up near the mouth of the small creek near the main cabin. You can also wash-up at the creek mouth. You may heat up water in the cabin for bathing and cleaning. Please brush and floss your teeth away from the cabin (the beach is a good site). Brush your hair away from the cooking and eating areas. Please wash your hands after using the composting toilet. Clothes can be washed in buckets and hung to dry.



Composting toilet

VHF Radio, Satellite Phone, and Internet Use

We use VHF Radio to communicate with individuals, vessels, and camps in the Laskeek Bay area. We use satellite phone and email through a sat-phone modem for essential business and emergency communication with the outside world. Satellite phone service is intermittent and unpredictable. Personal calls and messages are not normally allowed.

Cabin Housekeeping

Please try to keep the cabins tidy by storing your personal gear in your tent or in your assigned cubbyhole when not using it.

Staying Safe

You have already received or will shortly be receiving a safety briefing, including boat safety and emergency radio procedures. Staff are trained in first aid, however, you may be asked to help in case of an accident or other emergency.

Cabin

Please locate and familiarize yourself with the following items, found in the main:

- The **first aid kit** hanging beside the back door.
- A **stretcher and spine board** hanging over the front door.
- **Fire extinguishers**, which are prominently displayed in each cabin.
- **Propane tanks** are outside of the main cabin below the kitchen area. In case of a fire, close the tank valves if you have time.

Personal

When you leave camp to explore or work alone on Limestone Island please tell a staff member or leave a note on the white board in the main cabin giving your time of departure, destination, and time when you will be back in camp.



Staying warm on the boat

Boat Safety

Everyone must wear a personal floatation device (PFD) at all times when in the boat. Riding in the open boat is cold, so dress warmly in layered clothing and take a warm cap and gloves. A first aid kit, compass, charts, flares and a hand-held radio are in the boat. Bring water and snacks when going out in the boat.

VHF Radio

Make sure you understand how to use the radio in case of an emergency. If you didn't understand the briefing from staff, please ask them to show you again. Practice!

Using Axes and Other Tools

Please only use a tool you know how to use comfortably. Only people experienced at safely using an axe and chopping firewood are allowed to cut wood.

Fire Safety

Be aware that wood stoves, propane cook stove and candles are potential sources for a fire.

Do not use the wood stoves until a staff member shows you how! If you are the last person leaving the cabin when the stove is burning, close the stove door and draft. Shut down the damper. When drying wet clothing and other items, make sure nothing can fall on or is too close to the stove. Do not put any flammable item on the stoves when they are hot!

The main cabin has a 4 burner propane stove and oven. Proper use of the propane stove was covered in your volunteer orientation. Please ask if you have any questions. The pilot light for the oven is normally left off. Light the pilot light prior to oven use and remember to turn it off when you are finished.

Living and Working on Limestone

CABIN

Our research station is centered around two cabins on Limestone. The original cabin, built in 1990, is our kitchen, dining room, and social center. The newer cabin, built in 2006, is a visitor interpretation center, a library, and an office.

Garbage

We carefully manage our garbage and trash. Please follow these guidelines:

- Organic garbage is put in the bucket under the sink and emptied daily into the ocean in front of the cabins.
- Cans bottles and plastics - we reuse what we can and the rest are transported back to town to be recycled. Cans are washed and crushed. Bottles are washed. There are separate containers for each. Soft plastics are put in the garbage bag.
- Clean paper is saved to start fires.



The main cabin

Water

Our water comes from the spring behind the main cabin. If you are uncomfortable drinking untreated water, you may boil it for your own needs. The main cabin has running water for cooking, drinking, dishwashing, and cleaning. However, the supply is limited – be conservative in your use and turn the tap off quickly. Water quality is dependent upon a well-settled spring. Be very careful not to disturb the sediment in the pools if walking in that area.

Tents

There are five tent sites surrounding the cabins. Usually there is one tent per person, unless there are more than five people in camp. Please store your gear in your tent; all food must be stored in the main cabin.

Mice in the Cabins

Deer mice are native to the island and they frequently explore the cabins. After eating, put food away, wipe down the table and counters, sweep the floor, and wash dishes to discourage mice. Keep doors closed. Be vigilant.

ISLAND ENVIRONMENT

We try to minimize our impact on the Island and aim to leave the island as we found it, as much as is possible.

Research Techniques and Methods

In keeping with our ethic to have little impact on the natural environment, our research methods are low-tech and as non-invasive as possible.

Use of Trails

Follow the marked trails to minimize impacts and disturbance to ground cover. Walk especially softly in the burrow plots, nesting colonies, along the funnel fences and at mist nests. Please do not cut corners or take shortcuts on the trails.

Use of Lights

Flashlights and headlamps are used at night and during Ancient Murrelet work. Ancient Murrelets are attracted to bright lights so keep flashlights directed along the ground as much

as possible. Do not shine up into the trees or use in a searchlight fashion. During the Ancient Murrelet season, after dusk when the lights are on in the cabins, put up the shutters and close the black plastic shades to avoid attracting and disorienting birds. Minimize flashlight use in your tent.

Food Gathering, Sport Fishing and Hunting

We occasionally fish for food for the camp. You must have a valid, tidal-water-sports-fishing license if you want to fish. No hunting or food gathering is permitted on the island.

Tent Sites

Tents are situated on platforms in the area surrounding the cabins. This protects the fragile moss environment and avoids disturbing the seabird colony.



Tent platform

Campfires

Fires are lit occasionally on the beach below the high water mark and only with staff approval. There are no fires after dark during the seabird-breeding season because the light disorients and attracts the birds. Wood for a campfire is collected from the beach.

Aesthetics

We are privileged to be on East Limestone Island and we try to be unnoticed by passing boats. Tarps, equipment, and gear at the Boat and Cabin Coves are kept neat and hidden from the general view as much as possible. We try to keep the

island 'natural' and undisturbed looking for the enjoyment of other visitors.

Research

It can take a long time to find the answers to biological research question when you are looking at the natural world. The overall aim of the Society's research program is to provide long term information on the biology and ecology of Haida Gwaii ecosystems.

METHODS

The primary research method you will use here is monitoring. LBCS monitors the numbers, distribution, breeding success and other parameters for a variety of species in the ocean, inter-tidal and terrestrial ecosystems. With this data, we can obtain an overall measure of their health, make year-to-year comparisons and identify trends over time.

The ocean conditions that affect marine species can vary a great deal from year to year or even decade to decade. It can take many years of data to see clear trends. Long term

monitoring is also extremely important for understanding how ecosystems respond to climate change.

Direct volunteer participation in monitoring activities is the cornerstone of the Society's strategy.

The following section is a brief overview of our various research/monitoring programs and explains the role of the volunteer in assisting staff in these programs. If you have any questions, ask staff. If you want more in-depth information, please read the Methods Manual.



ANCIENT MURRELET

More than half of the world's population of Ancient Murrelets breed and nest on Haida Gwaii. They are nocturnal, colonial burrow nesters and are particularly vulnerable to introduced predators, such as raccoons and rats. The Ancient Murrelet research projects are designed to study breeding and nesting ecology. Long term monitoring of the local population examines inter-year variation in the breeding success and survivorship of Ancient Murrelet. Having begun in 1984 on Reef Island and in 1989 on Limestone Island, this is one of the longest monitoring projects in Canada. Dr. Tony Gaston is the research scientist who directs our work.



Ancient Murrelet gathering ground

Gathering Ground Count

The evening "gathering ground count" of Ancient Murrelets on the ocean between East Limestone Island and Low Island is done from the beginning of May to June 20, two hours before sunset. We obtain an index of the number of birds flying over the gathering grounds by focusing a spotting scope on the same spot each night and counting the number of birds seen in flight within the field over a 10-minute period. The object is to monitor inter-year variation in numbers and to estimate on the numbers of breeding birds that come into the colony that night.

Departing Chick counts

Ancient Murrelet chicks leave their burrows 1-4 days after hatching to join their parents at sea. To determine year-to-year variation in chick mass at the time of departure, timing of departure and numbers departing, we count departing chicks. Plastic fences are set up early in the season, forming funnels that trap chicks as they leave the colony and head down to the sea. Chicks begin to depart around mid-May and leave the colony during the darkest hours of the night. We now use remote sensing wildlife cameras for all monitoring.



Ancient Murrelet chick funnel

Evening Point Counts

To monitor nightly adult attendance in the colony, we conduct point counts after funnel work and record the number of birds calling and the number of calls made over a five-minute period. Both point count and gathering ground count data can be used as a measure of colony attendance and these data will help us to interpret annual changes in chick departure numbers.

Predation Transects

Bald Eagles, Common Ravens, Peregrine Falcons and River Otters are all natural predators of Ancient Murrelets on East Limestone Island. In addition, raccoons occasionally make their way to ELI and are known to prey on eggs, chicks and adult murrelets. To examine predation pressure on Ancient Murrelets on the island, predation transects were reinstated in 2007. Once per week during breeding season, we walk each of the five 200m-long transects and record the number of carcasses, feather piles, wings and dug-up burrows within 10m on either side of the transect line.

Volunteer Roles: Volunteers take part in almost every aspect of the Ancient Murrelet project. Volunteers also participate in ground counts, predation transects, data entry and record-keeping.

OTHER SEABIRDS AND SHOREBIRDS

Cassin's Auklet and Storm Petrel

Cassin's Auklets, a species Blue-listed in BC, nest in two locations on the island. Their burrows are monitored for nesting activity every few days during the breeding season. Active burrows are examined for chicks, and chicks are weighed and banded. Fork-tailed and Leach's Storm Petrels occasionally nest in this colony. A total of 64 nest boxes have also been installed to increase nesting habitat for Cassin's Auklets and Storm Petrels, and these nest boxes are regularly monitored for use.

Volunteer Role: Help staff check burrows and nest boxes for nesting activity.

Pigeon Guillemot

These birds are year-round residents of Limestone. They breed and nest in rocky boulders and cliffs along the shoreline. To increase nesting habitat for Pigeon Guillemots on Limestone Island, we installed 10 wooden nest boxes at the Lookout Point in 2001, and another 18 in

2010. In July we monitor these nest boxes. Nest box use by Pigeon Guillemots is recorded and any eggs or chicks present are counted, weighed and measured.

Volunteer Role: Watch for birds flying in and out of areas where nest boxes are during the field season. Assist with egg and chick measurements and record data.

Black Oystercatcher

We conduct an annual census of Black Oystercatcher nest sites in Laskeek Bay to determine the success of individual pair breeding and chick rearing. In 2004, we expanded the area of



our Black Oystercatcher monitoring program to include islands off the east coast of Lyell Island and islands located in Juan Perez Sound, in Gwaii Haanas National Park Reserve, National Marine Conservation Area Reserve and Haida Heritage Site. Black Oystercatchers are considered to be indicators of the health of the rocky intertidal ecosystem. By monitoring black oystercatcher productivity across years we obtain an index that can be used to look for changes in the condition of the local intertidal system. Islands are surveyed each year for nest sites beginning in May and ending in July. Eggs and Chicks are measured and weighed.

Measuring a Black Oystercatcher chick

Volunteer Role: Assist while capturing chicks by helping to spot the chicks, trap, weigh and record data.

Glaucous-winged Gull

An annual census of Glaucous-winged Gull nesting colonies on small islets in Laskeek Bay is done in June. Gulls are opportunistic feeders, meaning that they eat almost anything that comes their way. They are important indicators of ecosystem health. The number of nests and eggs or chicks in each nest are counted and recorded for each colony.

Volunteer Role: Volunteers assist staff by finding nests, counting eggs and chicks.

FOREST BIRDS

We monitor forest birds to learn more about their life history and to establish a baseline for use in monitoring changes in the forest ecosystem.

Cavity Nesters

Cavity nesters are birds that use cavities in standing dead trees called “wildlife trees,” for nest sites. On East Limestone Island, we monitor the nesting activities of the Red breasted Sapsucker. The purpose of this project is to examine patterns of use and reuse of wildlife trees by birds, and to examine the size of their nesting territory. Wildlife trees are checked for use by other cavity nesters: Hairy Woodpecker, Northern Flicker, Chestnut-backed Chickadee and Brown Creeper. We record which trees are in use and map their location. We collect information on the number of banded adults returning to the same trees for multiple years, the number of breeding pairs on the island each year, the number of chicks successfully fledging and squirrel predation.



Wildlife tree

Volunteer Role: Volunteers are shown how to find and observe nesting sites in wildlife trees. Observers are trained to identify each species of bird. Each tree is observed for 30 minutes. Signs of use are: fresh excavating; birds landing on tree; calling, drumming on tree, aerial displays and other breeding behavior; birds inside a cavity, and chick calling. Volunteers should try to determine if birds are banded and record the color and order of bands, if possible. All information is recorded in notebooks, including date and time of day of each observation. This is done from April to the end of June.

Songbird Point Count

(Note: No songbird work has been done in recent years)

Purpose of this project is to record the presence of forest birds on the island each year and the diversity of species. The project is done during songbird banding or mist-netting. The best time for this is early in the morning on days without rain or wind. At five stations along the main trail, the observer stops to listen and watch for 10 minutes at a 30-m radius around the trail stake. Record the species, draw the direction of travel, and note species that fly into or out of the plot.

Volunteer Role: Depending on the volunteer’s level of comfort with bird identification, volunteers can conduct observations at the songbird point count stations. Use a bird guidebook to help identify each species. Record all information in binder.

BIRDS OF PREY

Our work with birds of prey looks at the presence of nesting birds on East Limestone Island. This information contributes important long-term data for the BC coast.

Peregrine Falcons

Peale's Peregrine Falcon is the local race of this widely-distributed species. It is blue-listed in BC, which means that the existence of the species in this province may be threatened. Marine birds are their primary food during spring and summer when the falcon's energy requirements are high. Their nests are located on cliffs in isolated areas and are very susceptible to human disturbance. The Ministry of Environment of BC surveys the peregrine falcon for population change once every five years. We contribute to this study by checking the nest site on East Limestone Island annually for occupancy and chick survival. A question of the project is "how many young fledge relative to the number of eggs"? In order to not disturb the falcons during the egg-laying and incubation period, we stay away from the falcon eyrie between March 7th and May 24th.



Bald Eagle nest at Cassin's Point

Volunteer Role: After May 24th, volunteers sit in a bird blind to quietly watch nest site activity such as adults flying in and feeding, and count the number of chicks.

Bald Eagles

Each year we check previously occupied bald eagle nests and look for new ones. Through a series of quiet observations, we try to discover how many eggs are in a nest and how many young successfully fledge.

Volunteer Role: To check Bald Eagle nests and record any activity by adults, chicks seen in nest or other information. It is very important to approach nests slowly and quietly in order to not cause birds to leave the nest.

INTRODUCED SPECIES

Due to its relative isolation from the mainland, Haida Gwaii had many native and endemic species. Since the late 1800s, a long series of plant, insect, and wildlife introductions occurred, to the detriment of the native species. We study several of these introduced species to find out how they interact with and change the native ecosystems.



Deer

As a member of the Research Group on Introduced Species, we are part of a project studying the effects of introduced Sitka black-tailed deer on native plant species and habitat of Haida Gwaii. In 1998, we erected three 15m X 15m exclosures to demonstrate the recovery of understory plants in the absence of deer browsing. We monitor these exclosures regularly, taking an inventory and recording data. The results of this project have helped change public opinion towards the need for deer management on Haida Gwaii.

Raccoons

Our research has proven that raccoons eat bird eggs and chicks and kill adults. In 1992, raccoon were eradicated from the island because of their predation on the Ancient Murrelet and other ground nesting birds. However, raccoons swim from island to island and have appeared on Limestone Island at least 2 or 3 times since then, doing damage to the murrelet colony each time. We continuously monitor for any sign of raccoon activity. The perimeters of East and West Limestone Islands are walked during the season to look for evidence of raccoons. Shoreline surveys of the islands and surrounding area are done by boat at night. In 2007 a raccoon was preying upon nests, eggs and adult Ancient Murrelets on East Limestone Island, and as a result one raccoon was killed. In 2008 the Ministry of Environment did a cull of raccoons on East Limestone Island in March, before the breeding season.

Volunteer Role: Assist staff with predation transects. You will also learn what how to recognize and where to look for raccoon sign such as scat, latrines, burrow digging, headless bird carcasses or tracks on beaches or elsewhere. Observe and record all sign and report to staff.

Squirrels

Red squirrels were introduced to a number of islands in the archipelago in 1950 and are present on East Limestone Island. Squirrels eat the eggs of forest birds, especially small song birds. A study is examining the distribution of squirrels in various habitats. A squirrel survey is done along predetermined transects every four days.

MARINE MAMMALS

There are many species of marine mammals in Laskeek Bay - whales, dolphins, sea lions, elephant seals, and other seals. We record all sightings of marine mammals and keep detailed year-to-year records. These records are sent to a number of people doing research on individual species. A sighting can occur at any time – while on a sea survey, at the observation point on Limestone, from the cabins or shoreline. Everyone needs to watchful for marine mammals at all times. We identify the species, and record the number of animals, their behavior, location, direction of travel, and time of the encounter.



Humpback Whale

Dolphin and Whale Encounters

The main purposes of this project are to record the presence of whales and dolphins in Laskeek Bay, keep track of their movements, identify individual animals, and acquire acoustic information data. The most frequently sighted whales and dolphins in Laskeek Bay are Orcas, Humpbacks, Grey, Minke, and Pacific White-sided Dolphins. When animals are sighted, staff will try to follow the animals in the boat to take photos of each animal.

Volunteer Role: If there is room in the boat, some volunteers go with the staff to follow the animals. Volunteers can help by first locating animals as they surface and then by recording data.

Marine Mammal Watches

Volunteer conducting marine mammal watch



Marine mammal watches are done from the Lookout Point south of the cabins. There is a trail to this site and a new observation platform. We use telescopes to observe the entire Laskeek Bay from Skedans Point in the north, to Kunga Island in the south. The watches are done regularly throughout the season when weather permits and are ideally one-hour long. The sea must be calm with no more than a light wind.

Volunteer Role: At Lookout Point, using a telescope, volunteers assist staff in survey. Volunteers identify the species, count the number of animals, note behavior such as feeding,

traveling, hunting, etc., give location, direction of travel and time of the encounter. Enter all in a log. Staff helps to identify animals; field guidebooks are used.

Sea Lion Surveys

In May, Steller Sea Lions are counted at their haul outs. Haul-outs are rocks, points, or small islands where sea lions go to rest. There are several haul-out sites in Laskeek Bay – on the southern tip of Skedans Islets, and on several rocky areas near or on Reef Island. This annual census is part of a coast wide survey of Steller Sea Lions. Its purpose is to keep track of population changes. There are periodic sightings of sea lions that were branded at Forester Island, Alaska. We also look for California Sea Lions; our researchers' sightings of California Sea Lions on Skedans Islets in 1992 were the first record of this species on Haida Gwaii!

Volunteer Role: Volunteers assist staff by identifying the species, counting the animals at each haul-out and recording data.

AT-SEA SURVEYS

Sea surveys are conducted throughout the season. The purpose of this project is to measure abundance and distribution of seabirds in the Laskeek Bay area. Other purposes are to measure changes in Marbled Murrelet abundance, and to record changes in sea-surface temperature. Transects are conducted from the boat, running at a constant speed and are 100 m wide (50m from either side of the boat). All birds on the water are quickly identified and counted, and then voice



recorded on tape. The data collected is important in the year to year monitoring of seabirds by researchers. For example, Marbled Murrelets are an endangered species and their numbers and movements have been monitored for over 15 years in Laskeek Bay.

Volunteer Role: Volunteers go on the boat with a staff member to help find, identify, count and record seabirds. Staff teaches volunteers how to identify different species.

RARE PLANTS

Several plant species grow on East Limestone Island that are uncommon or not found elsewhere on the archipelago. Some of these plants only grow where there is limestone bedrock. This substrate is present on East and West Limestone Islands, Vertical Point on Louise Island and in alpine areas of Haida Gwaii. Most rare plants are found at the forested edge of the island or high in the inter-tidal zone, where they survive on cliffs and overhangs inaccessible to deer.



Monkey Flower

The purpose of the project is to inventory plant species on Limestone Island, record blooming dates for flowering species each year and map species their location. A second purpose is to annually track rare and introduced species previously found. This project carries on throughout the season, with an emphasis on late May to July.

Be careful when traveling around the island to avoid trampling plants. Do not climb on the cliffs near the boat cove and Anemone Cove, except when doing plant surveys, and only if comfortable and not alone.

Volunteer Role: To help locate, identify, and record data on flowering, rare and introduced plants, and to report any sightings of potentially rare plants to a staff member.

Activities by Month

MAY	JUNE	JULY
<ul style="list-style-type: none"> ▪ Set up camp and research station ▪ Install plastic funnels for chick monitoring ▪ Host students from Project Limestone and boat visitors ▪ Count the Ancient Murrelets gathering in Laskeek Bay ▪ Ancient Murrelet chick work (funnel watch) ▪ Marine Mammal Watch ▪ Monitor wildlife trees ▪ Conduct At-sea surveys ▪ Check nest sites for birds of prey, Cassin's Auklets, Black Oystercatchers and Glaucous-winged Gulls ▪ Plant surveys ▪ Watch for squirrel and raccoon activity ▪ Daily bird checklist 	<ul style="list-style-type: none"> ▪ Conduct Glaucous-winged Gull surveys ▪ Conduct Black Oystercatcher surveys** ▪ Conduct marine mammal watch ▪ Monitor wildlife trees ▪ Conduct At-sea surveys ▪ Monitor birds of prey ▪ Check nest sites for Cassin's Auklets and Red-breasted Sapsuckers ▪ Plant surveys ▪ Watch for squirrels ▪ Daily bird checklist 	<ul style="list-style-type: none"> ▪ Marine Mammal watch ▪ Conduct Black Oystercatcher surveys** ▪ Conduct At-Sea Surveys ▪ Monitor wildlife trees ▪ Daily bird checklist ▪ Camp shut-down

Reference Material

While you are on East Limestone Island, you are going to be quite busy in your role as a volunteer. To help you make the best use of your time and interests, refer to the following guides:



BIRDS

National Audubon Society, [Western Birds](#)

Gaston, A.G., [The Ancient Murrelet, a Natural History in the Queen Charlotte Islands](#)

Peterson, R.T., [Peterson Field Guides, Western Birds](#)

Sibley, D.A., [The Sibley Field Guide to Birds of Western North America.](#)

Ehrlich, P.R., Dobkins, D.S., and Whey, D., [A Birders Handbook](#)

National Geographic, [Field Guide to Birds of North America](#)

MARINE MAMMALS

Wynne, K., Guide to Marine Mammals of Alaska

Killer Whales of the Queen Charlotte Islands

PLANTS

Pojar, J. and MacKinnon, A., Plants of Coastal BC

Cheney, M., Bartier, P. and Johnston, B. The Vascular Plants of Haida Gwaii

Kozloff, E.N., Plants and Animals of the Pacific Northwest

Calder and Taylor, Flora and Fauna of the Queen Charlotte Islands Part I

Calder and Taylor, Flora and Fauna of the Queen Charlotte Islands Part II

GENERAL

National Audubon Society, Pacific Coast

Research Group on Introduced Species, Lessons from the Islands.