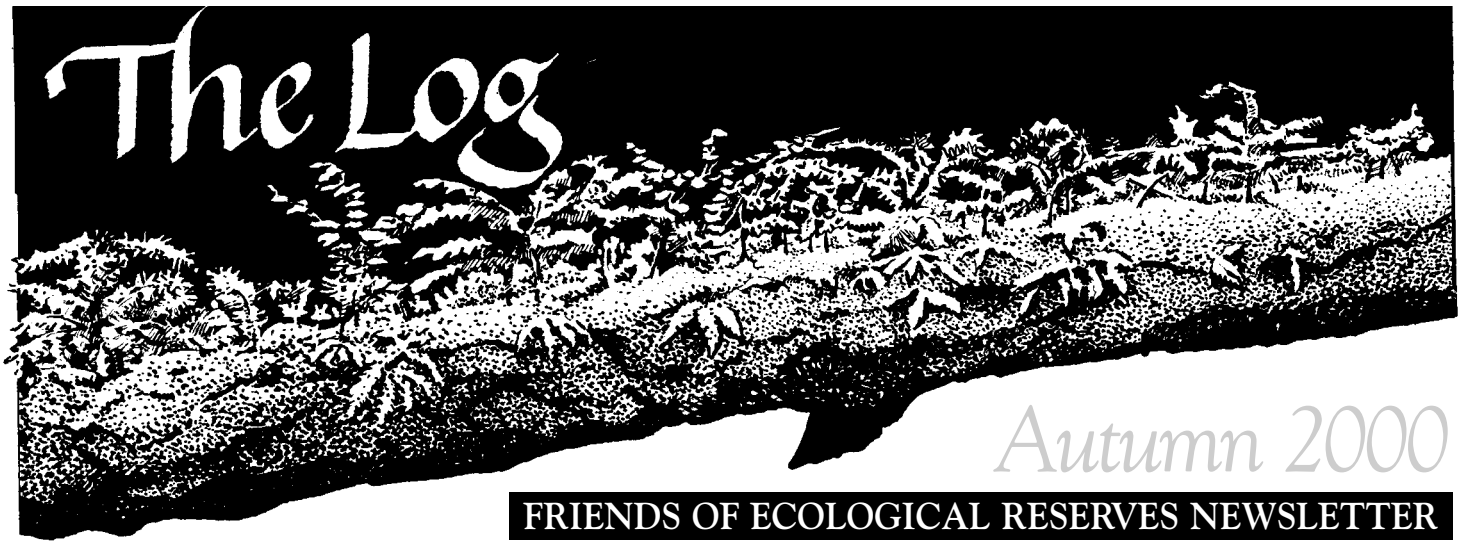

Autumn 2000

FRIENDS OF ECOLOGICAL RESERVES NEWSLETTER

PRESIDENT'S MESSAGE

We May Not Be Big But We're Small.

In this issue of the Log, the Friends of Ecological Reserves are focusing on the Okanagan region. Once a northern extension of the Sonora Desert, the Okanagan has been transformed into rich agricultural land for grazing and growing fruits and cash crops. The pristine Ponderosa Pine - shrub steppe communities that we associate with the Okanagan are few and far between in small Ecological Reserves, now islands in a sea of human activity.

In the last two decades population pressures and the burgeoning wine industry has transformed the small family orchard of the Okanagan to large high-end vineyards. The pressure to develop pristine land for subdivisions, schools, and hospitals is also a reality. How can we justify leaving a few remnant wild spaces, some regional planners want to know? Our reply is how can we not save these natural repositories of genetic material.

The Friends of Ecological Reserves tries to get the message out about the importance of conserving representative samples of BC's diverse landscape, but these concepts are difficult for many to grasp. Within the Parks Department, whose mandate it is to protect Ecological Reserves, there is confusion. Some bureaucrats want to put in picnic tables and trashcans while others want to close Reserves permanently from human observation. Ecological Reserves are important as natural benchmarks so that the changes brought on by human activity can be measured. That is why we need wardens and researchers to catalogue what is in our reserves and then measure changes as they occur over time. You cannot do this without access and regular observation but you don't need a trashcan.

With this in mind the Friends of Ecological Reserves raises funds to finance research. Our governments used to fill this function but not anymore. So as Friends we volunteer our time so scientists can keep us informed regarding the biodiversity within Ecological Reserves and in doing so, protect us from future perils. Our research grants are not large but recipients can often find matching grants or take our initial support and seek other private contributors. If there is anyone you would like to remember with a gift to support research we will honor your request. In the words of Stuart McLean of CBC, "We may not be big but we're small." ■

Lynne Milnes was elected FER's new president at our AGM this spring. She is a founding member of the Friends, and worked for BC's Ecological Reserves Unit, where she established the volunteer warden program. She traveled through out BC, interviewing people about the reserve program, and matching people with reserves. In her center article, she revisits part of this experience, speaking with Friends new and old.

Inside...

The Log

Autumn 2000

The Log is published twice 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.

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Thanks to all!

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Students/Seniors: $15
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BC Parks – Broom and Gorse Removal Trial Island Ecological Reserve

One of the reasons for establishing an Ecological Reserve (Sec. 2d of the *Ecological Reserve Act*) is for "areas where rare or endangered native plants and animals in their natural habitat may be preserved".

Trial Island Ecological Reserve was established in 1990 to protect the most outstanding known assemblage of rare and endangered plant species in British Columbia. Twenty-eight species of vascular plants listed as rare in British Columbia are present in the reserve, 15 of which are in the categories of greatest rarity in the province.

Scotch broom and gorse, both introduced species are increasing their foothold in the reserve and compromising the habitat for the sensitive species found on the island. Removal of the broom and gorse will create an opportunity for the native plants to again dominate this ecological reserve.

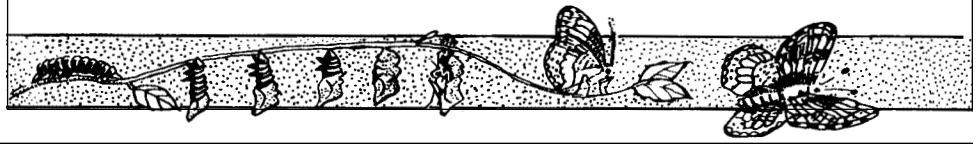
August is an appropriate time for the removal of the plants as they are in seed and most of the plants energies are in the stem being put to developing the seeds, not in the roots. By cutting the stems at ground level at this time of year the incidents of the stems re-sprouting are at the lowest and the success rate of eliminating existing individual plants is at the highest.

Cutting creates less stress on the ecological integrity of the site. Where as pulling out the plant roots and all opens the ground and exposes mineral soil which is ideal for other broom seeds to establish themselves, cutting eliminates the plant, the seed and leaves the site undisturbed.

Once the plants are cut, using garden shears, they will be placed on tarps and moved to the shore, stacked and burned under the supervision of a BC Parks monitored contractor.

Appropriate fire suppression equipment will be onsite but there will be some smoke, Oak Bay and Victoria Fire Departments as well as the Provincial Fire Control Center and CFAX have been notified. Burning and removal is planned for August 21–31, weather permitting.

Burning of the plants and their seeds is the best alternative to assist in the removal of broom, as it does not overly increase the organic build up and initial fire hazard to the island. In addition, research indicates that broom seeds can germinate after 50 years of dormancy and fire is a quick and sure way to destroy the seeds themselves. ■



South Vancouver Island Wardens Meet

Mary Rannie, former secretary and presently a board member of Friends of Ecological Reserves, attended the annual meeting for wardens of the South Vancouver Island District, hosted by BC Parks, South Vancouver Island District's Resource Officer, Chris Kissinger. Mary talked briefly about FER, how the society formed to help keep ERs in the public eye, and to fund research. The following reports were presented:

- Bill Merrilees, warden of Hudson Rocks ER, reported little activity and suggested a sea bird inventory be carried out there.
- Matt Fairbarns is making a species list (many are at risk) on Trial Island ER. The use of herbicide by the operators of the on island radio towers is being solved with the help of the lighthouse keeper.
- Pam and Harvey Janzen gave a marvelous talk and slide show on the fungi in the Saturna Island ER and an inventory was provided. FER continues to support Pam's research that, while setting a new precedent for mycological surveys, is still considered her 'hobby'!
- Ken Millard gave a report for Risa Smith, warden for Galiano Island ER. There has been ongoing salal removal – the solution might be to prosecute harvesters. Mushrooms walks previously endorsed and guided by the warden will no longer be offered. Efforts are needed to determine the best management practices for both the bog and beaver communities and the future of Cook Rd.
- Doug Biffard reported that at the Ten Mile Point ER the submarine power line was replaced by BC Hydro and that DFO got upset with the quality of the laying of the new cable line. DFO and BC Hydro came to an agreement that required BC Hydro to pay compensation to a DFO project. In the future the compensation should come to ERs. The ER sign was removed and will be replaced with one that clearly depicts the boundaries of this site.
- Jan and Warrick Whitehead reported on the Haley Lake ER. There is no sign of marmots this year.
- Syd Watts reported that at the Mt. Tzuhalem ER a 4' fence is up, and he recommends a sign: "Hikers use entrance off Taylor Rd" and closure of one entrance. Broom watch continues…
- Gary Backlund and daughter Catherine reported on the Woodley Range ER. A CDC inventory might be useful here. The horseback riding issue is no more and there is evidence of destruction by off road motorcycles of a sensitive site just out side of the ER boundary.

In general, all ERs have similar problems i.e. human use and abuse. Wardens continue their vigilance and deserve our heartfelt thanks. ■

You can be part of the Great BC Beach Clean-Up!

A million volunteers in more than 90 countries around the world will be cleaning beaches in their neighborhoods in mid-September. Here, in British Columbia, with the help of a few of your friends or family, you too can make a difference on September 16 and in the following week. Last year, over 2,800 volunteers cleaned 170 km. of BC coastline.

The International Coastal Cleanup is a global project that is supported locally by a number of environmentally concerned organizations, individuals and government bodies.

What do you have to do? Commit to spending a few hours on September 16 cleaning a local beach, create a clean-up 'team', and call to register your participation before September 5 – then go out there and do it!

Registration is necessary so that as many beaches as possible are cleaned and so that information about the kind of garbage found can be recorded. The data collected will be analyzed by the Center for Marine Conservation which registers the pulse of worldwide marine debris. Their findings are used for education purposes and to encourage positive changes to reduce marine debris.

The Community Outreach Team of the Vancouver Aquarium is organizing the BC-wide event. For more information about cleanup activities outside Victoria, contact Bridget Savage (tel. 604-659-3503; e-mail: savageb@vanaqua.org).

In Victoria, the Friends of Ecological Reserves will work on Trial Islands ER and the Oak Bay Islets, time permitting. For more information and to register in Victoria call Nichola at 385-9246 or e-mail ecoreserves@hotmail.com before September 14th. ■

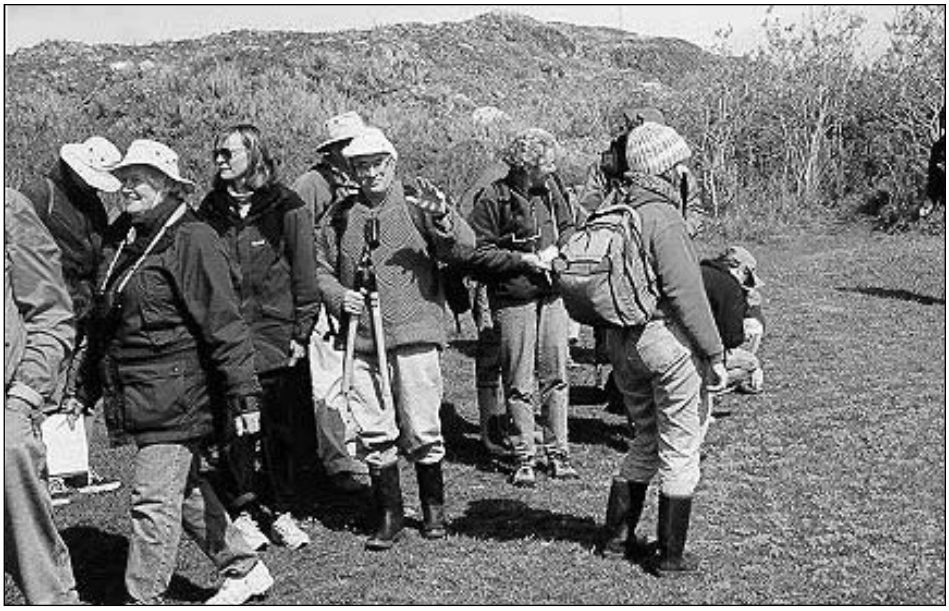
The Great BC Beach Clean-Up is sponsored by the Friends of the Environment at Canada Trust and the Vancouver Aquarium, with support from the U.S. Center for Marine Conservation.

Trial Island's Field Trip

A terrific turn out and fantastic weather made for a great day on Trial Island on April 29th. Twenty-two people attended, including ER warden Matt Fairbarns, warden Deiter Overhoff (#34,#51) visiting from Peachland and CDC Program Ecologist Adolf Ceska, who lead our expedition. Special thanks go to Marilyn and Phil Lambert for transporting everyone to and from the Island.

April is always a stunning time to visit the Island. Victoria's late spring was evidenced by the just emerging golden Indian paintbrush (*Castilleja levisecta*), and early camas (*Camassia quamash*). It was still a beautiful time to see all of the chocolate lilies (*Fritillaria lanceolata*), yellow buttercup (*Ranunculus occidentalis*), yellow sanicle (*Sanicula arctopoides*), and Easter lilies (*Erythronium oreganum*).

Adolf took a special trip to the west side of the Island in pursuit of his favorite plant Macoun's meadow-foam (*Limnanthes macounii*). Macoun's meadowfoam, has been described from Victoria on southern Vancouver Island and until recently has not been known from anywhere else in the world other than from the southern part of Vancouver Island and adjacent islands. It is a small inconspicuous plant, which grows in seepy places and wet depressions. The plant germinates in the fall and flowers in April; botanists walking overhead though, easily miss its small green flowers. For Adolf part of the intrigue comes from a recent discovery of a new population of the plant, far from its known range. Eighteen acres of fallow cabbage field in California is home to a curious, non-native population of the pant, with more individuals than in all of BC's populations combined!



Adolf Ceska leading the Trial Island Field Trip on April 29.

Madeline Carr and Emma Blake enjoying the trip to Trial Island.

While crawling around looking for more plants we also checked off the tiny popcorn flower (*Plagiobothrys scouleri*) from the plant lists provided by Matt Fairbarns for record keeping. The most notable difference to the Island, which was also noted, was a concerning increase in the coverage of Scotch broom and gorse. Adolf brought his loppers and removed a fraction of the plants – a repeat visit to the island to address the problem is planned.

One of the other concerns was the large amount of garbage, primarily on the shores of the reserve. As part of Pitch-in Canada (May 7th) the Friends traveled to Trial Island and Oak Bay Islands Ecological Reserves and removed an enormous amount of garbage, primarily plastics. Thanks again to Marilynn and Phil and also to Chris Kissinger from BC Parks who arranged to have all of the large debris (tires, large buoys etc.) picked up from the shores.

We will be re-visiting both Trial Island and Oak Bay Islands for the Great BC Beach Clean-up. See page 3 for details. ■

Six New Ecological Reserves Created

BC Parks announced the creation of six new Ecological Reserve, with the introduction of the new Protected areas of British Columbia Act in Legislature on May 31 this year. Minister Joan Sawicki introduced legislation that continues progress in implementing land-use decisions by legislating the boundaries of previously announced designated areas. This is a strong step towards consolidating parks and ecological reserves into a single act to help ensure long-term protection.

"Our new protected areas of British Columbia act gives the highest possible legal protection to some of the most ecologically important areas in British Columbia as identified in community-based land-use decisions," said Sawicki.

Along with the creation of six new ecological reserves was the announcement of 29 new Class A parks and additions to 13 existing Class A parks. In total, the new parks, ecological reserves and additions encompass more than 264,000 hectares. Bill 17 also transfers 169 Class A parks and 136 ecological reserves, previously established by orders in council, to schedules in the act. The transfer permanently protects these areas through legislation.

The Park Act and the Ecological Reserve Act remain in place and continue to direct the management of parks and ecological reserves designated under the new act. Amendments to the Ecological Reserve Act include stronger penalties for violations and will ensure that ecological reserves receive the same legislative protection as Class A parks. Amendments that will further enhance long-term planning and management of protected areas are expected to be introduced in the fall.

NEW ECOLOGICAL RESERVES

Burnt Cabin Bog (670 hectares) This ecological reserve, 16 kilometers southeast of Smithers, results from the Bulkley Land and Resource Management Plan. It protects a large, low moor bog site with significant old growth western red cedar, within the Interior Cedar Hemlock biogeoclimatic zone. This area has been a long-standing ecological reserve proposal.

Catherine Creek (45 hectares) Resulting from the Kispiox LRMP, this reserve protects an old growth western red cedar stand.

Grayling River Hot Springs (1,421 hectares) This reserve protects a complex of hot springs with nationally significant ecological values and a small representative sample of the Hyland Highland ecosection. It has been designated as an ecological reserve because of the fragile nature of the resource.

Kotcho Lake Islands (64 hectares) Located 95km northeast of Ft.Nelson, this site protects an area of spiritual and archaeological significance for First Nations. It provides representation of the Etsho Plateau ecosection. This ecological reserve results from the Fort Nelson LRMP.

Portage Brule Rapids (724 hectares) Located adjacent to the Alaska Highway, this reserve protects unusual vegetation, a hot spring, an example of a forest on alluvial terraces, and a small sample of the Liard Plain ecosection. This has been a long-standing ER proposal and achieves the designation to ensure protection of fragile areas.

Rolla Canyon (43 hectares) This ecological reserve, resulting from the Dawson Creek LRMP, protects a rare fossil site. ■

Friends of Ecological Reserves Field Trips Autumn 2000

Annual Broom Bash October 28–29

Bristol Foster, the former director of the Ecological Reserves Unit, will be hosting the annual broom bash on Brackman Island near Salt Spring Island. It is a weekend event so please bring sleeping bags, food sacateurs, large clippers and gloves etc. Accommodation is in Robert Bateman's cabin unless you would like to tent. Kayaking is a possibility (weather permitting) otherwise Bristol will pick people up at Fulford Harbour on Salt Spring at 9:30am and from Swartz Bay government dock around 10-ish. The return will be about 4pm Sunday. As Bristol said, "We can make it a fun weekend and do something useful."

Phone Bristol for information and reservations 1-250-537-9774.

Mt. Tzuhalem Broom Blitz

On October 14 the Cowichan Naturalists are holding a broom bash in the Mt Tzuhalem Ecological Reserve and would welcome any extra hands. Bring work gloves, lunch, good secateurs or loppers, although the group has a good supply of tools thanks to a grant from Canada Trust. Meet at the Cowichan Community Center (under the hockey stick) at 9:30am or up at the reserve at 10am.

For more information call warden Syd Watts at 250-746-5768 or Diane Angus 250-746-6659

Okanagan WARDENS

 # 7
Laurie Rockwell –
A retired social worker, Laurie Rockwell visits the **Trout Creek Ecological Reserve** every month keeping record of the flora and fauna. He says, "I like to watch the Reserve go back to nature. There are little pines growing on the old roadbed and I've seen deer and coyotes in there. It's such a peaceful spot." Laurie conducts an annual field trip to the Reserve with the South Okanagan Naturalist Club. The Reserve is fenced so that cattle are no longer a problem but the non-native toadflax is invading and out competing the native Mariposa lilies. There is hope for a biological control, just as there was for knapweed. An avid bird-watcher, Laurie was amazed to see grey flycatchers in the Trout Creek Reserve. He is always encouraging students to conduct research projects at Trout Creek and he helped Dr. Cindy Prescott of the Faculty of Forestry at UBC with her fieldwork on decomposition. Results are still pending.

GRAPHIC NOT AVAILABLE

#34 #51
Dieter Overhoff –
The Central Okanagan Naturalist Club is the warden of Ecoreserve #34 at **Big White Mountain** and #51 at the **Browne Lake**, both of which are fairly inaccessible but Dieter visits both reserves as often as he is able. The Big White ER contains 951 ha. of representative Engelmann spruce, subalpine fir, and alpine tundra while ER #51 conserves 124 ha. of sub-alpine meadow with orchids such as *Cypripedium montanum*. Logging and beetle kill surrounds the reserve but there is evidence of bear and moose activity.

GRAPHIC NOT AVAILABLE

 # 100 # 33
Harold and Joan King – Farmers, Birders and keen members of the Oliver/Osoyoos Naturalist Club, Harold and Joan are wardens of the **Haynes's Lease** (ER# 100) and **Field's Lease** (ER#33) respectively. Joan has taught birding and botany to elder hostel groups through Okanagan College and Harold has spent over 30 years with the Scouts and 4 years with the Okanagan-Shushwap Land Resource Management Plan. They both realize the fragile nature of the desert ecosystem and have educated hundreds of people about the Ecological Reserves. The recent opening of the Osoyoos Desert Center has taken some pressure off the reserves and permits are now required, but still Harold and Joan meet people on the #22 Road and on the Lease parking lot who have come from all over the world to see the Ecological Reserves and the flora and fauna they protect.

GRAPHIC NOT AVAILABLE

#108
Malcolm Martin –
Malcolm and the members of the North Okanagan Naturalist club are the wardens of **Cougar Canyon ER** # 108. He tries to visit once a month and has made extensive botanical lists that he has added to over the 20 years he has been warden. Access is a problem with the reserve because of the steep cliffs; consequently little formal research has been done in the reserve to date. Malcolm identifies future problems with a possible development on the south end adjacent to the reserve but he remains vigilant.

#30
Rick Fairbairn –
Rick developed an interest in natural history after participating in a canoe trip across the country in 1967. Now the warden of the 120-acre **Vance Creek Ecological Reserve** at 2300 feet elevation with representative forest habitat, Rick has witnessed extensive human impact. A nearby dump often spills over into the reserve. Some of the impact should now be mitigated because a new access road to Silver Star Mountain has been rerouted north of the Vance Creek boundary. Meanwhile a neighbor constructed an elaborate tangle of roots and branches to keep out partygoers. Rick is building up an inventory of digital photos of Vance Creek ER for the time when FER gets its own web site. His efforts should be applauded.

#130
Eva Durance –
Eva is the warden of **Mahoney Lake ER** #130. For her report see the following page. ■

Mahoney Lake Ecological Reserve

Mahoney Lake, ER #130, is a rather small lake 6 km south of Okanagan Falls and 3 km west of Vaseaux Lake with a surface area of 21.6 ha lying in a kettle basin formed by the glacier. It is of interest in part as one of BC's few meromictic lakes where there is little mixing of the water layers over time as is usual in such bodies of water mainly because of the great difference in chemical density between the surface and the bottom. It is also very saline and alkaline with a pH of 7.5 – 9.0 and very low levels of oxygen.

Mahoney Lake's most striking biotic feature is its layer or plate of purple sulfur bacteria which extends completely across the lake on top of the chemocline about seven meters from the surface. International experts consider this to be the finest example in the world of this purple sulfur plate, the result of the strong chemocline in the lake that provides the H_2S and CO_2 necessary for such massive concentrations of the bacteria to develop.

Understandably, the life forms that can tolerate such conditions are not many and almost all occur above the bacteria plate. A number of bird species, however, find sufficient food in the lake to raise young: American coot, common golden eye, and mallard in particular, while others rest and feed on the lake in migration.

Lakeshore vegetation is of salt-tolerant species such as saltgrass species, foxtail barley, seaside arrowgrass, great bulrush, and silverweed. Above the water level, the vegetation consists of the Ponderosa pine-bunchgrass community typical at this elevation.

Mahoney Lake ER130

Dr. Tim Northcote, internationally known limnologist, presenting talk at 1st Meadowlark Festival, May 1998.

Mahoney Lake has been a research and teaching site of international interest for over 20 years. It was designated as an Ecological Reserve in July 1990, but only the lake itself and a small area of foreshore. Recently, the land area in the Reserve was expanded somewhat to include a piece of upland to the north of the lake and the strip between the lake and Green Lake Road that follows the east shore of Mahoney.

Pressures on Mahoney arise primarily from its location beside the only road through the area and one that connects the main valley with White Lake Basin and the community of Willowbrook. Although there are a few small signs saying that the area is an ER, local people consider it 'their' place to walk, let dogs run, and ride horseback. While the old access road on the north end of the lake is a good trail for these activities, and the interest local people take in Mahoney compensates somewhat for the intrusion into the ER, this constant human presence in the Reserve is neither appropriate nor helpful. As well, some overnight camping and an occasional open fire cause some damage, though this appears to be less of a problem than in the past.

Vandals have twice pulled down the information sign at the pullout by the lake, and Parks is considering how to solve this problem. ATV's appear also on occasion to invade the ER by going around the one gate and through ditches dug to prevent vehicle access.

Biological problems are chiefly the invasion of weed species and livestock forage species from former grazing licenses.

Although I have only been warden of Mahoney for a little over a year, I would very much like to see better and larger signage, fencing of the Reserve, and a weed management plan put in place over the next two to three years. Admittedly, a high fence would not look great, and access to the lake would need to be provided for animals somehow, but the alternative seems to be a continuing deterioration in the condition of the land part of the ER and disturbance of the lake itself from swimmers and campers. How to manage an ER so easily accessed, I feel, needs to be considered carefully by Parks and some innovative approaches tried.

I have lived in the Okanagan Valley for 10 years during which time I have been active with the South Okanagan Naturalists Club, Canadian Parks and Wilderness Society, and most recently the local Meadowlark Nature Festival. I am a free-lance writer by profession, writing chiefly on natural history and environmental topics, and for the past three years have run a small native and drought-tolerant plant nursery. As well as my interest in our native flora, I am an avid birdwatcher.

Being warden of Mahoney Lake ER is a great privilege to me, and my only regret is that I am not able to visit the lake more frequently. I look forward to working with Parks to mitigate some of the problems and pressures there and to educate the public on the unique character of the lake. ■

Eva Durance

Entomological Research on the Haynes Ecological Reserve, Osoyoos

The Haynes Ecological Reserve was established to protect 100 ha of antelope-brush ecosystem in the bunchgrass biogeoclimatic zone. It was the habitat for many of the rare biotic elements in the area, especially some of the invertebrate species.

In 1993 a fire swept through the reserve and the adjacent grazing lease, destroying most of the vegetation. The heat at ground level evidently exceeded 350°C, as it melted the plastic covers over pitfall traps I had in place on the reserve. A fire brake pushed through the adjacent grazing area left a portion of this unburnt to the west, and the rock cliffs to the east did not burn.

Sampling of invertebrates on the reserve had been done for some years prior to 1993, so qualitative data prior to the burn were available. Within 18 hours of the fire, an extensive series of pitfall traps were established across the flatter eastern part of the burnt reserve, to study the process of recovery and recolonization: traps were also placed in the burnt and unburnt parts of the adjacent grazing lease. In the 3 weeks following the fire, pan trapping was also undertaken in all areas to assess aerial fall-out of insects.

Sampling immediately after the fire suggests that virtually all the invertebrates were destroyed in the reserve, along with the vegetation. Only a few black widow spiders survived, evidently by retreating down holes that had been made earlier by pocket mice.

Pan trapping immediately post-fire, spanning the period when the bunch grasses began to resprout, showed mass aerial fall-out, but none of the rarer insect species were represented in this influx. In the first year post-fire, there was a flush of flowering Phacelia, Phlox and mustard. This blooming was accompanied by an immediate colonization by insects from the fall-out, and there was an abundance of plant and seed feeding insects, with the bugs *Geocoris pallens* and *Nysius niger* being especially abundant. This flush of seed producing plants has now been replaced by a dense growth of native bunchgrass, together with a good growth of cheatgrass. There has been little regrowth of the antelope-brush, although the sumac has recovered.

The pitfall trapping has shown that there has been some recovery of the native fauna, with most of the ground-dwelling invertebrates recolonizing from the rock cliffs to the east, and the unburnt grazing lease to the west. Most of the species, typical of well disturbed antelope-brush communities, have now reappeared along with the pocket mice and the spadefoot toads. Namely, the field crickets (*Gryllus*), Jerusalem crickets (*Stenopelmatus*), and the rare wind scorpion (*Eremobates*) and several seed bugs (*Neosuris, Sisamnes*). A few scorpions have strayed into the reserve from the rock cliffs, but there has been no recorded occurrence of some of the other rare insects that occupied the reserve prior to the fire. ■

G.G.E. Scudder,
Department of Zoology,
University of British Columbia

racerocks.com

Gary Fletcher and Lester B. Pearson College deserve tremendous thanks for all they have done to protect Race Rocks Ecological Reserve (and Marine Protected Area). One of their most recent projects racerocks.com should also be noted in their accolades. This is the most intriguing web site I have ever explored. It connects the viewer to real time video cameras on the reserve that can be controlled from your desk, allowing you to 'move' around the island. August marks the return of the California sea lions, so there is lots of activity to observe. I logged on to the site and continued monitoring intermittently throughout the day, with the sound of the water, sea gulls and sea lions remaining in the background while I worked. The second site listed connects you to a variety of prerecorded videos, of wildlife and research activities. FER contributed a modest grant to racerocks.com earlier this year to help with the purchase of camera equipment, which provides a permanent monitor to the site.

http://www.racerocks.com

http://www.racerocks.com/pearson/racerock/events.htm

Past Uses and Future Potential of Arrow-leaved Balsamroot

*Kimberlee and **Balsamorhiza sagittata** at Skwaha Lake Ecological Reserve (No.88)*

In Gardening with Native Plants, A.R. Kruckeberg records that 'the rites of spring in sagebrush country are truly celebrated when fields of yellow appear'. In June this seasonal passage is observed at Skwaha Lake Ecological Reserve (No.88) located in Botanie Valley, north of Lytton. The conspicuous plant being referred to is Arrow-leaved balsamroot, *Balsamorhiza sagittata (Pursh) Nutt. (Asteraceae)*. A dominant forb in semi-arid grasslands, B. sagittata is of both ecological and cultural significance.

B. sagittata, also known as Spring Sunflower or Wild Sunflower is commonly seen in large clusters on open grassy slopes and in dry forests. This long-lived perennial grows from 20 to 70 centimeters high. The entire plant is softly hairy and the large arrowhead shaped leaves (often reaching 30 centimeters long) have a silvery-gray sheen giving them a pastel coloring. Full sized plants can have upwards of 50 leaves and 30 or more solitary, bright yellow composite flower heads.

Traditional ethnobotanical studies have documented the use of *B. sagittata*, throughout its known habitat (British Columbia south to California east to Colorado and Saskatchewan). Dr Nancy Turner argues that B. sagittata can be 'ranked among the most versatile food plants used by the peoples of the southern interior'. Roots, leaves, bud stalks, and seeds; were all used by First Nations Peoples. Roots were pit cooked overnight andthen peeled and eaten or dried for storage. The main carbohydrate in the roots is a long-chain sugar called inulin, which is difficult for humans to digest. However, pit-cooking and storage helps to chemically break down inulin into fructose, which is digestible and sweet tasting. Young flower stalks were eaten raw in the spring. Young leaves were steamed and eaten or smoked as a tobacco. B. sagittata seeds were pounded to be used as flour or meal. The pitch from the bark of *B. sagittata* root was used traditionally, and continues to be used by Interior Peoples to make a salve for skin infections. Research indicates that *B. sagittata* is also an important food source for a variety of mammals including deer mice, mule deer, elk, and bighorn sheep, as well as for a number of birds and insects including grouse and butterflies.

Throughout British Columbia there is a movement to document Indigenous Peoples' knowledge and interest in the potential applications of ethnobotanical research is increasing. Projects, which find new contexts for the practice of traditional knowledge, may contribute towards ecosystem resilience, community self-sufficiency and the perpetuation of Indigenous Peoples connection with the land. Today there are perhaps more opportunities than ever before to apply traditional botanical knowledge in community development. *B. sagittata* has a variety of potential economic and ecological applications: as an ornamental, inulin source, herbal medicine (anti-microbial properties), restoration (slope stabilization and mine reclamation) and as a vegetable.

The research that I, and my assistant Gene Hannon, conducted at the Skwaha Lake Ecological Reserve in June was part of a wider project to look at the feasibility of cultivating *B. sagittata* in a cropping system. Aside from the field surveys this summer, germination and propagation experiments on *B. sagittata* have been initiated in Xaxl'ep (near Lillooet) and at Agriculture Canada, Agassiz. The third component of my research on *B. sagittata* is an analysis of previous agronomic uses and areas of potential economic initiatives. This research on *B. sagittata* illustrates how one species can act as a case study for the synthesis of ethnobotanical knowledge, modern agriculture, community development and conservation.
Research has been aided by the support of the Xaxl'ep community, Agriculture Canada, Dr Nancy Turner and a generous financial contribution from Friends of Ecological Reserves. ■

Kimberlee Chambers, University of Victoria, Master of Science Student

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Websites of Interest

SOUTH OKANAGAN SIMILKAMEEN CONSERVATION PARTNERSHIP

This site is an indispensable source of information concerning the conservation of landscapes and species in the South Okanagan. This partnership was officially announced on July 31, with a $1M contribution from the Federal Government to support conservation efforts. The prospectus defines the background, rationale and goals of this new strategy. This site contains links to maps, education resources, species information, and updates. A terrific resource.
http://www.soscp.org

HABITAT ATLAS FOR SPECIES AT RISK

This publication is now available online. The atlas focuses on 32 species considered "at risk" in the South Okanagan and Lower Similkameen and designated by the provincial government as candidates for endangered, threatened or vulnerable status. Beyond descriptions and maps, there is information about what is being done and needs to be addressed in the future. I strongly recommend this publication to anyone involved in the area as an indispensable source.
http://www.elp.gov.bc.ca/sir/wld/atlas/index.html

NOXIOUS WEEDS

Not sexy, but serious. Weed invasion is one of the largest threats to natural areas in the Okanagan. From the Ministry of Agriculture, this comprehensive resource provides descriptions and pictures of all of the noxious weeds in British Columbia, and defines the regions where each is a concern.
http://www.agf.gov.bc.ca/croplive/cropprot/weedguid/weedguid.htm

ENDANGERED SPECIES

As part of a Canada-wide digital collections project, this internet exhibit provides information on some of the rare and endangered plants and animals in the Thompson-Okanagan region of British Columbia. You can click on the images to see a list of endangered species, with species accounts. Biological information, distribution and habitat, current threats and species status are included for each plant or animal, with links to other sites for further information.
http://www.rbcm.gov.bc.ca/end_species/index_es.html

HAVE YOU SEEN THIS BADGER?

The Thompson Okanagan Badger Project has been launched to help researchers locate and find out more about this elusive mammal. Badgers have been added to the COSEWIC red-list for British Columbia this year. One of the few mammalian carnivores that specialize in grasslands, they are found in scattered locations through the Thompson, Okanagan, and Rocky Mountain Trench. Residents are urged to keep an eye open for local badgers and to report any sightings. This information can go along way in helping to see that the badger remains part of BC's population.
http://www.artemiswildlife.com/artwc/badgers.htm

The Log

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