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Nature Alberta

ALBERTA'S NATURAL HISTORY REVIEW

FEMALE COUGAR IN THE CYPRESS HILLS AREA GEORGE RUSSILL

feature article

The Prairie Cougar:
examining the effects of a re-established predator population

FEDERATION OF ALBERTA NATURALISTS

COUGAR KITTEN; SEE STORY, PG 20
G. BECIC

ORD'S KANGAROO RAT; SEE STORY, PG 18
ANDY TEUCHER

ORD'S KANGAROO RAT; SEE STORY, PG 18
ANDY TEUCHER

YELLOW-THROATED WARBLER; STORY, PG 29
PAT HARDING

Nature Alberta:
Celebrating our natural heritage

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WANT TO SUBMIT ARTICLES OR PHOTOS?
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SPRING ISSUE.**FEBRUARY 14**
SUMMER ISSUE.**MAY 15**
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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Editor's Page

BY DENNIS BARESCO

ROGER, LOUISE AND OTHER INDIVIDUAL ACHIEVERS

If you are reading this, you're probably a naturalist. It has occurred to me that we – naturalists – have entered a period of unparalleled opportunity, brought on in part by the recent U.S. election and in part by the widespread publicity being given to the environment. Let me explain.

I've never held with the opinion, "What can I do? I'm just one person"; or "My vote doesn't count for anything"; or "What's the use? They'll do what they want anyway." I've always leaned more to the wise words you'll find elsewhere in this issue in "Ponderables".

Think about Roger Tory Peterson: one man with an idea who ignored all those – including publishers – who thought a field guide was a silly idea, and who ended up completely changing bird watching and appreciation forever. Think about Louise de Kiriline Lawrence: one woman with an interest in nature who became one of our most honoured and famed "amateur" naturalists.

"Ah yes, but I'm no Roger Tory or Louise de K," you might say. Actually, we're all capable of being a Roger or a Louise; or, if we're not young enough at this point, we're all capable of mentoring youth to become Rogers and Louises. Think about what our good friend, Calgary's Ian Halladay – just one person – accomplished through mentoring, along with all the other things Ian's accomplished.

The election of Barack Obama proved that everyone's vote does count. A lot of people who individually made the choice to vote for sane government made that choice a reality. Now, all the old excuses for not voting are no longer credible (even in Alberta, I might add). But the same holds true for actions other than voting, for actions as simple as writing a note. Read Jim Pissot's letter to the Editor (pg 4). Read the Ponderables and you'll know what I'm talking about.

Since you're a naturalist, you're probably already doing something as an individual. Now, our role as naturalists is to brag about what we – what one person – can do. We can instill hope in skeptics. There is no better time. We can make them realize that: "Hey, I can do something! I am powerful. I am a force to be reckoned with." Amen.

INSIDE NATURE ALBERTA

Not that I'm bragging or anything, but this issue of *Nature Alberta* is darned good! Quite by accident, it seems to be an issue partially dedicated to the rare, unusual and endangered.

Michelle Bacon and Mark Boyce's report on their Cypress Hills Cougar work is the Winter Feature Story (see page 20), and provides a fascinating look at the movement of a major predator into an area from which it had once been extirpated. If you ever get a chance to take in a talk by Michelle, don't miss it!

Equally fascinating is Joe Schmutz's tale of thirty years of Ferruginous Hawk research (pg 30). Those who know Joe know

EDITOR'S PAGE

that his name is synonymous with the hawk that is more like an eagle. His article reflects the diverse amount of work he has done with this regal bird, whose Latin name is, appropriately, *Buteo regalis*.

The featured species, in the regular "Wildlife Starring" column, is that loveable little creature, the Ord's Kangaroo Rat (pg 18). Who could love a rat, you might say? Well, Ord's isn't a rat and you will love it after you read the article – so much so, that you'll order your very own Kangaroo Rat (see page 19)! As for the unusual, check out Pat Harding's "First Hand" recounting of only the second documented Yellow-throated Warbler in Alberta (pg 29) – in November, yet!

Those articles, plus all the others and some great nature photos, are what moved me to call this issue "darned good!" Of course, if you disagree, send me a letter telling me why. I can take it.

Ponderables

"It is the greatest of all mistakes to do nothing because you can only do little - do what you can."

SYDNEY SMITH

"I MAY BE A BOTANIST WHEN I GROW UP"

DAVE FAIRLESS

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

To our Friends and Friends of the Wolf:

With your strong spirit and loud voice, we have spared Alberta wolves from horrible fates. YES, the Province and University of Alberta have abandoned plans to capture at least five family packs, sterilize alpha pairs, and kill all pups and subordinates.

Your letters joined hundreds of others to oppose this misguided and atrocious "experiment." U of A alumni withdrew funding support, Minister Morton's constituents withdrew political support, and people across Alberta and North America expressed their outrage. Alberta newspapers questioned the Province's sanity and called for the government to "step back". The University convened a scientific review committee that questioned many aspects of the proposal.

Defenders of Wildlife lead the charge in this critical campaign. We are honoured that you and hundreds of others joined us to insist on responsible wildlife management in this most irresponsible of provinces. We will keep you posted on what happens next. THANK YOU VERY MUCH FOR YOUR STRONG VOICE FOR ALBERTA WOLVES!

JIM PISSOT, DEFENDERS OF WILDLIFE
CANMORE AB

Thanks!

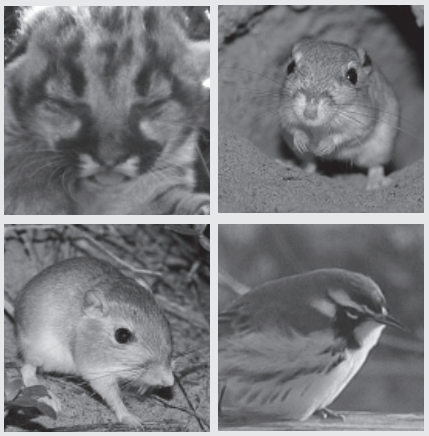
I returned home yesterday (from where else? Alberta!) to find the summer edition of *Nature Alberta* waiting for me. I was pleasantly surprised that my "Cool Moose" was printed in colour and on the inside back cover. Thank you so much for the honour.

I enjoyed reading all of the articles and I thank you, once again, for shepherding such a superb publication.

SANDRA HAWKINS
ETOBICOKE ON

On the Covers:

FRONT COVER
Getting a good photo of a Cougar takes extreme patience, complete luck – or for George Russill, joining the hunt with a Cougar Researcher and a pack of hounds! George's photo of Alberta's big cat introduces this issue's Feature Story, starting on page 20.



INSIDE FRONT COVER
How do you photograph a secretive animal in the dead of night? Ask Andy Teucher. His shots of the Ord's Kangaroo Rat are about as perfect as you are going to get. See the story on page 18.

Everyone should keep a camera handy . . . just in case. Because that's what gave Pat Harding the opportunity to prove the sighting of an extremely rare bird for Alberta: a Yellow-throated Warbler. See the story on page 29.

INSIDE BACK COVER
John Warden continues to provide *Nature Alberta* with wonderful photos to go with his "Close to Home: Nature Photography in Alberta" column. Like many of John's shots, these are paradoxical: with an ethereal yet dynamic imagery; and illustrating the simplicity yet spectacularism of nature. See the story on page 10.

BACK COVER
A family portrait! Writer and photographer Janet Foster's photo of a nesting pair of Ferruginous Hawks and their young captures the pride of these magnificent birds as well as the emotional thrill that naturalists get when they are fortunate enough to behold this sight – whether for real or through the camera lens. See the story, page 30.

ALBERTA ISSUES IN BRIEF

NWA Climax Soon

The Joint Federal/Provincial Review panel appointed by Environment Canada to review EnCana's proposed shallow gas infill drilling project in the CFB Suffield National Wildlife Area, completed its hearings October 31 2008. The Panel has 90 days to draft its recommendations and present them to the federal Ministers of Environment & National Defence who will make the final decision on whether or not the project will be approved.

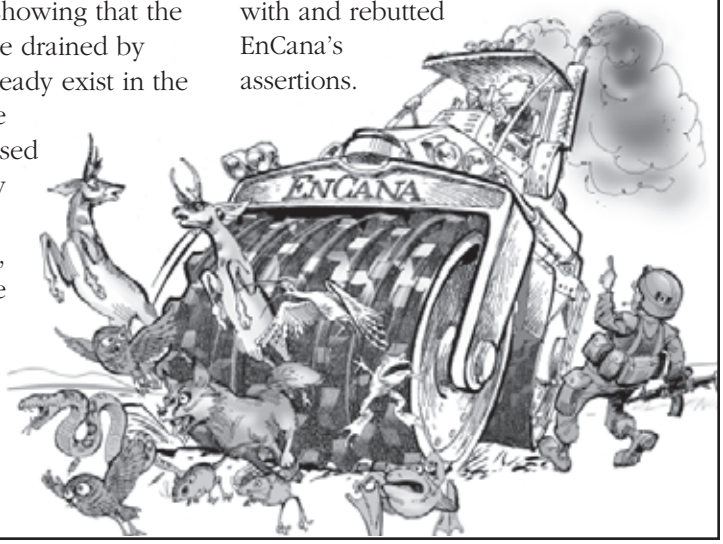
If readers have any concerns about the drilling of 1,275 gas wells along with pipelines, roads, pressure stations and associated industrial facilities in a National Wildlife Area, please write or email the Prime Minister, Ministers of Defense and Environment, and copy your MP. (The Member of Parliament for the Medicine Hat Riding, which includes Suffield, is LaVar Payne.)

To hear or read transcripts of the Hearings, check the Canadian Environmental Assessment Registry website: www.ceaa-acee.gc.ca:

The CFB Suffield National Wildlife Area was designated in 2003. EnCana's shallow gas infill drilling project was announced just two years later. The corporation plans to drill up to 1275 wells over the space of three years in addition to the 1150 wells that have already been drilled in the area over the last 30 years. Along with the wells come access roads, pipelines, compressor stations, heavy equipment and much traffic.

Strong public protest resulted in a joint panel review under the Canada Wildlife Act. Seven environmental groups (World Wildlife Fund Canada, Nature Saskatchewan, Federation of Alberta Naturalists, Southern Alberta Group for the Environment, Nature Canada, Alberta Wilderness Association and Grasslands Naturalists) formed a coalition, with the latter three awarded funding by the federal government for intervention during the review. They contracted with consultants having expertise in various relevant fields. Arguments were presented at the Hearings showing that the gas field could be drained by the wells that already exist in the Area and that the additional proposed wells would only achieve a faster rate of depletion, and so accelerate EnCana's profit taking. It was also argued that the mitigation methods proposed by EnCana to protect the grasslands and their diversity of wildlife, including 16 species at risk, were totally inadequate.

In addition, concerned citizens and the Government of Canada (Department of National Defence, Environment Canada's Canadian Wildlife Service, and Natural Resources Canada) all gave compelling arguments as to why no additional industrial development should be permitted, in the interests of wildlife conservation and national security. EnCana and its contractors appeared to be quite alone in their claim that their Environmental Impact Statement supported the conclusion that the project would have no significant effects on the environment. Presentations by government representatives strongly disagreed with and rebutted EnCana's assertions.



Well Leaks at CFB Suffield

From a public relations point of view, EnCana's environmental arguments were not helped when two well leaks occurred at CFB Suffield, even though both leaks were on other parts of the Base, outside of the National Wildlife Area. In September, about 300 small birds, including sparrows and ducks, were found dead after a sealed oil well owned by Harvest Energy Trust leaked and spilled its contents across the ground. On October 2, a sweet gas well had a blowout, following which the Energy Resources Conservation Board (ERCB) stated it was working closely with EnCana. The well is located in a remote area and no public complaints, injuries or dangers have been registered. Nor have there been any reports about possible damage to wildlife.

Rebranding of a Cleaner Alberta

Premier Stelmach and his government are in the midst of a $25 million rebranding campaign to explain why environmentalists have it wrong about the Alberta tar sands. The plan appears to turn an environmental impact into a simple misunderstanding. But how does one turn 29.5 megatonnes of carbon emissions into a positive global outlook? How does one put a positive spin on the death of hundreds of migrating birds landing in a toxic tailings pond? As well, the large number of cancer patients in Fort Chipewyan may disagree with the campaign.

Rather than spend a small fortune covering up environmental shoddiness, our government should initiate more positive actions on environmental and conservation issues, rather than maintain their appearance as a one dimensional creature that promotes resource development at all costs. Now that they have been receiving negative feedback on the environment and social ills in the province, do they act to correct that? No, they bring out the spin doctors to "rebrand Alberta".

Positive actions on environmental and conservation issues have a net economic, political and social benefit (which befits small 'c' conservativism). Presently, however, the Alberta Government (perhaps out of fear and weakness) only truly listens to and follows the advice of those with a financial, political or ideological interest in disregarding conservation.

New Hydroelectric Project on the Peace?

In mid-July, a joint review panel was announced to review the proposed Glacier Power Ltd. Hydroelectric Project near Dunvegan on the Peace River. The project proposes a 100-megawatt run-of-the-river infrastructure project to capture the energy of the river. This is the project's second time before the panel. A previous joint review panel rejected the project in March 2003 because the panel felt that the project posed an elevated risk of flooding in the lower town of Peace River and uncertainty around fish migration. The company had the opportunity to reapply once they addressed the panel's concerns. Presumably they have done so.

ALBERTA ISSUES IN BRIEF

Grizzly Numbers Dwindling?

Grizzly bear numbers in the province are believed to be declining. However, nobody knows exactly how many Grizzlies are left in the province – including Gord Stenhouse, former leader of the Grizzly Bear survey program. In June 2008 the Grizzly Bear recovery team was unexpectedly disbanded by the Alberta government. Current DNA programs to accurately assess the number of Grizzlies have come under criticism for being in locations easy to access by helicopter rather than being in actual Grizzly habitat.

In 2002, the Endangered Species Conservation Committee recommended to the Minister of Sustainable Resource Development that grizzly bears be classified as 'threatened' in accordance with IUCN criteria. Former SRD Ministers Mike Cardinal and David Coutts did not act on this advice, nor has the current Minister Ted Morton.

The Wilderness Committee recently produced an excellent newssheet on Grizzly Bears (Summer '08; Vol 27, No. 6). It is online at www.wildernesscommittee.org under "Resources/Publications"; or contact them for a copy: info@wildernesscommittee.org

Mystery Tracks!?

In the Fall '08 issue of *Nature Alberta*, we published this photo of "mystery tracks" and asked readers to identify them. Four responses have been received to date. We've run out of room this issue to print them, so you will have to wait for the Spring issue. Meanwhile, do you have more ideas? Let us know. Email na@fanweb.ca.

Exploring New Dam Opportunities

Alberta Environment, under the auspices of *Water for Life*, released a report earlier this year to outline potential sites for on-stream and off-stream water storage across Alberta. In other words, where in the province would be good sites to build more dams? The report, *Assessment of Potential Water Storage Sites and Diversion Scenarios*, is meant to address *Water for Life's* goal of ensuring "reliable, quality water supplies for a sustainable economy". The study assesses and ranks previously identified water storage sites and diversion scenarios based on technical and subjective criteria. Storage sites are rated and compared within each major basin.

The study is meant to identify sites that would be eligible for further evaluation, not to suggest where dams should be built. However, it illustrates government's serious consideration of building more dams in the province. The report is available on-line at http://environment.gov.ab.ca/info/library/7947.pdf

ALBERTA ISSUES IN BRIEF

Weed & Feed Lawn Product To Be Eliminated

As of January 1, 2010, herbicide-fertilizer combination products will no longer be sold in Alberta. Products intended for spot application to weeds will still be available for sale and use. Alberta Environment Minister Rob Renner believes that eliminating products that encourage mass application will reduce the amount of chemical run-off in our waterways.

A chemical used in herbicide-fertilizer combination products, such as weed & feed, is highly mobile and commonly appears in water downstream of municipalities. This occurs when excess chemical runs off lawns into storm drainage systems and is deposited into creeks and rivers. More than 10 times the required amount of pesticide can be applied to lawns when weed & feed is used. The ban will not impact the agriculture sector or the landscaping industry since these products are almost exclusively used on homeowners' lawns.

The regulation of pesticide use is typically the responsibility of Health Canada's Pest Management Regulatory Agency. Currently, the average amount of 2,4-D in surface water downstream of Alberta municipalities is below the recommended federal threshold. By banning weed & feed, Alberta is taking a proactive stance to eliminate opportunities for additional unwanted substances to enter our waterways.

Ponderables

"I am only one, but I am one. I cannot do everything, but I can do something. And I will not let what I cannot do interfere with what I can do."

EDWARD EVERETT HALE

Ghost Rangeland?

PetroCanada is developing a bunch of sour gas wells, pipelines, infrastructure, etc., and destroying or breaking up native prairie rangeland, some west of Longview and more in the Ghost Waiparous area. Long-time FAN volunteer Harvey Gardner has been representing FAN at the protest meetings.

BOOK REVIEW

Weather of Alberta

REVIEW BY: DENNIS BARESCO

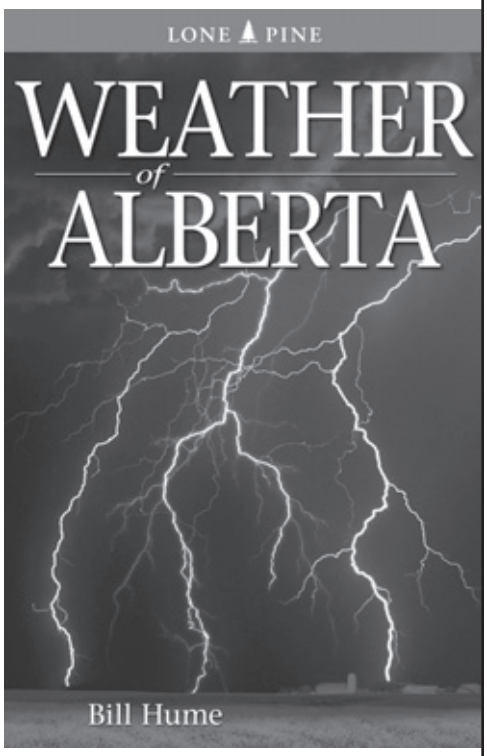
Anything you ever wanted to know about weather is in the new book from Lone Pine Publishing.

In thirteen chapters, Weather of Alberta covers what the skies bring us with easy-to-read text, understandable charts and illustrations, maps and many superb and explanatory photos. Added to that is a Glossary and list of References.

The promo on the back cover describes it best:

"Here in Sunny Alberta, the weather can range from blizzards in August, thunder in December and rain in January, to sudden tornadoes. Join meteorologist Bill Hume as he explores this ever-fascinating subject:

- Major influences on the climate in Alberta, including the Arctic, the Rockies and, strangely enough, the Gulf of Mexico;
- Explanations of phenomena such as Chinooks, the "pineapple express" and the "Alberta Clipper";
- Typical cloud patterns, snowflakes, raindrops, hailstones and sleet;
- Extreme weather throughout Alberta's history;
- Weather forecasting techniques and equipment;
- Implications of trends such as global warming"



Bill Hume. Lone Pine Publishing, 2008.

The author has spent most of his working career in Calgary and Edmonton (where he lives). Weather of Alberta is 240 pages, priced at $19.95. My only complaint: couldn't Canadian publishers have their books printed in Canada instead of China? I'd gladly pay an extra few dollars and allay my fears that our hands are picking up some weird toxins from the ink.

Hooray! The Good News Corner

BLESS Webcam Up (*From Miles Constable, President of BLESS)*

The BLESS (Big Lake Environmental Support Society) Web camera is up and operating. There have been some difficulties, but a team of BLESS members, friends and neighbours came together over the summer and conquered all. The camera internet address is: www.blesscamera.ca .

The camera has the ability to be controlled by the user for a set period of time and it can rotate 350 degrees so you can see much more than just the lake. The camera has a lower limit of operation of -20˚C, so may be unavailable during some periods of the winter; and of course, daylight is a requirement. Still, take the time to check it out – and think about how wonderful the hordes of migrating waterfowl will be in the spring!

Close to Home:

Nature Photography in Alberta

BY JOHN WARDEN

JOHN WARDEN

Adventure Photography at Big Lake

The lead aircraft in our fighter group dropped its left wing and rolled into a dive towards the surface of Big Lake. One after another, the bright yellow airplanes played 'follow the leader' diving towards the water beneath us.

I was in the last plane and I stuck my head out the side of the open back canopy to get some shots of the descending line of aircraft. The force of air coming back from the propeller jammed my camera into my nose with a shuddering staccato effect.

Tears in my eyes and a smile on my face, I continued to take aerial photographs as the group of aircraft, known as the Western Warbirds, practiced aerobatics over Big Lake. It was the early 1980's. I was sitting in the back seat of a single engine WWII vintage Harvard aircraft, which were used mostly as flight trainers for fighter pilots. The group was practicing maneuvers prior to an air show that was to be held out at the Namao Airbase.

As we dropped into the dive, I looked down between my feet and decided that I better not drop my camera because there was no floor. There were just cables and wires between me and the belly of the plane. At the bottom of the dive the pilot pulled up and began climbing. I was in the process of changing lenses on my camera and tried to look up to see what was going on but the force of gravity (G-force) was suddenly pushing me down into the seat. At the top of the climb, the aircraft gathered together into a diamond formation, four

JOHN WARDEN

JOHN WARDEN

Close to Home: Nature Photography in Alberta . . .continued

bright yellow airplanes flying in and out of the clouds over the shiny blue waters of Big Lake. Little did I know then that Big Lake was to become one of my favourite places not just for aerial photography, but also for nature photography.

Many years later, I was watching and photographing American White Pelicans flying in formation and skimming the surface of Big Lake when I met Elke Blodgett. Elke is a regular at the BLESS (Big Lake Environmental Support Society, a FAN Associate Club) viewing platform located at the mouth of the Sturgeon River. It's a great place to go for birding and bird photography. Great Blue Herons, Pelicans and all sorts of ducks and water birds can be easily seen and photographed from the platform.

Elke is a tireless champion and advocate for preserving the natural beauty of Big Lake. She told me where to look for Ospreys and orchids and told me stories of buffalo jumps and Cougars. It was through her advice and encouragement that I spent several summers tramping along the shoreline through mud, muck and head-high reeds to capture some of the fabulous beauty of the lake. As a St. Albert resident, Big Lake was very 'Close to Home' for me and as I was soon to discover it is a nature photographer's paradise.

One of my favorite Big Lake shots is from the spring of 2005. There is a wooden trestle bridge over the Sturgeon River and I was sitting on the bank of the river, near the bridge, watching a Beaver carry branches to its lodge. I was focusing on the patterns that the Beaver made swimming through the reflections of the wooden trestles when I noticed

JOHN WARDEN

Close to Home: Nature Photography in Alberta …continued

a Common Grackle (*Quiscalus quiscula*). The grackle was perched on an old piling stump in the river and was clearly hunting something on an adjacent stump. The wooden trestles of the bridge blended seamlessly into their own reflection in the water providing an amazing background, but it is the intensity of the grackle's expression that makes the photo for me. The Beaver images turned out pretty good as well. It's amazing how reflections in water can turn a photograph into art.

One particular magical morning stands out in my mind. I had heard about some nesting Bald Eagles on the west side of Big Lake. So I headed out one September morning to be there for sunrise. It was a beautiful morning with mist and ground fog that burned off very quickly. I set off on foot for the grove of poplar trees to the west where I could see the eagles. I was soon up to my waist in wet wild grass and reeds. At one point they were so high that I had to carry my camera over my head so that it didn't get wet. I, on the other hand, was soaked from head to toe. I paused in my journey to look back at the rising sun and was captivated. Wet spider webs, hanging from the grasses were backlit by the sun and there were thousands of them. The entire field was covered in glistening spider webs. I took photos like a mad man, trying to find the perfect complete web and then suddenly the angle of the light changed and the webs were gone.

I did get some Bald Eagle images however, and then drove over to the north side of the lake where I'd heard that a pair of Great Egrets was nesting. That was the first day I saw the egrets. I returned nearly every day for six weeks while the two adults fledged four baby egrets. What an experience! [Ed: See *Nature Alberta*, Spring 2007, inside back cover, for a photo of one of the adults.] At the end of the day, walking back to my car, a Northern Harrier was working a nearby fence line. I just had time to get the lens cap off and to bring my camera up when he soared right by me at head height with the menacing, heavy winged look of a B-52 bomber on a low level run. What a great day. What a great place.

For me, Big Lake has been a place of adventure photography. A place of aerobatics and formation flying and a place of natural beauty that is home to pelicans, herons and egrets. So thanks, Western Warbirds and thanks, Elke Blodgett. Thanks for the adventures and thanks for the memories.

In Memoriam

BY DENNIS BARESCO

Joseph James Vesso

Perhaps no one was more knowledgeable about the orchids of Cypress Hills than Joe Vesso. We used to joke that he was personally acquainted with each individual orchid!

Joe's interests were much broader than orchids, though. He loved the Cypress Hills, was a superb photographer (and taught others), a scientist, a long-time Medicine Hatter and member of Grasslands Naturalists and a man excited by knowledge. He was enthusiastic about nature and willing to share that enthusiasm.

Joe passed away October 24 2008, at the age of eighty-three.

So long, Joe; it was a privilege to know you.

So long, Julie!

Julie Gelfand, President of Nature Canada, is moving on. Her position with Nature Canada was a job she had wanted since she was a 19 year-old student at Carleton University, and which, on Nov 22 1992, became, as she put it, "a dream come true". As President, Julie has been at the forefront of conservation at the national level, working ceaselessly on everything from protected areas, to global conservation of birds through Birdlife International, to the Green Budget Coalition (which she created and chaired).

"We are very proud of Julie's accomplishments as President of Nature Canada," said Mark Dorfman, Chair of Nature Canada's Board of Directors. "We sincerely thank Julie for her care of, stewardship of and devotion to Nature Canada."

Julie has accepted the position of Vice President, Sustainable Development, with the Mining Association of Canada, responsible for biodiversity issues and their award-winning "Towards Sustainable Mining Initiative."

Ruth Catana, Director of Public Affairs, has been appointed Acting President. Ruth has been with Nature Canada for twelve years and brings with her over 25 years of experience in the non-profit sector. Nature Canada's Board of Directors will be conducting a national search for a new President during the coming months.

Focus *on the* Foothills

Chuck Priestley's "Focus on the Foothills" will be a regular column in Nature Alberta. It has been developed to provide profile to one of Alberta's least noticed Natural Regions – the Foothills. This Region has various important and unique characteristics, and throughout the Region there are many natural hidden treasures that are waiting to be discovered. The two main goals of this column are: 1) to showcase the features that define the Foothills; and 2) to bring attention to some of the pressures that are currently influencing this Region.

Bats in Alberta: Conservation Challenges and Monitoring Effects

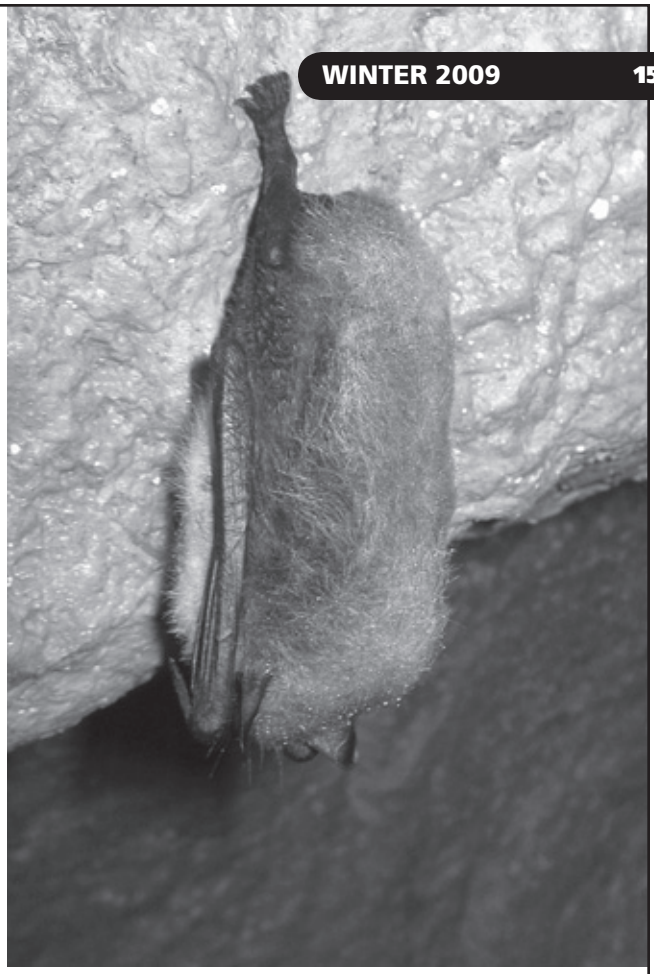
BY CHUCK PRIESTLEY, BRYN SPENCE, MARGO PYBUS AND DAVE HOBSON

Bats play important roles in ecosystems. Their importance is a function of the combined effect of the activities they engage in, the time of day they are active and their abundance.

In various parts of the world, bats help control insect populations, pollinate plants and disperse seeds. They are mainly nocturnal, a time when other aerial insectivores are not active. Next to rodents, bats are the most abundant mammal found on earth; nearly 25% of all mammal species are bats. Given their importance, two bat conservation issues that have recently emerged are cause for concern.

A fungal pathogen, White-nose Syndrome (WNS) has been found in bat populations in the north-eastern United States. First detected near New York in 2006, this disease is thought to be responsible for a 75% bat population decline in the New York area (Blehert et al. 2008). Bats are susceptible to this fungal infection during hibernation. Aptly named, WNS is manifested as a white fungus that grows around the muzzle, ears and wing membranes of infected individuals. Most dead bats found that were infected with WNS had little to no fat reserves (Blehert et al. 2008). To date we do not know if the fungus is the primary cause of problems for infected bats or whether it is secondary to something else that allows the fungus to flourish. We do know that WNS infection appears to be associated with increased energy demands and eventual starvation of infected individuals. Thus WNS-infected bats display unusual metabolic activity during the winter, often flying around outside of the hibernaculum, and probably die because fat reserves are depleted at a time when there is no opportunity to replace the lost energy; there are no flying insects around in the winter!

Bat mortality at wind energy facilities is considered relatively high when compared with bird mortality. Evidence that barotraumas (physical damage to lung tissues due to changes in air pressure) are the major cause of bat mortality around wind turbines has recently emerged (Baerwald et al. 2008). The situation is very similar to



A HIBERNATING LITTLE BROWN BAT.

Focus on the Foothills…continued

an underwater diver that rises to the surface too quickly and causes damage particularly in the lungs. Contrary to what was first thought, only a few of the dead bats had collided with the turbine blades. They can usually avoid such collisions due to their superior ability to echolocate. However, the bats seem to be unable to detect the low air pressure caused by the rotation of turbine blades and blood vessels in their lungs rupture as a result.

Both WNS and wind turbine-associated barotrauma cause mortality of bats and the Foothills Region seems to present the greatest risk to bats in Alberta. We know the area is used extensively by migrating bats, thereby putting them at risk around the turbines in southern Alberta. Similarly many of our bats use caves in the foothills for hibernacula and will be at risk if WNS ever gets to Alberta.

If WNS moves into the province, large portions of Alberta's hibernating bat population could be wiped out. Even our long-distance migrators that leave the province will be at risk if WNS arrives in caves in the western US. The transmission mechanism is unknown at this time but cavers may be involved with the dispersal of the pathogen. In order to avoid this, cavers should follow containment and decontamination procedures developed by the US Fish and Wildlife Service. This will be especially important for all those who visit caves in the north-eastern United States where WNS is known to occur.

To minimize barotrauma, wind turbine projects should not be developed near places where bats congregate or along migration pathways. Therefore, proximity to hibernacula should be considered when the locations of wind turbine projects are proposed.

Standardized monitoring is needed to determine whether bat population abundances are changing (Vonhof 2006). Monitoring of hibernating Little Brown Bats at Cadomin Cave has occurred since 1972, and systematically since 1983. Scattered reports that bats hibernate in Wapiabi Cave have been passed on to Alberta Fish and Wildlife over the years.

TRIVIA

Did you know??

- Only four bat hibernacula have been confirmed in Alberta. One is located at Wood Buffalo National Park and three are located along the boundary between the Rocky Mountains and Foothills Natural Regions.
- Bats are long-lived. Local monitoring efforts in Alberta have demonstrated that Little-brown Bats can live for more than 30 years! This is quite unusual given this animal's small body size.
- Twenty types of bats are found across Canada; nine are found in Alberta. Three of Alberta's bats migrate and six hibernate. The Little Brown Bat, a hibernator, is the most common bat in Alberta.

Focus on the Foothills…continued

Here, we report the second attempt to monitor hibernating bats in Wapiabi using a standardized technique. The first occurred in October 1999 when 5 bats were found. The French Extension portion of the cave was not surveyed at that time. The objectives of this survey in Wapiabi Cave were to confirm the presence of hibernating bats, determine their relative abundance and if warranted, determine how a long-term bat monitoring program could best be conducted. In order to facilitate future comparisons among hibernacula in Alberta, the monitoring technique used was similar to that used in Cadomin.

METHODS

Wapiabi cave is 25km west of Nordegg along the boundary between the Foothills and Rocky Mountain Natural Regions. The cave was visited 29th November 2008. A map of Wapiabi Cave (Rollins 2004) was used during the survey. The cave was stratified into 12 sections. Cave strata were coded with letters. When bats were located, the associated stratum was documented. The number of bats, the number of bat clusters and number of bats in each cluster were recorded. Surveyors tried to detect WNS by looking for the presence of white chalk-like fungus around the muzzle, ears and wing membranes of hibernating bats and by searching for dead bats in the cave. However, the bats were not handled or disturbed. The presence of other species in and out of the cave, times of day entering and exiting the cave and detection of bands on bats also were recorded. In addition to standard caving gear (helmets, headlamps, knee pads and gloves), rappelling gear (single rope technique) was used to safely get down to the lower sections of the cave.

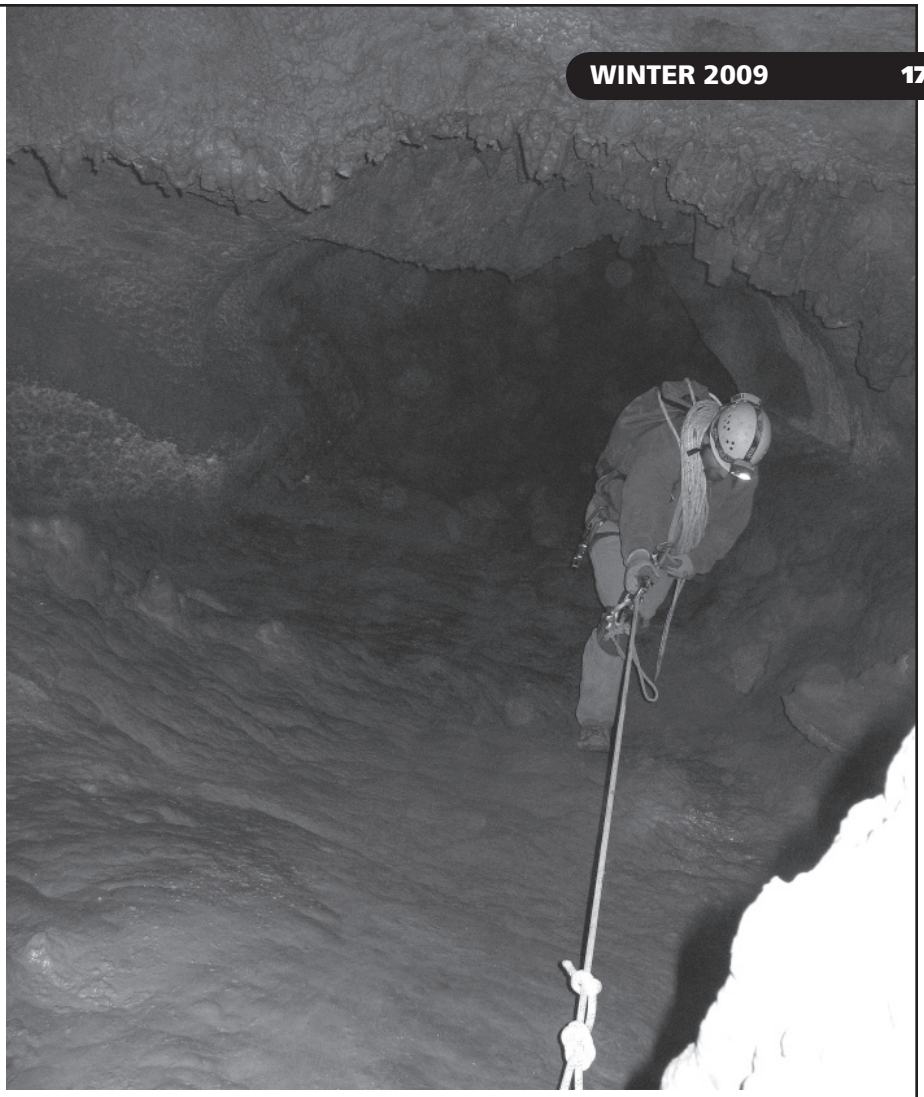
RESULTS AND DISCUSSION

Surveyors spent three and a half hours surveying approximately 65% of the cave (12:00 to 15:30). The route between the trailhead and cave entrance was steep in sections and partly snow-covered. In order to get back down to the bottom of the slope before dark, surveyors had to head back before the entire cave was surveyed. It took surveyors four and a half hours to reach the entrance and three hours to return to the trailhead. The combination of snow and scree increased the amount of time it took to travel along the trail. In a couple of places snow had to be managed in avalanche chutes before proceeding. Without helicopter-assisted access, travel time during future surveys will continue to be an obstacle that will influence the amount of time that surveyors can spend in the cave.

Fifteen Little Brown Bats (*Myotis lucifugus*) were found hibernating in the cave. None of the bats exhibited signs of WNS and no dead bats were found. Bats appeared to be scattered throughout the surveyed sections. Eight of the hibernators were found in pairs, with the remaining seven hibernating singly. No bats were found in the stratum closest to, or furthest from, the entrance. Bats were found in all strata in-between (6 strata; average 3 bats/stratum; maximum 4 bats/stratum; minimum 1 bat/stratum).

No other species were observed in the cave. A Common Raven was seen on the approach to the cave. On the return trip, a bull moose that had bedded down for the night was observed across a gorge. Deer, moose, bighorn sheep and wolf tracks were observed in the snow along the trail.

Even though not many bats were found, we were able to confirm that Wapiabi Cave is a hibernaculum. The next winter bat survey of this cave should target areas that were missed



BRYN SPENCE ASCENDS FROM ONE OF THE LOWER SECTIONS OF WAPIABI.

Focus on the Foothills… continued

during this survey to investigate how extensively those sections are used by bats. With sufficient time, areas surveyed this year should also be assessed for comparison between years. A strategy about how best to conduct the survey in the long-term should be developed after the rest of the cave has been investigated. A long-term survey should target areas of the cave with the highest bat densities. In addition, information regarding elements of the cave microclimate also would help assess the potential for use by bats.

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GETTING INTO THE SPRING OF THINGS! The next edition of 'Focus on the Foothills' will showcase some of the interesting places to stretch your legs in the Foothills. After a long winter, a hike or two in the Foothills will be a welcome activity. The focal trails will contain impressive vistas, interesting rock formations and good wildlife viewing opportunities.

Important Note!

In Alberta, it is illegal to visit bat hibernacula and/or disturb hibernating bats (this applies during the period September 1 to April 30, inclusive). Bat hibernacula monitoring studies can only be conducted with approval from Alberta Fish and Wildlife.

ANDY TEUCHER

Wildlife! Starring…

Ord's Kangaroo Rat!

BY DENNIS BARESCO

*It is claimed that protecting species at risk is much easier if the animal is "cute and cuddly". If that's true, Ord's Kangaroo Rat (*Dipodomys ordii*) deserves to be at the head of the list.*

It sports rich, golden-brown-with-white fur, a tufted tail longer than its body, big luminous eyes and an adorable face! Not that most of us will ever see one in the wild, hopping and leaping like a tiny kangaroo. Besides being fossorial (burrowing), inconspicuous (about 27 cm long, counting the tail), extremely restricted geographically, and living in isolated places, they are completely nocturnal.

Canada's only kangaroo rat, Ord's belongs to the Family Heteromyidae, a group of New World rodents known for living in extremely arid environments. The Ord's lives in the sandhills region: CFB Suffield and east, stretching into Saskatchewan.

This is one of the most arid regions of the prairies, but with its eroding sand dunes, sand flats, sandy slopes and sparse, arid-tolerant vegetation, it is perfect for Ord's.

Normally, Ord's Kangaroo Rats are solitary. They will mightily defend their territory and food caches, frequently battling others of their species by leaping and slashing with their powerful hind feet. Females can breed at around 47 days old and produce up to four litters per year, the average litter being three young.

They are amazingly well adapted to the prairie desert. Living below ground and coming out only at night conserves water and avoids heat. Their superbly efficient kidneys produce highly concentrated urine. They have no sweat glands, so can't perspire. Even their nasal passages are built to minimize the water loss caused by breathing. All this, combined with their cells metabolically producing water from oxidation of food, means they never have to drink; they get their requirements by eating "dry" seeds, choosing those with the highest water content.

Winter cold and snow are limiting factors for Ord's. They don't hibernate; instead, they conserve energy through torpor, sleeping during the day for up to 17 hours. Though they feed on their stored seeds, winter mortality from starvation and freezing can be high. Combined with other losses, it is no wonder that only about 10% of them live past their first year. Early spring is the low point, with Canada's population dropping to perhaps 1,000 or fewer individuals.

TRIVIA

- Kangaroo rats are "homies", travelling less than 500 m in their lifetime.
- They have the most highly concentrated milk of any terrestrial mammal.
- The World's Largest Ord's is in Leader SK, a sculpture by the late Ralph Berg
- In Saskatchewan, a portion of the species' range has recently been protected in the Great Sand Hills under the Representative Areas Ecological Reserves Act.

ANDY TEUCHER

Wildlife! Starring…Ord's Kangaroo Rat!…continued

Despite many anti-predator strategies – including avoiding activity during moonlit nights and fleeing in erratic, 2m (6.5 ft) hops – they still get eaten: by owls, snakes, weasels, Badgers, Bobcats, Coyotes, domestic cats and dogs. They have a somewhat odd but brave defense against enemies like snakes: they vigourously kick sand back in the face of the predator!

Kangaroo rats are not directly related to the much despised common rat, and they don't spread disease or affect crops. What they do is maintain balance in their dune habitat both by disturbing soil and planting new vegetation (through abandoned seed caches). In fact, they may be a keystone species in the sandhills through influencing plant communities, soil and predators.

You'd think that an animal living in an isolated area of almost no obvious value to people would be free of problems. However, active eroding sand dunes – their required habitat – are disappearing through human intervention and, without our positive intervention, may disappear in the next decade or so. The problem list is the same as that for most of the prairies: oil/gas, well sites, roads, pipelines, agriculture, loss of natural fire, misguided attempts to stabilize dunes, global warming. That's why protected areas, like CFB Suffield National Wildlife Area, are so absolutely vital.

Kangaroo rats have been using unnatural habitat like roads, fireguards and other human-use locations. Unfortunately, these are turning out to be population "sinks": areas of unnatural, poor quality habitat that species are attracted to, but in which those species have mortality rates higher than that which would sustain the population.

Ord's are listed as "Endangered" by COSEWIC. Considering its limited range and needs, it may well be Canada's easiest listed species to protect and for which to increase habitat. All that's required is commitment. If ever there was an animal that deserved that commitment, it is the adorable little Ord's Kangaroo Rat.

Information for this article from a variety of sources, including Nature Canada, Alberta Wilderness Association, Canadian Museum of Nature, and the Wildlife Status Reports (AB & COSEWIC). With special thanks to Nature Canada for permission to use Andy Teucher's great photographs!

RESEARCHER MICHELLE BACON WITH ONE OF THE JULY 2008 KITTENS. G. BECIC

FEATURE ARTICLE

The Prairie Cougar:

examining the effects of a re-established predator population

BY MICHELLE M. BACON AND MARK S. BOYCE

*During the past decade, Cougars (*Puma concolor*) have appeared in unexpected areas. Although once the mammal with the largest distribution in the Western Hemisphere, Cougars were extirpated from most of their range in the early 20th Century and in Alberta were limited to the southwest region of the province[1].*

However, Cougars now seem to be walking back into their former range. In October 2008 a Cougar shot in Saskatoon had a radio collar showing it had originated in the Black Hills of South Dakota, 960km from its final location[2]. This was the second longest known dispersal of a Cougar; the furthest – a 1,067km stretch from South Dakota to Oklahoma – occurred in 2004[3]. Further east, Cougars have made appearances in Manitoba, Ontario, Quebec, and as far east as New Brunswick (http://cougarnet.org/bigpicture.html). Whether these Cougars are residents or transients is unknown, but it is clear that these elusive predators are re-occurring in areas where the current generation of wildlife and humans have not previously encountered them, and their effects remain to be seen.

The Cypress Hills of south-eastern Alberta and south-western Saskatchewan hosts the most eastern confirmed breeding population of Cougars in Canada. Although occasional sightings have occurred throughout the last 20 years, within the past 5 years tracks and sightings have increased significantly. These large cats, having arrived via coulees leading from the Rocky Mountains in Alberta and/or from the Sweet Grass Hills, Bear Paw Mountains and Little Rocky Mountains in Montana – all of which are within 400km – found a carnivore-free oasis of forest filled with abundant wild ungulates for the taking.

The inter-provincial park, a 400km^2 protected area surrounded by private ranches, rises nearly 600 m above the prairie grasslands and may be the perfect stepping stone habitat

AN ANIMAL AS BIG AS A COUGAR IS WELL CAMOUFLAGED, EVEN WHEN HIGH IN A LODGEPOLE PINE. GEORGE RUSSILL

AS THEIR TEETH SHOW, COUGARS ARE WELL EQUIPPED FOR LIFE AS A MAJOR PREDATOR! GEORGE RUSSILL

that could facilitate Cougar gene flow and movement to more distant populations eastward. The return of Cougars to an ecosystem dominated by wild ungulates also could result in changes in the abundance and distribution of prey, i.e., a *trophic cascade*, as has been seen in other areas where large carnivores returned such as Yellowstone National Park and Zion National Park[4,5]. [Ed: A trophic cascade occurs when a predator in the food chain suppresses the abundance of their prey, which releases the next lower trophic level from predation – or when ungulates are the prey, from herbivory. Trophic cascades are important for understanding the effects of, in this case, adding predators to a food chain.]

However, the persistence of this population depends largely on the human population living around the park. A recent change in Alberta regulations allowing private landowners to shoot Cougars on their land[6], combined with an ingrained attitude of distrust toward carnivores[7], might provide a challenge for the Cougar population to persist in the region. Indeed, since 2004 there have been 12 reported mortalities of Cougars outside the park boundaries in Alberta and Saskatchewan combined (D. Etherington, pers. comm., March 2008; J. Stock, pers. comm., July 2008). These numbers may decrease as the Cougars- solitary in nature- establish firm home ranges and the population reaches carrying capacity.

The return of Cougars to this area is expected to create a change from both ecological and human dimension perspectives. Our research study, a collaboration among the University of Alberta, Alberta Parks and Protected Areas, Alberta Sustainable Resource Development, Saskatchewan Environment and Parks Canada, is aimed at documenting habitat and prey selection of this re-established population. Our research will help determine whether there is a threat to the local ranchers, cottagers and tourists, and to their livestock and pets. We also will determine whether these threats vary by season, and whether human activity during the busy tourist season in summer influences movement and habitat selection of the Cougars. We hope the information we gain will lead to an understanding of the factors that contribute to the restoration of a large carnivore, and can assist in creating a management

MICHELLE SPENT CONSIDERABLE TIME STANDING ON A HIGH SPOT AND SCANNING FOR SIGNALS.
G. BECIC

The Prairie Cougar: examining the effects of a re-established predator population…continued

and conservation plan for Cougars that will allow them to co-exist with wildlife, livestock and humans in the region.

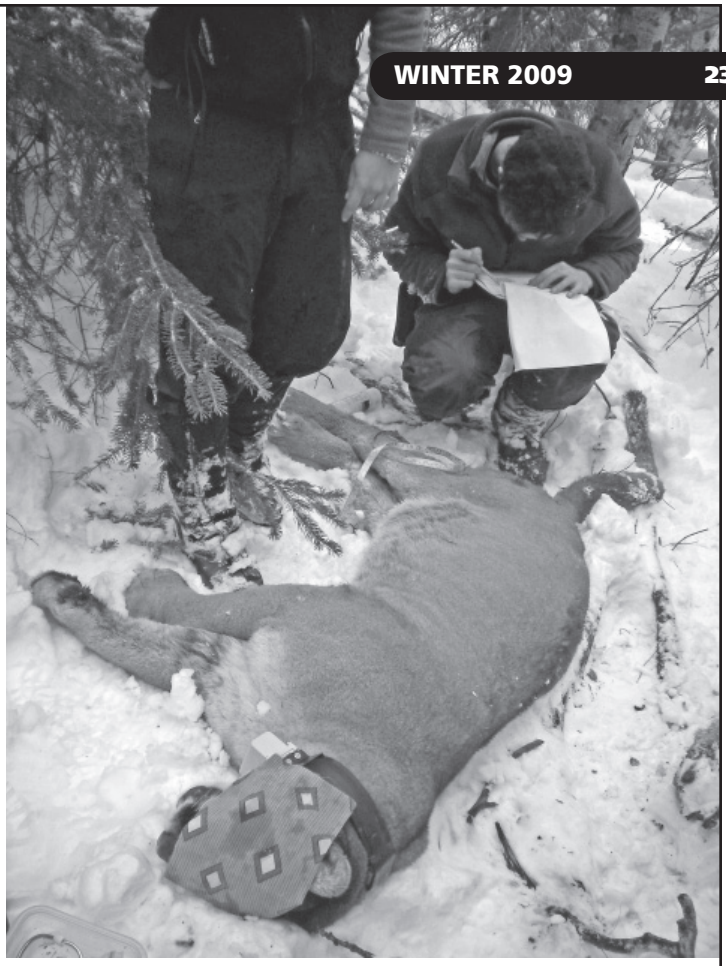
During the winters of 2008 and 2009 we are using trained hounds to catch Cougars so that we can place Lotek 4400 Global Positioning System radio collars on them. These radio collars allow us to receive fine-scale information about the locations of the cats every 3 hours. Following methods developed in Cougar research in Wyoming[8], and used successfully at the Central East Slopes-Alberta Cougar Project field site[9], we are monitoring radiotelemetry data collected by the GPS collars to find clusters of site locations; these clusters are investigated as potential kill sites and if a kill is found we record data on the prey . Throughout the 2-year study we will be able to assess the proportion of each prey species in the Cougar diet, and examine the location of kills as well as home ranges of the collared cats.

In April 2008, we caught and placed radio collars on two Cougars, an 82kg male and a 43kg female. Throughout the summer and fall we tracked and located kill sites for the two Cougars, and in 23 weeks of monitoring (April to October) we found 29 kills by the male and 31 kills by the female. Our male has a summer/fall home range of approximately 250km^2 and has been preying on large, wild ungulates. His diet thus far has mainly consisted of Elk (35%), deer (41%) and Moose (17%). We believe him to be the "King of the Hills", probably the largest Cougar in the area. Our female Cougar has a summer/fall home range of approximately 60km^2 and has been preying primarily on deer- in fact, 88% of her diet thus far has been deer.

In mid-July we were investigating a GPS cluster and discovered her den site where she had hidden her 4 kittens. After downloading the GPS telemetry data the next day, we determined that the kittens were only 11 days old. It will be interesting to assess the survival of the kittens and to monitor their movements this winter through snowtracking. We plan on catching another four Cougars this coming winter to further evaluate the population in the Cypress Hills, which we estimate to be between 8 and 12 resident adults.

Alongside the data collected using radio collars, we also have been using digital remote motion-sensor cameras manufactured by Reconyx, Moultrie and Bushnell to monitor wildlife populations in the park. Since February 2007 by setting these cameras on game and hiking trails we have captured 25 Cougar

THE TEAM TAKES TO THE FIELD.
GEORGE RUSSILL



DATA IS QUICKLY TAKEN FROM THE CAPTURED, RADIO COLLARED MALE. MICHELLE BACON

The Prairie Cougar: examining the effects of a re-established predator population… continued

"events". Our success with these cameras continues to increase as we improve our abilities to pick and choose locations that are more Cougar-friendly; during the past 8 months, we have had 10 Cougar "events" on our 12 cameras. Unlike other large cats, Cougars have no unique traits on their pelts that make them individually identifiable in photos. However, we have captured different family groups at two locations in the park, and when combined with our home range maps of the collared Cougars we are able to gain a sense of how many may be in the park and which areas they are frequenting.

The return of a large carnivore to this region signifies a change to this unique forested ecosystem of the Canadian prairies, and there will be inevitable conflicts between wildlife and human stakeholders in the area. We hope that by studying the Cougars, we will assist local wildlife officials to create a management plan and, depending on our results, will alleviate some of the concerns about safety and livestock depredation. On a broader scale, studying an area such as the Cypress Hills will help gain insight into the ecological significance of Cougars in an isolated population and will lead to an understanding of how humans with various interests can co-exist within them.

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A RADIO COLLARED FEMALE IS CAPTURED ON CAMERA. M. BACON, CYPRESS HILLS COUGAR STUDY

GEORGE RUSSILL

A Look at the Cougar

BY DENNIS BARESCO

NAME:

Often called Puma, Mountain Lion or Panther, but has over 40 names, just in English. Formerly, *Puma concolor* was in the genus *Felis*.

The word "Cougar" originated with the Tupi language (a South American native language or family of languages): "siwasuarána" – from "siwásu" (deer) + "-rana" (resembling). The Portugese made it "çuçuarana" which the French turned into "couguar."

RANGE:

From the Yukon to the southern Andes in South America, making them the Western Hemisphere's most wide-ranging land mammal.

ATTRIBUTES:

In the wild, Cougars will live 10-12 years under normal conditions, though they are heavily persecuted. Along with the leopard, they are the world's fourth heaviest cat, behind the tiger, lion and jaguar. Having back legs longer than the front gives Cougars great leaping power; 9 – 10 metres (30 – 35 feet) in a single bound has been reported. Their tremendous agility is aided by a very flexible spine, with an extra long tail adding to balance. Like all cats, they have superb night vision. Cougars' binocular vision gives them a field of view of 130 degrees and a total field of 287 degrees. In Alberta, competitors are other large carnivores such as wolves and Grizzly Bears.

After three months gestation, Cougars give birth to two to four blind young. Kittens nurse for three months and are then introduced to meat. They will stay with their mothers for up to two years.

VOICE:

While Cougars can make all kinds of sounds, including mewing, purring, chuckling, and hissing (think of a bigger, louder, house cat), it is the piercing "scream" that is the most startlingly impressive – or blood curdling, depending on your point of view and your proximity to said scream. Kittens whistle to call their mother. There are a number of websites with sounds of Cougars, including www.soundboard.com.

THE HUNT:

No, they do not leap out of trees onto the backs of prey! Typically, Cougars stalk (slinking along the ground), ambush, and when within ten metres or less, leap and pounce – again, think of a bigger, stronger house cat. From the side, they dig their claws into the shoulders, flank and neck, then bite with scissor-like canines, near the base of the skull preferably, allowing them to sever the spinal cord. With some smaller prey, they may also pull its head down, with the momentum forcing the prey to tumble to the ground, breaking its neck. Their kills are usually over very quickly – but not always. Large adult ungulates don't go down without a violent struggle; while serious injuries to Cougars are uncommon, they do happen. If an attack is unsuccessful, Cougars rarely follow the animal; they simply start the process over again with a new, blissfully unaware prey.

A Look at the Cougar. . .continued

FOOD:

Ungulates make up the bulk of their diet, particularly deer. As with most predators, they will take what's easiest; hence the sickly and the weak are preferred to the risks associated with bringing down a healthy buck or bull. However, Cougars are opportunistic and when the opportunity (or scarcity) presents itself, grouse, hares, beaver and rodents are fair game. Even porcupines can be a food source, with the quills somewhat avoided. Quills that are swallowed appear to be a minor irritant only, and they start to soften in the stomach in about an hour. Cougars have been found with quills in the face and paws, but they seem to fall out, get pulled out or, if under the skin, eventually dissolve.

Cougars prefer to start their meal on the abdominal cavity (liver, heart, lungs), whereas wolves and coyotes start on the tail end. Making repeated visits to their kill, Cougars generally eat about 70 per cent (by weight) of an ungulate, leaving most of the larger skeletal bones, the rumen, some viscera, and parts of the hide.

For videos of Cougars, try the web (eg., YouTube). There are a number of good sites with all varieties of video. Information in the above article gleaned from "Living with Cougars" (Alberta Parks, March 2008) and a variety of websites.

ASHLEY HOCKENBERRY

Up Close Naturally: The Colour Blue

BY MARGOT HERVIEUX

I have been enjoying the Blue Jays busy at my feeder, and it got me thinking about the colour blue. In a world full of blueberries, bluebells, bluebottles, bluebirds and of course, blue skies, this colour is hard to ignore.

Amazingly, the blue feathers of the Blue Jay and other blue birds do not have blue pigment but appear blue because of the structure of the feather. That is why jays, as well as birds with iridescent colours like magpies and hummingbirds, look different under different light conditions.

The physics of light is also the answer to the classic question, "Why is the sky blue"? Light from the sun is scattered by particles in our atmosphere and only the blue light reaches our eyes. Mountain lakes also reflect blue light because of the fine rock particles in the water.

Plants do produce blue pigments and blue is a common colour for flowers, especially those pollinated by insects. Insect vision is very different from ours and is shifted along the spectrum. This means that most insects see blue/purple and yellow well but they can't see red. They also perceive ultraviolet as a colour. For flowers requiring pollination by insects, blue is definitely a good colour choice.

The abundance of blue flowers and berries does not mean that it is easy to create blue pigments for our use. Historically, an everyday blue dye came from fermenting the woad plant in manure but that was a very smelly business. Only the wealthy could afford to buy fabrics dyed with the indigo plant imported from India. Craftspeople also used rather toxic pigments made from minerals such as cobalt.

In English, we divide up blue into various shades and then name those shades after the best examples. A trip to the paint store will quickly reveal robin's egg blue, sky blue and even peacock blue. In other cultures, however, certain blues such as azure are considered to be different colours in the same way we separate red and pink.

There are also lots of things we call blue that aren't. Blue foxes and blue geese are really grey and "once in a blue moon" refers to the event's extreme rarity rather than its colour. The name is applied to the second full moon in a month and we won't see one again until December of 2009.

Colour vision sets us apart from most mammals and recognizing and appreciating colour is an important part of our lives. So don't be "blue" about the changing season. Skies are bluest when the air is clean and crisp and Blue Jays are all the more striking when surrounded by autumn gold.

Margot's column first appeared in the Peace Country Sun. Archived copies of past columns are available at www.peacecountrysun.com.

ASHLEY HOCKENBERRY

Defending Wild Alberta:

A profile of the Alberta Wilderness Association

AWA IS A COMMUNITY PARTNER WITH CALGARY'S YOUTH ANIMATION PROJECT. CONSERVATION SPECIALIST NIGEL DOUGLAS MENTORS AT-RISK YOUTH WHO ARE LEARNING ANIMATION TECHNIQUES THROUGH THE YAP PROGRAM. NIGEL DOUGLAS

The Sixties were a time of huge social and cultural change, including the birth of the modern environmental movement. Around the world, people awakened to what was happening to the natural world and were moved to take positive and dedicated action. Thus was born the AWA: the Alberta Wilderness Association.

From grassroots beginnings in the kitchens of backcountry enthusiasts, ranchers, and outfitters, AWA has grown into an independent conservation organization spanning the entire province. It is an organization well-recognized for tenacity, integrity, credibility and longevity. For more than forty years, AWA has spoken in defense of those who have no voice: wilderness, wildlife, and wild waters throughout Alberta.

As population pressures increase and the industrial footprint expands, Alberta's wilderness urgently needs much better and increased protection than is now in place. AWA is the only independent province-wide organization working steadily for more than four decades toward the completion of a protected areas network and the conservation of wilderness throughout the province.

When it fits its mandate, AWA works with individuals and organizations, including industry, to achieve effective, ecosystem-based management of wilderness, wildlife, and wild waters. When necessary, it can be uncompromisingly outspoken and willing to engage politically on issues concerning wilderness conservation in the province.

AWA's active involvement is wide-ranging: from Hay-Zama in the northwest to Suffield and Sage Creek in the southeast; from McClelland in the northeast to the Eastern

WHAT IS WILDERNESS?

The AWA definition states: "Wilderness exists where large areas are characterized by the dominance of natural processes, the presence of the full complement of plant and animal communities characteristic of the region, and the absence of human constraints on nature." It is erroneous and dishonest to suggest that wilderness means "no people"; in fact, people are very much a part of wilderness. It is abuse and disrespect of the land – mostly through unfettered exploitation, greed and unethical pleasure-seeking – that has no place in wilderness. People are welcome if, as Aldo Leopold said, their role changes "from conqueror of the land-community to plain member and citizen of it."

LONG-TIME VOLUNTEER MARGARET MAIN OVERLOOKS THE GARDENING EFFORTS OF A GROUP OF CALGARY YOUTH SENT BY THE HILLHURST SUNNYSIDE COMMUNITY ASSOCIATION TO THE AWA OFFICE IN HILLHURST. CHRISTYANN OLSON

Defending Wild Alberta: A profile of the Alberta Wilderness Association. . .continued

Slopes in the southwest; from water diversion projects such as the Meridian Dam and Oldman River Dam to the protection of ecologically significant areas such as the Castle and the Bighorn. Involvement past and present includes developing policies, such as the Coal Policy (1976), Eastern Slopes Policy (1970s/80s), Land-Use Framework (2007/08), and Wetlands Policy (2008). Awareness of conservation issues is raised through regular talks, hikes, field trips, and media interviews, as well as through its primary communication tools – the website and the *Wild Lands Advocate* (see sidebar).

AWA is a non-profit, federally registered, charitable society, and much of its funding depends on the generosity of individual donors. Its Calgary provincial office houses the Alberta Wilderness Resource Centre, the province's most comprehensive collection on conservation in Alberta. With more than seven thousand members and supporters throughout Alberta and around the world, AWA represents a wide diversity of people who care about protecting the province's wild places.

A staff of four full-time conservation specialists, one executive director, one part-time librarian and two part-time office assistants are only one part of AWA's success. Absolutely critical are its supporters and volunteers. Members throughout the province keep an eye on wilderness areas in their regions. Local contacts inform staff of threats to Alberta's wild places and provide local information that may otherwise be inaccessible. Volunteers help with office assistance, garden maintenance, and organizing and participating in events such as talks, hikes, casinos, the "Climb and Run for Wilderness", the Wild West Gala, and the Solstice Stroll.

BECOMING PART OF AWA

Individual lifetime membership in AWA is $25; Family lifetime membership is $30.

Interested individuals can join online (www.AlbertaWilderness.ca), by mail (Box 6398, Stn D, Calgary AB T2P 2E1), or by phone ((403) 283–2025; or 1–866–313– 0713).

WILD LANDS ADVOCATE

One of AWA's primary communication tools is the bi-monthly *Wild Lands Advocate* (WLA). This superb publication is the only Alberta magazine dedicated exclusively to wilderness advocacy, and is used to facilitate and support wilderness conservation by increasing awareness and promoting action. Its core purpose is to report timely, accurate, and useful news and perspectives on issues pertaining to Alberta's wilderness and AWA's work.

Through investigative journalism and personal accounts, WLA tells the stories of Wild Alberta, the people involved in conservation initiatives, and the challenges facing wilderness protection. Since its inaugural issue, WLA has also functioned as an ongoing record of AWA's work and wilderness conservation issues in Alberta.

WLA publishes only original articles, written and photographed by AWA staff, volunteers and supporters. Each issue is posted in full on the AWA website. Subscriptions to the print version, at $30/year, are well above two thousand.

First Hand:
Warbler surprise!

BY PAT HARDING

Our family has been feeding birds at backyard feeders for almost 30 years. My husband and kids know that when they hear me cry – "come look out the back, quick!" there is some interesting bird or beast to see.

I always have the camera and binoculars handy to the kitchen window that looks out over the backyard and the feeders.

Friday, November 7 2008: I was preparing to start my 5th season participating in Project FeederWatch and had previously set out a bunch of tired grapes on the deck beneath the silo feeder. It was a lovely sunny, mild afternoon when I spotted this little stranger at the feeder.

What immediately caught my eye was its beautiful bright yellow bib above a white breast, black face and white stripe above the eye. I was able to gauge its size relative to a House Finch that was at the silo feeder at the same time – definitely smaller and fine billed. My first guess was a warbler of some sort. To my delight, it flew down to the deck rail where it soon found the grapes. Lucky for me, it was a natural poser. For the rest of the afternoon it ate the grapes, visited the feeder or paraded along the rail, frequently turning 180 degrees and occasionally settling down on the railing to rest. I was able to take plenty of photos through the kitchen window.

The photos ultimately helped to identify my mystery bird. After looking in *Birds of Alberta* and the *Audubon Guide Western Region*, I couldn't say for sure what I had seen other than it was definitely some kind of warbler; so, I forwarded a few representative photos to Phil Horch of the Grasslands Naturalists here in Medicine Hat.

To my enormous surprise and delight, Phil identified it as a **Yellow-throated Warbler** (*Dendroica dominica*). Its usual range is the southeastern United States, wintering in Central America and the Caribbean. It is exceptionally rare here in Alberta! It hadn't occurred to me that what I was seeing didn't belong here. Apparently this is only the second documented sighting in Alberta.

What luck and what a thrilling way to start off the new FeederWatch season!

For more information on Feeder Watch, visit the Bird Studies Canada website: www.bsc-eog.org.

EDITOR'S NOTE:
Yellow-throated Warblers are considered a rarity throughout Canada – and "accidental" across Western North America. As listed in the "7th Report of the Alberta Bird Record Committee" (*Nature Alberta*, Vol 37 # 2, Summer 2007, pg 32), the first documented occurrence in Alberta was Sept 9-10 2006, at 63 Discovery Ridge Point, Calgary, by Bob Heidemann and Ken Havard. It is a "Code 1" record: i.e. supported by material evidence such as photographs.

If you have a 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.

I was born and raised on a mixed farm in southwestern Germany. In my youth, I felt a passion for natural history, hunting and falconry. I emigrated to Canada for the spectacular landscapes – prairie being a special favourite - and wildlife this country offers.

I spotted my first Ferruginous Hawk in Wyoming during a 3-month camping tour through western North America. In 1975, my wife Sheila and I began graduate school toward an M.Sc. under the supervision of David Boag at the University of Alberta. We took up a project planned and supported by Richard Fyfe (Canadian Wildlife Service), Bill Wishart (Alberta Fish and Wildlife) and Mike Dorrance (Alberta Agriculture). One question was to explore the level of raptor management that could be achieved to limit ground squirrels on range lands. Richard and his colleagues had already studied raptors in the Hanna area, and we took over this area, which may hold one of the highest prairie-hawk densities in North America, at least at the time. After completing a Ph.D. at Queen's University in Kingston, we moved west again in 1982 and I resumed the Hanna raptor work. Currently I own a small consulting firm, am a Research Fellow in the Centre for Studies in Agriculture, Law and the Environment and a lecturer in the School of Environment and Sustainability at the University of Saskatchewan.

Ferruginous Hawks in Canada:

a three-decade prognosis

BY JOE SCHMUTZ

*In April 2008 the Committee on the Status of Endangered Wildlife in Canada classified the Ferruginous Hawk (*Buteo regalis*) as threatened, after it had been classified as endangered in Alberta in 2006 (Downey 2006).*

This COSEWIC status is a return to the same threatened status the hawk held from 1980 to 1995. In 1995, concern over the Ferruginous Hawk was relaxed with a listing of vulnerable based on an increasing population trend and high numbers overall that suggested the species was by all reasonable consideration secure and viable. What happened in the interim?

The revised threatened status could be justified because of a declining trend and because of considerable confidence in the data, at least in Alberta. Here, two independent and long-term data sets clearly show a decline with similar severity and timing (Fig. 1; Downey 2006, Schmutz et al. 2008). One data set includes a complete nest count on randomly selected plots from which the total population size is extrapolated. The other is a nest count on a Hanna study area that varied in size but consisted of a complete search of all nests in a particular year.

The random-plot population survey is rare in North America for its searching intensity (complete nest search), the total plot-area surveyed (4-5% of survey area) and the length of time over which the count was done (since 1982 and presumably ongoing; Schmutz 1984, Downey 2006).

In similar counting efforts for other raptors, there were surveys of Peregrine Falcons (*Falco peregrinus*) by air and on foot, and these concentrated on 'hot spots' where the falcons were expected to occur. In the 1980s, there was a program

A LEG-BANDED FEMALE FERRUGINOUS HAWK DELIVERS A DRIED CANOLA SKELETON TO THE NEST, PRESUMABLY TO SERVE AS A 'DIAPER' FOR HER NESTLINGS. WHILE WOODLAND RAPTORS TYPICALLY USE GREEN LEAFY SPRIGS TO LINE THE NESTS, FERRUGINOUS HAWKS ARE AT HOME ON THE DRY PLAINS, WHERE DRY MATERIAL SCATTERED ON THE GROUND BETTER FITS THEIR SEARCH IMAGE. JANET FOSTER

in Pennsylvania by which populations of woodland raptors were estimated via a call-playback method, but this work was discontinued. There were monitoring efforts devoted to Ferruginous Hawks in other provinces and states, but none appear to have covered as large an area completely, nor extended over as many decades as the Alberta project did. Some recreational banders have accumulated valuable data too, even if area coverage and searching methodology may have been variable.

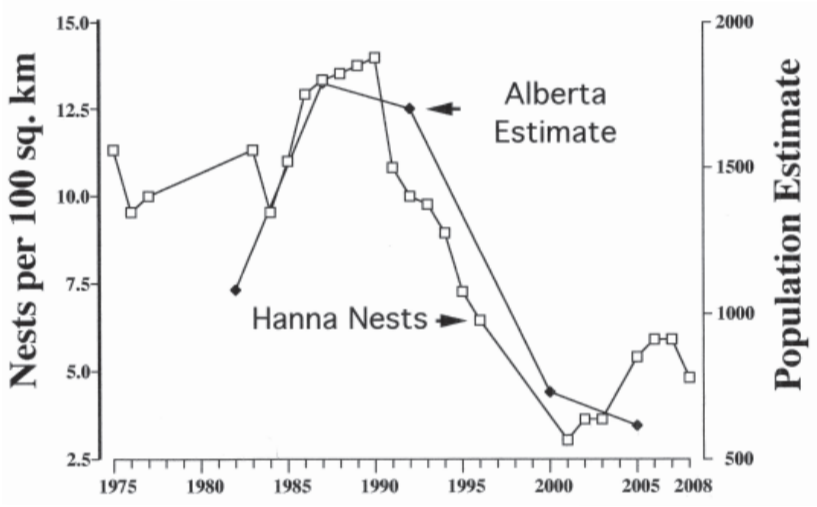

FIGURE 1. ESTIMATES OF FERRUGINOUS HAWK POPULATION SIZE EXTRAPOLATED FROM RANDOM PLOTS THROUGHOUT SOUTHEASTERN ALBERTA, IN COMPARISON TO ANNUAL NEST COUNTS NEAR HANNA.

The seed for the random-plot and region-wide survey in Alberta was planted many years ago, when I was asked to draft the first status report for the Ferruginous Hawk in the late 1970s. One day a call came from Ottawa to check up on how

Ferruginous Hawks in Canada: a three-decade prognosis…continued

the work was going. All the sections of the report had filled nicely; even the population-trend section had hard data of merit, but there were no data on total population size for Canada or anywhere else. This was the most important section on which to base a species' status assessment, I was told. But how was I to create data where none existed?

Fortunately for the Ferruginous Hawk – or unfortunately – there were reasonably good data from early explorations of the Canadian prairies, which had the foresight of having a biologist or naturalist included on it (Houston and Schmutz 1999). Based on these notes and egg collections, it was quite clear that the hawk's range had been reduced to around 60% (Schmutz 1984). The famous promoter of prairie agricultural settlement, botanist John Macoun, for example, traveled in the early 1900s along a line from Winnipeg to Edmonton and apparently noted Ferruginous Hawks regularly – today one would be hard pressed to find any along that route.

When pressed for an attempt to estimate 1970s population size, I took data from the largest study area, in Idaho, to try and overcome a study area bias. Then, I extrapolated this Idaho density over the current day Ferruginous Hawk range in Canada. This seemed unsatisfactory but it was the best I could do.

After returning to Alberta in 1981, and having spent some time with Jim Grier, I planned the first random-plot survey. Dr. Grier's students explored various ways of estimating the sizes of raptor populations in North Dakota and I could observe their approaches. On a shoe-string budget, with a truck, two on/off road motorbikes and a tent, my assistant and I visited 80 random sample plots, 41 km2 each throughout a 74,686 km2 survey area roughly from Coronation to the Montana border and from High River to the Saskatchewan boundary. We visited over 400 farmsteads to gain land access. We counted 48 Ferruginous and 172 Swainson's Hawk (*Buteo swainsoni*) nests on the plots plus others outside of plots. My extrapolation to the whole Alberta range yielded 1,082 nesting pairs of Ferruginous Hawks in what was considered nearly the entire range in the province. A 95% confidence interval ranged from 653 to 1,511 pairs.

In 1987 and 1992, I undertook the survey with two assistants and increasing involvement of Alberta Government biologists. In 2000 and 2005, Alberta Sustainable Resource Development and Fish & Wildlife staff took over the entire responsibility for the survey (Downey 2006).

Conservation planning can be only as good as the species or ecosystem knowledge available. It may be fair to say that the Ferruginous Hawk is in a decent position in this regard. Some species are so common such that few if any counts are undertaken. Others are so rare that the total number of individuals can be counted, as in the Whooping Crane (*Grus americana*). Ferruginous Hawk lies somewhere in between. While hard data and counts are valuable, management decisions still need to be made for common species too, to keep them out of the pressing state of rarity.

A survey similar to the Ferruginous Hawk was started for Burrowing Owls (*Athene cunicularia*) in Alberta in the early 1990s. Recorded owl calls were played in the field to try and elicit a territorial response by resident owls when present, and thus make them more visible. With one ¼ section count after another coming up

A YOUNG FERRUGINOUS HAWK CONTEMPLATES AN EARLY DEPARTURE FROM ITS NEST, GIVEN THE PHOTOGRAPHER'S ARRIVAL. THIS MULTI-YEAR NEST WAS ON NEAR-LEVEL GROUND IN A LARGE EXPANSE OF GRASSLAND DEVOID OF TREES OR ERODED BANKS. JOE SCHMUTZ

Ferruginous Hawks in Canada: a three-decade prognosis…continued

dry it was disappointing for the people in the field and hard to justify funding the count. The politics surrounding species at risk had also made land access more problematic by that time (Schmutz 2004). If my ranch were for sale, and given the hyperbole about infringements of property rights and decreased land value, would I welcome people on my land to document the presence of an endangered owl?

Much can be done to 'create' data with strategic assumptions, and then apply desktop extrapolations and statistics, as I had done with the Idaho data. From a reliability perspective, however, it is the type of field method that is fundamentally important and can make or break a management decision. In our 1987 survey, my assistants and I tried to estimate the extent of our bias. We asked a third person to draw 20 plot numbers. Only after a plot was searched, could we find out whether we'd have to repeat it as 1 of the 20, to estimate our own searching error. We exchanged the part of a plot among us, and thereby could estimate what proportion of nests we'd all missed. With many plots to do, a short nesting season and limited resources, we gave up on this time-intensive procedure early on. I recall one shelterbelt near Bassano, where Russell Meschishnick had found one additional Swainson's nest. I, the supposed pro, had missed this nest deeply buried in a dense caragana bush. This incident provided for considerable levity under the often hot sun during the rest of the summer.

Another data set that crucially corroborates the Ferruginous Hawks' decline comes from the Hanna study area. Here, I had monitored all nests on a 185-480 km2 area and nests on a variable-size area outside it for 23 years, recording a total of 1,408 Ferruginous Hawk nests to date. Observer bias was reduced since I inspected all nests personally and our presence on the study area throughout the nestling period could reveal missed nests in the area. In these counts, all raptor nests that showed signs of use were inspected by climbing and their history of use recorded, ranging from nest material merely added without a nest completed to the fledging of young.

The Hanna counts show four periods varying in dynamics over the 23 study years in a 33-year period. The years 1975-1985 saw moderate but stable hawk densities, a 34% increase

Ferruginous Hawks in Canada: a three-decade prognosis…continued

occurred suddenly during 1986 and through to 1990, followed by a steep decline in 1991-1996 and a very gradual, partial recovery from 2001-2008 (Schmutz et al. 2008, Fig. 1).

A detailed analysis of the data - in a nutshell - showed that ground squirrels, which comprised 95% of the hawks' prey at Hanna, drive both the hawks' nesting densities and their reproduction. The question then remains, what in turn drives changes in the abundance of ground squirrels? Our recent analysis of Ferruginous Hawks included long-term trends in Saskatchewan also. The trends were remarkably similar, suggesting that a factor common to both study areas is influential, which could be climate.

HOW MUCH RESPONSIBILITY DO WE NEED TO TAKE IN CANADA?

A Ferruginous Hawk raised on the northern Great Plain needs to learn to fly and hunt, find its way south and back north without colliding with vehicles, and successfully compete with other hawks on the wintering areas in the southwestern U.S. and northern Mexico. What is the likelihood that factors there account for the declines documented in Alberta?

A survival analysis using the maximum likelihood methods entailed in program MARK used 7,129 Ferruginous Hawks combined, banded on both the Hanna and Kindersley-Alsask study areas. ["Program MARK is a Windows-based program for analysis of data from marked individuals. It represents a major advance in both functionality and coverage for analysis of data of these sort." Program MARK website.] The results showed, as can be expected, that adult survival is higher than that of young. The MARK model showed no change in survival rate over time. Thus, going from the moderate densities to unusually high densities through a deep trough and back to a modest recovery, the survival rate was constant. This suggests that local effects 'at home' influenced the dramatic population changes we observed. Banding data showed that most Ferruginous Hawks tend to return to nest in the general area where they were raised. Once they have nested, their fidelity to their formerly held territory and nest is very high. Thus it is unlikely that numbers declined simply because the hawks moved away. These observations confirm that declining reproduction, both by fewer pairs settling to nest and by those producing fewer young, influenced the population changes, both ups and downs.

ARTIFICIAL NEST FOR FERRUGINOUS HAWKS.

Why would a hawk that has lived in the arid, treeless plains for thousands of years need our help with artificial nests? The hawks are clearly not helpless on their own, but nest management can help an already struggling species for several reasons.

Ferruginous Hawks are large, next in size to eagles and osprey. Ferruginous Hawks also have up to five young, thus need large nests. As an open country raptor, they likely nested on the ground more often when bison and fire still conspired to keep the plains largely treeless before settlement by Europeans. Today, the expansive, treeless plains are shrinking and this landscape may be one of the most endangered on the Great Plains. This trend has ramification for the prairie bird community, both positive and negative (e.g. Clayton & Schmutz 1999).

In the sage brush steppe of parts of Wyoming as many as half of the nests are still on the ground. Ground nests can include nearly level ground, eroded banks or stone cliffs. Here, exquisite nest-building technique is hardly as crucial as it is in trees. This

Ferruginous Hawks in Canada: a three-decade prognosis…continued

ANY OPPORTUNITY TO NEST OFF OF THE GROUND SEEMS DESIRABLE TO FERRUGINOUS HAWKS JOE SCHMUTZ

difficulty around nesting in trees causes challenges for Ferruginous Hawks. They appear to nearly always use existing tree nests, and reuse their own nests whenever possible. Such nests can become very large if they are well anchored in a sizable cottonwood along a creek or in shelterbelts at abandoned farmsteads.

Given a chance, Ferruginous Hawks appear to prefer elevated nest sites whenever possible. Leon Powers (2003) describes occasions when Ferruginous Hawks successfully defended their nests from Coyotes, but not always. It appears that a slope is beneficial by providing updrafts for greater maneuverability in flight, and lessens the footing of the predator.

The utility of artificial nests for Ferruginous Hawks was first explored by R.R. (Butch) Olendorff and colleagues in Colorado, and planned by Richard W. Fyfe in Alberta. A set of 98 platforms was erected in 1975, tightly packed on the 95 km2 community pasture south of Hanna, to evaluate the potential of using hawks to depress peak ground squirrel numbers, as they were viewed as an agricultural pest. Ferruginous Hawks adopted these nests readily, and even moved from their tree nests to pole nests. Some Swainson's Hawks used these pole nests too, as did Canada Geese (*Branta canadensis*) and American Crows (*Corvus brachyrhynchos*). Overall, a significant increase in Ferruginous Hawk density could be shown in comparison to an adjacent control area where no nests had been erected (Schmutz 1984, Schmutz et al. 1988).

Following on the success of the Hanna structures, an additional 105 nests were erected widely spaced throughout southeastern Alberta, supported by the Alberta Recreation, Parks and Wildlife Foundation. Twenty nest platforms were also attached to steel towers of high voltage transmission lines, in collaboration with Transalta Utilities Corporation. This approach was attractive because the supporting structures - unsightly sometimes, but apparently not to Ferruginous Hawks - were already present in the landscape. Other groups, 4-H clubs, grazing associations and individual ranchers also erected a number of nests in an effort to help the hawks in the hope of 'controlling' ground squirrels. Our estimates are that one pair of Ferruginous Hawks and its young consume 480 ground squirrels in a nesting season.

WITH REPEATED USE, NESTS OF FERRUGINOUS HAWKS CAN BECOME VERY LARGE. HERE THE NEW UNBLEACHED LAYER OF NEST MATERIAL IS DISTINGUISHABLE FROM THE OLDER PREVIOUS YEARS' LAYERS. THIS ARTIFICIAL NEST WAS ERECTED IN FALL 1975, AND FIRST USED IN 1976 FOR A TOTAL OF AT LEAST 5 YEARS ENDING IN 1988 JOE SCHMUTZ

Ferruginous Hawks in Canada: a three-decade prognosis…continued

How successful were the structures at the population level? During the high-density hawk years in the mid-late 1980s, 56% of the 105 artificial nests placed throughout southeastern Alberta were used. In 1992, 5% of an estimated 1702 pairs in Alberta nested on artificial nests. While some of these pairs may have found alternate sites in the absence of artificial nests, it is likely that the nests contributed significantly at a time when prey populations were high. Fledging success was as high or higher with 3.16 young near fledging in pole nests from 1984-92, compared to annual means of 2.47 – 3.17 in 'natural' nests.

People are naturally fond of artificial nest programs because it appears as something one can actually do to help the hawks. The nests are a useful management tool but the effort should not stop there. Nests, and particularly natural nests, are a 'necessary' but not 'sufficient' precondition in the Ferruginous Hawk's conservation.

Most of all, Ferruginous Hawks benefit from a sufficiently healthy grassland ecosystem available on the breeding ground and in winter. Maintaining the predominantly native-grass landscapes which Ferruginous Hawks call home in Canada has many benefits (Adams et al. 1994). This can be efficiently achieved in collaboration with ranchers (e.g. van Tighem 2000). The traditional operation of a ranch where rangeland is grazed in rotation and forms a significant percentage (>50%) of the acreage is attractive to Ferruginous Hawks. Studies have shown that biodiversity values were better served on working ranches in Colorado as compared to set-aside land on acreages or even wildlife lands (Maestas et al. 2003). Conservationists would do well by educating others, and using their voting and purchasing power to maintain a sustainable ranching economy as a dominant land use in the remaining grassland ecosystems of the northern Great Plains.

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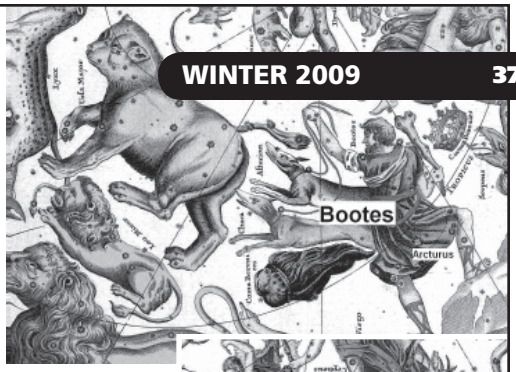
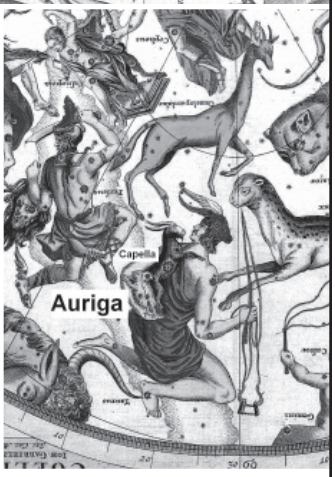
CELESTIAL HAPPENINGS

Starry Nights

Winter/Spring (February to April)

BY JOHN MCFAUL





FEATURED CONSTELLATIONS – AURIGA AND BOOTES

In previous editions of Starry Nights, we have looked at some of the major heroes of the night sky such as Perseus and Orion. There are many others who were depicted in ancient Greek myths and were placed in the realm of the celestial constellations. These include Auriga and Bootes. Both of these are illuminated in the night skies of winter and spring.

Leading the way is the constellation Auriga, the Charioteer which is to be found near the zenith in February and gradually moves lower to the west as the months progress. It is marked by the bright star Capella, which is at the base of a pentagon shape star pattern. The point star of this pattern is also the tip of the right horn of Taurus the Bull.

Auriga is often thought to represent Erichthonius, who was the son of Minerva and Vulcan. He became one of the early kings of Athens. He invented the chariot to overcome his lameness.

Capella is actually composed of two giant stars that revolve around each other with another fainter companion much further away. It is quite common for stars to exist in multiple star systems bound by their mutual gravity. Capella means the She-Goat star. It represents the goat that suckled the baby Jupiter. The broken off horn of this goat became the cornucopia. This was the horn of plenty which was filled with all that its owner wishes.

As the Milky Way passes through Auriga there are a number of star clusters to be observed, especially with binoculars. These clusters will appear as dim patches of light. These clusters contain 100's of stars that were born out of the same gas cloud.

As Auriga rides lower and lower in the western sky the constellation Bootes rises in the east. It is marked by the bright orangey star known as Arcturus. A help to finding Arcturus is to follow the arc of the handle of the Big Dipper eastward. You "arc to Arcturus". Arcturus is the fourth brightest star in the night sky. The light from Arcturus was used to initiate the turning on of the lights of the 1933 world fair in Chicago.

Although Bootes is shaped like a kite or an ice cream cone, it is thought to represent the son of Zeus and Callisto. Bootes is thought to have invented the plow and as such was rewarded with a place in the sky by the wishes of Ceres, the goddess of agriculture. He is also known as the Bear Driver because of his position near Ursa Major, the Great Bear. The progression of Bootes across the celestial stage marks the retreat of winter and the coming of spring.

CELESTIAL HAPPENINGS

Sun: Rise - Feb. 1 (8:18 MST), March 1 (7:21 MST), April 1 (7:06 MDT)
Set - Feb. 1 (17:17MST), March 1 (18:12 MST), April 1 (20:10 MDT)
Times are for Edmonton. Daylight savings time will start on March 8th. Vernal Equinox is on Friday, March 20, 2009 at 5:44 am in Edmonton.

Moon: **Full** - Feb. 9, March 10, April 9
New - Feb. 24, March 26, April 24

Planets: **Mercury** is not visible as it rises only a short time before the Sun and is lost in the solar glare.
Venus in early February will be low in the western sky after sunset. In April it will reappear low in the ESE of the morning sky a little before sunrise.
Mars will be very difficult to see as it is very low in the ESE morning sky before sunrise.
Jupiter will reappear low in the morning eastern sky in April.
Saturn is in Leo near the star Regulus. It can be seen in the South–east climbing higher in the night sky as the hours and months progress. The Moon is near Saturn on February 10th, March 9th, and April 6th in the late evening.

Meteor Shower: Lyrids, April 21, 15/hour in a dark sky

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

> *"Snowflakes are one of nature's most fragile things, but just look what they do when they stick together."*
> VERNA M. KELLY

It's Winter!

BY DENNIS BARESCO

Winter began with the Dec 21 Winter Solstice, and ends with the Spring Equinox on Mar 20.

A WINTER JOKE, SOURCE UNKNOWN:

Winter was approaching, and the Indians on the remote reservation asked their new Chief if the winter was going to be cold or mild. Since he was a Chief in a modern society, he had never been taught the old secrets. When he looked at the sky, he had no idea what the heck the weather was going to be.

Nevertheless, to be on the safe side, he replied to his tribe that the winter was indeed going to be cold and that the members of the village should collect wood so they would be prepared for it. But being a practical leader, after several days he got an idea. He phoned the National Weather Service and asked, "Is the coming winter going to be cold?"

"It looks like this winter is going to be quite cold indeed," the Meteorologist at the weather service responded.

So the Chief went back to his people and told them to collect even more wood in order to be prepared. One week later, just to be sure, he called the National Weather Service again. "Is it going to be a very cold winter?" he asked.

"Yes," the man at National Weather Service again replied, "it's going to be a very cold winter."

The Chief again went back to his people and ordered them to collect every scrap of wood they could find. Two weeks later he called the National Weather Service again. "Are you absolutely sure that the winter is going to be very cold?"

"Absolutely," the man replied. "It looks like it's going to be one of the coldest winters ever."

"How can you be so sure?" the Chief asked.

The weatherman replied, "The Indians are collecting firewood like crazy."

> *"I like these cold, gray winter days. Days like these let you savor a bad mood."*
> BILL WATTERSON

> *"Hear! Hear!" screamed the jay from a neighboring tree, where I had heard a tittering for some time, "winter has a concentrated and nutty kernel, if you know where to look for it."*
> HENRY DAVID THOREAU, JOURNAL ENTRY OF NOVEMBER 28 1858

> *"The problem with winter sports is that - follow me closely here - they generally take place in winter."*
> DAVE BARRY

WINTER IS A GREAT TIME FOR TRACKING ANIMALS BY FOLLOWING THEIR PRINTS IN THE SNOW TO SEE WHERE THEY'RE GOING AND HOW THEY GET THERE. AS WELL, WINTER ALLOWS US TO GET A BETTER LOOK AT ANIMALS, LIKE THIS VOLE, AS THEY STAND OUT AGAINST THE WHITENESS OF THEIR BACKGROUND. ASHLEY HOCKENBERRY

FAN CLUB PAGE

NATURE ALBERTA

ANNE ELLIOTT

Weaselhead/ Glenmore Park Preservation Society

BY LISA FLAMAN; EXECUTIVE DIRECTOR

The Weaselhead/Glenmore Park Preservation Society (WGPPS) serves to conserve the Weaselhead Natural Environment Area found on the west side of Calgary's Glenmore Reservoir.

The Weaselhead is under attack and in need of dire protection and preservation from 'Alien Invaders'. A variety of these aliens land via the sky, transported by the wind. Some arrive as they latch themselves onto dogs and boots that track through the park. Others appear as droppings from local birds dispersing their offspring. I speak not of the alien invaders imagined from outer space, but the non-native invasive plant species introduced to Calgary.

These plants pose a threat of immense concern as they terrorize ecosystems and reduce biodiversity. Compromising the abundance of different species of plants results in a loss of fauna such as birds, insects and animal life.

Beautiful collections of native plants presented by our landscape are host to parasites, pathogens and predators managing their populations. These control measures prevent any one species from choking out the others, allowing a diverse buffet of flowers and berries to meet the palliative requirements of wildlife and enable an assortment of shelter for insects and birds.

Introduced plants often leave their biological controls behind. If able to survive climate and soil conditions, their numbers often swell exponentially. Non-native plants such as Goats-beard (*Tragopogon dubius*) have the capacity to increase a thousand fold as their seeds drift in the wind. Smooth Bromegrass (*Bromus inermis*) has a deep mat root system displacing native plants and leaving behind a monoculture uninhabited by songbirds and insects. Caragana (*Caragana arborescens*) is a cruel introduced species as it robs neighbouring plants of light, moisture and nutrients. White Spruce (*Picea glauca*) skeletons emerge from spreading Caragana found on the north side of the Weaselhead. The relentless shrub encroaches, killing mature poplar and spruce trees occupying their desired landscape.

We are witnessing an ecological collapse. If nothing is done, or if action is delayed, our familiar existence increases in vulnerability. We are as dependent on biodiversity as the songbirds that so many people seek to discover in our city parks.

In July, the City of Calgary announced its long awaited policy to deal with the issue: the Invasive Plant Strategic Management Plan. This comprehensive document unacceptably lacked the urgency required, as implementation

DON WORKMAN

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was planned for the 2012-2014 budget. On September 24th a contingency of stakeholder groups and individuals, including WGPPS, appeared before the Standing Policy Committee on Utilities and Environment expressing concerns. The City Aldermen on the committee were alarmed and supportive once they realized the seriousness of the state of our City's Parks.

They passed three motions to contact local merchants to halt the sale of invasive plants, and to engage local groups and volunteers to work with the Parks Department in the eradication effort. Urgency was addressed as implementation was ordered for Spring of 2009.

The WGPPS has since been given approval with cooperation from the City of Calgary to wage war on the merciless Caragana, Cotoneaster (*Cotoneaster spp*) and Mountain Ash (*Sorbus spp*). We invite you to participate in efforts to protect the Weaselhead Natural Environment Area through our volunteer based Adopt-a-Park program. Support the Society with your membership (only $25.00). Take part in our education programs. We encourage the public to lend their assistance to those groups working to control invasive plants. This will be an intensive ongoing program of the Parks Department and local volunteers. Every Albertan has a natural area or park dear to their hearts, and alien invaders threaten each one.

GREAT SITE!

WGPPS's website, "Talk about Wildlife" is one of the best nature websites you'll ever find. You can view an extensive nature encyclopedia, report wildlife from around Alberta, partake in its message board engaging nature experts from around the province, page through a great photo gallery, and learn about everything from school trips to birdwatching to cutting your cost of living! Check it out – it's great!

www.weaselhead.org or **www.talkaboutwildlife.ca**

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SEE NATURE PHOTOGRAPHY STORY (PAGE 10) JOHN WARDEN

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Nature gallery

FERRUGINOUS HAWKS: THE LARGER FEMALE AND SMALLER MALE TYPICALLY SHARE INCUBATION AND POSSIBLY BROODING OF SMALL YOUNG, BUT THE FEMALE DOES THE MAJORITY OF IT. IN THIS PHOTO, THE MALE HAD JUST BROUGHT PREY AND SOON LEFT, WHEN THE FEMALE BEGAN TO FEED HER YOUNG. THIS NEST IS PRECARIOUSLY SUPPORTED IN THE NATURALLY GROWING ASPEN TREE. IT WAS USED FOR THREE YEARS IN A ROW BEFORE IT WAS USED BY A CANADA GOOSE IN 1991 AND THEN FELL TO THE GROUND. SEE THE STORY, PG 30. JANET FOSTER

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NATURE ALBERTA

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