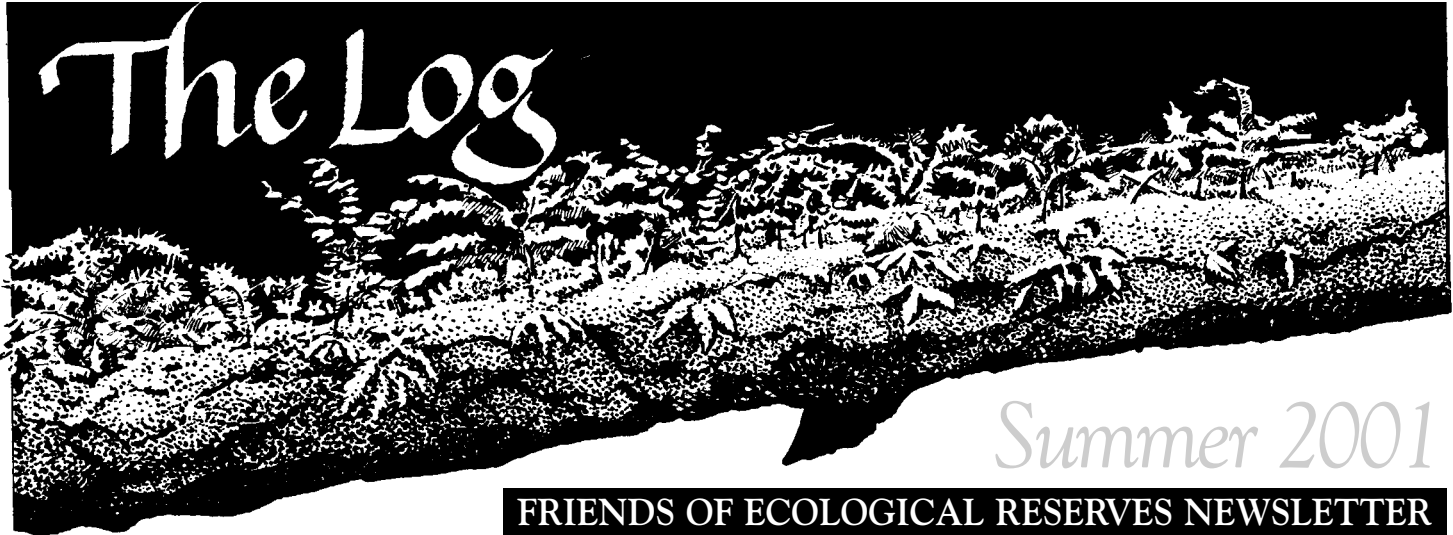


The Log



Summer 2001

FRIENDS OF ECOLOGICAL RESERVES NEWSLETTER

What Are Protected Areas Worth?

We are always putting a dollar value on nature. We might say that a hectare of forest is worth so many dollars in standing wood, or a given body of water might produce so much value in fish harvested. We have calculated the value of nature as a tourist attraction: in BC, studies indicated provincial parks are said to contribute over \$450 million annually to provincial GDP through tourism-related spending.

Both of these methods involve the human use or exploitation of nature. Nature produces goods like water, fish or wood, and we can put a dollar figure to the value of the goods.

But there are other ways to calculate the value of nature. While we don't often think about it, nature has a real and demonstrable value just as it "sits" there, doing what it always has done, and would continue to do into the future, if it were simply allowed to exist as it is.

What nature does, usually without us being aware of it, is provide us a wide—a staggeringly wide—array of "services". There is a service industry

in nature, a natural industry that is often invisible.

Why does BC have a multimillion dollar fruit industry? Because there are bees and other insects around that pollinate fruits. Why does BC have a multimillion dollar fishery? Because there are streams and rivers for salmon to spawn in, and estuaries for their juveniles to mature in. Why do we have some of the best drinking water in the world? Because we have intact forests that purify our water. Why, with all of our rain, don't we have more flooding? Because we have swamps, marshes and wetlands to absorb water. Why does soil remain on our mountainsides? Because the plants hold the soil together, anchoring it to steep slopes.

These are all examples of ecosystem services, things that nature does, naturally, potentially forever, that have direct human benefits. Could we afford to build a water purification and filtration system that does a better job than the Seymour watershed? Unlikely. Could we afford to produce all of the millions of salmon now returning to our coastal waters through hatchery production? Hard to imagine? We know that the amount of carbon dioxide in the atmosphere is rising. Think of how much more rapidly this would be happening if we didn't have vast forests to take up at least some of this greenhouse gas.

Work done by environmental economists in the late 1990s tried to put a dollar figure on these and other ecosystem services. As a result, for the first time economists had a way of trying to put a value on services, rather than only having a value for the goods. There is a big difference between the value of a forest as

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The Log

Summer 2001

The Log is published 2–3 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 next issue of *The Log* is November, 2001

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PRESIDENT'S MESSAGE

Goodbye Environment, Hello Air...

The Friends of Ecological Reserves (FER) bids a fond farewell to the Ministry of the Environment, Lands and Parks which was given its death blow when our own version of George W. was elected to the British Columbia Legislature.

There is no "environment" anymore. Instead, we are left with a ministerial collection of air, land and water, just in case more cabinet posts are needed. There is a lot of air, hot or otherwise, in the legislature but as for land and water—well, it seems it is time to sell, sell, sell. Pressure from the guys down south means everything is up for grabs including our precious fresh water supply and our public lands, such as parks and Ecological Reserves.

Grizzly bear hunting is about to begin with or without scientific evidence to support this inhumane slaughter. Please keep in mind that FER worked for 10 years to establish the first grizzly bear sanctuary in British Columbia in the Khutzeymateen Valley. We are going to have to work just as hard in the next 10 years to maintain this wildlife management area so that some bears are protected.

Protecting the environment is what FER is all about and we are not afraid to say it. Environmental protection to us means setting aside representative habitat as gene banks; it means outdoor classrooms to show children of all ages the intrinsic value of wilderness; it means the protection of rare and endangered species and it means our long term survival as a species.

"Environment" is an inclusive word meaning "all surroundings". By dividing the ministry into air, land and water it makes me think of all the gaps in between like "Earth, Wind and Fire", a 70's soul dance band. Their big hit *After the Love is Gone* might be the theme song for our present ruling administration.

The key to survival, I am told, is meet change with change. For our environment to survive in BC 2001 we, as conservationists, must step up our activities. It is time to ask a friend to join the Friends of Ecological Reserves. It is time to write your local MP or MLA and let them know that our water resources and public lands are not for sale. It is time to share the wilderness with someone of influence who may not have experienced it before. As conservationists and members of FER, we know the true conservatives are those who respect the environment and conserve habitat for future generations.

Like the parrot in the Monte Python skit, the environment is not dead it's just "resting".

Lynne Milnes, *President*

Cariboo Country

In this edition of the Log, we feature the Cariboo-Chilcotin, a vast area bordered on the east by the Cariboo Mountain Range and on the west by the Pacific Ocean, located approximately 400 km. North of Vancouver and covering approximately 12,600,000 ha (over 31 million acres).

There are two main access routes into the Chilcotin—by road from Williams Lake on the Freedom Highway (Highway 20) or by sea from Vancouver Island to Bella Coola. This is a land of dramatic scenery, rugged landscapes and thick forests, where streams and rivers score the land, slashing out amphitheatres filled with fantastic rock formations.

The jagged mountain peaks of the Chilcotin are covered in vast ice fields and wide alpine meadows, gradually giving way to large valleys, gently rolling foothills, pine covered forests, lakes and rivers and the grasslands of the Chilcotin Plateau—5,000 square kilometres of rangeland where thousands of cattle roam unfenced land.

The central coast, which is also part of this region, contributes its rugged beauty—a breathtaking study in landscape and ecological diversity—15,000 km of private coves and inlets, pristine beaches and rocky shores.

Stresses on this land include indiscriminate pine bark beetle and cattle grazing, resource extraction, logging and fire. Of all this, over 1.4 million ha (11.4%) is in BC's parks and recreation system; the 10 ecological reserves in this region represent .44% of the total land area.

Cheryl Borris, *editor*

Reports from Wardens:

Today (Saturday July 7) we conducted our fourth annual Scotch Broom removal from the Woodley Range Ecological Reserve (#135). We took time out to measure the



area and did sample plot counts to estimate the number of *Aster curtus* (see photo) plants for the three communities on top of Woodley Range. The Data Conservation Centre's count in their 1996 report estimated the three communities to have 500+ plants over a 300 m² area.

One of the communities was severely dominated by Scotch Broom in 1996. Since its release, the Aster has flourished and today's count estimated 4986 Aster plants over approximately 900 m² for this community alone. The other two communities had 2320 and 1668 plants giving a total of almost 9000 plants.

In 1996, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), along with the BC Conservation Data Centre classified the White-Top Aster (*Aster curtus*), as Threatened. Its distribution in Canada consists only on southern Vancouver Island. Between 1887 and 1996, nineteen growing sites have been found, however at least six of these are extirpated. A study completed in 1996 estimated the number of plants in the eight main known locations. Mt. Tzuhalem had the greatest number, 1250 plants, and Woodley Range was estimated to have 500 plants in three distinct plant communities. The total for all eight locations was approximately 5000 plants.

It's nice to have a success story. The Aster is just now budding up to bloom. Our other very rare

plant *Lotus Pinnatus* (know as Bog Deer-Vetch, or Creek Lotus) is currently in bloom but won't be for much longer unless we have a long rain. ■

Gary and Katherine Backlund
Volunteer Wardens

Woodley Range Ecological Reserve is located approximately 6 km south of Nanaimo and 2 km north of Ladysmith and is 166 ha in area. It was created in April 1996, as a result of recommendations made in the Vancouver Island Land Use Plan.

The ecological reserve protects a rare vegetation community, unique meadow communities and a small wetland and has historical significance to the community. The ecological reserve is accessed through private property and only by permit. Recreation use within the ecological reserve is not encouraged.

Call for Photos

As one of its projects this year, FER is developing a website. We are asking our membership to scour their personal archives for photographs of ecological reserves and activities in reserves and to send them to us—or, alternatively, if you have the technology, scan them and forward them to us as a .jpg file via e-mail.

Please take the time to identify any people in the photograph(s), as well as who took the photograph (if you can remember). And, give us your name and phone number so that we may contact you if we have questions. If you want the photograph(s) returned, remember to include your own address. Thank you! ■

Beach Clean Up, May 2001

On a beautiful sunny Mother's Day this year, five dedicated board members met at Cattle Point in Victoria for this year's annual beach clean up of Alpha and Griffin Islets (ER#94). Once again, board member and warden for ER#94, Marilyn Lambert, allowed us use of her zodiac for the day (thanks AGAIN to Marilyn). So off they went—Marilyn at the helm, Peggy Frank, Mary Rannie, Syd Cannings and Sue Carr (and honorary board members Benjamin and Madilyn Cannings) all in tow.

Quite a few large pieces of Styrofoam were recovered. The Styrofoam breaks away from marine docks and floats away. Some pieces, which had been there since the last beach clean up, were removed on this trip. Other pieces of trash like old lighters and pieces of plastic were collected as well. It was also noticed that the signs on the islands are in need or replacement, as they are difficult to read.

After a morning of hard work, the FER clean up crew headed in for some fish and chips. All said and done, it was a great way to spend Mother's Day. ■

The Great Canadian Beach Cleanup (Pitch-in Canada) takes place 15–23 September. This is an international event and is not restricted to ocean beaches—streams, rivers, and lakes can all benefit from some community TLC. For local activities, check your local community listings or contact www.vanaqua.org (e-mail: taylor@vanaqua.org; tel: 604 659 3487). **In the Victoria area: interested participants should contact Daphne Munroe at 250 595 4571 to register their participation with the FER team.**

"What Are Protected Areas Worth?"
continued from page 1

standing wood, and the value of the same forest as a water purification system and containment area, an air treatment system, a source of a variety of forest products, a place for recreation and education, a carbon sink, a place for air purification.

The economists calculate that the average value of the world's ecosystems in terms of their services, per hectare, is around \$1100 (using Canadian dollars, for the purpose of this discussion). This ranges in value from estuaries, sea grass beds and swamps/marshes that are worth more than \$40,000 per hectare, to range land and open ocean ecosystems, valued at more than \$400 per hectare.

So let's do the math. Nearly 12 million hectares, just more than 12% of BC's landmass, is now in a protected status. What's this land and water worth, every year, in ecosystem services, services that we don't have to pay for as long as we care for nature?

If we take the average value of a hectare of nature, then BC's protected spaces contribute a value of around \$12 billion each year to the province. If we bring the valuing way down, down to the value of the least productive ecosystems and value it at \$350 per hectare, the value of our protected areas is still more than \$4 billion per year.

What can we compare this with? The total value of the BC economy, the value of all the goods and services produced in the province, is just slightly more than \$110 billion. If we use the average value of an hectare of nature, then the value of the protected areas is around 10% of the total BC economy!

We can also use another way to look at the importance and value of ecosystem services. Economists often talk about "return on investment" as a way of making decisions: usually,

one wants to have as quick a return on one's investment as possible. The total budget for protected areas in BC from both provincial and federal governments is roughly \$70 million. That is, collectively we put in \$70 million to manage and protect these areas, and those areas gives us from \$4–12 billion of services in return. The rate of return on investment? Less than one week! In one week, the provinces' protected areas provide more than the yearly budget of the agencies charged with their care.

*...the value of our
protected areas is ...
more than \$4 billion
per year.*

Most of those involved in conservation don't really like putting a dollar value on nature, preferring to consider only its intrinsic values. But we live in a world where dollar-values speak loudly. Protected areas are not, as critics might profess, places removed from economic activity. Protected areas are intensely involved in providing goods and services so valuable that there is not enough money generated in the provincial economy each year to buy those services, assuming that they could be bought. Investments in parks are good ones. ■

Rick Kool

Reprinted, with permission, from BC Parks Visions Newsletter, April 2001

Rick Kool is an Education and Interpretation Officer in Extension Services, BC Parks

The Spatsizi Field Trip 2001

*Step, step, ...pant,
Step, step, ...pant*

The steep, 3000-foot ascent of the Spatsizi Plateau is not for the faint of heart or out of shape. Several board members of the Friends of Ecological Reserves, member/donors and a visiting botanist from Australia made this climb in the Spatsizi Wilderness north of Smithers as part of our visit to the Gladys Lake Ecological Reserve (ER #68) in August, 2001. The Reserve is the largest within the BC Ecological Reserve Program, representing over 30% of the land area in the total ER system, and protects over 48,000 acres of habitat for stone sheep, caribou, and mountain goats. Our goal was to record the wildflowers of the Spatsizi for FER's next placemat on the mountain flowers of BC.

Instead of carrying the definitive guide book *Plants of Northern BC* (too heavy, we decided) we travelled with two of its authors, Roz and Jim Pojar. Our first climb was at the speed of west coast slugs, as Jim and Roz introduced us to the array of sub-alpine and alpine species around us. No single list can express the diverse beauty we saw. Blue gentian, arctic lupins, Jacob's ladder, forget-me-nots, monk's hood, delphinium, blue bells, mertensia, yellow senecio, arnicas—upright and nodding, and the elusive arctic poppy are only some of the plants we observed, sketched and painted for the wildflower placemat.

The view from the top of the plateau was magnificent, looking southwest towards Gladys Lake ER, which includes Danihue Pass, Airplane Valley, and the steep, glacier-laden Nation Peak in between. At base, we divided into two groups with one group circumnavigating Gladys



PHOTO: DARLENE CHOQUETTE

President Lynne Milnes (centre) with intrepid hiker companions, Peggy Frank (left) and Vicki Husband (right).

Lake via Bates Camp over 4 days while the other group did extended day hikes into the large passes within the Reserve, looking for wildlife, sketching plants and recording their observations up one side of a mountain and down the other. Several FER board members were present which made us realize we should, and could, do a field trip to a remote Ecological Reserve every year.

Largely due to the efforts of Tommy Walker, a local guide-outfitter who recognized the importance of these refugia, the Gladys Lake ER was established in 1975. It included trails for guide-outfitters operating in the surrounding park. Horses were, and still are, allowed to pass through the Reserve on trails. Unfortunately, they bring non-native agricultural seed with them from their feed, which is deposited along the trail, as they walk. They also churn up the soil with their shorn hooves. The guide-outfitter who is presently operating in the Spatsizi Wilderness Park has been reprimanded in the past for allowing his horses to run loose within the Reserve. Reports indicate this has happened on more than one occasion.

This year there was evidence that horse tours had left human and horse debris in the Reserve—an area specifically set aside to prevent such

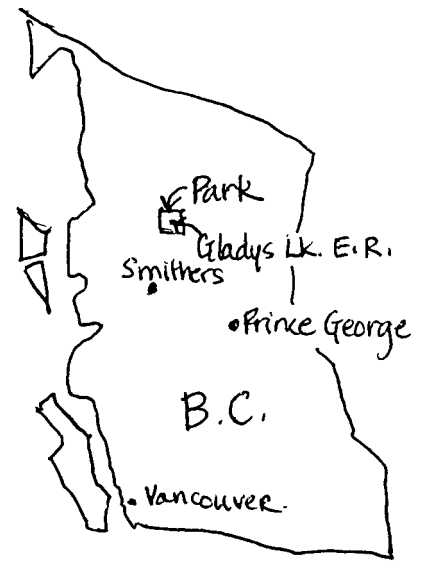
destruction. FER will be reporting to the new minister-in-charge. We have informed local parks staff and we will report in future issues of the LOG the results of our investigation. Because Spatsizi Plateau Wilderness Park is open to hunting and fishing we fear the integrity of the Ecological Reserve may be compromised.

Hiking and hunting seem an odd combination in a park. Perhaps, a no hunting buffer around the ER could be proposed. We were alarmed on more than one occasion by gunfire, and air traffic was constant. What does this do to wildlife? While the Reserve was “created for the study of stone sheep and mountain goats in an undisturbed habitat” (BC Parks brochure), we saw few sheep, no goats and only few caribou and moose. The most predominate wildlife we saw were mosquitoes.

Other issues we discussed during our visit were traditional rights of aboriginal people on Crown land including Ecological Reserves, regional representation on the FER board, management of land within and around Ecological Reserves—particularly remote ERs like Gladys Lake, challenges to wardens reaching remote ERs and wardens’ status within the Parks system. We hope to explore these problems in future issues of the LOG. In the meantime, we are working with Parks staff to try to re-instate an annual gathering where all wardens could meet, together with other experts to discuss resolutions to Ecological Reserve challenges province-wide.

Our field trip was a tremendous learning experience. For some, it was a chance to re-acquaint ourselves with plant names gone rusty over time. For others, it was an opportunity to discover our individual pace and breath. For all of us, it was a wake up call that Ecological Reserves, no matter how remote, must be managed on the ground for their long-term protection. ■

Peggy Frank and Lynne Milnes



We welcome any art contributions from any members along the theme of mountain wildflowers. All contributions must be received by October 1, 2001 (contact Peggy Frank at pegfrank@islandnet.com).

With thanks to Evelyn Hamilton, Roz and Jim Pojar, and Curtis Rattray for making this trip such a memorable experience. Anyone wishing to hike in the Spatsizi Wilderness Park should contact the Smithers Park office. There are also opportunities to act as park hosts at the Cold Fish Lake cabins, which are operated by the Nature Trust of BC. For more information call 604 924 9771. In the past Ecological Reserve wardens have acted as Spatsizi park hosts and their observations are an important record of change over time.

Dear Friends,

Here is an update on my research—Saturna Island Ecological Reserve Macro-fungi Inventory and Long Term Fungi Study—which your organization so generously helps fund.

This past year I made 22 trips into the Reserve (ER #15) bringing the total to 87 trips since I began this study in August, 1997. I added 84 species to my inventory list bringing the total number of fungi species recorded in the Reserve to 365.

In addition to the inventory work, using a checklist of previously collected fungi, I also record the occurrence of each species of fungi encountered per trip in the Reserve. Based on the information from these checklists, I am gathering information on the abundance and season of those fungi collected so far.

On most of these trips I am accompanied by my husband Harvey Janszen, warden of the Reserve and a botanist who also does terrestrial ecosystem classification work. This year he sectioned the Reserve into terrestrial ecosystem polygons and my checklists now reflect this information. I have also begun collecting the weather and precipitation data for the Reserve from Environment Canada. While it is too early yet to make use of all this information, someday we hope to see a correlation between types of fungi and soil, moisture and vegetation.

This year I also had the pleasure of hosting Jim Ginns, retired Curator of the National Mycological Herbarium of Canada and Past President of the Mycological Society of America, on two collecting trips on Saturna Island. Jim is a well-known expert who specializes in the *Corticoid* fungi, loosely described as wood rotting crust fungi. Several of the fungi from the first trip were previously unknown to the west coast. Some were new to BC, some to western Canada, some to North America and some appear to be new species altogether.

Another new aspect of my research this year has been to make collections of the species found for deposit in the herbarium at UBC. These are then available for use at the University and are also available by loan to other institutions for research purposes.

Although my work has always been well received in the mycological community, this year has brought some big changes in local community awareness and interest in my work. It began with showing a friend a copy of my annual report to BC Parks and led to 26 people buying copies of my report, including the local library. It was exciting to see the interest shown to this rather dry document about our fungi that didn't once allude to edibility or hallucinogenic properties. (It did have some great pictures though, directly related to funding help from the Friends of Ecological Reserves!)

Thank you so much for your continuing support of this project. As yours is my only funding, it really is invaluable to this project. I would be happy to discuss this project further or fungi in general with anyone who is interested. I can be reached by email at hpjanszen@gulfislands.com or by regular mail at Box 34, Saturna Island, BC V0N 2Y0. ■

Pam Janszen

Scientists Call for Development of Ecological Forecasting

(August 10, 2001)

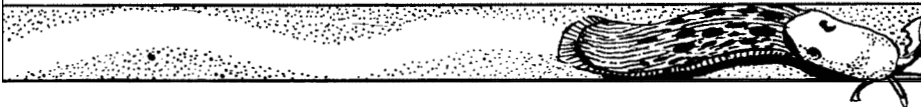
A broad consortium of scientists has proposed a concerted effort by researchers and policymakers to develop the ability to forecast ecological change in areas ranging from small plots to the entire globe. The scientists say advances in science and technology could enable forecasts guiding policy to forewarn of invasions of exotic species and disease epidemics; to protect the ecology of lakes, rivers and estuaries; and to predict the ecological impacts of global warming.

“Planning and decision making can be improved by access to reliable forecasts of ecosystem state, ecosystem services, and natural capital,” the scientists wrote in an article in the July 27 issue of the journal *Science*. Availability of new data sets, together with progress in computation and statistics, will increase our ability to forecast ecosystem change.”

The consortium called for an initiative in which policymakers would work with ecologists and other scientists to define ecological systems in which it would be both useful and possible to make forecasts.

“This paper is a response to a problem that many ecologists perceive in making our work more relevant to societal needs,” said first author James Clark of Duke University. “We devote much effort to understanding the

Continued on page 7



"Scientists Call..." continued from page 6

biosphere, and we communicate our findings to the scientific community. But society faces a great number of environmental problems, and if it can't come to us for help and knowledge, there is no place else to go. The federal agencies by themselves can't provide much of the basic scientific understanding of these issues that people need."

Clark said he and his colleagues are emphasizing the necessity of a collaborative effort with decision makers. "If we as ecologists just begin making forecasts without understanding what will be useful to policymakers, governments will pay little attention," Clark said. "Thus, this paper represents the beginning of a discussion on how to make our science useful to policymakers."

The authors emphasized the difficulty of making forecasts, given the inherent uncertainties and complexity of ecosystems.

Many ecosystem properties are inherently uncertain because they are sensitive to things that cannot be known precisely, or there are too many variables that simply cannot be known. On the other hand, identification of variables that can dependably forewarn of consequences years in advance can, in some cases, lead to improved forecasting. In other cases, techniques of averaging the results of ecological models will increase the usefulness of such forecasts.

"Many ecologists are leery of prediction, because they feel that there is much uncertainty about their models, and that most predictions are going to be wrong," Clark explained. "But we have to weigh this uncertainty against the costs of not trying to anticipate. We also need to examine why traditional modeling strategies can fail, and we must be willing to exploit indicators and slow variables that can be related to ecosystem change in rather simple ways. Moreover, efforts can help us

identify the possibilities for change, if not to actually 'predict' it."

The authors wrote that ecological forecasting depends on large-scale ecological studies, extensive gathering of ecological data, and effective use of technologies such as satellite remote sensing. Unfortunately, they wrote, ecological data are often inadequate.

"Due to abandonment of precipitation, stream height, and discharge gauges, the capacity to forecast droughts and floods was greater 30 years ago than it is today," the authors said. "Countries with the poorest hydrological networks, such as sub-Saharan Africa and arid regions of the former Soviet Union, have the most pressing water needs."

...ecological forecasting depends on large-scale ecological studies, extensive gathering of ecological data, and effective use of technologies...

Of the need for large-scale ecological studies, Clark said, "There has been a tradition in ecology of rather fine-scale studies. But it is hard to use that fine-scale information to make predictions on a regional scale because there are different processes that operate at these coarser scales. So these larger and longer term data sets will prove invaluable," he added.

According to the paper, the next steps for launching an ecological forecasting initiative include defining priorities for forecasting and the scientific research needed to better understand ecological systems and the uncertainties underlying them.

"Focus should be on the problems for which forecasts are now possible and those that are not presently forecastable but could become forecastable within a decade," the scientists said.

Advances in computer sciences and in statistics could help scientists create useful predictive models, Clark said. In developing a forecasting ability, ecologists can take a lesson from the problems that climatologists have encountered in predicting climate change, he added. "There have been some significant difficulties in communicating what a forecast really means," he said. "For example, when climatologists run models to predict future climates based on expected increases in atmospheric carbon dioxide, they don't necessarily view any of those models as predictions. Rather, they are explorations of what could happen based on a particular scenario."

In contrast, a weather forecast is intended to be the best estimate of what the weather will be tomorrow or the next day, Clark said.

"Unfortunately, there has been miscommunication in how scientists view the outputs of such models versus how the general public or decision makers see them," Clark said. "Those miscommunications have in some cases resulted in confusion, a situation we hope to minimize by working closely with a broad range of experts, including the policymaking community."

It will become increasingly important for responsible, scientifically valid groups to provide the environmental forecasts that policymakers need to make long-range decisions, Clark concluded.

"Someone is going to make forecasts, and if the scientists won't do it, then other groups will," Clark said. "We'll likely do a better job, and so we should be involved, using our understanding to anticipate possible change in a critical way. Otherwise they will be done in a less critical way, possibly producing misguided policies." ■

Reprinted from the Environmental News Network www.enn.com

The Ecological Reserves of the Cariboo District

ER 127—Big Creek

- At the confluence of Big Creek and Chilcotin River, 52 km south west of Williams Lake
- In the Ponderosa pine bunchgrass zone, representative natural climax grasslands that have not been subjected to livestock grazing
- 257 ha
- Warden: Michaela Waterhouse

ER 103—Byers/Conroy/Harvey/Sinnett Islands

- 4 significant islands and many associated islets and reefs off Aristazabal Island, Hecate Strait, 90 km north west of Bella Bella
- Important seabird and marine mammal breeding areas: notably 8 species of seabirds, tree-nesting peregrine falcons, seal pupping habitat
- 12,205 ha (488 ha land-mass)
- Warden: Lynn Prestash & Rick Burns

ER 55—Cardiff Mountain

- 70 km south west of Hanceville, Chilcotin District
- a lava plateau, noteworthy for its symmetrical, vertical basalt columns, and small crater lake in the sub-boreal pine-spruce zone
- 65 ha
- Warden: Anna Roberts

ER 65—Chasm

- Beside Hwy 97, 17 km north north east of Clinton
- Protection of stands of Ponderosa pine of excellent growth, at

its northernmost limit

- 197 ha
- Warden: Dave Eyer

ER 101—Doc English Bluff

- West bank of Fraser River, 24 km south south west of Williams Lake
- Rare plants and cliff-nesting birds (including one of Canada's few colonies of white-throated swifts), associated with limestone cliffs
- 52 ha
- Warden: Anna Roberts

ER 64—Itcha Ilgachuz—Ilgachuz Range

- On the dry eastern side of the Coast Mountains, 35 km north of Anaheim Lake, Chilcotin District
- An extensive and diverse subalpine-alpine ecosystem in an isolated massif of volcanic origin
- 2,914 ha
- Warden: Andy Motherwell

ER 23—Moore/McKenney/Whitmore Islands

- A group of low-lying islands, islets and reefs off Aristazabal Island, Hecate Strait, 100 km north west of Bella Bella
- Nesting sites of several species of colonial seabirds
- 73 ha

- Warden: Lynn Prestash & Rick Burns
- NOTE: While this reserve is accessible by boat, it is closed to the public by Order-in-Council, to protect nesting birds.

ER 70—Mount Tinsdale

- Palmer Ridge, 18 km east south east of Barkerville
- Representative subalpine parkland and alpine ecosystems in the Quesnel Highland
- 419 ha
- Warden: Leif & Eva Grandell

ER 53—Narcosli Lake

- 108 km west of Quesnel
- a shallow, productive interior lake and adjacent wetlands that protect waterfowl breeding grounds and well-developed aquatic communities
- 1,098 ha
- Warden: Anthonie & Julie Knevel

ER 35—Westwick Lake

- 15 km south of Williams Lake
- an interior saline lake that supports a mosaic of aspen parkland vegetation types at the northern extremity of the Interior Douglas-fir zone
- 27 ha
- Warden: Connie Haeussler ■

GRAPHIC NOT AVAILABLE

News from Several Wardens of the Cariboo Parks District

I was pleased to hear that there were few urgent problems in and around the Ecological Reserves in the Cariboo. Many of the Reserves are quite isolated and only those people with intention head toward Cardiff Mountain, Mount Tinsdale, or Big Creek. In fact, many of the wardens I spoke with hadn't yet seen their Reserves this year.

Anna Roberts has been a supporter of the Ecological Reserve system for years and is the warden of Cardiff Mountain (ER#55) and Doc English Bluff (ER#101). She remembers the "old days" when the wardens met annually and learned about botanical, biological and geological features of the Reserves from invited guest speakers. Now she is one of those who Parks often asks to share her broad knowledge of the birds, botany and zoology of the Cariboo. She said that Parks personnel had been more present in the Ecological Reserves recently and that she is no longer certain of her responsibilities as a warden.

Michaela Waterhouse, warden of Big Creek ER (#127), talked about the number of red and blue listed species in the Big Creek area. The Reserve is strategically positioned near the confluence of the Chilcotin River and Big Creek and, as a transition between grassland and dry Douglas-fir, is home to flammulated owls, Lewis' woodpecker, and Townsend's bigger bats. While rafters sometimes camp at the edge of the Reserve, Michaela has found them to be respectful of the Reserve and the environment, packing out all that they bring in. Douglas-fir bark beetles, however, have not recognised the importance of the area and there may be a need to fall and burn trees within Big Creek ER.

Another forest pest, mountain pine bark beetle, has crept into Chasm ER (#65) and warden **Dave Eyer** is concerned as to how this pest will be managed. Dave says there is not only evidence of selective logging and cattle use, but it appears as though this accessible Cariboo Reserve (on highway 97) may have been used as a trash dumping ground in the 30s and 40s (prior to its designation as an ER). "There are important remnants of civilisation throughout the Reserve," jokes Dave. A fence around the Reserve cattle out, for the most part, but Dave asked me if I'd ever seen the results of massive body weight and hunger on even a good fence when there is greener grass on the other side!

My final interview was with **Eva and Leif Grandell**, wardens of Mount Tinsdale Ecological Reserve. The snow cover helps isolate this Reserve (ER#70). While they hope to travel into the Reserve in August, access is becoming more and more difficult as the willow forms impenetrable walls, impenetrable even to the ATVs which cruise surrounding areas. Mount Tinsdale is also an avalanche slope and the only approaches are very steep. "This is good," says Eva, who reported not only abundant wildflowers last year but also sign of caribou activity within the Reserve.

So all appears well within the Cariboo Ecological Reserves. Thanks to the wardens for continuing to monitor the Reserves. ■

Peggy Frank

Editor's note: Peggy was unable to speak to the wardens of Narcosli Lake (ER#53), Westwick Lake (ER#35), Itcha Ilgachuz-Ilgachuz Range (ER#64) or Byers/Conroy/Harvey/Sinnett Islands (ER#103) or Moore McKenney/Whitmore Islands (ER#23)

An Innovative Approach to a Serious Problem

Chasm Ecological Reserve (ER#65) is on Highway 97, just north of Clinton. It was established to protect and allow study of BC's northernmost stand of Ponderosa Pine. It is not pristine. Parts of the reserve were logged long before it became an ER candidate and some evidence remains to attest to those days of bush camps and mill sites.

Nonetheless, there are some magnificent old Ponderosa trees. A few veterans remain, measuring 40 to 50 cm in circumference, having been mere seedlings a couple hundred years ago. And in a part of the world where fire has played a major role in ecology, that's "old growth".

The Chasm reserve is also close to a local mill where hundreds of beetle-killed trees pass by each year on their way to be processed. It is not surprising, then, that the epidemic of pine bark beetle that is ravaging the Cariboo is also affecting the Reserve.

This put BC Parks into an ecological dilemma. Does one (continue to) manage the Reserve or leave it to natural forces—forces, perhaps, that are more human than natural due to the location and history of this Reserve? If the beetle aren't managed they may wipe out the very stand of trees the Chasm was established to protect, in addition to spreading to adjacent forested areas that would then be at risk from an outbreak of the bark beetle. Should we be good neighbours?

Continued on page 10

“An Innovative...” continued from page 9

Talking to Helen Farrer, Area Supervisor for BC Parks South Cariboo district, it seems that an innovative approach was taken to the problem. Repellent devices known as anti-aggregate baits were attached to all the mature Ponderosa Pine, in addition to being placed at 15m spacing throughout the reserve to cover the beetle's preferred species, Lodgepole pine. Baiting is the perfect word for the use of these pheromones, which fall into varying categories: those that say “yes I am a worthy pine tree but I'm completely full of beetles so please look elsewhere” and those that say “I'm an aspen and you don't like me”.

The idea behind these baits is to fool the beetles into passing over the area and eventually falling in exhaustion from not being able to find a suitable tree to attack. The results were as interesting as the pheromones themselves. The trees that were tagged escaped attack by the bark beetles, but some trees nearby in the gridded area were not as lucky. With the unusually high build up of beetles in the area, the increased pressure on the trees resulted in several hits on unprotected individuals.

The affected trees, all Lodgepole pines, were cut and burned on site to prevent an increase in the numbers of beetle in the Reserve. In the end and for the time being, all the Ponderosa's were saved.

It would be interesting and beneficial to discuss this type of dilemma in a wider group of Parks staff, wardens and other experts. Perhaps this is another good reason to reinstate an annual provincial meeting. ■

Do you have an interesting management issue in your Ecological Reserve? Please write us and let us know or write an article for the next issue of the Log.

The Hotspring Invertebrates of British Columbia

It is often the case that, while criss-crossing a section of forest searching for a remote hotspring, I have found it by using my nose before using my temperature meter or my eyes. Many of the hotsprings I have set off to look for, contain dissolved sulphates giving them that distinctive ‘hot spring’ smell. Where there are no sulphates to smell the other essential piece of equipment, my TEVA sandals, have helped me to detect the unusual warmth of the hot spring outflows.

For the past three years, I have been visiting hot springs or ‘thermal springs’ and attempting to create a list of the aquatic invertebrates living in and possibly depending on these waters. The springs I have chosen are almost all fairly remote and difficult to access. The springs I have been able to visit, which are also Ecological Reserves, are Ram Creek Ecological Reserve (ER #26) and recently established Grayling River Hot Spring Ecological Reserve. Within provincial parks and protected areas are Dewar Creek Hot Springs (Purcells), Liard River Hot Springs Provincial Park, and Deer River Hot Springs Protected Area (near Liard River). The others which are on Crown Land, and have no status, are Pebble Creek (near Pemberton), Wilson Creek (near Nakusp), and Wildhorse Creek (near Cranbrook).

The thermal spring environment often turns out to be a harsh one for invertebrates, in spite of its obvious delights for the human species. There are only a few species of invertebrates which appear to thrive in the hot or warm waters. The hottest of outflows (85°C Dewar Creek) support brightly coloured alga.

The most heat tolerant invertebrate, the soldier fly larva (*Stratiomyidae*) can be found at many of the sites in temperatures up to 45°C. In the southern half of British Columbia, the red-listed damselfly *Argia vivida* (Vivid Dancer) is almost a constant in the thermal spring environment appearing to prefer temperatures of around 20°C. In the north at Liard Hot Springs, the red-listed damselfly *Ishnura damula* makes its only appearance in BC. Also at Liard, the mayfly *Caenis simulans* has a healthy but isolated population, the only other recorded specimens coming from southern BC. The crustacean groups are ubiquitously represented by the amphipods, *Hyalella* sp. and *Gammarus* sp. in some of the hottest sites.

All of the thermal spring habitats, especially in southern British Columbia, are in danger of degradation by human activity. Over the past two years I have seen habitat destruction at even the most remote sites—most probably by people who may otherwise describe themselves as environmentalists. Hot water has been redirected, pools and channels have been dug and pipes and shovels have been left behind for others to clean up. The remoteness of the springs makes policing unrealistic. Signage at the sites will be one of the modes of education I plan for. I would welcome any other suggestions towards public education aimed at protecting these unique British Columbia habitats. ■

Sue Salter



The main ‘vent’ (source) at Grayling River Hot Springs Ecological Reserve.

PHOTO: SUE SALTER

Trial Island Field Trip 2001

This year's field trip to see the wild flowers on Trial Island (ER#132) on April 28th was a huge success! We ended up shuttling three zodiacs back and forth to get over 50 participants over and back.

Once over on the island we divided into about three groups and followed Adolf and Oluna Cheska and Mat Fairbairn, one of the volunteer wardens for ER#132, for an interpretive tour of the flora of the island. Their knowledge of the plant life on the island was remarkable and FER would like to thank to them for leading the walk and sharing their knowledge. Among the participants were Gail Ross, acting manager of Extension Services (BC Parks) and Vicky Husband, Conservation Chair of the Sierra Club of BC.

It was a perfect day for the trip—the sun was shining and wind was low. The fields of camas *Camassia sp.*, chocolate lily *Fritillaria lanceolata* and shootingstar *Dodecatheon pulchellum* were in full bloom and stunning. "It was the best show of *Camassia* in years!" claims Oluna Cheska. We saw an enormous variety of forms of *Fritillaria* and even saw an albino *Camassia*! The yellow paintbrush *Castilleja levesecta* was in bloom. Bear's foot sanicle *Sanicula arctipoides* was seen, as well as the blue-listed Macoun's meadow-foam *Lymnanthes macounii*. Two of the red-listed species that we saw were seaside bird's foot trefoil *Lotus formosissimus* and popcorn plant *Plagiobotrys tenellus*. One of the highlights of the trip was seeing Rosy-owl Clover *Orthocarpus bracteatus*, which is believed to exist only on Trial Island.



PHOTO: LYNNE MILNES

Capturing chocolate lilies and camas on film.



PHOTO: LYNNE MILNES

A perfect day!

Although we had far more guests join us on the island than we had expected, everyone was very conscious of the sensitivity of the area and took great care to not step on the plants and to remain on the island pathways. After touring the island, everyone who brought a lunch found a nice place to sit on the beach and have a picnic.

It was a wonderful opportunity to see this rare and endangered ecosystem first hand. We all were impressed

by the important role that the Ecological Reserve system plays in protecting these vulnerable areas of British Columbia. ■

The Friends of Ecological Reserves would like to thank Marilyn Lambert, Olive Quayle, Don and Ann Mais for their generous donation of the use of their zodiacs for the day.

Stopping Crimes in Our Forests

Timber theft and vandalism in Crown forests costs the province (and you, the taxpayer) an estimated \$10 million to \$20 million a year. The BC government wants you to help cut those losses. And Crime Stoppers is offering rewards.

Timber thieves are especially keen on old-growth western red cedar. The stock of this beautiful wood is declining, so prices are rising. This potential for higher profits leads to more theft of cedar. However, Douglas-fir, yew, spruce, and pine are targets as well.

Sometimes the thieves take timber from sites that have been logged by legitimate contractors but not yet cleared. Frequently, however, they cut timber themselves, often in areas that are supposed to be protected, such as parks and ecological reserves.

In stealing timber, these people are taking public resources—assets that belong to all British Columbians and they are also stealing some of our natural heritage. Further, timber thieves lack the proper equipment and expertise and often cause extensive damage to the local environment, including nearby trees, soil and streams.

The ministry acknowledges that the public is the ministry's eyes and ears in the forests. People can watch for suspicious activities—is someone cutting timber and loading it into a pickup or a van? (Legitimate loggers generally have specialized logging trucks and load them at designated sites).

Are rental vans out in the forest where they would not normally be? Do you see night-time campfires or bright lights where none usually appear? Do you hear chainsaws at night? Have you seen someone

damaging logging equipment or a Forest Service campsite or trail?

You can help by reporting such incidents. If you think you have witnessed a crime in the forest, *do not* approach the person and *do not* take photos of them. Instead, observe, record and report. What to look for? Description of the person or people, description of their vehicle or vessel, any registration or distinguishing logo—such as licence plate number or car rental name—and what the person is doing, when and where.

Then call your information into the local police, the local Forest Service office or Crime Stoppers at 1 800 222 8477 (1 800 222 TIPS). You may remain anonymous if you wish. If you want to be eligible for a reward, call the Crime Stoppers tip line. ■

Roberta Reader

Roberta is the Director of Compliance & Enforcement Branch for the Ministry of Forests.

More than 500 compliance and enforcement officers (400 are BC Forest Service staff, the rest are government conservation officers) are in the field to minimize environmental damage, to ensure that licensees are complying with the Forest Practices Code and to combat forest theft. This is the third largest enforcement contingent in British Columbia next to the RCMP and Vancouver Police Force.

While the majority of infractions are related to road construction or maintenance and unauthorized harvesting, it is estimated that theft accounts for \$20 million annually in lost revenues to the Crown.

During the past three years, there have been 267 monetary penalties levied for unauthorized harvest of Crown timber, ranging from \$59.26 for one case up to \$206,795.51 for another, and total up to \$1,483,075.57. During the same period, there have been 133 violation tickets issued for various incidents of unauthorized harvesting, with fines totalling \$19,950.00.

In addition to the regular monitoring there are a number of new initiatives being considered, including DNA testing to track and match stolen timber with their stumps, high-tech video surveillance equipment for activities such as timber theft; and plans for an RCMP officer to join the compliance and enforcement branch to assist in co-ordinating more complex provincial investigations.

May 2001

Dear Friends:

I wish to greatly thank you for your continued support of my research program on salmon-bear interactions and nutrient cycling in coastal British Columbia. Extending from your support and that of the David Suzuki Foundation, I have been able to expand the examination of this process throughout the coast from the Ecological Reserve at Megin River in Clayoquot Sound through to the Khutzamateen Grizzly Bear sanctuary at the northern reaches of coastal British Columbia.

The processes I initially identified on Haida Gwaii and then at Clayoquot Sound are indeed representative throughout the coast and exemplify the remarkable cycling of salmon nutrients deep into the riparian zone as well as high in the canopy.

The 90% reduction in salmon throughout our coast over the last century will have led to a decline of diversity throughout multiple trophic levels. Some of our current investigations at several localities on the mid-coast near Bella Bella are examining the extent of these shifts in diversity below and above waterfalls that are impassable to salmon. On completion, this will provide us with a direct measure of the extent of ecosystem-level changes when salmon are lost from the habitat.

Sincerely yours,
Tom Reimchen
Biology Department, University of Victoria



FRIENDS OF ECOLOGICAL RESERVES MEMBERSHIP FORM

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PHOTO: LYNNE MILNES

Grayling River Hotsprings ER (see article p. 10)

Changes in Government

On June 5, 2001, Premier Gordon Campbell announced his new Cabinet appointments and re-aligned Ministry portfolios. At that time, he announced **Joyce Murray** as Minister for WATER, LAND AND AIR PROTECTION (the former Ministry of Environment, Lands and Parks) and **Stan Hagen** as Minister for a new Ministry of SUSTAINABLE RESOURCE MANAGEMENT.

Then, on June 25, 2001, the Premier wrote a letter to each minister, outlining goals and objectives for his or her Ministry. The table below outlines the general responsibilities, and key projects assigned to each of these ministries, based on the BC Liberal Party policy platform (the New Era Agenda). The full text of these letters and those written to other government ministers can be found at <http://www.gov.bc.ca>

MINISTRY	GENERAL RESPONSIBILITIES	NEW ERA AGENDA	KEY PROJECTS
WATER, LAND AND AIR PROTECTION	<ul style="list-style-type: none"> Green Economy Initiative (also known as the Green Economy Secretariat) Air, land and water pollution control Fish & wildlife habitat and species protection Recreational fish and wildlife management Environmental emergencies Parks, recreation & protected areas Wildlife branch Flood plain management <p><i>Major Boards & Commissions</i></p> <ul style="list-style-type: none"> Environmental Appeal Board Creston Valley Authority Habitat Conservation Trust 	<ul style="list-style-type: none"> With <i>Sustainable Resource Management</i> adopt a scientifically based, balanced and principled approach to environmental management that ensures sustainability, accountability and responsibility Protect and preserve Burns Bog Vigorously defend the Crown's ownership of provincial land and resources Pass a comprehensive Living Rivers Act With <i>Health Planning</i>, pass real comprehensive ground water legislation to improve the quality of BC drinking water Replace the grizzly bear hunting moratorium with both proper peer review by scientists and biologists and local moratoriums where grizzly populations are endangered With Deputy Minister to Premier & Cabinet Secretary, ensure Cabinet decisions on new parks are made in public Ensure mining or logging is not permitted in parks 	<ul style="list-style-type: none"> Examine current legislative mandate and recommend modifications if advantageous Participate actively in helping support success of <i>Sustainable Resource Management</i> Consider appointing a Chief Scientist to advise government from time to time Review the activities and programs of the Green Economy Secretariat, with a view to recommending funding allocations (funding for that program has been frozen) Review the new Water Act and make recommendations Develop an improvement plan for threatened air shed areas
SUSTAINABLE RESOURCE MANAGEMENT	<ul style="list-style-type: none"> Crown land policy Protected areas strategy Tenure registries Resource inventory Archaeology Survey, mapping & data base management Land & water use planning and zoning Water allocation & licensing Environmental assessment project impact analysis Water rights Major Crown right of ways Land titles Aboriginal land resources Heritage rivers Land Use Coordination Office <p><i>Major Boards & Commissions</i></p> <ul style="list-style-type: none"> BC Assessment Authority BC Assets and Land Corporation Land Reserve Commission Fraser Basin Management Council Environmental Assessment Board Environmental Assessment Office BC Heritage Rivers Board Muskwa Kechika Advisory Board 	<ul style="list-style-type: none"> Eliminate backlog and delays in crown land applications Provide faster approvals and greater access to crown land and resources to protect and create jobs in tourism, mining, farming, ranging, oil and gas production Make the Land Commission more regionally responsive to community needs Establish a working forest land base to provide greater stability for working families and to enhance long-term forestry management and planning Adopt a scientifically based, principled approach to environmental management that ensures sustainability, accountability and responsibility Give property buyers more information about prospective properties by ensuring that notices of known archaeological sites must be registered with the Land Title Office 	<ul style="list-style-type: none"> Review the status of existing land use plans and current land use planning process; develop a strategy to conclude province-wide land use plans in an expeditious and balanced manner that results in plans that can be implemented without significant delays Develop a plan to resolve land and water use conflicts between ministries and external interests Reduce the application backlog With <i>Water, Land & Air</i>, develop a program to implement the Living Rivers Strategy Rationalize the numerous land and resource inventory information systems to create a central source of integrated information that can be accessed by all users Create a central registry for all tenures and legal encumbrances on crown land and resources Optimize the financial return from the use of crown land and water resources, consistent with land use and water policy objectives Examine feasibility of establishing a 20-year plan for infrastructure rights of way Within 18 months, develop a working forest land base on crown land for enhanced forestry operations, and effective and streamlined approval processes for forest operations in those zones

Websites of Interest

To learn how to reduce your own greenhouse gas impact, visit the Individuals and Families section of www.climatechangesolutions.com, an internet tool from the Pembina Institute—an independent, non-profit think tank, an activist public interest organization and consulting group. Since 1985, the Institute has been committed to protecting the environment and to developing environmentally sound solutions to meet human needs.

PollutionWatch is your source for information about the chemicals that manufacturing facilities release in your community. This environmental information service is modelled on a similar one in the United States and is provided to Canadians by the Canadian Institute for Environmental Law and Policy, Canadian Environmental Law Association, Canadian Environmental Defence Fund and Environmental Defence. The website ranks geographic areas or pollution sources using information on health risks and toxic chemical releases. By entering your postal code, you can get a listing of toxic compounds that are being released in your area by manufacturing facilities. You can also find out about the health

effects and regulations concerning toxic chemicals and take action to voice your concerns.

www.pollutionwatch.org

The beauty and importance of the global ocean is showcased for 'ocean people' from around the world at this comprehensive and centralized source of ocean news, entertainment, and commerce. As well as aiming to develop a stronger global awareness of the critical importance of the ocean, this website is a gateway for internet sites for: ocean species, ocean travel, ocean recreation, ocean products, and ocean conservation. www.ocean.com

One of the most successful conservation groups in the world, the Environmental Investigation Agency (EIA) was established in 1984 to investigate, expose and campaign against the illegal trade in wildlife and the destruction of natural environment. Working undercover to expose international environmental crime—such as the illegal trade in wildlife, illegal logging and trade in timber species, and the world-wide trade in ozone depleting substances—EIA has directly brought about changes in international laws and the policies of governments, saving the

lives of millions of rare and endangered animals and putting a stop to the devastating effects of environmental criminals. The EIA is a non-profit environmental organization with offices in Washington, DC and London, England. Current campaigns include bears, cetaceans, elephants, forests, tigers and ozone.

<http://eia-international.org>

The Log



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