

Summer Meeting with MOE

By Mike Fenger, President FER

We hope FER members and wardens had time to get out and connect with Ecological Reserves. The Board meets on a monthly basis but we do not schedule meetings in the summer. That does not mean we have been inactive over the summer months.

Garry Fletcher, Marilyn Lambert and Mike Fenger met with Parks staff Scott Benton, Brian Bawtinheimer and Eva Riccius on June 25th at our request. We asked for the meeting to discuss: 1) the warden program; 2) baseline inventory and monitoring in ERs; 3) new ERs; and 4) climate change vulnerability of ERs. Here is a short summary of the FER-MOE Parks meeting.

1) Warden program. In our meeting with Minister Penner in November 2007, there was agreement on the benefits to ERs of wardens and agreement on a longer term goal of a warden for each ER. Currently half of the ERs have wardens and many wardens are looking to pass on their duties to others. Since the Minister Penner commitment, there has been to FERs knowledge, only a single new warden added.

We have had excellent support

from BC naturalists in our NGO-lead search of new wardens, but the general appeal approach appears not to have been successful. It was agreed that a better strategy is to first develop a list of ERs that may be at higher risk and where there are gaps and where extra observers for MOE would be most beneficial. FER-MOE are to work together to develop the list of gaps and vulnerabilities, stay tuned.

2) Baseline inventory and monitoring in ERs. Ecological Reserve files were moved to regional offices making it more difficult for FER members, researchers and headquarters Parks staff to evaluate the baseline inventory held in the regions. The ER guidebook is being reviewed by MOE staff and is expected to be completed next year. The guidebook provides descriptions of ERs but does not include biological monitoring data. The decentralization of ER conservation data, uncertain monitoring frequency and consolidation of research data remains a significant concern for FER. FER sees a need for an

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Visit our website at:
www.ecoreserves.bc.ca

The Log

Autumn 2008

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The views expressed in this newsletter are not necessarily those of the Friends.

Articles for publication are invited. The deadline for submissions for the Winter issue of *The LOG* is December, 2008.

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accessible provincial ER data base to which ER wardens, researchers and MOE staff could add baseline information on a regular basis. (see Vance Creek data supplied by long time warden for Vance Creek in this LOG page 10). FER will need to work with MOE to understand the current digital data management system (PLUS) and determine whether it is capable of capturing monitoring data.

3) New ERs. FER has worked with MOE to include a new ER, Fort Graham Portage in the Spatsizi. This will be discussed at the November meeting of the Stikine Country Advisory Committee in Smithers. FER is supportive of a new ER for Bert Brink and found that within MOE there are already plans underway to look for a conservation area to honour Dr. Brink. FER will continue to work with MOE to aid in identifying potential areas.

The need and importance of watershed-level ERs and the opportunity to rezone existing Parks to ER status was discussed. We discussed the use of the FER-supported GIS assessment of natural watersheds and existing opportunities within Parks in the interior of BC. See full report *Sustainable Forestry Benchmarks for British Columbia. A GIS Assessment of Undeveloped Watersheds as Ecological Monitoring Units.* FORREX SERIES 21 at: <http://www.forrex.org/publications/forrexseries/fs21.pdf>.

FER sought endorsement of a plan for beginning to take a closer look at longer term natural area watershed benchmark monitoring within Parks. It was acknowledged that this was a good idea, however, it is not a possibility for this year. Since the need for watershed level baselines is linked to climate change it was suggested that FER

contact the newly established Climate Action Team to seek funds to support further development of watershed-level natural area benchmarks. (see next section).

4) Climate Change. Many of the ERs are small and contain rare plants or concentrations of special fragile habitat for vulnerable species. A vulnerability assessment (based on inventory and monitoring) would provide a basis for ranking ERs most vulnerable to loss of ecological values due to climate change and assessment of short and longer term options. No specific vulnerability assessments are planned for ERs, though there are broader initiatives ongoing within Parks and the Ministry including Parks' conservation risk assessment and the Conservation Framework. Board members sent a proposal for a specific project to government staff in the Climate Change Section of MOE seeking support for more detailed work on benchmarks watersheds, but were informed that the focus of the climate secretariat and the climate change section is mitigation of green house gases, not assessment of conservation values and adaptation.

Seems there is a real role for FER as ERs continue be of high conservation importance in the soon to be released Parks Program Plan. Within the Parks program FER believes the ERs do not currently receive sufficient focus proportional to their value. On a positive note Jennifer Smith has been identified as a contact person for ERs for FER. We look forward to working with Jennifer in the future.

Visit our website at:
www.ecoreserves.bc.ca



Habitat Acquisition Trust's 8th Annual Conservation Connection

By Louise Beinhauer



On September 19th, Mary Rannie, Garry Fletcher and I attended the 8th annual Habitat Acquisition Trust-sponsored Conservation Connection held this year at the newly-opened Burnside Community Centre in Victoria.

Over 100 people from local conservation and stewardship organizations attended the all-day sessions. Topics ranged from: Fundraising for Sustainability; Filling the Toolbox – Different Approaches that Help Retain and Protect Sensitive Ecosystems; Eating Local Foods; Hook, Line and Sinker – Sustainable Volunteer Fishing to a roundtable discussion on Climate Change.

Garry Fletcher who sits on the Board of Friends of Ecological Reserves as well as being the

Warden for Race Rocks ER was one of the presenters and panel members for the session entitled, Sharing the Tidepool: Community Issues and Involvement in Marine Ecosystems.



There were almost two dozen displays situated around the main meeting room which provided an opportunity to learn about the focus of some of the other groups. Friends of Ecological Reserves was one such group with a display, and Mary and I took turns manning the “booth” and talking to participants.

Dave Fraser from the Ministry of Environment (pictured below) and Andrew Harcombe of the Nature Conservancy of Canada's BC Office welcomed participants and began the day with a plenary session entitled “Conservation Challenges and the Conservation Framework.”

The Conservation Connection was created to provide a way for organizations to foster collaboration and cooperation and to strengthen relationships with one another.

Sunken Barge Salvage Delayed Until Spring

By Judith Lavoie

Excerpted from the October 26, 2008 edition of the Times Colonist

Logging equipment including a fully loaded fuel truck will remain on the ocean floor in Robson Bight until next spring.

It was decided to delay any attempt to salvage the potentially hazardous equipment because of weather and whales, said Environment Ministry spokesman Kate Thompson.

"Our window was October and all our science tells us we would be in a better position in the spring," she said.

Robson Bight ecological reserve is an environmentally sensitive area where northern resident killer whales rub themselves on the pebbly beaches.

In August last year a barge, loaded with machinery belonging to Ted LeRoy Trucking of Chemainus, accidentally tipped 11 pieces of equipment into 350 metres of water, including a fuel truck containing 10,000 litres of diesel oil and a cube truck laden with barrels of hydraulic oil.

Initially, the federal government said the equipment would have imploded, but a video taken in February after a public outcry showed it to be intact.

Last month, the province awarded the recovery contract to Mammoet Salvage B.V. and Global Diving and Salvage of Seattle.

The agreement was for the attempt to be made in either fall

or spring as the corrosion analysis concluded it would take at least two and a half years from the date of the sinking for the fuel tank to corrode through, Thompson said.

"In the spring we expect better weather than at this time of year," she said.

The whales are usually still in the area at this time of year, but this month, apparently because of lack of salmon, their appearances have been sparse, said Paul Spong of research facility OrcaLab.

It will be easier to conduct the salvage operation in the spring, but the question on everyone's mind will be whether the corrosion study is accurate, Spong said.

"We are very familiar with experts that have been wrong," he said.

"Everyone is going to have to hold their breath and hope that nothing goes wrong."

Friends of Ecological Reserves has been following the details of this potentially devastating situation since its occurrence last year. We would like to express our gratitude to the Ministry of Environment for arranging the salvage of this equipment and to Paul Spong of OrcaLab and other environmental groups for pressing for this work to be done.

CALENDAR

**November 29 – Lecture
1:00 - 3:00 pm
at Abkhazi Gardens
1964 Fairfield Rd. Victoria**

Dr. Nancy Turner, internationally known for her work in ethnobotany, the study of plants and cultures is giving a talk about First Nations traditions in our area. Admission by donation. Phone 250-598-8096 to reserve a seat.

**Christmas Bird Count
Victoria
Saturday, December 20**

**Saltspring Island
Saturday, December 27**

Contact motmot@shaw.ca or
phone: 250-652-6450

**Christmas Bird Count
Duncan
Saturday, January 3**

Contact: marven@shaw.ca or
phone: 250-748-8504

This is the 50th Anniversary of the Victoria Natural History Society's participation in the Audobon Society's Christmas Bird Count. See: www.vicnhs.bc.ca/cbc/ for more information.



Checleset Bay ER Sea Otter Research

By Jane Watson

Dear Friends,

This year, with support from the Friends of the Ecological Reserves, we completed our 22nd season, studying sea otter community ecology in Checleset Bay Ecological Reserve.

Checleset Bay Ecological Reserve was established in 1981 to protect habitat for a fledgling population of sea otters reintroduced into the area between 1969 and 1972. The reintroduction was successful, because by 2007 the BC sea otter population had grown from the 89 introduced animals to over 3500 otters (Linda Nichol DFO). As part of a coast survey of otters, we have conducted annual counts of sea otters in the Ecological Reserve since 1987. The results of these counts suggest that the number of otters within the reserve has varied



FIGURE 1: A raft of male sea otters at Chief Rock, which is located at the South East end of Checleset Bay Ecological Reserve. The problem is not finding the raft, but figuring out how many otters are in it (Picture by Graeme Ellis).

from about 600-900 animals since about 1995. Our estimates have increased slightly over the years, (Figure 2) likely reflecting more experience, a bigger boat and a computer charting system.

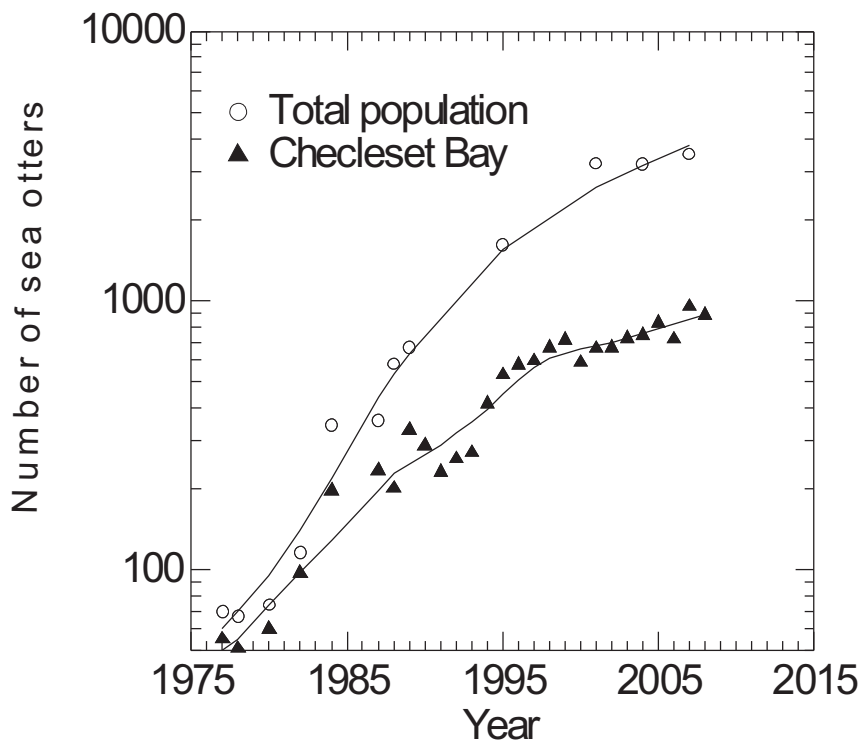


FIGURE 2: Sea otter population growth in all of British Columbia (Open circles) and sea otter population growth in Checleset Bay Ecological Reserve (Solid Triangles)

Our ability to count sea otters also improves with time, because sea otters are creatures of habit, and we have grown to know their patterns. Sea otters segregate by gender, with groups of females using certain areas, and male groups using other areas. The otters gather in large rafts, at predictable locations year in year out, so our biggest difficulty is not finding the otters but sorting out flippers from heads as we try to count individuals in large moving rafts of otters (Figure 1). It is this aggregating behaviour, along with the dependency of sea otters on their fur to keep them warm, that makes sea otters so susceptible to oil spills; in the event of an oil spill a large number of animals can become simultaneously oiled. Knowing where otters gather and their approximate abundance is very important in planning how to respond to an oil spill.

The other part of our long-term research has been to document the changes to nearshore community structure brought about by sea otter foraging. Sea otters are important nearshore predators

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that prey on invertebrates. By eating grazers such as sea urchins, sea otters indirectly reduce grazing pressure which in turn increases the abundance of kelp. When sea otters were re-introduced into Checleset Bay, profound changes occurred; as sea otters ate sea urchins, kelp abundance increased.

We have been monitoring these changes since 1987 at a series of permanently- marked sites located in and around the Ecological Reserve. We visit each of these sites annually and document changes in kelp and invertebrate abundance. In addition we have temperature loggers which record daily water temperatures at each site. We have seen some remarkable changes. Sites such as the one at Union Island (just outside of the Ecological Reserve see Figure 3) underwent dramatic changes when otters arrived; the urchins disappeared and kelp increased. At Union Island, as most of the sites, the first kelps to settle were opportunistic annual species such as bull kelp *Nereocystis luetkeana*. These kelps are gradually replaced by longer-lived perennial species such as the giant kelp *Macrocystis integrifolia* and the tree kelp *Pterygophora californica* (Figure 4). Once established, the abundance of the canopy forming *Macrocystis* is thought to be affected by factors such as water temperature and winter storms (warm water during El Nino events and winter storms reduce *Macrocystis* abundance). Tree kelp, which lays annual rings in its stipe (stalk), appears to be less affected by water temperature or storms as it does not reach the surface and forms a canopy about 2 metres off the bottom. It is a long-lived species that lives up to 20 years.

At our sites, tree kelp settled

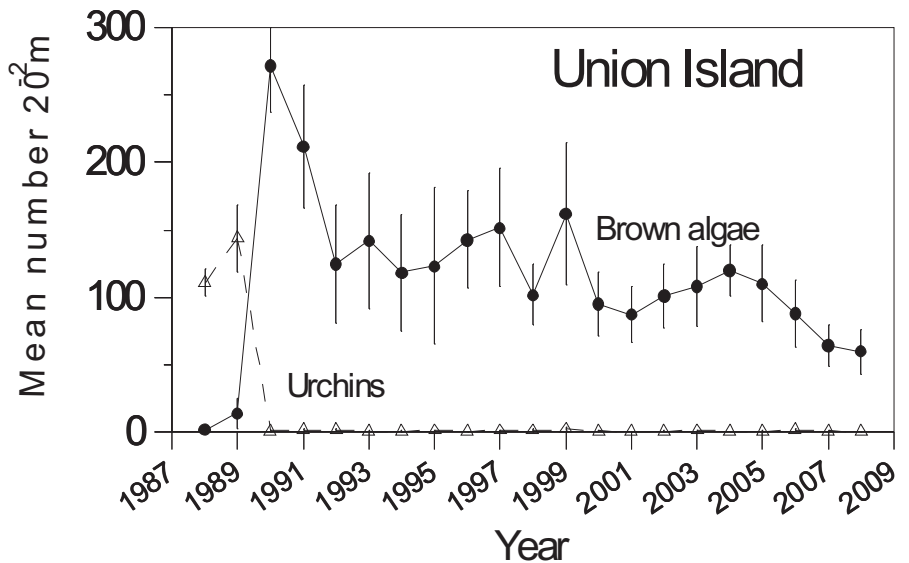


FIGURE 3: Changes in the mean abundance of brown algae (solid circles) and red urchins (open triangles) at Union Island. When the site was established in 1987 red urchins were abundant and brown algae were rare. Sea otters arrived at this site in the late spring of 1990. When the site was sampled in July 1990 there were no red urchins remaining. Each dot is the mean abundance of red urchins or brown algae across 5 swatches each of which measure 2 by 10m. The bars are error bars (n=5) and represent how variable the density of brown algae or urchins was between the swatches.

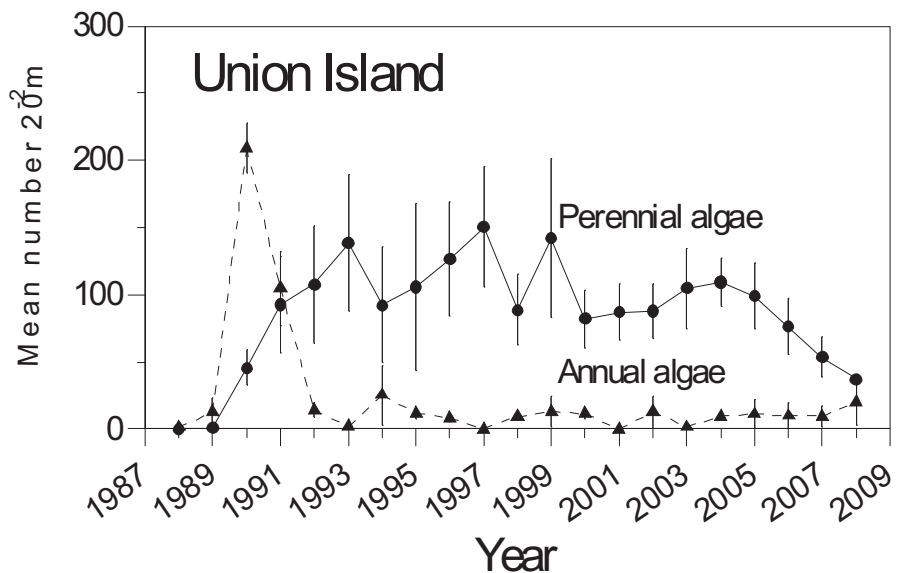


FIGURE 4: The mean abundance of annual (triangles) and perennial (circles) algae at Union Island Permanent site. When sea otters removed sea urchins opportunistic annual algae settled. The annual algae were replaced by perennial algae, mostly tree kelp (*Pterygophora californica*). As the tree kelp senesce, they are not replaced, and an increase in annual algae (mostly *Desmarestia* spp.) appears to occur. Each dot is the mean abundance of annual or perennial algae across 5 swatches each of which measure 2 by 10m. The bars are error bars (n=5) and represent how variable the density of perennial or annual algae was between the swatches.

shortly after sea otters arrived. This resulted in a *Pterygophora* population composed of individuals spanning a narrow

range of ages, not unlike a logged area that has been replanted with trees. The consequence is that as

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the tree kelp ages they senesce within a few years of each other. As these plants die, they are being replaced by an opportunistic annual species called acid weed (*Desmarestia* spp.), which forms a dense mat and appears able to exclude other sea weeds. This pattern has re-played itself at almost all of the sites we are monitoring.

We are waiting to see what will happen. Our main question focuses on if and when the tree kelp forests will reform an event that appears to be occurring at some of our sites established in areas that were invaded by sea

otters in the mid 1980s. It is not clear how many generations of kelp it will take to form stable tree kelp forests composed of plants that span a wide range of ages.

The ability to revisit sites each year to monitor changes has resulted in the longest study of kelp forest community ecology conducted in BC. As ocean climates change it becomes increasingly important that we understand how natural communities vary over time. The long-term studies that generate these types of data require sustained support. Unfortunately this type of research produces results too slowly to be funded by the more traditional funding

agencies. Over the years it is the "Friends" that have provided funding for our long-term research and it is with enormous gratitude that I write this final "official" report. I have enjoyed letting the "Friends" know about the state of sea otters and kelp forests in the Checleset Bay Ecological Reserve and look forward to continuing this tradition, as our research continues.

Sincerely,
Jane Watson

**Visit our website at:
www.ecoreserves.bc.ca**

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Jane Watson,
64 Pirates Lane,
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Dear Friends,

I am writing to thank the Friends for their continued support of sea otter community ecology research in British Columbia. Support from the FER has allowed us to generate a 22 year record of kelp forest community dynamics in areas with and without sea otters, and to monitor the population trends of sea otters within the Checleset Bay Ecological Reserve as well as the surrounding area.

I am just heading out to Checleset Bay for three weeks of field work. I look forward to reporting on the field season when I return in September.

Sincerely,



Jane Watson

Thanks Nancy Wilkin!

By Mike Fenger

Nancy Wilkin was a strong supporter of FER and the wardens program during her time as the Assistant Deputy Minister (ADM) of the Environmental Stewardship Division in Ministry of Environment.

Nancy retired from government this summer and will be an executive in residence at Royal Roads University beginning this fall.

Thank you Nancy for your solid support to undertake the provincial Wardens' get together in 2003; support for FER State of ER report through a grant to the University of Victoria Coop Program that allowed us to hire Morgan MacCarl; support to complete the Wardens handbook and most recently, support for area supervisors and FER wardens to meet. The work of NGOs like FER is so aided when senior management is supportive – thank you Nancy.

For the record here is part of Nancy's message from the 2003 Provincial Wardens' Gathering held in Kamloops. Nancy considered the gathering important enough to not only attend and participate in but to fund as well.

Nancy explained that the Ecological Reserves and the ER wardens fall under the Environmental Stewardship Division, Ecosystems Section; with local Area Supervisors responsible for the ERs and the



Nancy Wilkin fly fishing with Bill Barisoff, MLA from Penticton, summer 2006.

wardens. Budgets are developed within Service Plans for each Section and signed off by the Minister.

Nancy noted that not only are Wardens the eyes and ears of ERs, but also the soul of ERs. ER wardens are critical to ER protection and management.

There has been a change in focus in Parks to revenue generation, which means Regional attention is not on Ecological Reserves. There is a need to provide the public, MLAs, business councils, etc. with more local information on ERs and their importance.

Lack of public support for all protected areas places them in danger of being compromised. Wardens should have input to management plans for ERs.

There is a need to formalize events like the Gathering and

have regular contacts with the ADM and other upper-level managers to monitor progress and maintain dialogue.

There is also a need to develop a list of proposed ERs and a plan for their creation over the next year.

Nancy's messages still resonate today – the need to ensure ERs are not compromised and that conservation becomes a high priority. However, reporting through the ADM has changed.

The ADM of Stewardship Division is no longer in charge of Parks and ERs. Parks and ERs are managed by Scott Benton, Executive Director reporting directly to the Deputy of Environment. (see pages 1 and 2 regarding a meeting with Scott Benton).

Brackman Island ER – Part of The Gulf Islands National Park Reserve

By Marilyn Lambert

Late this past spring, my husband and I visited our friend on his sailboat. He was the marine host at Princess Margaret Marine Park on the south end of Portland Island. This island is approximately 3.5 km NNW of the Swartz Bay ferry terminal near Sidney, B.C. and is now part of the new Gulf Islands National Park Reserve.

It was a glorious day and as we zipped by Brackman Island, off the southwest tip of Portland Island, I wondered how this little jewel was faring now that its protection fell under Parks Canada.

In 1988, Brackman Island was purchased jointly by the B.C. Government, the Nature Conservancy of Canada and the Nature Trust of B.C. With a 99-year lease from the Nature Trust of B.C., the island was established as Ecological Reserve #121, administered by B.C. Parks and watched over by Volunteer Warden, Paul Linton from Saltspring Island.

Brackman Island was established as an Ecological Reserve to protect the stand of forest and the wildflowers that flourish there as well as the adjacent marine habitat. A unique feature of Brackman Island is that it has never been affected by settlement, logging, or livestock grazing. Over 80 species of plants have been recorded here, and 13 of those are considered rare in B.C.



Gulf Islands National Park Reserve sign posted on Brackman Island

Pockets of old growth forest on the island, contain some trees that are over 250 years old. Broom is the predominant invasive species, and in years gone by, the Friends of Ecological Reserves has hosted a

“broom bash” on the island.

Nearby Portland Island is a popular destination for boaters and kayakers so the wildflower meadows on Brackman were vulnerable to trampling by visitors to the island.

As we toured around the island in our boat, I was pleased to see that there were signs posted by Parks Canada stating that Brackman Island is a closed area to protect the fragile ecosystems there and giving visitors suggestions of alternate day use and camping areas nearby. Also, in the Park brochure, Brackman Island is listed as having the highest level of protection and designated as "Authorized Access Only."

As we sailed away, I felt confident that Brackman Island will have reasonable protection with the Gulf Islands National Park Reserve.



Brackman Island beach

Vance Creek Ecological Reserve No. 30 – Biological Survey - 1988

By M.E. Martin

Continuing with our ongoing quest for Wardens' Reports, Friends of Ecological Reserves was sent a very detailed and fascinating field report from Malcolm Martin, the Warden for Vance Creek ER, dated 1988. Part of this report is reproduced here.

INTRODUCTION

In early 1939, 40 acres of what is now Vance Creek Ecological reserve was selected for research purposes by the Federal Department of Agriculture. Entomology and forest pathology studies were carried out from a laboratory in Vernon until the early 1970s when the office was removed to 506 W. Burnside Avenue, Victoria to form part of the Pacific Forestry Centre. Either before or after this move the

property was placed under administration of the Federal Department of Environment which gave permission for its use for outdoor education by the local School District. As the Ecological Reserves Unit, newly established around this time, had creation of reserves for educational purposes as an object under its formative Act, it was decided that the property should be enlarged to 120 acres and transferred to the new Agency. This was done and Vance Creek gazetted on 7th February 1972 as E.R. # 30.

Previous reports covering this area include:

- Application for Ecological Reserve, Report #88, check sheet for survey completed by T.C. Brayshaw and J. Grant.
- A List of Lepidoptera

Collected with a Black Light Trap 1962 - 66, J.K. Harvey. (It is not clear whether this was carried out at the Vernon laboratory or at the Vance Creek property).

- A Summary of Some Phenological Observations at Trinity Valley, B.C. for the years 1939 - 1945, J. Grant.

It is possible that studies held in the Pacific Forestry Centre archives are based on work carried out in whole or in part at Vance Creek (or Trinity Valley as it was then called).

LOCATION

The reserve is 7 km north of the village of Lumby. From the central crossroads, Mable Lake Road is followed north for 4 ½ km at which point a left turn is made on to Trinity Valley Road.

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Race Rocks Visited

By Mary Rannie and Garry Fletcher

Garry Fletcher asked Chris Blondeau and student Adam Harding to slow the boat to an idle halfway down Pedder Bay. "To our left," he said, "is William Head Penitentiary, to our right Rocky Point, place of 450 First Nations burial cairns, which along with all the others on the Gulf Islands, are being catalogued by a Darcy Mathews a PhD student in Anthropology from U.Vic. Bird banding also takes place in this Department of National Defense property, by those in possession of a permit, a valuable location to sample since it is the final jump off point before they cross the Strait of Juan de Fuca for birds migrating down the island. Further along the coast is Bentinck Island, a former leper colony for suffering immigrants who landed at William Head in the early 1900s only to be banished to Bentinck across the bay... the last Chinese man died in 1956, and although treatment made it possible to leave by then, apparently he preferred to remain on the only bit of Canada he ever saw. The military now keeps up a small graveyard on the North part of the Island, a stark reminder of an unfortunate chapter in Canadian history."

We continued our crossing. Agnes Lynn, one of our group of twelve, yelled out "Rhinos!" It was difficult to see if tiny summer 'horns' still clung to the rhinoceros auklets' beaks. Three common murrelets also



Interesting Artifacts (Photo by Dave Lynn)

came into view. We noted the scarcity of Cormorants. Although a few double-crested cormorants still come to the winter roosting area along the shores of Pedder Bay, Garry noted that this was the first year that the pelagic cormorants have not nested on the cliff at Race Rocks.

Suddenly we were at the islands. California sea lions lay on the boulders by the jetty. Bachelor bulls bark loudly, heads tipped back in their classic pose, others partly submerged, fins in the air to cool them down or warm them up on this lovely sunny day.

Across on a smaller island, larger Northern (Stellar) sea lions growled menacingly. Among these Northerners a few elephant seals with their huge

heads haul out in all months of the year. We stepped up to the dock, thankful that it was empty of the their hulking bodies and that none were trying to climb over the railing.

We were visiting one of the few places in Canada where Heermans gulls congregate in the fall and winter. They are joined by glaucous-winged gulls, their young still hanging around for food they could have found for themselves. Black turnstones were foraging along the lapping shore waves. They are present on the island for all months of the year although they do not nest there. Black Oystercatchers were still piping and patrolling as well.

On top of the hill was the remote camera #5 that feeds the

Continued on page 12

website: www.racerocks.com. An avid website user in England using the remote control camera, has even observed and photographed pelicans, a snowy owl, peregrine falcons as well as the many eagles that frequent Race Rocks. Her monthly album of photos linked to the daily log on racerocks.com has provided a valuable record of resident and migrant wildlife on the islands since 2004.

The tidal wave generator, part of an integrated energy system for the main island, was away for repairs till October, its success measured by the upcoming installation of one of three in the Bay of Fundy. Restrictions are tight on Race Rocks, making it a good location for experimental research.

A Davis weather station, owned by Pearson College feeds into racerocks.com as well as the UVic School-Based Weather Station Network in Victoria. Race Rocks has the warmest weather in Canada in the winter time due to the surrounding sea water, 7 degrees in winter.

Hardy wallflower and calendula easily survive year round, and stonecrop is abundant. Even the rare plant, mist maidens *Romanzoffia tracyi* occurs in several patches on Great Race Rocks Island.

Canada geese started nesting in 2000, quickly becoming a nuisance. A permit now allows the addling of the eggs, but a few adults still persist, and their overwintering impacts heavily on the vegetation contributing to degradation of the turf.

From the top of the



View from the top of the lighthouse (Photo by Dave Lynn)

lighthouse, the second oldest Canadian Lighthouse on this Coast, as it was built in 1860, the same year as Fisgard. It is now about to receive a long-sought restoration, since the passage of the Heritage Lighthouse Protection Act earlier this year.

Harbour seals were readily visible entering and leaving a little bay on the opposite side of the island. All seemed peaceful... there was no taking of seals by orcas, as has happened here.

Tidal pools gleamed in the sun, each containing different marine life and often in the fall to spring months are studied by students. An enormous boulder, having been tossed two metres over by the December 2006 hurricane, is now perched right on top of one of the recorded tide pools. A set of tidepool pages on the website provides a useful profile of some of these micro ecosystems.

Lack of fall rain had left trickling streaks of guano to settle on the rocks in wedding cake fashion. An old sea lion slept on the far side of the island, far from the others and with any luck, undisturbed by the ignominious DND dynamite blasting on close-by Bentinck Island. These tests do give a terrible scare to the large fall colonies of sea lions. Whale watching boats bring hundreds of people close to the animal laden islands but Garry noted that kayakers in their stealthy approaches to the shoreline pose the biggest threat. Often baby harbour seal pups can be abandoned as a result of being startled off their rocks. All of us who came to Race Rocks on September 21st promised that we will never forget the stealth characteristic of our kayaks. Thank you Garry, Chris and Adam for giving us a magical morning!

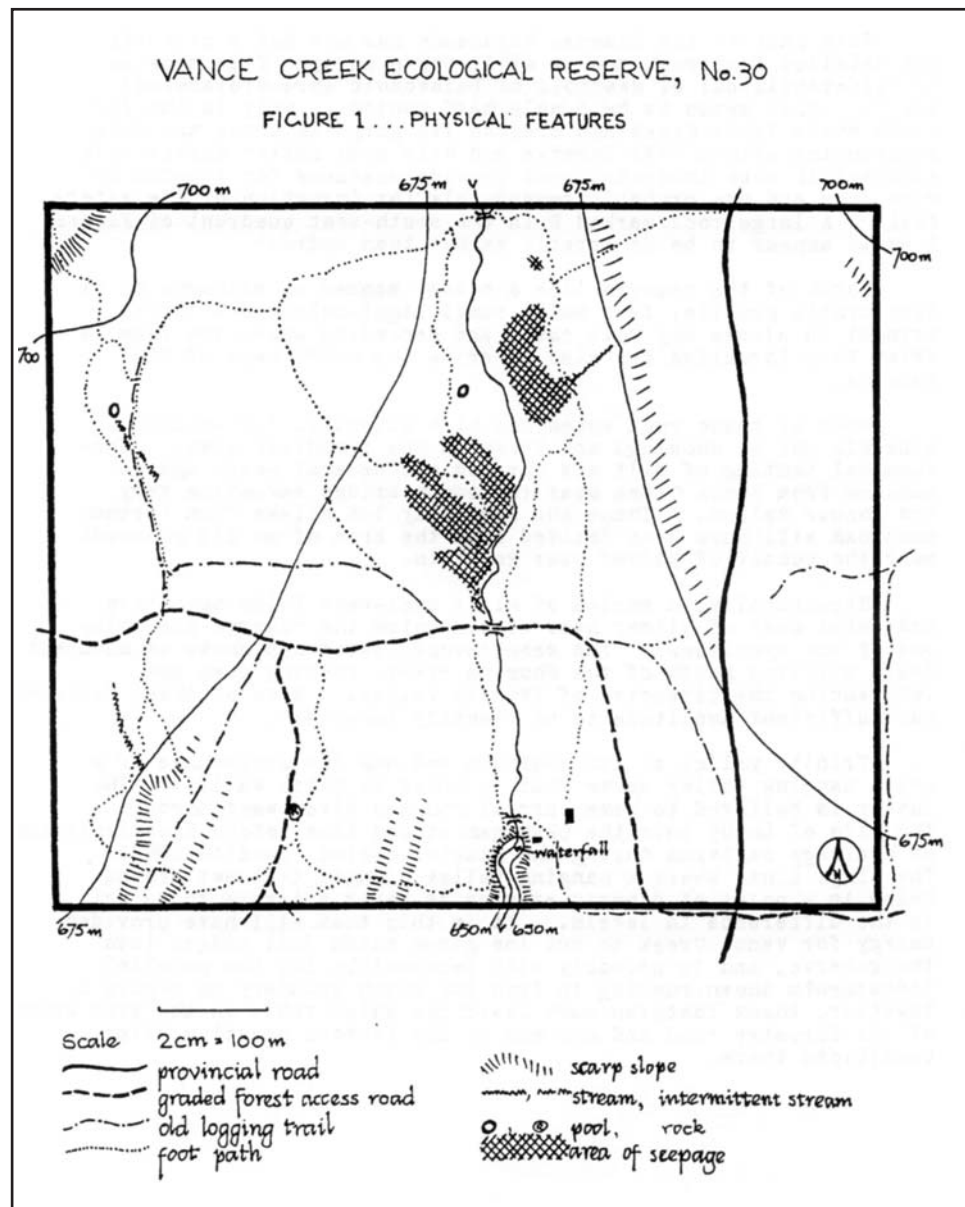
Although the latter actually bisects the reserve, the location is best noted by a forest access on the left marked "Deafies Creek" at the time of writing. This forms the south boundary of the property.

On a 1:50,000 topographical map, 82 L/7W (Shuswap Falls) it can be found at 50° 18' 10"N and 118° 57' W.

PHYSIOGRAPHY

The Lumby area falls at the southern end of the Quesnel-Shuswap Highlands. Slopes here are fairly gentle and rounded compared with farther north and seldom exceed 1500 m except at Silver Star Mountain where the summit reaches 1890 m. A valley running north-south borders Silver Star on the east and the reserve is located near its southern end. Vance Creek itself drains much of the east side of the mountain and flows down to Trinity Valley before turning south, running through and roughly dividing the reserve. Where it enters on the north boundary the elevation is approximately 655 m (2,150 ft.), dropping to approximately 637 m (2,090 ft.) in the south where, just before leaving the subject area, it flows over a waterfall and becomes gorge-like.

A gradual rise of surface each side of the creek reaches its highest points near the north-east and the north-west corners. An approximation of metric contours is shown on Figure 1 with lines interpolated from imperial scale. Also indicated (by hatching) are scarp slope lineations where these are a notable feature on the ground.



Apart from Vance Creek, the only other flowing water is a minor stream entering the seep area in the north-east quadrant. Two intermittent trickles are marked near the west boundary but these show water only during run-off and in years of little snow may remain completely dry. One originates in a small pool (about 1 ½ m x 2 ½ m) and a similar sized pool occurs closer to Vance Creek; neither has any inlet and they appear to be fed by seepage.

Topographical maps (compiled from air photos)

indicate a flowing stream coming in from the north-west but there is no evidence of this being a phenomenon of recent years. One of the seepage areas extends in this direction so there could be sub-surface movement along this line. Another seepage area occurs on the other side of the creek farther north.

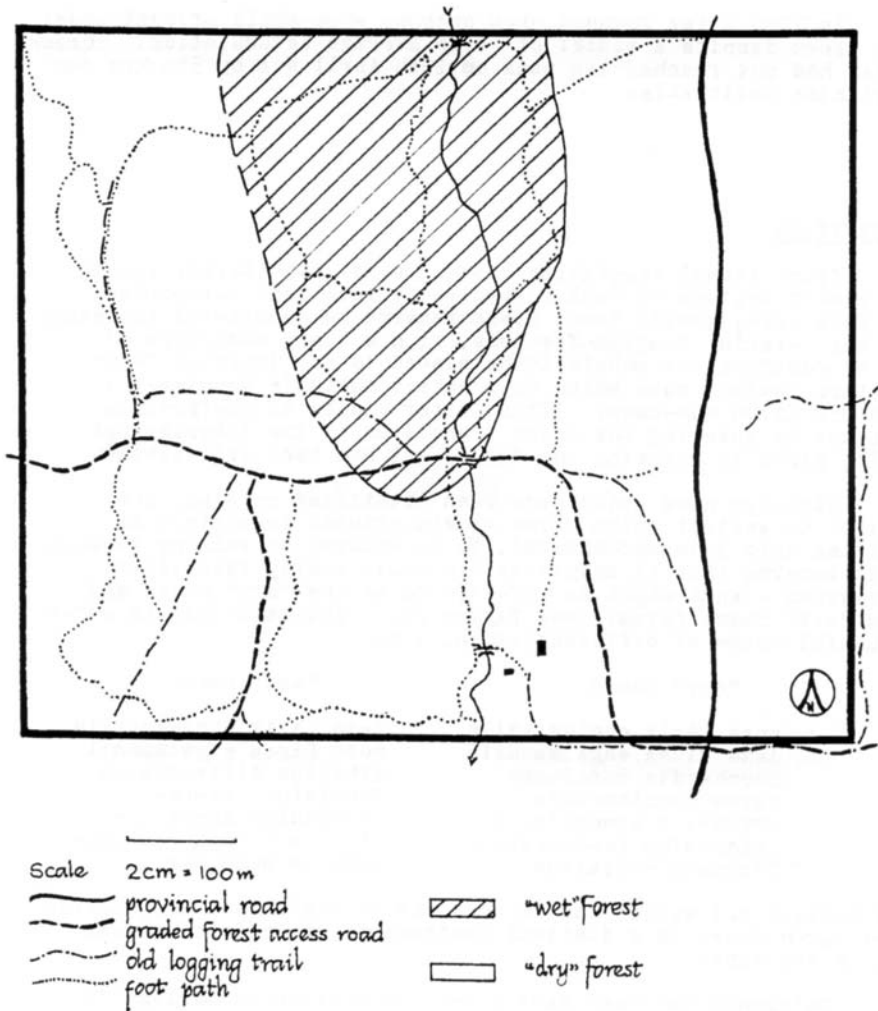
GEOLOGY

This part of the Shuswap Highlands has not had a priority for detailed fieldwork and is still

Continued on page 14

VANCE CREEK ECOLOGICAL RESERVE, No.30

FIGURE 2... FOREST TYPE



shown on open file maps as "Undifferentiated; of Mesozoic or Palaeozoic (pre-Cretaceous) age." Most seems to be a pale hard gneiss.

VEGETATION

Transitional vegetation types are not considered enough of report writers to fall conveniently into neat categories. In this case, should Vance Creek reserve be considered as being in the Interior Douglas-fir zone, with a

heavy admixture of other conifers, or should it be placed in the Interior Cedar-Western Hemlock zone which does have a suitable Douglas-fir - Western Larch sub-zone? This latter choice is preferable because by entering the moist transition to the Interior West Belt, strictly speaking the dry forest has been left behind.

Although nine units have been identified running from driest to wettest (plus three others grouped separately not

falling into this succession), it is evident on walking through this reserve that it comprises two basic easily identified divisions – what might be referred to as the "dry" phase and the "wet" phase forest (see Figure 2). Indicator plants offer a useful means of differentiation, viz:

"Dry" Phase

- more *Larix occidentalis*
- less *Picea engelmannii*
- *Shepherdia canadensis*
- *Carex concinnoides*
- *Oryzopsis asperifolia*
- *Lycopodium complanatum*
- *Dicranum polysetum*

"Wet" Phase

- less *Larix occidentalis*
- more *Picea engelmannii*
- *Athyrium filix-femina*
- *Equisetum arvense*
- *Lycopodium annotinum*
- *Ptilium crista-castrensis*
- *Lobaria pulmonaria*

As hemlock and spruce cast a more sombre shade than douglas-fir and larch there is a distinct contrast in atmosphere between these two types.

The creek ravine and several incised linearments run up from the south boundary. These have probably lowered the water table helping to increase dryness in that section south of the forestry road. Working to the same end has been clearing beyond the reserve in this direction allowing more wind movement, particularly wind coming from warmer, drier areas thus introducing a factor not present farther north. Drying due to better drainage, also takes place up-slope to the east and west.

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