

Nature Alberta

ALBERTA'S NATURAL HISTORY REVIEW



"ITCHY SCRATCHY" BLACK BEAR! RICK PRICE

feature article

Sex Makes a Difference!

Male and female Richardson's Ground Squirrels
lead different lifestyles



**MATING PAIR OF GREENISH BLUES
(*PLEBEJUS SAEPIOLUS*) AT TOLMAN
BRIDGE (SEE CLUB PAGE 47) GREG POHL**

**A BUMBLEBEE GETS
INTIMATE WITH A
SPRING WILDFLOWER
KEN KILCULLEN**

**GUESS
AND WIN A
YEAR'S SUBSCRIPTION TO
NATURE ALBERTA!
SEE "ON THE COVERS"
PAGE 5.**



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FALL ISSUE. **AUGUST 15**
WINTER ISSUE. **NOVEMBER 15**

The Federation of Alberta Naturalists is composed of natural history clubs from across the province. The aims of the Federation are:

(a) To encourage among all Albertans, by all means possible, an increase in their knowledge of natural history and understanding of ecological processes;

(b) To promote an increase in the exchange of information and views among natural history clubs and societies in Alberta;

(c) To foster and assist in the formation of additional natural history clubs and societies in Alberta;

(d) To promote the establishment of natural areas and nature reserves, to conserve and protect species, communities or other features of interest;

(e) To organize, or coordinate symposia, conferences, field meetings, nature camps, research and other activities whether of a similar or dissimilar nature;

(f) To provide the naturalists of Alberta with a forum in which questions relating to the conservation of the natural environment may be discussed, so that united positions can be developed on them, and to provide the means of translating these positions into appropriate actions.

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PRESIDENT'S PAGE

River Watching!

BY SANDRA FOSS

Walks along the Bow River are always interesting – you never know what you are going to see.

Sometimes it is a Red Fox (*Vulpes vulpes*), trotting across the path and into the adjacent gravel pit, and often ending up surveying the landscape from on high! Mergansers (*Mergus spp*) are always around, but not so evident in winter when they have to dodge “ice floes”. Some days they are flying upstream, and other days, paddling downstream, fishing along the way. A pair of Bald Eagles (*Haliaeetus leucocephalus*) is around all winter too, sometimes seen flying overhead, but often

on guard at a ninety degree bend in the river, sitting high in a big old cottonwood tree. Grey-crowned Rosy-Finches (*Leucosticte tephrocotis*) dance and whirl through the snow.

Lately, there have been Coyote (*Canis latrans*) choruses, and even a Coyote dance around a carcass on the river ice. Of course, the river is not static, and the Bow is a hydro-peaking river, where the flows fluctuate with the power demand.

Recently, I was late getting to my walk, and because it had been very cold, the river appeared completely iced over – bank to bank. No flows were obvious, but there were some spectacular piles of ice – jagged slabs pointing skyward and in all directions. Then there was a roar, and a wall of water and ice came downstream, piling ice higher in some places, then wild undulations across the breadth of the river as the ice bucked and moved, and the water finally found a way through.

The river was now way over its banks, over fences and paths and willows in the low spots on the corners, and water was flowing in most unusual places. A Barrow's Goldeneye (*Bucephala islandica*) bobbed downstream amidst the chaos. Now I understand why communities gather to watch the ice break up. The power of water is amazing! I give a fervent prayer that this river keeps running. Its source (Bow Glacier) is almost gone.

Where I walk is an off-leash area for dogs. There is often interesting wildlife to be seen on the path – a “loose Moose” (*Alces alces*) one day, deer in all seasons, the occasional Black Bear (*Ursus americanus*) in summer, and always Porcupines (*Erethizon dorsatum*), very foolish Richardson's Ground Squirrels (*Spermophilus richardsonii*), and Northern Pocket Gophers (*Thomomys talpoides*). The river is very low in the mornings (before the peak power rush), and wildlife easily crosses.

LORRAINE GRANT



RICK PRICE



MALE BARROW'S GOLDENEYE RAY TOAL

Many of you will soon be out doing bird or plant counts, and this gives very valuable information on the weather and seasonal changes. Birds are being seen ever further north, and many plants are blooming

a month earlier than a few years ago. Keep counting those birds and plants. Your contribution to the record is valued, and one that is needed to give impetus to our request for legislative changes.

Spring is upon us - time to get the seeds in the ground, and see what unfolds this season.



a year's
subscription
to *Nature
Alberta*!

SEE "ON THE
COVERS", PAGE 5.

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EDITOR'S PAGE

Good Spring Reading

BY DENNIS BARESCO



Here we go again! Spring '08 Nature Alberta: another thick issue chock-full of excellent and entertaining reading. What do you think? Let me know – with a Letter to the Editor.

INSIDE NATURE ALBERTA

If you've ever heard Gail Michener give a presentation on Richardson's Ground Squirrels, then you know she's one of the most vibrant, interesting speakers in the sciences. Well, she writes that way, too! Our Feature Story (pg 24) is about the ground squirrel – that would be Richardson's – that has occupied 35 years of Gail's life. They are amazing creatures – as well as vital to the health of the prairies.

Don't miss Helen Trefry and Geoff Holroyd giving us the play-by-play of the great Peregrine Falcon race from South America to Alberta (pg 32). For one of the females, it culminates in a major confrontation (but I won't spoil the ending).

Spring, of course, is about plants as much as anything else. Kelley Kissner and Elisabeth Beaubien give us the goods on Adopt-a-Plant and Plantwatch respectively (pgs 10 and 12).

Spring is also swan time. John Warden provides us with another wonderful episode of his "Nature

Photography in Alberta" column (pg 14), and Margot Hervieux's column fills us in on the Grand Prairie Swan Festival (pg 22). Robert Alison is back, this time with Evening Grosbeaks (pg 37). One of FAN's newest member clubs, the Alberta Lepidopterists' Guild, fills us in on ... well ... what a Lepidopterist does (pg 47).

Of course, there's much more in this issue – including excellent nature photos, but you'll soon see for yourself. You might notice, in articles where species are referred to, we now include the Latin name in brackets. This was initiated by a request from reader Cia Gadd. It makes sense to your Editor, so...thank you Cia.

Remember: tell your friends about *Nature Alberta*. By the way, you can now subscribe for two years for \$55.

SPEAKING OF...

Health Canada studies show that the use of liquid strychnine is dangerous, dangerous,

dangerous. It is five times more potent than the normally used concentration. Plus, its use cannot be controlled. That's why they have basically banned it. When is a ban not a ban? When someone says: "Hey, I'd like to use it anyway"; to which Health Canada says: "Oh...okay." So, Alberta has been given permission to use liquid death in areas with severe problems, and, oh...okay, anywhere and everywhere else as well. Say what? Don't worry, Health Canada assures; we've mitigated problems. How? Well, essentially by suggesting that maybe people could perhaps consider the idea of possibly trying to use it responsibly (pretty please, with sugar on it?). Ahhh – that's a relief. I'm so glad Health Canada stands up for its principles. As John Doyle says, "don't get me started!"

NEW PAPER

You may have noticed in the last issue: *Nature Alberta* now uses FSC certified paper. The paper is 100% post-consumer fiber, processed Chlorine Free using biogas energy. Practice what you preach, is the saying.

EDITOR'S PAGE

THE MAGIC CHRISTIAN

The results of the Alberta election were uncannily reminiscent, metaphorically, of one particular scene in the outlandish, Joseph McGrath film, *The Magic Christian*. The movie is a biting satire on greed, capitalism and other unflattering human traits. In the Alberta (so to speak) scene, the main character, Guy Grand (played by Peter Sellers), fills a great vat with a mixture of animal blood, urine and excrement, throws in a whole raft of money, then announces: "FREE MONEY! FREE MONEY!" Into the vat the citizens go to gather the bills; some folk even completely submerge to gather any bank notes that have sunk. *Déjà pbew!*

WAIT 'TIL SUMMER

Last issue, we said that Spring '08 *Nature Alberta* would include a book review of *Wild Alberta at the Crossroads*, by Robin and Marian White. You'll have to wait until the Summer issue. Why? No reason – but congratulations to FAN staffer Philip Penner and his wife, Robin, on a fine new baby girl, Nadala Amanita Alma Penner! However, you don't have to wait for the review; you can buy *Wild Alberta at the Crossroads* from FAN Books today (www.fanweb.ca).



On the Covers:

**FRONT COVER**

Itchy Scratchy! "We were shooting this Black Bear eating dandelions along the Maligne Lake Road when he suddenly sat down, rolled over and scratched his belly. We had a great laugh that his need to scratch was so bad he had to get it, and then the look on his face was one of delight when he got relief. Sound familiar?!" Rick & Lucy Price

**INSIDE FRONT COVER**

Photographer Greg Pohl, who is also Past President of the Alberta Lepidopterists' Guild (see story, pg 47), gives us a close-up look at the delicacy of butterflies. Greenish Blues have a wingspan slightly larger than a "toonie" and are a species in the Gossamer-wing Family of butterflies (Lycaenidae).



Another typical Spring vision, by Ken Kilcullen. Hey, botanists and entomologists: **WIN A YEAR'S SUBSCRIPTION TO NATURE ALBERTA** by being the first person to identify BOTH the insect and the flower to species (with reasons how you identified them). Send answers to na@fanweb.ca.

**INSIDE BACK COVER**

A young girl nervously holding a baby bluebird; a young boy tentatively exploring the edge of a clearing for butterflies and moths; baby ground squirrels curled up together. This is the future. This is why. This is Nature and Humanity's Spring.

**BACK COVER**

Waterton National Park is a photographic, floral and faunal Utopia - particularly if it is a calm, sunny and warm day. Rochelle Coffey's photograph captures the essence of Waterton in the Spring. The Wildflower Festival in June may well be one of the best ways to discover this strikingly beautiful National Park.

Your letters commenting on any aspect of Nature Alberta or its articles are welcome! Email them to na@fanweb.ca or mail/fax to addresses on pg 1, under "Contents".

LETTERS TO THE EDITOR

Lady bug, lady bug

After reading the review of this book [*Ladybugs of Alberta* "Nature Alberta" Fall 2007] in your last newsletter, I just had to go out and buy it. Very interesting; John happens to ask and address some questions that have been plaguing me for some time when it comes to invasive species. Most of all, this notion of an original state of nature and recognizing there is no such thing as 'balance in nature', and no such thing as "the way nature intended" in a dynamic planet of plate tectonics, a sun in constant flux and the wind.



Very interesting read...at least now I know there are at least two of us crazies looking at all this from a different point of view...I'm not alone. Thx for the tip on the book.

And best of all...who would have figured there are 75 different lady bugs around!

The book has since been given to a little 10 yr old handicapped buddy of mine, Liam, who adores lady bugs.

CAL RAKACH

Kudos for Charley

Lorrie and I attended the bi-annual Order of the Bighorn Awards banquet [March 7th] and as usual the new inductees were not officially announced until the beginning of the ceremony. It was a delightful surprise to learn that Charley Bird, the Red Deer River Naturalists' long time friend, was one of the five new winners!

Not only is it great to see Charley recognized for his huge contribution to Alberta's

natural history, it is also very gratifying to see someone selected who works for the critters that don't have fur, feathers, or fins. Congratulations Charley, I think the committee made an excellent choice.

TONY BLAKE, RED DEER

EDITOR'S NOTE:

FAN joins Tony in congratulating the amazing Dr Charles "Charley" Bird, who is a legend in natural history circles.

A thanks and an oops!

Among raptors, the scavenging vultures are often viewed with disgust and derision. I, on the other hand, think they are biologically and physiologically among the most interesting of the birds of prey. As a result, I was delighted to read the detailed article by Nelson, Kunnas and Moore on the province's turkey vultures ["Turkey Vulture Update"; Winter Vol 37, # 4]. Many thanks.

P.S. I'm certain many other readers will have noticed that

the cover photo of a hare is mis-identified. It is most definitely a white-tailed jackrabbit and not a snowshoe hare. The sagebrush in the background is a further clue to the animal's identification.

WAYNE LYNCH, CALGARY



No matter where you go in Alberta, wildlife and habitat are under assault by government and specific industries – so much so that this province is fast becoming an international pariah and is earning a reputation as “the throw-away province!”

ALBERTA ISSUES IN BRIEF

LAST DANCE: “Sage grouse have nowhere to dance!”

Six conservation groups have launched a lawsuit against the federal Minister of Environment for refusing to identify critical Greater Sage-Grouse habitat. The once widespread grouse has been listed as “endangered” since 1998 and now survives in remote areas of southeastern Alberta and southwestern Saskatchewan.

The lawsuit is being brought by Ecojustice Canada (formerly Sierra Legal Defence Fund) on behalf of the Alberta Wilderness Association, Canadian Parks and Wilderness Society, the Federation of Alberta Naturalists, Grasslands Naturalists, Nature Canada, and the Western Wilderness Committee. It argues that failure to identify critical habitat in the recovery strategy for the grouse amounts to a refusal by the federal government to enforce Canada’s Species at Risk Act.

While the federal government has repeatedly avoided the identification of critical habitat, the Alberta government refuses to limit oil and gas installations, which undermine breeding and survival of Greater Sage-Grouse.

“Protecting habitat is the most important thing we can do to help the recovery of species at risk – and for the sage grouse this needs to be done now,” said Dr. Mark Boyce, Professor of Biology at the University of Alberta and author of a grouse habitat study. “Unfortunately, as with other endangered species, Environment Canada has chosen not to identify critical habitat in the sage grouse strategy, despite having ample scientific information to do so. Their refusal to protect critical habitat could mean that sage grouse will soon have nowhere to perform their ritual mating dance – and little chance of survival.” For more information, visit www.ecojjustice.ca

SMOKED: Caribou still being killed off...

The Little Smoky Caribou herd is considered at immediate risk of extinction with less than 100 individuals left thanks to industrial activity in caribou habitat. While the Alberta Caribou Committee stalls, companies such as Weyco, ANC, West Fraser, Suncor, EnCana and ConocoPhillips are racing ahead and further degrading the habitat. ANOTHER 90 NEW WELLS WILL BE DRILLED THIS YEAR. A petition submitted almost a year and a half ago to the Federal government asking for the implementation of the emergency provision of the Species at Risk Act has received no response to date.

In a cynical attempt to convince the public it is protecting caribou, the Alberta Government has killed 155 wolves and is planning a further cull. Killing wolves as a public relations ploy is a grave injustice to the wolves: protecting caribou habitat helps protect caribou.



SAGE GROUSE PHOTOS.COM

ALBERTA ISSUES IN BRIEF

IN OCTOBER: Suffield NWA hearings delayed

The Canadian Environmental Assessment Panel Hearings on EnCana's request to drill 1,275 more shallow gas wells in the Suffield National Wildlife Area (SNWA) have been postponed at EnCana's request and are now set for October.

Whatever the Panel eventually decides, the final decision rests with the federal government. You are urged to drop a note, letter, or email to the Prime Minister of Canada, the federal Environment Minister and the Minister of National Defence, urging them to protect the SNWA.

A complete and final ban on all present and future industrial development in SNWA is needed. FAN advocates outright rejection of this application by EnCana and wishes no new industrial activity in this, or any NWA – plus, a plan should be

developed for decommissioning the existing energy infrastructure in an environmentally responsible way. At the least, this should take into account the clean up of industrial wastes, prevention of weed invasion and avoidance of further damage to species at risk and their habitat.

The intention of "National Wildlife Area" designation under the Canada Wildlife Act is to conserve habitat for wildlife, in particular wildlife under threat of extinction. We are very concerned that EnCana's proposed development will have devastating consequences for many species, like Swift Fox (*Vulpes velox*) and Burrowing Owl (*Athene cunicularia*) that SNWA was intended to protect.

Permitting new industrial development in the SNWA would significantly erode Canada's federal protected areas

system. Opening the door to new oil and gas development would set a dangerous precedent and could pave the way for industrial development in any or all of Environment Canada's 52 NWAs – rendering the very concept of a federal protected area meaningless.

Who to contact is listed below; contact information is available on the government website. Be sure to indicate:

Re: **CEAR- 05-07-15620**; EnCana's application to drill 1275 more shallow gas wells in the "protected" CFB Suffield National Wildlife Area.

Right Honourable Stephen Harper, Prime Minister of Canada, PMO,

Honourable John Baird, Minister of the Environment,

Honourable Peter McKay, Minister of National Defence,

cc: Jack Layton, Gilles DuCeppe, Stephane Dion,

ANSWERS TO CROSSWORD PUZZLE #4 (IN THE WINTER NATURE ALBERTA)**ACROSS**

- | | |
|----------------|-----------------|
| 1. GEOSYNCLINE | 18. TRAVELER |
| 9. ENRAGED | 19. LAIR |
| 10. MARIA | 22. OLIVE |
| 12. CLEAN AIR | 23. EXTINCT |
| 14. NORWAY | 24. PTERODACTYL |
| 16. CUNARD | |

DOWN

- | | |
|----------------|----------------|
| 2. EGRET | 8. LABRADORITE |
| 3. SIGN | 13. CAVE BEAR |
| 4. NODULE | 15. REALIST |
| 5. LAMPARIUS | 17. DEFEND |
| 6. NIRVANA | 20. ANNOY |
| 7. DECLINATION | 21. OTIC |

ALBERTA ISSUES IN BRIEF

TIMBER! Logging in KC

When Kananaskis Country was established in the late 1970's, a portion of it was set aside as parks and protected areas while the remainder was left as a multiple use area that would still provide for timber harvesting, grazing, oil and gas exploration, off-highway vehicle use, etc. Over the last 25-30 years the park and protected area landbase has continually grown (e.g. inclusion of Bow Valley, Spray Valley, Sheep River, Bluerock, Don Getty, etc.); about 54% is now under some form of protection. There continues to be the misconception that Kananaskis Country as a whole is a park and that the allocation

of timber harvesting rights is a "new" thing; however, there has been active harvesting taking place in that area for over 65 years.

The area left available for timber harvest is slated for harvest over a "hundred year rotation" which means only one quarter of one percent of KC will be harvested annually. With progressive reclamation and reforestation this will leave fairly low levels of fresh logging visible at any given time. This is also why computer-modelled results on other resource values (such as water or wildlife) show very little impact.

BANG?!

Government cougar hunters have been observed out in the Ghost-Waiparous area...but no one will say why!! Does anyone know??

**HERE WE GO AGAIN!** On the Peace

Glacier Power is again pursuing a hearing to build a weir on the Peace River just upstream from the highway crossing at Dunvegan. It appears not much has changed from the previous proposal. There is still not enough information on the effect on fish. The effects of open water downstream of the weir on wildlife that readily cross it in the winter appears unimportant to Glacier, as is the likelihood of increased slumping of the steep river slopes, which will result in more degradation of natural grassland habitats. (Slumping is also a natural process in the Peace Valley. The problem now is that weedy species are so prevalent in the area that they take over recently disturbed sites.).

What stopped the weir's approval last time was likely the concerns of the Town of Peace River about possible flooding. Apparently this is no longer a concern. The question is: will all the other issues be enough to stop a project in industry-friendly Alberta?

Adopt-a-Plant Alberta

Launching Third Field Season

BY KELLEY KISSNER



Would you like to be involved in the conservation of rare plants in Alberta? Consider volunteering with the Adopt-a-Plant Alberta program!

In April 2008, the program will launch its third field season and ask volunteers across Alberta to help locate and record observations of rare plants in the province. This program, administered by the Alberta Native Plant Council (ANPC), offers an exceptional opportunity to learn about rare plants and at the same time contribute to an understanding of their ecology and distribution in the province and to their conservation. Robert Grey, a volunteer from Fort McMurray who has been with the program since 2006, says: "The main satisfaction I get in doing all this is being a part of a large program aimed at preserving the biodiversity of our natural world."

"The program is open to anyone with a keen interest in native plants" insists Dr. René Belland, Chair of the Adopt-a-Plant

Alberta Steering Committee and Curator at the Devonian Botanic Garden in Edmonton. "There are an enormous number of rare plants in the province and we need data on their occurrence and distribution to determine whether they may require formal protection or whether they are not as rare as we initially thought".

The program is free to join; no specialized skills or equipment are required. The program provides training to volunteers through their participation in a technical workshop, and equipment loans are available. Training workshops are held in two locations in Alberta. At the workshops, volunteers adopt one or more provincially rare vascular plants, mosses, or lichens that occur in areas close to their communities or in areas where volunteers expect

to venture during the summer months. Professional botanists and resource managers provide training at these workshops on:

- how to identify the adopted species
- how to survey for rare plants in the field
- how to record observations of the adopted species and its habitat
- how to use a GPS and topographic maps
- field safety

During the summer months, volunteers search for new locations of their adopted species or monitor it at locations where it has been previously recorded. In addition, the program hosts several group field events each summer that bring volunteers together with professional botanists, resource managers and private land stewards to

Adopt-a-Plant Alberta Launching Third Field Season...continued



undertake specific conservation or habitat stewardship initiatives. In 2008, Adopt-a-Plant Alberta will be co-hosting ANPC's annual Botany Alberta field event on a Nature Conservancy of Canada (NCC) property. At this event, professional botanists and volunteers will work together to identify and record observations of rare plants. The program will also be co-hosting a workshop with NCC on Limber and Whitebark Pines (*Pinus flexilis* and *Pinus albicaulis*) [see page 41 for article on Whitebark Pine] to teach volunteers how to identify these species and evaluate whether they are infested with blister rust. Field events are also planned for a number of at risk species

including, Sand Verbena (*Abronia micrantha*), Tiny Cryptanthe (*Cryptantha minima*), Western Spiderwort (*Tradescantia occidentalis*) and Western Blue Flag (*Iris missouriensis*).

All data collected by volunteers is housed in the conservation database of the Alberta Natural Heritage Information Centre, where it will be used to help resource managers undertake formal conservation status assessments of the species, and to help land managers and industry in planning developments and 'flagging' locations of rare plants in order to mitigate potential effects of developments.

The program has had great support from volunteers across

the province in its first two years, and financial support from a wide variety of agencies and organizations. It also receives a tremendous amount of logistical support from professional botanists and resource managers, and from a wide variety of resource management agencies, conservation organizations and private land stewardship organizations.

Please consider donating some time to the program in 2008. The program welcomes new and past volunteers.

For more information or to join a mailing list to receive updates on when registration will begin and when/where training workshops will be held, please contact:

Kelley Kissner
phone: 403-313-3138
email: kkissner@afhe.ualberta.ca

Also visit www.ab.adoptaplant.ca to learn more about the program.



Plantwatch:

the pulse of nature in Alberta

BY ELISABETH BEAUBIEN

WHAT IS PLANTWATCH?

Plantwatch has been running since 1987; observers include naturalists, gardeners, ranchers, and fire tower watchers. Many urban folks find wildflowers when walking their dogs or visiting city parks. Observers select one or more of 21 possible species which occur near their home, school, or work, and write down the calendar date when the flowers first open, and then when the plants reach mid-bloom. Up to 200 people report to Plantwatch every year and several observers have reported flowering dates to Plantwatch for over 15 years!

Alberta Plantwatch wall charts featuring 21 beautiful Alberta plants are now available (see below). The charts, 60 cm by 90 cm, are ideal for nature centres, schools, park offices, community parks, or your wall!

WHY TRACK FLOWERING DATES?

Spring flowers bloom in response to temperature, and changes in bloom times can provide an easy way to track how climate change affects the land around us. Plantwatch observers as “eyes of science” keep their fingers on nature’s pulse. They observe, record



and send in their bloom dates, contributing precious information on environmental change.

As coordinator of Plantwatch, I am delighted to be working on a PhD to analyse the 20 years of spring seasonality data (over 47,000 records) gathered through this program. The data are valuable to help us understand how the timing of spring may be changing over time. After warm winters, the first flowers (poplars, Prairie Crocus (*Anemone patens*)) appear earlier than usual. A cold winter and spring results in later than usual blooms. Because both plant and insect development is

Now pursuing her PhD in the department of Renewable Resources at the University of Alberta, Elisabeth Beaubien has coordinated Alberta Plantwatch since 1987. Elisabeth studied biology at Carleton University in Ottawa and later did an MSc in Botany at the University of Alberta. Chasing summer flowers has been a passion for many years. She has enjoyed teaching alpine plant courses in national parks including Waterton, Yoho, and Jasper starting in 1980, and in Churchill Manitoba. Past president of the Alberta Native Plant Council (ANPC), she started the Edmonton Plant Study Group in Edmonton in the late 1980's. As ANPC steward for the Cardinal Divide east of Jasper, she helped organize field trips and also an annual alpine reclamation weekend for 7 years. Hobbies include cross country skiing, botanizing and bird watching.

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Plantwatch: the pulse of nature in Alberta... continued

cued by temperatures, we can use the appearance of flowers to predict when certain insects will appear. A preliminary analysis of the data for Alberta shows a high degree of consistency in flowering pattern. In central Alberta, Plantwatch shrubs bloom in this order: Saskatoon (*Amelanchier alnifolia*), Chokecherry (*Prunus virginiana*), and then Wolf Willow (*Elaeagnus commutata*). The analysis of flowering times will be available, and could help predict the best times for activities in forestry, organic farming, and health (allergy season).

FUN FOR OBSERVERS

Observers receive regular newsletters summarizing the interesting comments from fellow watchers (whether it was an early or late year in their region, which blooms and fruits were abundant, the effects of weather and insects on local plants, etc.). Join us! You will find that tracking

spring becomes an addiction, as your knowledge of the natural sequence of blooms (and bugs and birds!) increases with each year of watching. One observer wrote: "I've lived on this ranch for 30 years, and I have just discovered Early Blue Violets!" It's a great reason to get out and enjoy a closer look at your neighbourhood.

PLEASE join the Plantwatch team! Observers of all ages are needed to track spring flowers. Full information on the program

is available from the Alberta coordinator (see information below), at www.plantwatch.ca, or at www.Plantwatch.fanweb.ca.

TO ORDER LARGE WALL CHARTS: they are available for the cost of mailing:

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rolled in a tube: \$12
3 - 5 copies (rolled) \$16
6 -10 copies (rolled) \$18

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WILD ROSE SCHOOL (ST. ALBERT) STUDENTS OBSERVING LILAC; TEACHER PEGGY BERGMAN IS AT THE BACK E. BEAUBIEN

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Close to Home:

Nature Photography in Alberta

BY JOHN WARDEN



JOHN WARDEN

A Haiku for Swans

Do you remember standing in a swimming pool or a lake and slapping your arms down onto the water to make a loud noise?

Now imagine fifty or a hundred times as much slapping and pounding and perhaps you begin to get the idea of a flock of Tundra and Trumpeter Swans (*Cygnus columbianus* and *Cygnus buccinator*) doing a take off from the water. Their huge white wings beat down into the water, creating a pounding, reverberating percussion. Pretty cool!!!! It's something that stays with you.

I spend a lot of time at Elk Island National Park because it's only about 25 minutes driving time away from my home. Astotin Lake is a bit of a centerpiece in the Park, and it is a stopover or staging area for Trumpeter and Tundra Swans on their migration. This past fall the swans began

arriving in early October. One weekend towards the end of the month, there had to be a thousand swans on the lake. And I was the only person there, at that moment, to see them. A few stragglers were still standing around on the ice in mid-November and then they were gone.

Now, you can travel to the Comox Valley on Vancouver Island to see Trumpeter Swans in their winter-feeding grounds. Or you can go to Poyang Lake in China to see their 'White Great Wall' of swans, but for those of us here in Alberta, a thousand swans on Astotin Lake at Elk Island National Park is 'Close to Home'.

On the west side of the lake, just before you get to the



JOHN WARDEN

Warden's office (no relation), is a bit of a point that juts out into the lake. The swans seem to congregate in the water, just off this point. A buffalo trail and buffalo droppings lead from the road down to the edge of the lake. Chest high willow offers a bit of concealment, but I've never actually been able to sneak up on the swans. I think over-nighting in a blind or hide of some sort is probably the answer for getting the really in-close images.



JOHN WARDEN

Since 1987 Elk Island National Park has been a site for a Trumpeter Swan re-introduction project. One morning, just by luck I happened across a pair of Trumpeters with their cygnet. It was dawn in September, and I had stopped my car in the Park to listen for wildlife. The magical golden light that nature photographers live and breathe was beginning to peek over the treetops. The air was clean and clear and sharp, and at just that moment I heard the muted two note jazz trumpet of a swan from the other side of the bushes where I was standing. But my camera was still in the car!!

Grabbing my camera, I walked quietly around the willow bushes and was enveloped in a Zen moment. Everything came together in natural perfection. Golden light was streaming onto the pond and warming up the bull rushes and reeds. Morning mist was hanging just above the surface of the pond, which

was calm and reflective. Three Trumpeter Swans - two adults and one cygnet were calmly feeding and swimming in this magical light. The pure white of the adult swans against the soft misty backdrop of golden warm tones offered a window to the divine.

The cygnet, all ugly-duckling like, with gray body and shocking pink bill, swam off into the mist. The two adults swam off in different directions to feed, but then after a few moments, swam towards each other, out of the mist and into the direct light. One of the swans stretched out his neck to rub, affectionately it seemed, against the female as they passed.

A car stopped on the parkway to see what was going on and the moment was broken. All three swans flew off with a thunder of wings and their distinctive two-note trumpet echoed in the morning air.

White swans and white cranes and white cold weather just seem to lend themselves to the Japanese poetry form called Haiku, a poem that doesn't rhyme but follows a three line beat of 5-7-5:

.....
Against the
sunrise,
.....
trumpets race
across the ice.

.....
Thundering
white wings.
.....

JOHN WARDEN

Waterton Wildflower Festival

JUNE 14-22, 2008

The spectacular setting of Waterton Lakes National Park is home to more than 50 per cent of Alberta's wildflowers...more than any other Rocky Mountain national park. Over fifty of Canada's rare flowers grow in Waterton!



From beargrass to orchids, nature is on display in a panorama of blossoms among prairies and peaks. This amazing diversity of wildflowers will be celebrated in the second annual **Waterton Wildflower Festival, June 14-22, 2008.**

Join us for guided flower walks, hikes, workshops, and more than two dozen educational courses on wildflowers, plants, climate, ecosystems and insects. Fees for most 2 hour courses are minimal, and free public lectures will be held each evening.

Activities throughout the 10 day event, organized by the Trail of the Great Bear and partners, are led by highly qualified professionals – including renowned wildflower photographer Paul Gilbert (*Wild Colours*).



SILKY LUPINE JEREMY KLAGER



YELLOW PAINTBRUSH JEREMY KLAGER

For all the details, check the website: www.watertonwildflowers.com

First Hand: Ouch!

BY BRIAN R. PARKER

Early spring brings with it the opportunity to observe the resurgence of life as the harsh conditions of winter slowly fade into distant memory. But the leafless days just after snowmelt also reveal the casualties of the previous months.

A walk through almost any larger woods before green-up usually will yield, to a careful observer, the partial skeletal remains of a variety of animals and perhaps shed deer antlers. Depending on the specific remains found it usually is possible to determine the kind of animal that died, sometimes its sex and age, and in a few interesting cases, we even get a glimpse of the tenacity of life in the face of disease or injury.

On the 2007 Easter long weekend, I, my wife Laurie and our yellow Labrador retriever Chelsea, undertook a series of hikes through several woodlots in the Edmonton region, as we have done nearly every spring for the better part of the last two decades. This year's hikes were more challenging than normal: although south-facing slopes were bare, there was still more than a foot of snow on north facing slopes and we had to be out early each morning so we could walk on top of the frozen crust that formed on the snow

each night. At one site east of Edmonton, it was evident that the local deer herd had a tough time waiting out winter, which saw snow arrive in late October and stick well into April. We quickly found the tiny 6-inch skull and left shoulder blade of a doe fawn, the pelvis of an adult deer with both femurs and several lumbar vertebrae still attached, and an additional three femurs, from three different deer.

A short time later we were following a deer trail between known feeding and bedding sites, one of the best places to find shed antlers, when we came across one of those places

that just scream out – “Look Here!” These are quiet, hidden, protected spots where a deer might crawl inside to find a few final hours of peace if it were dying. On seeing the dense tangle of aspen and willows, Laurie turned off the trail and started working her way towards



BRIAN PARKER

First Hand: Ouch!...continued

the cover. The sight of two inches of smooth white antler projecting above blackened and gnarled willow branches soon rewarded her efforts. Easing our way under the tangle, we found a small sheltered pocket just big enough to hold a mature deer, and containing a near complete skull, a shoulder blade and several vertebrae. It was a White-tailed Deer (*Odocoileus virginianus*) judging by the form of the antlers and the shallow pits in the bone in front of the eyes (Mule Deer (*Odocoileus hemionus*) have comparatively deep pre-orbital pits).

Although there was nothing unusual about finding deer remains in such a place, the skull and antlers were remarkable. On first glance, the most striking feature of the skull was the difference between the left and right antler: the right had the normal curve and form of a mature buck while the left was less than half the size of the right and appeared to grow out of the side of the skull. On closer examination, the likely cause of the abnormality was readily apparent: the deer had suffered a fractured skull.

The injury had been massive. The sutures between the bones that roof the skull had been separated near the base of the left antler and the left frontal

bone fractured. The part of the frontal bone bearing the antler had been displaced sideways, forward and down the side of the skull, finally coming to rest behind the left eye socket. A closer examination showed the injury extended deep into the deer's skull.

Fractured bones were visible around the outside lower left side of and inside the braincase, the latter beneath the separated sutures on the surface of the skull. Further, a light shone into the fissures on the top of the skull illuminated the inside of the braincase, indicating that a hole had been opened all the way through the skull to the surface of the deer's brain.

Despite the tremendous trauma, the injury was not directly responsible for the deer's death. Based on the extensive healing and remodelling of bone around the injury the fracture most likely occurred at least two years before the deer died. Overall, the injury healed well, with new bone filling in and strengthening



much of the damaged area on top of the skull. The separated sutures remained incompletely healed when the deer died, but even there, fingers of new bone had extended out from both sides of the separation to partly close the hole in the skull. The small protuberance of porous bone above the left eye socket is evidence that a localized bone infection developed after the injury, but there was no evidence of serious infection beneath the surface of the skull, as determined from a skull x-ray. Remaining free of major infection no doubt contributed to the deer's long-term survival.

What caused the injury? This must remain speculative, but several possibilities are worth mention. The author is aware of

First Hand: Ouch!...continued

one captive buck that suffered a similar injury while trying to free an antler he had entangled in a wire fence. Presumably, fighting among bucks during the rut could cause comparable damage. Wild bucks with a "loose antler" are reported on occasion; this would be consistent with

animals sporting frontal bone fractures and/or separated sutures. Alternately, the buck may have been kicked in the head by another deer, taking the blow just inside the base of the left antler, or perhaps was struck by a motor vehicle. Regardless of the cause, this animal survived for years

following a massive trauma to his skull, a remarkable accomplishment for a wild deer.

ACKNOWLEDGEMENT:

Drs. N. Lovell, M. Pybus and T. Scott examined the skull and provided their opinions of the injury. T. Scott conducted a skull x-ray.

If you have **first-hand** experience with nature, send it in and share it with other naturalists. After all, there are 8 million stories in the nature city. Yours...could be one of them.



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Nature Alberta: Celebrating our natural heritage! Good reading and excellent info.

Remembering Frank and Alice Harper

BY DOUG AND TERESA DOLMAN



FRANK AND ALICE HARPER ALEX HARPER

In memory of Frank and Alice's dedication and their generous gift to FAN, a new award has been created (see page 21).

Frank Harper was born on June 22nd, 1929 in Calgary but took all his early schooling in Lethbridge. After graduating from high school he worked for a year as a washing machine repair man, then went to Edmonton to earn a B. Sc. in agriculture at the University of Alberta. He then obtained a job at the Agriculture Canada Research Station in Lethbridge and after a few years took a leave in order to return to Edmonton to obtain an M.Sc. in plant pathology, after which he returned to Lethbridge.

Alice Wall was born in Saskatoon on August 24th, 1921 and obtained her B.Sc. in agriculture, followed shortly by an M.Sc. in plant breeding, at the University of Saskatchewan in Saskatoon. She worked at the Agriculture Canada Research Station in Swift Current for several years, then transferred to the Lethbridge Station to continue work on developing new strains of soft winter wheat.

Alice and Frank married in Lethbridge on June 22nd, 1956.

Shortly afterwards, Alice gave up her job and Frank took a leave from his in order that they could move to Ames, Iowa, where Frank completed a Ph.D in plant pathology at Iowa State University. When they returned, Alice worked for 10 years at the Lethbridge Community College in the Extension Department, and Frank resumed research on the control of diseases in agricultural crops such as peas, sugar beets, potatoes and barley, becoming head of the plant pathology section of the research station. He retired in 1984.

Among their varied interests, Frank and Alice loved art, music, nature and travel. Alice was an avid gardener and among the plants she cultivated were those which she could use to dye wool, which she then spun and wove. She took special pride in growing and preserving berry crops such as gooseberries and raspberries. Alice was a long-time member of the University Women's Club and served as President of the local chapter.

Frank was an accomplished woodworker and skilled mechanic and electronic engineer. Following

Remembering Frank and Alice Harper...continued

Alice's example, he learned to weave and was able to use his woodworking skills to build and repair spinning wheels and looms (often doing so in his shop while listening to opera). He became involved in the John Howard Society and was recognized for his long-time service to that organization. Over the years Frank and Alice traveled widely; Britain, Germany, Greece, Poland, Russia, Turkey, Panama and Hawaii were only a few of their destinations. They also loved to camp, exploring many areas of western Canada first by tent, then with a VW camper. For many years, they conducted a Breeding Bird Survey (BBS) in

the Bow Island area. One year, during the course of running their BBS, they were pulled over by the R.C.M.P. and questioned closely - there had been several instances of cattle rustling in the area recently, and the constable thought that Frank and his helpers were acting rather suspiciously. After some explanations, they were allowed to resume the survey.

Their love of nature led Frank and Alice in 1969 to join the fledgling Lethbridge Naturalists Society (LNS). Both of them served the LNS in many capacities over the years. Alice was newsletter editor from 1981 to 1983, served three times on the Board of Directors

and wrote the article on the LNS for FAN's twenty-fifth anniversary publication in 1996. Frank was President of the LNS from 1972 to 1974, was a program speaker, audited the books for many years and in 1981 headed a committee to organize FAN's fall meeting in Lethbridge. In the early 1970s Frank became a FAN Director. He served as FAN's President from 1972 to 1975 and then returned to FAN's Board of Directors for another two years.

Frank passed away on July 7th, 1991. Alice remained an LNS member until 2001 and her continuing travels took her to China and Alaska. She passed away on January 29th, 2005.

THE FRANK AND ALICE HARPER MEMORIAL AWARD

FAN announces new award for member Clubs!

There are many "unsung heroes" in naturalist groups: those people who give of themselves in carrying out the often less-than-glamorous duties associated with the running of a Club - people who play an important role in keeping the group on track, active, organized and able to provide the services that are basic to the Club's continued existence.

Frank and Alice Harper were two such naturalists for the Lethbridge Naturalists Society. In their honour, and recognizing the vital role that naturalists like them fulfill in all naturalist clubs, FAN has created the annual Frank and Alice Harper Memorial Award.

The first Award will be given out at the FAN AGM on April 26 2008. The award recognizes long-term

volunteer service to a local FAN Club (Corporate or Associate). Nominees can be an individual or couple.

At the AGM, FAN also bestows honours on outstanding Volunteers, an Honourary Membership, and the prestigious Loren Goulden Award. Watch for an awards report in the Summer '08 *Nature Alberta*.

Up Close Naturally:

The Swans are coming!

BY MARGOT HERVIEUX

The swans are coming. In early April, Trumpeter Swans (Cygnus buccinator) cross western Alberta on their way to nesting lakes in the south Peace region, and with their arrival comes the annual Grande Prairie Swan Festival.

Not far off the heels of geese, crows and gulls, Trumpeter Swans are some of the first birds back. As the snow melts, they gather in fields looking for bits from last year's crops as well as new green growth. As lake edges and smaller ponds open up, they can also be seen probing the shallows for plant roots.

At this time of year you might also spot North America's other swan, the Tundra (Cygnus columbianus). Smaller than trumpeters, with a rounder head and yellow beak patch, Tundra Swans nest in the arctic and are only seen in the province

during spring and fall migration. If you see a large flock of white birds in a stubble field, they are most likely Tundra Swans as trumpeters tend to travel in small, family groups.

Trumpeter Swans have always been closely tied to the Peace region. At the turn of the 20th century the birds were facing extinction due to over-hunting and other human pressures. No one even knew for sure where the Canadian birds nested.

Then, in the early 1900s, as the Grande Prairie region opened up to settlement, Trumpeter Swans were discovered nesting on the many lakes dotting the landscape.

Since that time, the Grande Prairie flock has grown from about 65 birds to over 2000. Trumpeters remain sensitive



MARGOT HERVIEUX

to disturbance around their nesting lakes and they are still at risk due to their very limited wintering range near Yellowstone, but they appear to be well on the way to recovery. Every year new pairs set up territories, expanding their nesting range as far north as the Chinchaga, east towards Peace River and south into the Edson area. There is also a pocket of re-introduced birds nesting in Elk Island National Park.

To celebrate the importance of Trumpeter Swans to the Grande Prairie area, Saskatoon Island Provincial Park launched its first swan festival in 1999. This community event provides residents and visitors with the chance to find out more about these striking birds and how they are tied to the conservation of wetlands in



Up Close Naturally will be a regular feature column by Margot Hervieux, the FAN director for Peace Parkland Naturalists and Visitor Services Specialist for Alberta Parks. Her column first appeared in the Peace Country Sun. Archived copies of past columns are available at www.peacecountrysun.com.

Up Close Naturally... continued

the region. This year's festival, on April 26th and 27th, is the festival's 10th anniversary.

The festival gets underway on Saturday, April 26th with a gala evening that includes a guest speaker, wine and cheese social and silent auction. This year's speaker is award-winning nature writer and bird watcher Dick Cannings. He will share his experiences and thoughts on why the world needs more bird watchers.

The festival continues on April 27th at Saskatoon Island Provincial Park with guided

bus tours to see swans. These 1.5 hour tours visit many of the shallow lakes in the area and offer participants a chance to see not only swans but also a variety of other early spring migrants. In addition, there are wetland activities and face painting for the kids as well as displays and a chilli lunch.

Trumpeter Swans nest on many of the larger wetlands in the south Peace but the birds continue to be threatened by increasing levels of human activity. The annual swan festival is a great chance to see these birds first hand and find out more about how we can live as neighbours without causing harm to these magnificent birds.



TOURS FOR NATURALISTS

YUKON & DEMPSTER HIGHWAY

Tour III, 19-29 June 2008 (11 days) Tour IV, 1-11 July 2008 (11 days)
Cost \$2900 + GST (dbl occup) from Whitehorse

The Yukon is a fabled land whose very name evokes archetypal images of wilderness and a frontier populated by colourful characters. It is a land of untrammelled wilderness and the midnight sun, the immortal characters, real and imagined, of the Klondike gold rush, Sam McGee and Diamond Tooth Gertie, the heroic men of the Northwest Mounted Police, and the inspiring sentiments of the bard of the Yukon, Robert Service. On this tour we will experience both the natural and human landscapes of this fascinating and beautiful land, visiting **the Klondike, the Dempster Highway, the Mackenzie Delta, and the Arctic Ocean.**

The heart of our adventure is the drive up the Dempster Highway from Dawson City to Inuvik. The Dempster, 750 kms of good gravel, is the only public road in North America that extends north of the Arctic Circle. Along its route we cross two mountain ranges, traverse wild river valleys, muskeg and tundra, and cross the mighty Mackenzie River on a ferry. **At latitude 66N we cross the Arctic Circle and enter the Land of the Midnight Sun.** The Dempster is renowned as a naturalist's paradise with its varied and beautiful landscapes, large mammals, myriad wildflowers and much sought after birds such as **Gyr Falcon, Willow Ptarmigan, Long-tailed Jaeger, Hawk Owl, Wheatear and Smith's Longspur.** Join us on this adventure to the Land of the Midnight Sun, the big country immortalized by Robert Service.....the Yukon.

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Price includes all meals

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FEATURE ARTICLE

Sex Makes a Difference!

Male and female Richardson's Ground Squirrels lead different lifestyles

BY GAIL R. MICHENER, DEPARTMENT OF BIOLOGICAL SCIENCES,
UNIVERSITY OF LETHBRIDGE, ALBERTA



GAIL R. MICHENER

Of course sex makes a difference! That is how the next generation is created. But sex, as in being either male or female, makes a difference in attributes ranging from size and appearance, to mating and parenting behaviour, to mortality and lifespan.

And those differences matter because they reveal the action of natural selection and sexual selection in the evolutionary history of a species.

The direction, magnitude, and type of differences between the sexes vary from species to species, but some generalizations can be made. For example, in many groups of birds - such as geese, jays, and swallows - the two sexes are so similar in appearance and behaviour that we usually cannot distinguish between male and female.

In contrast, most mammalian species exhibit another pattern. Male mammals are typically larger, more muscular, and more aggressive than females. Male mammals almost never care for their offspring, leaving all the work to the pregnant and lactating female. In fact, most male mammals don't even know which offspring they sired!

Richardson's Ground Squirrels (*Spermophilus richardsonii*) exhibit the typical mammalian pattern. Almost every aspect of their lives, from when they start

and stop hibernation to the role of sharing space with kin differs between males and females.

For the past 35 years, much of my research on Richardson's Ground Squirrels has focused on why males and females differ so much from each other, and I am continually gaining new insights as I watch these fascinating prairie rodents go about their daily lives.

But first, let's agree on what a Richardson's Ground Squirrel is. Most people in the prairie provinces refer to these medium-

"I'M A SQUIRREL!": RICHARDSON'S GROUND SQUIRRELS DO NOT NEED A BUSHY TAIL FOR BALANCE, SO EARLY SETTLERS DID NOT REALIZE THAT THIS GROUND-DWELLING SPECIES REALLY WAS A TYPE OF SQUIRREL. INSTEAD, THEY BORROWED THE WORD GOPHER, A TERM THAT INCLUDES A VARIETY OF MAMMALS AND REPTILES THAT USE TUNNELS. G. MICHENER



sized, ubiquitous grassland denizens as gophers. In reality, ground squirrels as well as chipmunks, prairie dogs, and marmots are members of the squirrel family *Sciuridae*. It's just that in contrast to their tree-dwelling relatives, ground-dwelling squirrels do not have the classic bushy tail.

Now, back to those sexual differences.

At my study site north of Lethbridge in southern Alberta, I have been tracking the dates of emergence of squirrels from hibernation every year since 1987. In some years, that has involved detecting the first appearance of as many as 210-275 individuals and in other years, especially after a period of Badger (*Taxidea taxus*) predation, as few as 30-50 squirrels. Without fail, males appear first, and that is regardless of whether we have an early warm spring as in 1992 when average dates of emergence were

13 February for males and 27 February for females or a late cold spring as in 2003 when the average dates were 6 and 21 March.

The male-before-female timing of emergence from hibernation is consistent over the years, but no consistent trend has yet appeared in emergence dates that might be related to climate change. Perhaps that is no surprise given that my site is in a location where spring-time temperatures can change from day to day by as much as 30°C depending on whether an arctic front or a chinook wind has swept in.

Although each Richardson's Ground Squirrel hibernates alone, neighbours are just metres apart and all members of the population experience

similar ambient conditions. So, why would males appear about 2 weeks before females? Or, depending on your perspective, why would females delay emerging from hibernation when conditions are suitable for males? Part of the answer to the sexual difference lies in the need for males to regrow their testes every year!

Male Richardson's Ground Squirrels are reproductively active for only about 4 weeks a year, in early spring. This is the only time that large testes are present in the scrotum and produce sperm. By the time the mating season draws to an end, the testes shrink in size and return to an abdominal position for the summer and the hibernation season. Consequently, males need a

Sex Makes a Difference!...continued

period of several weeks for their testes to enlarge, descend, and become spermatogenic.

Another part of the answer to why males come above ground first is that they need to recoup some of the fat they lost over winter before the mating season starts. Once mating begins males expend time and energy keeping track of which females are newly emerged and which ones are ready to mate and which ones have already mated. Finding a female in heat is not the end of the story; then the male

has to fend off other males, often inflicting or receiving severe injuries, and he must keep his eye on the female in case she slips away to mate with another guy. All of this is such exhausting work that males lose weight. Therefore, there is a premium to being in good physical condition before the first females come out of hibernation. So, braving a few cold days in February and March to get out and find food, even if it is only last year's dried-up grasses, can pay off in the mating season.



"GUESS MY SEX": THE TESTES OF MALE RICHARDSON'S GROUND SQUIRRELS DESCEND INTO THE SCROTUM FOR ONLY 4 WEEKS A YEAR. FOR THE REST OF THE TIME, THE WAY TO DISTINGUISH MALES FROM FEMALES IS TO MEASURE THE DISTANCE FROM THE ANUS TO THE URINARY OPENING. G. MICHENER

Richardson's Ground Squirrel or prairie gopher. What's correct?



ALTHOUGH RICHARDSON'S GROUND SQUIRRELS ARE OFTEN CALLED GOPHERS, THEY ARE ACTUALLY MEMBERS OF THE SQUIRREL FAMILY SCIURIDAE. NORTHERN POCKET GOPHERS ARE ANOTHER TYPE OF RODENT FOUND IN ALBERTA, BUT THEY BELONG TO THE FAMILY GEOMYIDAE.

G. MICHENER

Just as every species of mammal has a formal Latinized name consisting of the genus name and specific epithet, every species has a common English name used by zoologists. For our own species, the formal name is *Homo sapiens* and the common name is human. Some species, however, also have local vernacular names that have become entrenched by everyday usage. One example is the tendency for people to refer to American Bison (*Bison bison*) as Buffalo.

Richardson's Ground Squirrels have several vernacular names that vary from place to place in the geographic range. Certainly

gopher has the most widespread usage, but flickertail and picket pin are popular in some regions. When people want to differentiate between species of ground squirrels, they use terms such as prairie gopher (Richardson's Ground Squirrel), striped gopher (Thirteen-lined Ground Squirrel (*Spermophilus tridecemlineatus*)), mountain gopher (Columbian Ground Squirrel (*Spermophilus columbianus*)), and gray gopher (Franklin's Ground Squirrel (*Spermophilus franklinii*)).

The use of gopher to describe the ground squirrels in North America is unfortunate because of the confusion that then arises between true gophers and ground squirrels. The Northern Pocket Gopher (*Thomomys talpoides*),

Sex Makes a Difference!...continued

Female Richardson's Ground Squirrels do not need to be in especially good physical condition in order to get pregnant. In fact, they are at their lowest weight for the year when they mate, after which pregnant females steadily gain in personal weight over and above the increasing weight of the developing embryos.

Sex, in the sense of engaging in copulation, is a rather transitory phenomenon for female Richardson's Ground Squirrels. A typical female comes into estrus on her third day out of hibernation, at which time she is

receptive to males for about 2 hours from 4:30 pm to 6:30 pm on just that one afternoon of the year. She might, however, mate with several males during her 2-hour receptive period, producing a litter that has several sires.

Once a female Richardson's Ground Squirrel has finished mating for the day, she immediately becomes quite aggressive to all males, including those who just fathered the litter. She has absolutely no interest in consorting with males for another 12 months.

Sex for males, however, is a major preoccupation for the entire 20- to 30-day period that any females are in estrus. Within the mating season there is always a particularly intense period of about 10-15 days when 80-90% of the females mate. Males are kept very busy as they vie with each other for proximity to females that come into heat each day. And many males pay the ultimate price, reaching exhaustion, going to bed cold and hungry, getting infections in their wounds, and being picked off by predators through lack of attention.

which inhabits the foothills, parkland, and Cypress Hills of Alberta, is a member of the rodent family *Geomyidae* and thus is a true gopher. Because they are root eaters, coming above ground rarely and usually at night, most people are not familiar with pocket gophers. In Alberta, the vernacular name for the pocket gopher is mole. And that adds yet more confusion because true moles are not even rodents. Luckily, no true moles live in Alberta; I've often wondered what they would be called if there were any here!

The best guess as to why ground squirrels came to be called gophers is that early settlers

traveling to the North America grasslands were unaware that squirrels could live in treeless areas, so they borrowed another name. Gopher is a corruption of the French word *gaufre*, referring to something that is honeycombed with holes, and thus is an allusion to the burrowing habits of ground squirrels. Gopher snakes, gopher tortoises, and pocket gophers likewise live in burrows.

Richardson's Ground Squirrels were assigned their formal scientific name of *Spermophilus richardsoni* in 1822 in honour of John Richardson, who collected specimens in 1820 at Fort Carlton in what is now

Saskatchewan. Richardson was the surgeon-naturalist accompanying the first Franklin expedition sent to map the fabled Northwest Passage. That a prairie rodent would be collected on a naval expedition seems strange at first, but Franklin's task was to get from Hudson Bay to the arctic coast via the Coppermine River, so the expedition had to cross the prairies.

A century or more of usage has established gopher as the familiar name for Richardson's Ground Squirrels. Nonetheless, I always encourage people to use the name accepted by zoologists because it not only tells us that these animals are squirrels that live in a tree-less world but it also reminds of us of an early naturalist in Canadian history.

"AND THE WINNER IS": MALE RICHARDSON'S GROUND SQUIRRELS FIGHT VIGOROUSLY WITH EACH OTHER FOR THE PRIVILEGE OF MATING WITH FEMALES. ALL MALES SUSTAIN SEVERE WOUNDS THAT OFTEN BECOME INFECTED. G. MICHENER

Sex Makes a Difference!...continued

After the intense activity of the mating season, the next few weeks in the ground squirrels' active season seem rather peaceful. Although females squabble amongst themselves as they settle who will use which burrow systems this year, those interactions are tame in comparison to male-male fights and ownership is quickly resolved, especially among female kin.

Pregnant female Richardson's Ground Squirrels then get down to the business of redecorating the burrow system for the new family; they clean out the latrine, add on a new bedroom or modify an existing one, and provision the bedroom with dry grass. Then one night, 23 days after she mated, the female gives birth to a litter of 6-8 naked pink blobs of protoplasm. Of course, she won't be able to see her newborn babies in the total darkness of the underground chamber, which might be a good thing in terms of maternal bonding.

And what are the fathers doing? Well, nothing that relates to fatherhood. They have done the only thing that mattered, providing their sperm. Now it is time for males to lick their wounds, quite literally, and begin the slow process of

recovering from the exigencies of mating activity. Males need to find a place to live for the rest of the active season, which can be tricky because pregnant females take over the best burrow systems. It is quite astonishing to watch a male Richardson's Ground Squirrel who had been a big bruiser in male-male fights get displaced from a burrow system by a female half his size.

The lengthening and warming days of mid-April make life easier for lactating females, who need to eat copious amounts of food to manufacture milk. Infants that weighed only 6-7 grams at birth are 10 times heavier a month later. By the time the young are ready to eat solid food, the collective weight of all the offspring in a litter exceeds the mother's own weight. In human terms, that would be like a woman suckling her son to his adult size in 30 days!



Then one day, fuzzy heads tentatively appear at a hole in the mother's burrow system and the youngsters encounter the real world for the first time. On the good side, food is readily available and the young squirrels no longer have to wait for mother to deliver a meal of milk. On the bad side, danger is all around in the form of Prairie Falcons (*Falco mexicanus*), Swainson's Hawks (*Buteo swainsoni*), and Coyotes (*Canis latrans*) ready to make an easy meal of a naïve juvenile. Alarm calls from mothers often provide sufficient warning for the kids to escape danger.

Youngsters also get to meet their relatives, such as grandmother, older sisters born in previous years, aunts, and cousins. Female Richardson's Ground Squirrels then form life-long



"NAKED PINK BLOBS": AS WITH MOST RODENTS, NEWBORN RICHARDSON'S GROUND SQUIRRELS ARE HAIRLESS, BLIND, AND CAPABLE OF DOING LITTLE MORE THAN LATCHING ONTO THE MOTHER'S TEATS FOR MILK.

G. MICHENER

Sex Makes a Difference!... continued

friendly social bonds with this extended family of close female kin. Other squirrels that they encounter later on and further away from the home burrow will be considered strangers to be avoided.

By the time the litters appear above ground, the fathers of those litters have recovered from their wounds and are starting to prepare for hibernation. And the males still play no paternal role. Instead, their main preoccupation now is to fatten up as fast as possible and get back underground and into hibernation. Amazingly, adult male Richardson's Ground Squirrels in southern Alberta usually enter hibernation in early June, with almost all males back in hibernation before the summer solstice.

Because some people doubted the accuracy of my observations on timing of disappearance of adult males, I placed radio-transmitting collars on some males to track both their location and body temperature. This work proved that adult male Richardson's Ground Squirrels are definitely entering hibernation in June, with their body temperature dropping from 37°C to 15-18°C and thus



"BRAVE NEW WORLD": AT 30 DAYS OF AGE, YOUNG RICHARDSON'S GROUND SQUIRRELS MAKE THEIR FIRST FORAY ABOVE GROUND. G. MICHENER

matching the summer-time soil temperature at about half a metre deep.

Why would adult males enter hibernation so early when there is obviously still plenty of food to support growth of juveniles? Actually, the same question can be asked of adult females because they are ready to hibernate in early July in southern Alberta. The answer in both cases relates to the higher risks associated with coming above ground daily into the dangerous world versus staying permanently underground for many months where the only risk is being dug out by a Badger.

So, by mid-July all the parents are hibernating and the only Richardson's Ground Squirrels active above ground are the juveniles, now about 12 weeks old. The next major event is

fattening and disappearance of juvenile females, typically in early August in the chinook zone of southern Alberta. Interestingly, young females achieve only 80% of their final adult size before they hibernate; they actually finish growing the next spring during their first pregnancy. Their brothers, on the other hand, are on an entirely different trajectory.

Many young male Richardson's Ground Squirrels start wandering when they are about 9-12 weeks old, and most of them leave the family area permanently. Thereafter, they will no longer be part of a kinship group.

In order to compete with older males next spring in the mating season, young males must achieve adult size before they hibernate. Furthermore, as is typical of mammals, males are the larger sex. So, young males

Sex Makes a Difference!...continued

have a lot of growing to do. They stay active for two extra months after their sisters have hibernated, during which time their skeletons grow, their muscles bulk up, and they store enough fat to survive hibernation. The outcome is that we have another sexual difference: sisters precede brothers into hibernation.

The order of entry into hibernation, also called

immergence - adult male, then adult female, then juvenile female, and finally juvenile male - initially seems inexplicable because people expect hibernation to be triggered by some environmental factor that acts similarly on all animals in the same population. Furthermore, the immergence sequence is not obvious to the casual observer. The

Richardson's Ground Squirrels active in September look large enough to be adults. By following individually marked animals for the entire season we now know that adult males start hibernation in summer but juvenile males remain active until fall.

Sexual differences in timing of the active season do make sense for Richardson's Ground

A lifetime of studying Richardson's ground squirrels

When I first came to Canada from Australia, I dreamt of studying Beavers because they seemed so exotic to someone who had grown up in a hot dry environment. Then I met Dan Michener, soon to become my husband, and he introduced me to Richardson's Ground Squirrels. They seemed even more exotic than Beavers! Here was this cute mammal that gamboled about on the prairie during the daytime in the summer but wisely went into hibernation for the winter, a strategy that seemed eminently sensible to an impoverished graduate student from Australia who could not afford to buy a decent winter coat for the Saskatchewan winter.

I rapidly discovered that people could suggest all sorts of ways

to kill ground squirrels but they could not tell me even the basic facts, such as when did Richardson's Ground Squirrels mate, how long did pregnancy last, how old were offspring when they came above ground, or how many litters could a female produce in a year. So, I set about answering those questions.

I immediately realized that accurate information required following individual animals, but there was a problem. Unlike the whisker pattern on lion faces or the reticulation pattern on giraffe necks, Richardson's Ground Squirrels all looked alike. The solution to permanent identification was to give them a pair of ear rings, with each pair numbered differently. But the numbers could only be read with

the animal in hand. So, I had to come up with a way to identify individuals from a distance. I eventually settled on something that was readily available and did not need to be ordered from a scientific supplier – human hair dye. To this day, I regularly buy black hair dye for females and red hair dye for males from a drug store where the staff are very perplexed because my hair gets steadily whiter and whiter!

I thought that I had been very smart to study an animal that slept at night and hibernated in the winter. Then I started to add up the collective time that Richardson's Ground Squirrels spent underground and was astounded to find that they pass 85% of their lives in subterranean chambers. What if males and females differed in what they did underground? A new problem with a new solution – radiocollars with a transmitter that rested on the

Sex Makes a Difference!...continued

Squirrels. Young males that remain active later than their sisters and adult males that appear in spring before any females emerge are the ones that pass on the most genes to the next generation.

So, sex matters.

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throat and sent information on the animal's location and its body temperature when curled up asleep or in torpor.

Sure enough, male and female Richardson's Ground Squirrels do behave differently underground. Females often share sleep sites in the active season with their close genetic kin, but males are loners. During hibernation, which is always spent alone, females spend about 92% of their time in the physiological state of torpor, but males only spend 82% of the time in torpor. Another sexual difference

is that males often store seeds in the hibernaculum, a handy food source that permits males to spend a few days eating underground before they first emerge in spring. Females never store food and they just keep going back into torpor until conditions are good enough to come above ground.

And what about those initial questions I had when I first started studying Richardson's Ground Squirrels 35 years ago? Females mate on their third day out of hibernation, pregnancy lasts 23 days, young first come above ground when 30 days old, and a female can have only one litter per year.

NUMBERED EAR RINGS PERMANENTLY IDENTIFY A RICHARDSON'S GROUND SQUIRREL SO THAT IT CAN BE TRACKED FROM YEAR TO YEAR TO LEARN HOW LONG IT LIVES. MALES RARELY LIVE TO 3 YEARS OF AGE, BUT SOME FEMALES LIVE FOR 4-6 YEARS. UNIQUE DYE MARKS ON THE FUR IDENTIFY INDIVIDUALS FROM A DISTANCE, BUT THEY MUST BE RENEWED EACH TIME THE ANIMAL MOULTS. G. MICHENER



The Race!

The spring 2007 peregrine falcon race north from Colombia to Alberta

BY GEOFF HOLROYD AND HELEN TREFRY, CANADIAN WILDLIFE SERVICE, ENVIRONMENT CANADA, ROOM 200, 4999 – 98 AVE, EDMONTON, ALBERTA, T6B 2X3

In the previous article in Nature Alberta (Holroyd et al. 2007), we documented the migration of four Peregrine Falcons (Falco peregrinus) south from Alberta to their wintering quarters in Central and South America.

The falcons were outfitted with 30 gram GPS-solar satellite transmitters at their nests in Alberta. In this article, we will describe the migration north of the two female falcons in the spring of 2007. We have included the details from the locations determined by ARGOS satellites using Doppler frequency shift for approximately 7 hours every three days. The flight north for one female ended with a serious fight that almost ended her life.

The female Peregrines with satellite transmitters were trapped at their nests at the University of Alberta, Edmonton and on the Len Werry building in downtown Calgary. The Edmonton female was banded as a slightly injured adult in 2005 in North Saskatchewan Drive. She nested successfully at the University in 2005 and had a transmitter attached.

She wintered in Colombia but the transmitter failed; she was recaptured at the nest in 2006 and the transmitter was replaced with the more accurate GPS transmitter. The Calgary female was unbanded when trapped so we do not know her origins. Both females wintered in Colombia about 500 km apart, the Calgary female south-east of the Edmonton falcon.

The Calgary falcon departed first, on 27 March 2007. On the 28th she was 220 km to the northwest heading home. By the 31st she was in Central America and on April 3rd in southern Mexico. The transmitter signals captured her daily flight rates on two occasions. On the morning of the 31st she was over the Costa Rica-Nicaragua border at about 10:30 am local time. Fortunately the transmitter stayed on for 7 hours, and by 5:40 she was on

the Nicaragua-Honduras border. During the day she had traversed Nicaragua, a distance of about 380km (an average flight speed of about 54 kph)! She spent the night of April 3rd in Chiapas, Mexico and by 4:30 pm was on the Gulf Coast of Mexico near Veracruz, a distance of 360km! By the end of that day, she was 3000 km from her winter ground, and had traveled only 3100 km to get there; in other words her flight route was very close to a straight line.

The Edmonton female started 500km north of the Calgary falcon and left her winter home on March 28th, one day after the Calgary falcon. In the local media, this close timing was staged as a race between the two falcons. Of course the falcons were not aware of each other's travels, but the race concept grabbed public attention. The result was a heightened awareness of peregrine migration, some conservation issues

The Race!...continued

and ultimately their arrival in the two cities.

By March 31st, the Edmonton female had moved 800 km to northern Panama, crossing into Costa Rica on the Caribbean coast that day. By April 3rd she was in southern Mexico and another 1460 km closer to Edmonton. Her total distance from her winter home was 2260 km, while the sum of her daily tracks totaled 2340km, only 80 km off a direct straight line! The saying 'as straight as the crow flies', should be changed to 'as straight as the peregrine flies'!

The Edmonton female surged past the slower Calgary falcon in northern Mexico. The Calgary falcon was 345 km north of the Edmonton falcon on April 3rd. By the night of April 5-6, she had flown only 530 km while the Edmonton female, who had not traveled as fast until then, covered 990 km in those three days and by that night was 170 km north of the Calgary female. Curious that under the same conditions one falcon would cover twice the distance as the other but it is possible one falcon found more favorable winds along the mountains of the Sierra Madre Oriental since their routes were not identical.

The Edmonton female may have taken a day off to feed or rest since she only traveled 88 km



THE CALGARY FEMALE SURVEYS HER DOMAIN! GEOFF HOLROYD

from dawn to dusk. Both falcons were now in northern Mexico near the major city of Monterrey, prepared to cross the US border with no permits. Meanwhile back in Edmonton at the University of Alberta, Alastair Franke and Gord Court reported a new female at the nest box of the transmitter-fitted female with last year's male. If this new female remained, we could speculate a fight was a real possibility.

By April 6, both falcons had crossed the border with the Calgary female again in the lead as they migrated up the western Great Plains. The Edmonton falcon went barely 150 km in

three days and spent the night of the 9th near the Falcon Dam on the Rio Grande, in Texas. In contrast, the Calgary female flew 600 km, roosting overnight in south Texas, 230 km north of the Edmonton female. She stayed in the lead through the 12th April covering 790 km in three days. On the morning of the 12th she was in northern Texas, east of Amarillo, crossing the Oklahoma panhandle heading northwest into Colorado. By 3 pm she had covered 495 km, a major day of flying. The Edmonton female must have been distracted or did not catch favourable winds, since she spent the night of the 11/12th near Big Springs, Texas, then

The Race...continued

covered 250 km by noon that day crossing into New Mexico between Hobbs and Clovis.

By nightfall on the 12th the Calgary female was 690 km north of the Edmonton falcon's location at noon that day. On the 13th both falcons encountered a spring storm that hit Denver and southern Colorado. The Calgary falcon flew east around the dense fog, snow and freezing rain. The Edmonton female returned south into Texas, stalling there before resuming north. On April 18th the race was won by the Calgary female, talons down over her Edmonton "rival." That afternoon she was in south-west Calgary, after covering 1040 km in three days from the Montana-South Dakota border. That day (April 15th) she flew 410km across the corner of South Dakota from Nebraska. So she has flown from her winter home in 26 days a total distance over 6000 km or about 230 km/day on average.

The Edmonton female in contrast had moved only 120 km north by the 18th stalling near Amarillo, Texas and was still 2500 km from Edmonton. She would have been unaware that back at her nest site the new female at the University of Alberta had been seen copulating with the male, roosting on and near the nest box as captured by the web



FIGURE 1. ROUTES FOLLOWED BY TWO FEMALE PEREGRINE FALCONS FROM COLOMBIA TO CALGARY AND EDMONTON IN THE SPRING OF 2007.

cam. As if she sensed there was now urgency, a burst of speed during the final legs of her journey home was reported by the transmitter. On the night of the 20-21st she was in northern Wyoming. From 6:17 pm on the 20th to nightfall she flew an additional 130 km for a total of 1160 km in two days.

From the morning of April 21st the Edmonton transmitter falcon continued the fast push north from northern Wyoming, 1270 km from Edmonton. She arrived at the University nest on April 23 - at exactly 8:07 pm to be precise. Wayne Nelson and I had set up a watch on the roof of the nearby parkade. Earlier in the day Alastair Franke and I had made separate visits and all was quiet, with the male and the new female occasionally interacting, but mostly sitting enjoying the warm spring day.

At 8:07 pm, Wayne noticed the female arriving from the south with the male in tandem flight. The male peeled off to perch on a nearby building and the female flew up to the nest box. She had flown 6500 km in 26 days, for an average rate of 250 km/day which was faster than the Calgary female but included her delays and detours. Her male had just joined her for the last few hundred meters and she was 'home'. Then the fireworks began. The new female immediately flew to the box and confronted the old female. Within seconds their talons were interlocked and immobilized. The two females pecked and bit at each other, pulling out feathers and drawing blood. The new female was quickly on top, with the advantage. After 8 minutes the falcons had worked their way to the front of the nest box and

The Race...continued

tumbled out onto a roof about 4 meters below. They were now out of our sight but we could hear the threatening calls.

Alastair Franke was at home but after receiving our cell phone call, he immediately headed to the university, called security and had access to the roof. At 8:35 pm he held up both birds. They were so intent on their fight that he was able to walk up and grab them!

We discussed what to do next as we weighed and measured both falcons. Both were in great condition, at just over 1000 gm, and the newly returned migrant had food in her crop. But both were bloodied. The transmitter female was missing head feathers and had blood by her left eye. The new female had blood on her chest and left thigh. In such fights one or both females can die, as has been documented at other urban and rural sites. While we knew we had to let nature take its course, we also wanted both falcons to live.

We decided to release the new female. She flew up to one of her perches at College Plaza building for the night, and we held the transmitter female overnight. At 7:31 am on the 24th we released her south of the nest at the O.S. Longman building. She perched on the roof for 9 minutes, and then took



CWS BIOLOGIST GORD COURT HOLDS THE CALGARY FEMALE, WHILE THE CHICKS LOOK ON EXCITEDLY. GEOFF HOLROYD

off north. In 90 seconds she had covered the intervening 2 km and was near the nest site. The new female immediately gave chase and the old female tried to get away. Near 110 St and 85 Ave the new female caught up and they locked talons, tumbling into a back yard. Trudie McLaren heard the commotion in her neighbor's yard and went out to investigate. She saw the two falcons fighting: one on its back, the other above it. When she opened the back door the falcons broke free and left, one north, the other south. The new female returned to the university. From the transmitter records, the old female headed north across the river. At 9:33 am we watched her return to campus only to be chased again by the new falcon. The chase south of campus, lasted three minutes with the old female in the lead, fleeing. The new female finally broke off the chase and returned to the nest area. This final

event would result in the new female retaining the University site and leaving the transmitter female alive but homeless for the breeding season. The transmitters continue to provide data on her movements.

One other detail deserves comment. Biologists are always reassessing the effect of their studies on a species. As more satellite transmitters are deployed on birds for longer periods of time the possible effects of the transmitter and backpack are being examined. Although it is obvious the birds can breed and successfully rear young with transmitters there may be more subtle effects. Both females described in this migration arrived relatively late from their winter home. Steenhof (et al. 2005) found that female Prairie Falcons with transmitters that wintered the furthest away from their southern Idaho nest sites tend to nest later than they did

The Race...continued

in the year they were tagged, while resident females nested at the same time or earlier than the year they were tagged. Myerberg (et al. 2007) found a similar effect on two Lesser Spotted Eagles that migrated from South Africa to Europe. We will be looking at the nesting times of Alberta Peregrines to determine if the timing of these two migrants and others with transmitters is indeed later than falcons without transmitters.

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The Evening Grosbeak

BY ROBERT ALISON



The Evening Grosbeak (Coccothraustes vespertinus) is an irruptive nomad with a broad North American distribution that is shrinking rapidly. Until fairly recently, Alberta was one of its main strongholds.

But, accumulating evidence unarguably confirms the species is in acute decline in Alberta and the most recent North American Breeding Bird Survey data indicates Evening Grosbeak losses in Alberta are more significant than anywhere else on the continent. "They have almost disappeared from many areas they formerly occupied in Alberta," confirmed Alberta naturalist Gus Yaki.

In this species, great sweeping population fluctuations are the norm, generally resulting from massive irruptive movements. Banding studies show the birds are highly nomadic much of the time, although some local pockets seem to be semi-sedentary if conditions are suitable.

Most population surveys agree that Evening Grosbeak populations were relatively stable range-wide until the 1980's. There were huge eastward incursions, some as far as the Atlantic coast, in 1945, 1951, 1955-57 and 1960; the birds did not occur east of the Mississippi Valley and western Great Lakes until the 1900's. According to Ontario ornithologist Murray Spears' journals, Evening Grosbeaks occurred in Ontario in

flocks of 200-300 individuals in the late 1950's. These large eastern subpopulations derived from western population hubs, DNA analysis shows.

All available data sources confirm continent-wide Evening Grosbeak losses, starting about 1985, and worsening ever since. Data accumulated as a result of Project Feeder Watch documents a steady and massive decline that set in about 1996 during which "Evening Grosbeaks wandered almost out of sight". The data suggests an enormous and unexplained drop in the grosbeak population across the northern half of the continent.

"When Project Feeder Watch began in 1987, Evening Grosbeaks were one of the most common species reported, and now, 20 years later, they have fallen off the list of most common feeder birds," confirmed the Cornell University Laboratory of Ornithology. The birds are currently totally absent in many areas where they were abundant as recently as the



FEMALE EVENING GROSBEEK. GERALD ROMANCHUK

The Evening Grosbeak...continued

early 1990's, the Laboratory says. "People who used to see them descend to their feeders in large numbers report they haven't seen one in years," the Laboratory scientists report.

The North American Breeding Bird Survey shows a 1986-2000 Evening Grosbeak population trend of -9.4 in Alberta, among the steepest rates of loss for any avian species on the continent for that period. Losses have been most acute since 1996, the data shows. According to Bird Studies Canada, the Canadian Evening Grosbeak population has collapsed by 78 percent since 1969.

The situation is no better in the United States. In Nebraska, the local population has fallen by 80 percent in two decades, and in Utah, similar losses have been confirmed by the National Audubon Society. Washington State losses have been close to 97 percent. According to the National Audubon Society, the bird now has "watch list" status. Its total

North American population has fallen below 3.5 million.

The Canadian Wildlife Service "national action plan" for Evening Grosbeaks reports the greatest declines in the species in Canada have taken place in montane cordillera and the Atlantic provinces. *Bird Banding* magazine calls the degree of range-wide loss "spectacular". According to "Albertabird", sporadic Evening Grosbeak observations are still reported fairly frequently, but large flocks are rare. Canmore, Cold Lake, Morley, Exshaw and Wabamun seem to have regular occurrences. The largest recent counts (2007) have been at Opal, Canmore, Fort McMurray and Wabamun.

Historical studies suggest the existence of at least five distinct local geographical variants. Studies by Kendra Sewall and Rodd Kelsey at the University of Calgary indicate each variant has its own unique vocal dialect. Geographical variations in grosbeak vocalizations seem to be most evident in the "flight call". Such uniqueness tends to



MALE EVENING GROSBEEK. GERALD ROMANCHUK

suggest the variants remain isolated from each other, and that the main periodic movements that take place likely involve the eastern morph (*C.v.vespertinus*), which is the form found in Alberta.

Scientists speculate that recent population declines in the Evening Grosbeak might be generated by changes in abundance of Spruce Budworms (*Choristoneura spp.*). The larvae and pupae of the Spruce Budworm are important elements in the grosbeak diet, especially of the nestlings. Since the budworms are widely believed to be forest pests, chemical and biological control programs are underway to reduce their abundance. Preliminary evidence suggests that grosbeaks ingest these substances as part of their normal foraging, and might be subject to secondary poisoning.

Ponderables

"Nature doesn't forget about its past, its fallen leaves and dead wood. It uses them to renew itself, to provide food and shelter for life to come. We may all sing about the beauty of the new flowers, but we have the old leaves to thank."

-- JEREMY SMITH, EDITOR. *THE ECOLOGIST* (IN *THE CCPA MONITOR*, JUNE 2007)

The Evening Grosbeak...continued

According to the Quebec Department of Forestry, studies there show that the larval stage of the Spruce Budworm is a "favourite grosbeak food". In Alberta and British Columbia, the western form of the Spruce Budworm attacks many valuable tree species, including Douglas-fir (*Pseudotsuga spp*), Grand (*Abies. grandis*) and Subalpine (*A. lasiocarpa*) Firs, Western Larch (*Larix occidentalis*), Black (*Picea mariana*) and White (*P. glauca*) Spruce and others. Chemical sprays, and those containing *Bacillus thuringiensis*, are used to reduce budworms there.


According to the Canadian Wildlife Service, there is a major need to investigate the causes of the current ongoing Evening Grosbeak decline, especially

with regard to land-use practices. Scientists believe that global warming is impacting the birds by stressing seed-bearing trees and thereby reducing foraging opportunities. A recent Ontario study shows that in warm dry summers, such as took place there in 2007, tree seed production falls dramatically and grosbeaks are forced to relocate accordingly. The situation was so serious that, for the first time in a decade, some grosbeaks had relocated as far south as Barrie, Ontario by October 12.

Relocation and pioneering into new areas tend to involve females more than males. A study done by David Prescott at the University of Calgary involving an analysis of 35 years of banding data shows that males tend to winter

farther north than females, and males comprise up to 65 percent of the northern-most wintering populations. The National Audubon Society says that Evening Grosbeaks are susceptible to logging, mining, drilling, acid rain, pesticides and development. It is a formidable combination of challenges.

Banding studies confirm how mobile these birds can be. One banded adult moved from Ohio to Massachusetts in less than one month. Another went from Ohio to New Hampshire in a few weeks. Although eastward incursions have been widely documented, there have not been any significant westward return movements so far reported. As a result, biologists believe, it is unlikely that the Alberta population will be supplemented by grosbeaks from any eastern population reservoirs.



**Do you have
opposable
thumbs?**

If so...

Nature needs you as a volunteer!

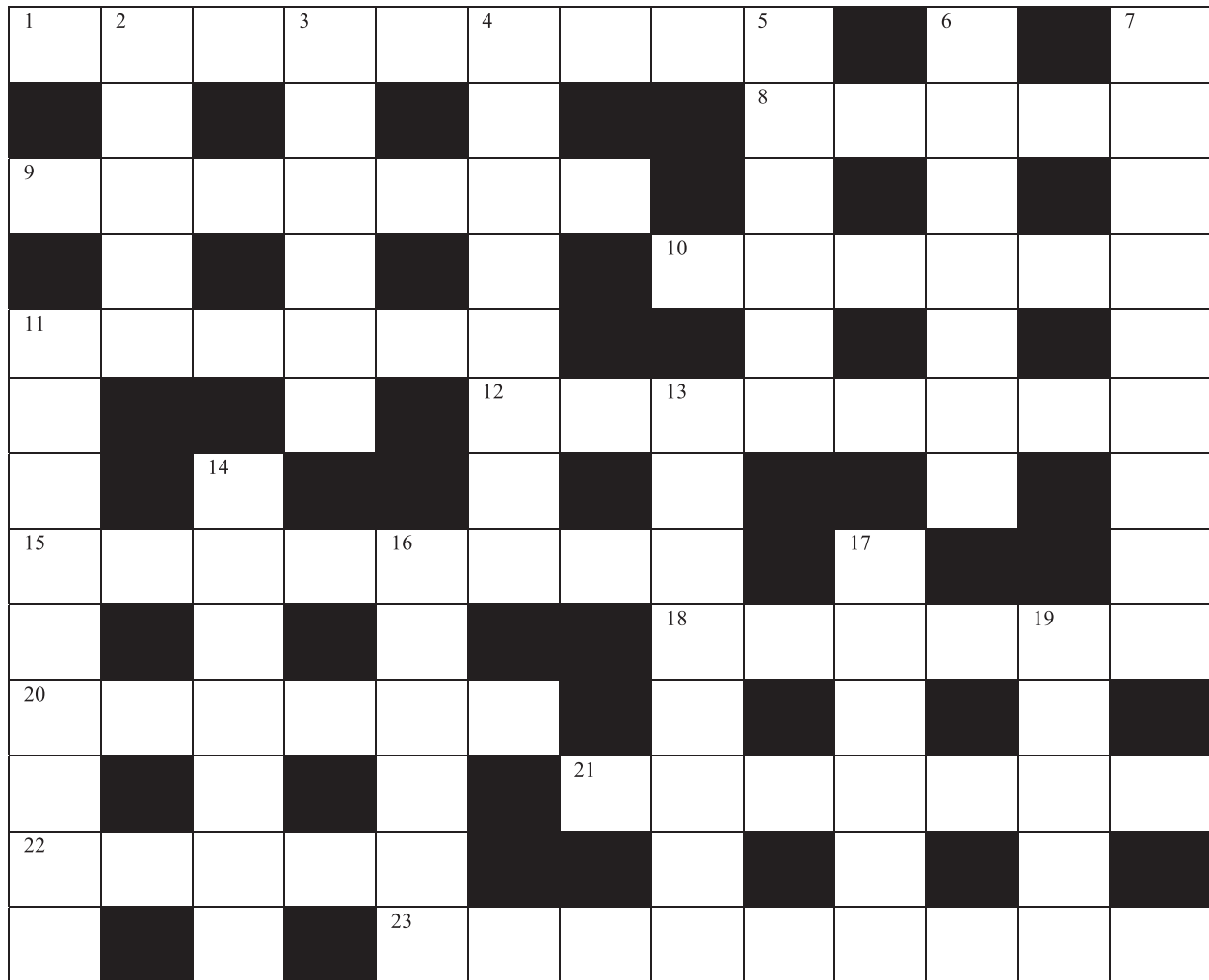
Volunteer opportunities abound with your local nature group and with FAN. Get involved – it's fun – it's fulfilling – it's meaningful. You could even win an award as FAN's "Volunteer of the Year"!

To let FAN know that you are available for volunteer opportunities, call (780) 427-8124, email karenr@fanweb.ca, or drop into the FAN office (3rd floor, Percy Page Bldg, Edmonton).

NEWTON'S OCCASIONALLY CRYPTIC CROSSWORD!

#5

The fifth crossword awaits you! Check the answers for #4 (in *Nature Alberta* Winter '08) on page 8.



ACROSS

- 1,15. A nearby dry geometrical area (9, 8)
8. Political group in Montreal? (5)
9. There's something very fishy about a factory of this kind (7)
10. The blackbird did it triumphantly (6)
11. To hang upon (6)
12. Etching and engraving, for instance (8)
15. [see 1 across]
18. Esoteric (6)
20. It's time to come (6)
21. A stack of cut grasses (7)
22. Spokes which have length but not width (5)
23. Angry man sees a finch (9)

DOWN

2. An entrance of semi-precious stones (5)
3. A caribou (6)
4. Walking boldly, or riding beneath the street (8)
5. Home of the brave, if not the free (6)
6. Used for laying it on (7)
7. In Medicine Hat, it doesn't amount to much in Dec but does in May (4,5)
11. Shaped like teeth (9)
13. To make an uninvited inroad (8)
14. You could trip and die in one of these (7)
16. Usually blond and dolichocephalic (6)
17. Beetle that a Lascar abandoned (6)
19. You have to be good to do this (5)

Answers will be in the Summer issue – can you get them all!

Whitebark Pine Restoration in Waterton Lakes National Park

BY JUSTIN MCKEOWN, PARK INTERPRETER, WATERTON
LAKES NATIONAL PARK

Parks Canada staff in Waterton are in a race against time to save Whitebark Pine.

WHAT IS WHITEBARK PINE?

Whitebark Pine (*Pinus albicaulis*) is a low-growing, long-lived tree that occupies windswept and rocky slopes in high-elevation forests throughout the Rocky Mountains. Whitebark Pine is a keystone species playing a vital role in the ecosystem despite its small numbers. Its seeds are the most nutritious in the park thus an invaluable food source to animals and birds such as Red Tree Squirrels (*Tamiasciurus hudsonicus*), Clark's Nutcrackers (*Nucifraga columbiana*), Grizzly Bears (*Ursus arctos*) and Black Bears (*Ursus americanus*). Whitebark Pines are also important to the watershed, providing shade and slowing snowmelt in the upper subalpine ecosystem.

Slower melt reduces soil erosion and delivers water into streams and low-lying areas through mid-summer.

WHAT IS HAPPENING TO WHITEBARK PINES?

This important tree is declining dramatically and is in danger

of local extirpation in Waterton Lakes National Park. The decline is due to a combination of lethal stressors: the invasive, non-native Eurasian fungus White Pine Blister Rust (*Cronartium ribicola*), fire suppression, and an increasing threat from Mountain Pine Beetle (*Dendroctonus ponderosae*).



WHITEBARK PINE WITH BLISTER RUST.

PARKS CANADA, CYNDI SMITH



A CLARK'S NUTCRACKER HELPS ITSELF TO WHITEBARK PINE SEEDS.

CARMEN WONG

THE NOT-SO-FUN-GUY.

White Pine Blister Rust is the leading cause of Whitebark Pine mortality. This fungus has a complex life-cycle making it difficult to control. Whitebark Pines are generally not genetically resistant to blister rust; to date, 71% of them are infected and 61% are dead. The Waterton area, including Akamina-Kishenena Provincial Park in British Columbia, has the highest rate of infection and mortality due to blister rust in Canada.

FIRE SUPPRESSION IS NOT HELPING.

Whitebark Pines thrive in disturbed areas. Fire creates openings in the forest, which encourages Clark's Nutcrackers to bury or "cache" seeds throughout the forest: these spaces are often referred to as "nutcracker openings." Research shows a single Clark's Nutcracker can cache up to 98,000 Whitebark Pine seeds spread over as many as 30,000 cache sites in one year. Because of their beak length, Clark's Nutcrackers bury seeds at the

Whitebark Pine Restoration in Waterton Lakes National Park...continued

perfect depth for germination. Their forgotten seed caches are almost solely responsible for the dispersal and establishment of new Whitebark Pine trees. As mortality increases, fewer trees will produce cones and Clark's Nutcrackers will cache fewer seeds. This decreases the chance of new Whitebark Pine trees surviving in Waterton.

HOSTING MOUNTAIN PINE BEETLE.

Complicating matters, Whitebark Pine may be a preferred host for the Mountain Pine Beetle. They lay their eggs in the phloem, the material between the tree's bark and wood. Whitebark Pines' phloem is thick compared to trees such as Lodgepole Pine (*Pinus contorta*), making them an ideal home for the beetle. This hasn't been a problem in the past because the beetles couldn't survive the long cold winters of the upper subalpine. But as climate changes and winters become warmer, Mountain Pine Beetles are expected to expand their range upward in elevation. They are already killing more Whitebark Pines than in the past.

Whitebark Pine Restoration in Waterton Lakes National Park...continued

TAKING ACTION!

Although the situation seems grim, staff in Waterton are confident they can make a difference. They will collect seeds from healthy Whitebark Pines growing in areas where many trees are already dead. The cones will be protected by placing a wire-mesh cage around them. The seeds will be grown and the seedlings planted in the Summit Lake area. A portion of these

seeds will be tested for genetic resistance to White Pine Blister Rust and placed in a whitebark seed bank. Dead trees will be cut and burned in "slash piles" to mimic fire on the landscape. These nutcracker openings will encourage the birds to cache seeds, and will also serve as seedling planting sites.

As well, pouches of pheromone, called Verbenone, will be hung in healthy Whitebark Pine trees. This

signals Mountain Pine Beetles that the tree is already occupied by other beetles, discouraging them from using a healthy tree as a host.

ACKNOWLEDGEMENTS:

The article was reviewed by Janice Smith (Communications Officer), Cyndi Smith (Ecosystem Scientist) and Fire/Restoration Park Warden Randall Schwanke.

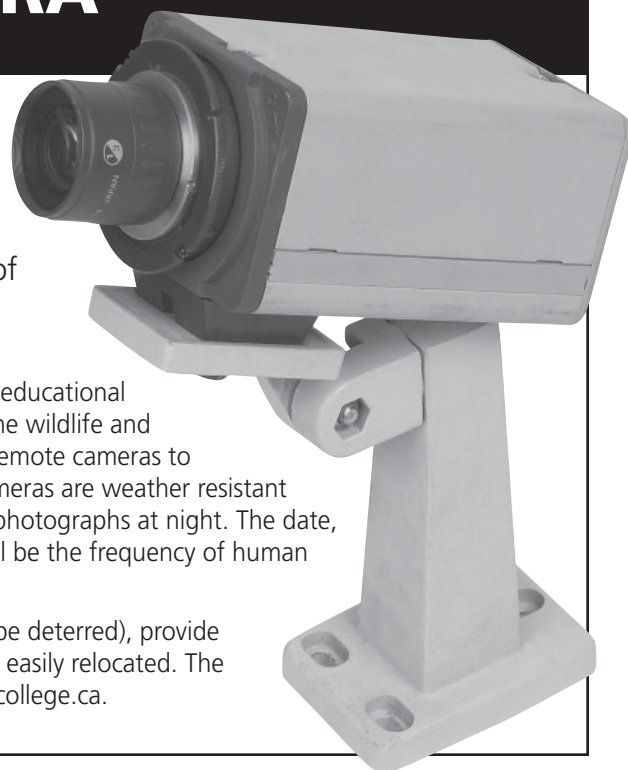
To learn more about the Whitebark Pine tree visit the Parks Canada Waterton Lakes National Park website at www.pc.gc.ca/pn-np/ab/waterton/natcul/natcul1h_E.asp and the Whitebark Pine Ecosystem Foundation website at www.whitebarkfound.org/.

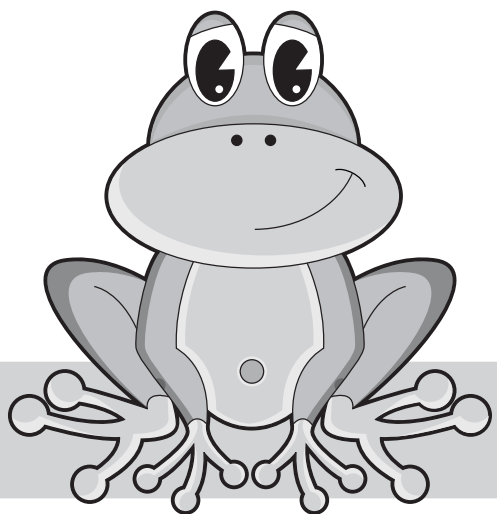
Smile! ON CAMERA

In a collaboration between Lakeland College's School of Agricultural and Environmental Sciences and Alberta Tourism, Parks, Recreation and Culture, — Lakeland College students are in the process of getting a snapshot of life at all hours at the Vermilion Provincial Park.

The two organizations are partners in numerous applied research and educational activities at Vermilion Provincial Park. Students in the second year of the wildlife and fisheries conservation program recently set up four motion-activated remote cameras to record activity at various locations in Vermilion Provincial Park. The cameras are weather resistant and take high resolution colour pictures during the day and infra-red photographs at night. The date, time and temperature are recorded on each image. Also estimated will be the frequency of human activity in some of the park areas commonly used by people.

The remote cameras don't make any sound (so wildlife activity won't be deterred), provide more reliable identification than tracking, are 24-hour monitoring and easily relocated. The project is a perfect fit for students' courses. More info: www.lakelandcollege.ca.





2008

THE YEAR OF THE FROG!

2008 is a Leap Year – perfectly suited for frogs.
So celebrate – it's frog days!

**Q: What kind
of shoes does a
frog wear?**

A: Open toad.

You can hop on the bandwagon and take part in "FrogWatch," Nature Canada's most popular NatureWatch Program – especially for kids. FrogWatch participants of all ages can help scientists monitor Canada's frog populations – just by listening.

For a free FrogWatch ED poster and survey form, email (info@naturecanada.ca), call (1-800-267-4088) or go to Nature Canada's website (www.naturecanada.ca).



6¢?



SHELL GIVES MONEY FOR BOREAL

The Alberta Conservation Association (ACA) and Shell Canada announced that the Athabasca Oil Sands Project (AOSP) will give \$200,000 per year over 10 years to ACA to identify, purchase and conserve ecologically significant sections of Canada's boreal forest, in part to offset the impacts of AOSP Expansion 1.

It is not known how much good this small amount will do, relative to the damage. While the dollars will be used, it should be put it into perspective: Based on Shell's income (\$14.394 billion in 2005), it's annual commitment to the boreal amounts to about seven minutes of revenue. Put another way, it is the equivalent of the average person giving about sixty cents over ten years. Wow!



It's Spring '08!

BY DENNIS BARESCO

The 2008 Vernal Equinox – Spring - officially started March 19, at 11:57 pm MST and lasts until the Summer Solstice, June 20, 6:00 pm MST.

You know Spring has really sprung when the blossoms of fruit trees and shrubs pop open - seemingly all at once, filling the air with sweetness. Whether it's saskatoons, wild currants, hawthorns or a fruit tree in the backyard, the air is also filled with what may well be the sign that Spring is here to stay: the pollinators. A tree in full blossom, hosting a flying frenzy of bumblebees, honeybees, bombyliid flies, sphecid wasps and vespid wasps is an exciting spectacle and fragrant opportunity for wildlife watching of a different kind.

“The first day of spring is one thing, and the first spring day is another. The difference between them is sometimes as great as a month.”

HENRY VAN DYKE

“Behold, my friends, the spring is come; the earth has gladly received the embraces of the sun, and we shall soon see the results of their love!”

SITTING BULL

“Every year, back comes Spring, with nasty little birds yapping their fool heads off and the ground all mucked up with plants.”

DOROTHY PARKER

“The world is mud-luscious and puddle-wonderful.”

E. E. CUMMINGS

“One swallow does not make a summer, but one skein of geese, cleaving the murk of March thaw, is the Spring.”

ALDO LEOPOLD



CELESTIAL HAPPENINGS

Starry Nights

Spring/Summer (May to July)

BY JOHN MCFAUL



FEATURED CONSTELLATIONS – VIRGO

Virgo is one of the 12 constellations of the Zodiac which contain the path that the Sun takes across the sky. This path is known as the ecliptic. This time of year, Virgo is to be found in the SSW part of the sky. It is marked by the bright star Spica. To find Spica: follow the arc of the handle of the Big Dipper, down to the south; past the bright orange star, Arcturus; to the bright white star, Spica. So you “Arc to Arcturus and spike on to Spica”. Because Virgo is to be seen during the later spring to fall, it has been associated in various mythologies related to the growing of crops.

In Greek mythology, Virgo refers to either Ceres, the goddess of the fields and the growing crops, or her beautiful daughter, Proserpina. The story goes that Hades, the god of the underworld, was smitten by the beauty of Proserpina and took her to live with him in the underworld. Ceres was distraught about this and left her agriculture duties to find her daughter. As a result the crops died. Zeus could not allow the resulting famine to continue. He ordered that Proserpina must be allowed to spend half the year with Ceres so that the crops

would grow again. At the end of the growing and harvesting seasons Proserpina would return to Hades and the underworld.

Virgo has also been thought of as the goddess of Justice, known as Astraea. In fact, just east of Virgo is the constellation of Libra, the Scales. Astraea used these scales to weigh the good and evil of man.

The star Spica is thought to represent a spike of grain. Spica is a binary star whose two components are so close together that they can not be separated

visually. Their existence is revealed by the use of a spectroscope. This stellar pair is about 260 light years from us.

A special feature of Virgo is the large number of galaxies that can be seen in the area between Spica and Coma Berenices. These galaxies are part of what is known as the Virgo Super Cluster of which our local galactic group is one small component. The centre of this cluster is about 60 light years away. This “object” is about 100 million light years across and 6 million light years thick. Is there anyone out there?

CELESTIAL HAPPENINGS

Sun: Rise - May 1 (05:58 MDT), June 1 (05:10 MDT), July 1 (05:09 MDT)
Set - May 1 (21:05 MDT), June 1 (21:53 MDT), July 1 (22:06 MDT)
Times are for Edmonton.

Moon: Full - May 20, June 18, July 18
New - May 5, June 3, July 3

Planets: **Mercury** makes its best evening appearance in the first two weeks of May. Watch for it low in the western sky 30 minutes after sunset. On May 6th it will appear just below the crescent Moon.

Venus will be too close to the Sun to be seen this time of year.

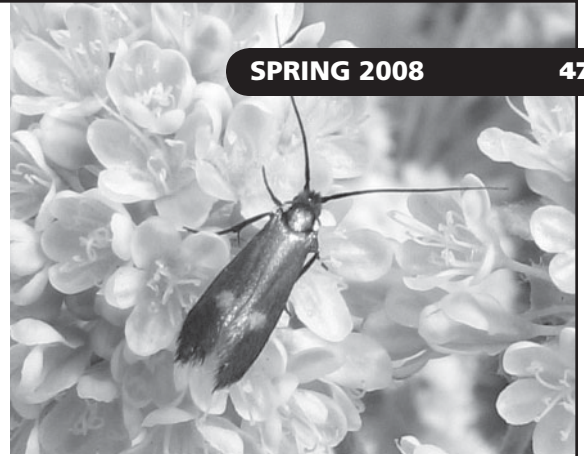
Mars can be seen in the western sky. On June 8th and July 6th it will be close to Saturn and the crescent Moon. Watch for them in the evening twilight.

Jupiter will be visible in the early morning hours in May low in the southern sky. By late July it will rise in the late evening.

Saturn will be due south around 8 PM in May. Toward the end of July it will be too close to the Sun to be seen.

Meteor Shower: Eta Aquirids, May 5 (before sunrise), 20/hour;
Delta Aquirids, July 28, 20/hour

The rate of meteors observed is for dark skies well away from city lights and with no Moon.



FAIRY MOTH (*CAUCHAS COCKERELLI*) AT ROWE LAKES,
WATERTON NATIONAL PARK GREG POHL

The Alberta Lepidopterists' Guild

BY GREG POHL

The Alberta Lepidopterists' Guild (ALG) is a non-profit society made up of amateur and professional Lepidopterists. Our objective is to support and encourage the study and appreciation of Alberta Lepidoptera (butterflies and moths).

About 175 species of butterflies occur in Alberta; they are fairly well known, and are covered in two excellent books written by ALG members. Over 2000 species of moths have been found so far in Alberta; they are not very well known, with new ones discovered every year. Most active ALG members are concentrating on Alberta moths; the resurgence of interest has been fueled by new technology that makes it much easier to collect and identify moths. ALG coordinates research projects, facilitates the information exchange among members, and hosts events where people can collect and look at Lepidoptera and share ideas. We host a members-only electronic bulletin board,

ALTALEPS, and occasional scientific and social events throughout the province.

ALG was incorporated in 1999. Our members range from butterfly watchers and casual nature enthusiasts, to serious researchers, who all share a passion for butterflies and moths. The society currently has about 60 members, mostly in Alberta, but also from adjacent regions.

The life-blood of ALG is the ALTALEPS listserver, an electronic bulletin board where members post questions and exchange information and ideas. ALTALEPS is a great way to ask a technical question, or send a picture of an unknown insect, and receive quick responses from other members, many of whom are extremely

knowledgeable Lepidopterists. It's also a great way to simply share a story of an interesting observation or catch. ALG members also run an open listserver called ALBERTABUGS, which covers discussions and questions about insects in general.

Our website is another way we share information. Anyone interested in ALG and ALTALEPS can find our contact information there, as well as a variety of downloadable items, including plans for building moth traps, historical information on early Alberta Lepidopterists, and insect survey reports. ALG members are also regular contributors to the University of Alberta's Virtual Museum Project. That site hosts species pages for insects occurring in Alberta: description, images,

FAN CLUB PAGE

distribution and phenological information derived from the Museum's specimen database.

ALG members have played an important role in recent biophysical surveys of several provincial parks, doing inventory work and writing reports of our findings. Several ALG members provide expertise on conservation matters, to the federal Committee on the Status of Endangered Wildlife in Canada, the Alberta Natural Heritage Information Centre, and Alberta's Endangered Species Conservation Committee. The ALG also awards a small research bursary, to help facilitate small-scale research on Alberta butterflies and moths. Resulting reports are posted on our website.

Besides survey and inventory work, members are involved in research on Lepidoptera systematics, agricultural and forest pests, and the use of

Lepidoptera as biodiversity indicators. Members of the group give talks or put on demonstrations for Natural History and Conservation groups. They also participate in or organize many of the butterfly counts done in Alberta each season. Recently ALG hosted

the 2003 Annual Meeting of the International Lepidopterists' Society at Olds College. ALG members will be assisting with another big conference, the 6th International Conference on the Biology of Butterflies, in Edmonton in 2010.



ALG MEMBERS ON THE ROCKS OF THE CANADIAN SHIELD, DOING AN INSECT SURVEY OF LA BUTTE CREEK PROVINCIAL WILDLAND PARK (L TO R - DOUG MACCAULAY, AMANDA ROE, GREG POHL) GREG POHL

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DAVE FAIRLESS



SOME PHOTOS SAY IT ALL!
MARIJKE JALINK-WIJBRANS



NAKED PINK BLOBS: AS WITH MOST RODENTS, NEWBORN RICHARDSON'S GROUND SQUIRRELS ARE HAIRLESS, BLIND, AND CAPABLE OF DOING LITTLE MORE THAN LATCHING ONTO THE MOTHER'S TEATS FOR MILK (SEE STORY PAGE 24) GAIL MICHENER

Nature *gallery*



BALSAM-ROOT AT WATERTON (SEE STORY ON PAGE 16) COURTESY OF WATERTON WILDFLOWER FESTIVAL
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