

## Concerns Raised in Letter to Minister Penner

By Mike Fenger, President

Dear Minister Penner,

Thank you on behalf of the Friends of Ecological Reserves (Friends) for meeting on Wednesday, November 2, 2006 with three of our Directors: Alison Nicholson, Peggy Frank and Don Eastman. We value the opportunity to raise four major concerns about ecological reserves with you.

Also, we appreciated your interest in receiving our specific suggestions related to these concerns. In this letter we have listed suggestions according to the major concerns we identified in our meeting with you. We trust that you will find these ideas useful:

1. The need to establish a baseline inventory and ongoing monitoring program:
  - Develop a manual of procedures for conducting baseline inventories and monitoring surveys.
  - Implement a training program based on this manual, for Wardens and other appropriate individuals, so that they can collect data collection of reliable quality.
  - Implement a regular monitoring program that provides information that is readily accessible, reliable and current.
2. The need for a coordinated and recognized Warden program:
  - Ensure that Ministry staff, such as Area Supervisors, meet with Wardens at least once a year to address key issues and to develop and integrate work plans for the coming year.
  - Ensure that Ministry staff acknowledges receipt of the annual reserve inspection reports submitted by Wardens, either by email or in writing.
  - Provide a modest fund to help offset travel costs incurred by Wardens when they visit their reserves, or have the Wardens accompany Ministry staff when they visit these ecological reserves, especially the less accessible ones, such as Gladys Lake.
  - Maintain an up-to-date registry of Wardens.

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Visit our website at: [www.ecoreserves.bc.ca](http://www.ecoreserves.bc.ca)

# The Log

## Winter 2006

*The LOG* is published 3 times a year by the Friends of Ecological Reserves to promote the establishment, management and maintenance of Ecological Reserves in British Columbia. *The LOG* is distributed to members, volunteer wardens, affiliates, supporters, government, friends and the enquiring public.

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

Articles for publication are invited. The deadline for submissions for the Spring issue of *The LOG* is March 12, 2007.

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## Letter to Minister Penner (Continued)

By Mike Fenger

- Develop and implement a recruitment program for Wardens, with the aim of having one Warden for every reserve within two years.
- 3. The need to improve surveillance and enforcement:
  - Conduct a thorough risk assessment of ecological reserves as a basis for setting priorities.
  - Increase Ministry presence, management and enforcement activities in ecological reserves, especially those identified as most at risk.
- 4. The need for an information management system:
  - Develop a centralized, accessible file system that contains up-to-date information that is readily accessible and complete. The proposed Protected Lands Unified System (PLUS) would likely address this need.
  - Provide an opportunity for the Friends and other like-minded groups to contribute to the design of the PLUS system.

The foregoing list is a subset of recommendations provided in our report: *The State of British Columbia's Ecological Reserves* (available on FER's website at: [www.ecoreserves.bc.ca](http://www.ecoreserves.bc.ca)). It is our belief that the most effective way of ensuring their integrated implementation would be for your Ministry to have one person designated as a full-time coordinator for the ecological reserve system.

For your information, in early December, we plan to release the above report on our website. Also, we will issue a press release\* announcing the report's release. In it, we would hope to include information about PLUS as well as other specific actions your Ministry has committed to undertake with respect to our suggestions.

In closing, we would like to invite you to join us on our spring field trip to the Trial Island Ecological Reserve, scheduled for Sunday, April 29, 2007. Located off the coast of Victoria, this reserve showcases the springtime floral wealth of southern Vancouver Island in its natural state. As well, this trip would provide an opportunity to meet a proud volunteer Warden and see, first-hand, some of the challenges these special places are facing. We will contact you closer to the time to confirm your participation, and to provide you with details of the trip.

Once again, thanks for meeting with us. We look forward to continued cooperation between the Friends and your Ministry and, especially, to seeing you on April 29.

*The foregoing letter was sent on November 8, 2006 to the Honourable Barry Penner, Minister of Environment, and Minister Responsible for Water Stewardship and Sustainable Communities. The Friends of Ecological Reserves have not yet received a reply.*

**\* Please see next page for the complete Press Release text.**

## MEDIA RELEASE

# Government warned poor to very poor conditions in many of British Columbia's Ecological Reserves (December 5, 2006)

Today, in Victoria, the Friends of Ecological Reserves (FER) released a report on the State of British Columbia's ecological reserves. The report is based on information derived from Ministry of Environment (MOE) files and interviews with MOE staff and volunteer wardens. It rates the ecological condition and status of information of the Province's 147 ecological reserves. Those reserves comprise roughly 167,000 hectares of the province. The report indicates that one-third of the reserves are in poor to very poor condition. A further one quarter of the reserves were rated as being in fair condition. Only half of the ecological reserves have volunteer wardens who provide information to MOE staff on issues such as reserve conditions, trespass, site damage, illegal logging, invasive plants, etc.

Ecological reserves are meant to be flagships of conservation within British Columbia's parks and protected areas. Most of the reserves were established over three decades ago to preserve representative and special natural ecosystems, plant and animal

species, features and phenomena. They also provide benchmarks for research and monitoring of natural ecosystems. The core review of the role of the MOE conducted during the Liberals first term in government identified conservation as a primary Ministry mandate. This report seeks to put conservation back as a Ministry priority.

Upon reading the report Bristol Foster, renowned biologist and the original Director of the Ecological Reserves Program, said "As more people come to recognize the planet is in real peril due to human activities, it is more important that we protect these tiny fragments of natural British Columbia. If we can not do even that where is the hope for future generations?"

The report recommends that government work to ensure that each ecological reserve has a volunteer warden, a standardized baseline inventory of plants and animals, a management plan, up to date monitoring information that is maintained in a database, and adequate resources for protection.

### State of British Columbia's Ecological Reserves

Report for  
2005



Sponsored by the Friends of Ecological Reserves  
With help from the Ministry of Environment  
and the University of Victoria Co-op Program

November 2006

The Friends of Ecological Reserves remains committed to and supportive of ecological reserves and wishes to work with the MOE in a renewed and revitalized ecological reserve initiative.

**The entire report can be viewed at [www.ecoreserves.bc.ca](http://www.ecoreserves.bc.ca).**

**Contact Mike Fenger, President of FER at (250) 595-1986.**

## Tríal Island ER Field Trip – Spring 2007

**Sunday, April 29, 2007**

Join Adolf and Oluna Ceska on our annual outing to view the spring wildflowers on this beautiful island off the Victoria waterfront.

Fee: FER members \$10.00, Non-members \$30.00, Seniors/students \$25.00 (Fee includes a one-year membership to FER).

To register or for more information, call Marilyn at (250) 477-5922.



# First Annual BC Protected Area Research Forum a Success

By Louise Beinhauer

The first B.C. Protected Areas Research Forum aptly entitled "Fostering Connections Between Protected Areas and Research" took place Dec. 4 - 6, 2006 at Royal Roads University. The sold-out Forum of 181 participants had a jam-packed schedule of 24 sessions and panel discussions, making it difficult to pick and choose which ones to attend! There were 89 presentations and the topics (to name just a few) ranged from: 'Management in BC Parks & Protected Areas, Approaches to Research and Management'; 'Glaciers, Climate Change and Protected Areas'; and 'Research Challenges for Marine Protected Areas' to 'Integrating Research to Understand Cougar-Human Interactions'; 'Managing & Monitoring Visitor Use'; 'Research on Challenging Species' and 'Web-based Mapping Tools'. Presenters were researchers and graduate students, university professors, professional foresters, biologists, members of First Nations communities and federal, provincial and municipal government managers.

Along with the 24 sessions and networking opportunities, displays and posters adorned every nook and cranny in the Mews Conference Centre, and plenty of animated conversations being carried on between sessions and over lunches and dinner added to the general air of camaraderie.

Friends of Ecological Reserves President, Mike Fenger announced the release of the *State of British Columbia's Ecological Reserves Report* at the luncheon on December 5 and every copy of the report and accompanying News Release were snapped up by the large crowd. (Please visit our website [www.ecoreserves.bc.ca](http://www.ecoreserves.bc.ca) to view the complete report).

Mike Fenger along with Matthew Wheatley also presented an abstract of their soon-to-be released report entitled: *Sustainable Forestry Benchmarks for British Columbia: A GIS Assessment of Undeveloped Watersheds as Ecological Monitoring Units*, in a morning session called "Monitoring." (Please see the reprinted Abstract on the next page.)

The organizer of the event, Pam Wright from the University of Northern BC indicated that registration exceeded all expectations. The post-conference evaluations rated all aspects of the forum highly (3.79 to 4.56 out of 5.0).

The Research Forum's organizing committee is planning to hold a conference every second year. It is anticipated that the next forum will be held in the north at the University of Northern BC in 2008.

If funding and partners can be found, the hope is to encourage smaller topic-specific workshops (i.e., a one-day session on a particular topic) in the off-years.

## CALENDAR

### Friends of Ecological Reserves 2007 Annual General Meeting

**March 2, 2007 at 7:30 pm**  
(Meeting of the Board begins at 6:00 pm)

Location:  
David F. Strong Building Room C118 (University of Victoria)

Speaker:  
Garry Fletcher, Warden, Race Rocks Ecological Reserve

All members as well as those interested in becoming members are welcome.

For more info, call Tom Gillespie at (250) 361-1694 or check the website at:  
<http://www.ecoreserves.bc.ca/>

### Field Trip to Trial Island Ecological Reserve Sunday, April 29, 2007

Fee: FER members \$10.00,  
Non-members \$30.00,  
Seniors/students \$25.00 (Fee includes a one-year membership to FER.)

To register or for more information, call Marilyn at (250) 477-5922

### CAMAS DAY - Beacon Hill Park, Victoria, BC May 5, 2007

Sponsored by The Friends of Beacon Hill Park  
Birding Walk - 9:00 am  
Heritage Tree Walk,  
Wild Flowers Walk &  
Archaeology Walk at 11:00 am  
and again at 1:00 pm

For information call: Helen Oldershaw at (250) 592-6659

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## Sustainable Forestry Benchmarks for British Columbia: A GIS Assessment of Undeveloped Watersheds as Ecological Monitoring Units

By Mike Fenger and Matthew Wheatley

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### ABSTRACT PRESENTED AT THE BC PROTECTED AREA RESEARCH FORUM

Mountain pine beetle is changing the pine forests of British Columbia and by 2105 a majority of young and mature pine forests are forecast to be dead.

In response to mountain pine beetle mortality and the economic loss of timber supply, the BC government has significantly raised harvest levels. The study analyses third order and higher watersheds within the areas where pine occurs and rates these for potential benchmark research watersheds.

Undeveloped forested watersheds similar to those in the timber harvest land base were sought.

The province was divided into 39 study areas. Study areas were based on combining ecosections together with differences in aquatic ecosystems based on major drainage systems. Ten study areas with high pine content were analyzed.

Parks and Protected Areas in some study areas provided a good array of candidates whereas others have few or no undeveloped forested watersheds remaining. Undeveloped watersheds are defined as less than 2% disturbed by harvesting

or less than 250 meters of road per square kilometer.

Forest management and salvage is a major long term experiment and the need for a major system of benchmarks has never been greater. Given that it will not be possible to salvage all the dead pine and given that Parks do not provide adequate benchmarks representative of forest watersheds this study informs on where opportunities still exist to study natural systems at a scale considered appropriate to the scale of changes brought on by natural disturbances and forestry operations.

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## Illegal Logging Operation Discovered in Bowser Ecological Reserve

Submitted by: Vi Chungranes, Will Lemmon & Maggie Little

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The Bowser Ecological Reserve lies 18 km north of Parksville on Vancouver Island. Established in 1996, it is 116 hectares in size. As highly impacted and under represented transitional Coastal Western Hemlock and Douglas Fir habitat on the east side of the Island, it is recognized as having the capacity to support the growth of very large specimens of Douglas Fir with the potential to become record-sized trees. As well, the specific type of peatland habitat found here supports a high diversity of dragonflies, including the red-listed Zig Zag Darner. Crown land surrounds the Reserve.

During the past 18 months, we volunteers had become



Will Lemmon standing behind illegally logged tree estimated to be 100 years old. Stump on right side of picture was covered with loose bark and twigs to hide it from aerial detection.

*continued on page 7*



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# A Day on the Rock – Race Rocks Field Trip Report

By Marilyn Lambert

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Rain greeted a small but enthusiastic group from the Friends of Ecological Reserves for our annual outing to Race Rocks Ecological Reserve. Our departure point was picturesque Pearson College, on the banks overlooking Pedder Bay in Metchosin. Hosts for our outing were Garry Fletcher, Volunteer Warden for Race Rocks and Chris Blondeau, sea-front coordinator at Pearson College as well as the operations manager at Race Rocks.

Well dressed for the weather, we piled into one of the College's boats and headed out to sea! As Chris skillfully maneuvered our little craft through the waves, we were treated to a delightful show from the comical sea lions that call Race Rocks home during the winter months.

Once on the island, Garry took us on a tour of the operations part of this reserve, including the new tidal current generator. The work being done here by the students at Pearson College is truly amazing. With cameras set up at various locations around the island, people from all over the world can experience the wild beauty of this place without disturbing a bird, sea lion or blade of grass. Check out their website at [www.racerocks.com](http://www.racerocks.com) for all their project details.

Marine Mammals abound and the surrounding rocks were covered with Harbour Seals, California and Northern Sea Lions but we missed seeing the Elephant Seal that had been



Garry Fletcher regales field trip participants with lighthouse lore.

lolling on the lawn above the boat house earlier in the week.

Some of us spent time sorting out the different species of gulls and cormorants roosting on the rocks. There were Black Oystercatchers and Black Turnstones foraging just above the pounding surf and a Peregrine Falcon was keeping watch over the flocks from the top of the light tower.

Once we had toured the island, we walked up the narrow, winding staircase to the top of the light tower and were greeted by an incredible view of the surrounding area.

When we had finished our tour, Garry started telling stories of previous keepers and some of the hair-raising tales of life on a

remote island. He has tremendous knowledge of the history of the lighthouse and the keepers that have called Race Rocks home since the 1860s. He is a wonderful raconteur and we could have listened to his stories all day long! Time passed quickly and all too soon we had to leave. As we headed back to the boat, a Great Horned Owl was there to see us off.

We greatly appreciate Garry Fletcher and Chris Blondeau for making our annual outing to this special place possible.

**Garry Fletcher will give a talk on the exciting work being done at Race Rocks Ecological Reserve at our Annual General Meeting. See details on page 4.**

# Regional Wardens' Meetings Held in Province

*Compiled from information provided by Elizabeth Purkiss, Eva Durrance and Marilyn Lambert*

The Provincial Government established Ecological Reserves in the mid 1970s and since that time, Volunteer Wardens have been monitoring these sensitive areas. In September, 2003 the Friends of Ecological Reserves, with the assistance of Nancy Wilkins and Laura Darling of the Ministry of Water, Lands and Air Protection, Environmental Stewardship Division held a provincial gathering of Volunteer Wardens in Kamloops. This meeting gave Wardens from around the province the opportunity to come together and discuss common issues and concerns regarding Ecological Reserves. It was a very successful first meeting and the Wardens left with renewed vigour.



Volunteer Wardens Vancouver Island Regional Meeting, November 14, 2006, Nanaimo, BC. L to R: Derek Astbury, Will Lemmon, Rolf Kellerhals, Nick Francis, Vi Chungranes, Bill Merilees, Jim Borrowman, Genevieve Singleton, Chris Pielou, Corey Millar, Jan Whitehead, Warrick Whitehead, Carolyn Canfield, Katherine Backlund, Garry Fletcher, Claire Oppenheim, Jennifer Balke, David Oppenheim, Maggie Little, Marilyn Lambert, Paul Linton

In the winter of 2005, Bev Ramey, Eva Durrance and Marilyn Lambert began planning another provincial Wardens' meeting. After several conversa-

tions, we decided that the Wardens' Program would be better served by holding a series of regional meetings. This would

*continued on page 8*

*"Illegal logging".....continued from page 5*

aware of escalating trends of abuses around and within the Reserve. Monthly visits showed increasing dumping of garbage, yard waste (including introduction of invasive plant species) salal, evergreen and mushroom collection, culturally modified tress, two very young poached elk and finally, illegally logged trees.

In November 2005, we discovered the first downed trees within the Reserve. Two approximately 100-year-old large Western Red Cedars had been harvested.

Then in May 2006, accompanied by our summer relief Parks Warden, we were dismayed to find an illegal logging operation in progress. Ten enormous

Douglas Firs had been professionally felled. They were cut into mill lengths, ready for collection. Our Parks Warden, cell phone in hand, made calls and rallied the appropriate ministry staff. We were kept advised of the outcomes of the meetings and observations that then occurred and the seriousness of this form of 'grand theft' was evident.

One fact that did emerge was that staff were unsure of where the Reserve boundary was. It had not been completely finalized. Nonetheless, these magnificent trees, whether just within, or just without the ER had been stolen and that is not acceptable.

On a subsequent visit, our Parks Warden discovered more felled trees which prompted the

decommissioning of the road and dump sites, which was something we had been lobbying for.

We have a good relationship with our Parks' staff and they have been very supportive. We, like most British Columbians are saddened by the cuts to their budgets and staffing. Our Park Wardens cover the area from Rosewall Creek to Port Alberni to Nanoose and accompanying Islands. An enormous area to monitor!

In conclusion, we have been able to supply the Ministry of Forests with licence plate numbers that we believe may be of interest to them in their current investigation of the Bowser tree theft. As of November 3, 2006 the Ministry of Forests have laid a charge. We are ecstatic!



enable wardens to meet with other wardens in their region and the Parks staff that are directly responsible for their Ecological Reserves. These meeting had originally occurred once a year but had not been held since 2000. With funding secured from the Ministry to cover Wardens' travel expenses, and after updating the list of active Wardens and Regional Ministry staff, the meetings were on! In the fall of 2006, four meetings were held, one each in Omenica, Okanagan, Lower Mainland and Vancouver Island regions.

Each meeting followed a similar format. Parks' staff welcomed the Wardens and thanked them for their continuous support and dedication to the Warden Program. Staff outlined the structure of Protected Areas and there was much discussion on the status of Ecological Reserves within the current Parks and Protected Areas system. The Wardens introduced themselves and described the current conditions and concerns of their Reserve. Parks' staff distributed the revised Warden's Handbook, discussed some of the changes and made sure everyone's paperwork was up-to-date. The Wardens appreciated the opportunity to get together to share experiences, renew old acquaintances, reconnect with the Ministry of Environment personnel and look forward to meetings in the future.

There are still a few regions that have yet to hold a meeting, but with improved weather, we hope to have these underway this Spring.



Volunteer Wardens Meeting, Omenica Region, September 16, 2006, Prince George, BC. Back row, L to R: Sandra Hepburn, Verna Stene, Anne McKirdy and Art Carson. Front row, L to R: Floyd Stene, Kathleen Fontaine and Ivan Cartwright.

#### Highlights from the Vancouver Island Regional Meeting

- Parks' staff Andy Smith, Joe Benning, Susan Phillips and Ron Quilter were present throughout the day and provided insight into the curious workings of the Parks and Protected Areas system.
- Each Warden gave a brief overview of their Reserve, focusing on specific issues and concerns.
- Dave Polster, Regional Ecologist gave an interesting presentation on invasive plant species and effective removal methods. We were surprised to learn that steam is the most effective way to kill broom, a hardy invasive in many lower Vancouver Island Reserves.
- Katherine Backlund gave a talk on the Woodley Range ER that she warden with her father, Gary. It was great having a young person's perspective and gave us all

hope for the future of the Volunteer Warden Program.

- Garry Fletcher, Warden of Race Rocks Ecological Reserve gave a talk on the amazing projects going on in his Reserve (see their website at: [www.racerocks.com](http://www.racerocks.com))
- Alison Nicholson talked on the *State of Ecological Reserves 2005 Report* that the Friends of Ecological Reserves presented to Environment Minister Penner. This report outlines the condition of Ecological Reserves and the Volunteer Warden Program. See details of this report and the meeting with Minister Penner in this issue of *The Log*.
- Garry Fletcher, Rolf and Heather Kellerhals, Jim Borrowman, Jan and Warrick Whitehead and Syd Watts were recognized for their long service to the Warden Program.



### Highlights From the Omenica Region Wardens' Meeting

- Some Wardens had travelled hundreds of kilometres to participate.
- Dialogue was lively and included discussion about the status of the Ecological Reserves Wardens' Program, individual Reserves and their associated challenges and issues.
- BC Parks' staff expressed their appreciation of the volunteers who have continued to show a sincere and dedicated interest in the Ecological Reserves of the years.

### Highlights From the Lower Mainland Region Wardens' Meeting

- Bev Ramey, Warden for Fraser River Islands and the President of BC Nature; Mike Fenger, President of the Friends of Ecological Reserves and Ian Pepper, Parks and Protected Areas Section Head all gave a welcome.
- Wardens' contact and years of service information were brought up to date.
- Topographical maps, legal plans, air photos and other material were discussed for each reserve.
- The revised Warden's Handbook was distributed and reviewed.
- Mike Fenger presented the *State of Ecological Reserves 2005 Report*. (See details on pages 1, 2 and 3 of this issue.)
- Syd Riley was recognized for his long service to the Warden Program.
- All agreed that a similar meeting should be held in 2007.



Volunteer Wardens, Lower Mainland Regional Meeting, November 7, 2006. Back row, L to R: Ian Pepper, Denis Knopp, Lee Larkin, Carole Logtenberg, Joan Domer, Bev Ramey, Hugh Ackroyd & Terry Taylor. Front row, L to R: John Riley, Jim Wisnia, Jim Wiebe and Darryl Paquette

### Highlights From the Okanagan Region Warden's Meeting

- Almost all of the Wardens and all Parks' staff for the region were able to attend the meeting.
- A brief account was given by each Warden on their ER.
- A new Warden, present at the meeting, took on an ER previously without a Warden and responsibility for a second ER where the previous Warden retired. Therefore, all ERs in the Okanagan Region now have Wardens.
- A plan was adopted to bring in additional volunteer Wardens whenever possible, to work with the current Wardens on the understanding that the new people will take over as Warden when the current Warden retires.
- Parks' staff were to locate updated presentation material to provide to Wardens to take

to any public forums.

- Parks' staff presented the 'hows and whys' of photo monitoring in ERs to track changes in their conditions.
- A new position in the Region was announced with the responsibility to gather and store past and current information on parks and other protected areas including ERs. This central data gathering has been lacking for a long time.
- Both staff and Wardens were enthusiastic about taking periodic group visits to ERs in various parts of the Region to acquaint themselves with all the ERs. These visits will begin in the Spring.
- Parks' staff made a commitment to include Wardens in spring training for Park Rangers.
- Harold King was recognized for his long service to the Warden Program.

# Ecological Reserves of British Columbia

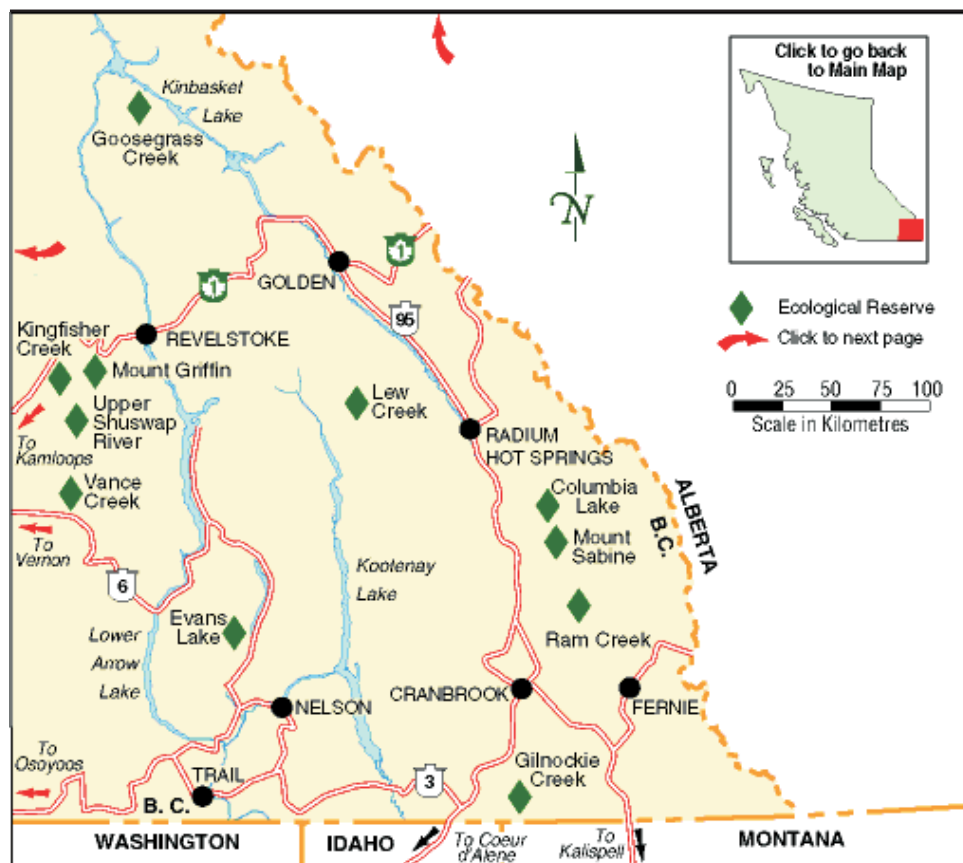
## ER 104 – Gilnockie Creek

- Located 34 km SSE of Moyie in the East Kootenays
- 58 hectares
- This reserve was created in 1981 on the flat valley bottom of Gilnockie Creek at its confluence with the Yahk River which drains southward into Montana. It was established to protect rare old growth stands of western larch in the East Kootenay and to serve as a silvicultural research opportunity and genetic bank for the species. A small wetland is located within the ER and contains a rare vascular plant (sweet marsh butterweed).
- Potential Threat: extensive logging in the Yahk River/Gilnockie Creek watershed has substantially reduced older age class western larch.

■ Warden: Annie Coulter

## ER 30 – Vance Creek ER

- Located 6 km north of Lumby
- 49 hectares



Old growth larch in Gilnockie Creek ER

- This reserve was established in 1972 to protect a portion of the Douglas fir ecosystem and the riparian values associated with Vance

Creek. The reserve was selectively logged in the 1930s and now supports second growth forest dominated by Douglas fir, falsebox-prince's pine and bunchberry-queen's cup. Blue-listed Bigleaf Sedge (*Carex amplifolia*) and Fox Sedge (*Carex vulpinoidea*) are present in the reserve. Vance Creek ER also provides a permanent site in the Vernon region for teaching forest ecology and related subjects.

- Potential Threat: garbage, fire rings, ATV use of trails and occasional parties.
- Warden: Rick Fairbairn

Visit our website at: [www.ecoreserves.bc.ca](http://www.ecoreserves.bc.ca)



## ER 61 – Upper Shuswap River

- Located 50 km NNE of Cherryville in the Upper Shuswap River Valley
- 70 hectares
- This reserve was established in 1975 and contains a stand of old growth Western Red Cedar as well as giant Western White Pine and Western Hemlock on the valley floor.
- Potential Threats: weeds from the road edge (Hawkeye daisy and thistle)
- Warden: Erin Nelson



Upper Shuswap River Ecological Reserve

## ER 49 – Kingfisher Creek Ecological Reserve

- Located 14.5 km ESE of Sicamous
- 1,495 hectares
- This reserve was established in 1973 to protect subalpine environments that represent conditions and habitats occurring in the transition from dry to wet interior climates. Subalpine parklands are a main feature of interest in the reserve. This ER remains in pristine condition due to its isolation and the surrounding rugged terrain.
- Potential Threats: unauthorized ATV and snowmobile access
- Warden: Neil Brooks



## ER 40 – Kingcome River Ecological Reserve

- Located 10 km N of the head of Kingcome Inlet
- 414 hectares
- This reserve was established in 1972 to preserve unusual

lodgepole pine, sitka spruce and alder swamps and associated open wetlands in a coastal alluvial landscape. The area is excellent habitat for both black and grizzly bears.

- Potential Threats: vulnerable to adjacent land uses
- Warden: Don Wilson

*continued on page 12*

## ER 144 – Yale Garry Oak

- Located 2 km NE of Yale
- 11.65 hectares
- This ecological reserve was established in 1998 to protect the most easterly isolated stand of Garry Oak and associated vegetation in British Columbia
- Potential Threats: none identified
- Warden: Sonny McHalsie



Vance Creek

## ER 4 – Lasqueti Island Ecological Reserve

- Located in the Strait of Georgia, 15 km N of Parksville
- 201 hectares
- This ecological reserve was established in 1971 to



protect a shoreline forest of some of the largest Rocky Mountain junipers in B.C. as well as two rare plant communities (Douglas Fir - salal and Douglas Fir - lodgepole pine - arbutus) and two blue-listed rare

plants (poison oak and giant chain fern)

- Potential Threats: vulnerable to feral animals, fire and recreational use
- Warden: Alfred Gaensbauer





# Ongoing Support from Friends Aids Sea Otter Research

By Jane Watson

Sept. 28, 2006

Dear Friends:

We spent our field season divided between Bamfield Marine Sciences Centre and the community of Kyuquot in Checleset Bay. In our ongoing research we have been using the red turban snail (*Astraea gibberosa*) as a model species to study how sea otter predation affects prey populations.

As I have reported in previous letters, sea otters are known to be size-specific predators. Sea otters lack blubber and stay warm by heating air trapped in their thick fur. Producing this heat requires that otters consume up to 30% of their body weight in food each day. Such a large appetite means sea otters cannot afford to waste energy; any prey item that "costs" more to catch than it is "worth" is not taken. As a result otters tend to select large individuals from a prey population. In the case of red turban snails they appear to remove individuals > 40mm in diameter and snail populations in areas with otters have few large snails whereas in areas without otters ~30% of the snail population is made up of individuals > 40mm.

In fact in areas without sea otters, we think red turban snails are most likely to get eaten when they are small – being preyed upon by a variety of invertebrate predators, especially crabs. We compared the source of mortality in snails in areas with (Checleset Bay) and without (Barkley Sound) sea



**Figure 1:** Snail A, which has been broken parallel to the base has been eaten by a crab. (Photo by Nicholas Davey)

otters by collecting broken snail shells from each area. In areas without otters, 89% of the cracked snails we collected were broken parallel to the base of the shell (see Figure 1), which is how crabs crack open snails. In areas with sea otters, 90% of the cracked snails were broken perpendicular to the base (see Figure 2), which is how we *believe* sea otters crunch open snails. In areas with otters, snails broken parallel to the base (by crabs) are rare, perhaps because most large crabs have been eaten by otters.

Two Malaspina University-College students, Nicholas Davey and Arin Routledge-Yeomans recently conducted lab experiments examining crab predation on turban snails. Their results suggest that red rock crabs may avoid eating

large snails which are hard to open and select medium to small snails which are easy to crack. To make a long story short; crabs like little snails, *but why*, you ask, should this matter?

These results suggest that changing predators could affect the reproductive strategy of prey populations. In animals that broadcast spawn (the squirt and pray method of reproducing) reproductive success increases with body size, because large individuals produce more eggs or sperm, and potentially more offspring. Consequently, in areas where predators such as crabs are common, red turban snails should produce more offspring if they put energy into growth when they are small (and

*continued on page 14*

vulnerable) and reproduce when they are large (and most fecund). However, in areas with sea otters, only those snails that reproduce when they are small (<40mm) will be successful because large individuals (>40mm) get eaten. If reproductive size is an inherited trait, different types of predation pressure may result in different reproductive strategies. Since red turban snails, much like abalone, have a larval stage that does not disperse very far, it is possible that these strategies could appear in snail populations quite quickly. Furthermore, reproductive strategies may have changed when sea otters were extirpated from BC waters.

Sorting this story out is proving to be challenging. We predicted that the growth rate of snails in areas with and without sea otters should be different. To look at this we tagged and measured snails in areas with and without sea otters. We released the tagged snails and collected them one year later to determine growth rates. We have done this for three years. Our preliminary results suggest that snail growth rate is highly variable between years, and thus difficult to track.

In the meantime, the Canadian sea otter population is growing. Our annual counts indicate that the sea otter population in and around Checleset Bay Ecological Reserve has been stable since about 1995; having reached a carrying capacity that is probably determined by prey abundance. Overall however, the BC otter population continues to expand



**Figure 2:** These snails have been broken perpendicular to the base. We believe that they were eaten by sea otters. (Photo by Nicholas Davey)

its range and increase in size. Population surveys conducted in collaboration with Linda Nichol at the Department of Fisheries and Oceans, put the BC sea otter at about 3200 animals (Linda's report is available at <http://www.dfo-mpo.gc.ca/csas/>). On Vancouver Island sea otters range from Vargas Island north to Hope Island and on the central coast, from Milbanke Sound to the Spider Islands. This continued growth and range extent will hopefully make the BC sea otter population less vulnerable to large-scale environmental disasters such as oil spills.

Once again I would like to thank the Friends for its support of sea otter research in BC. Long-term support for ecological studies of our ever-changing world is essential but very difficult to obtain. Without support from the Friends this ongoing work would not be

possible.

*"It was interesting to realize how little we would know about British Columbia's sea otter population increases and carrying capacity were it not for the Friends of Ecological Reserves and their*





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*Sarcosphaera crassa*. Photo taken by Pam Jansen from her fungi study on Saturna Island. Research supported by FER.

## The Log



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