

Nature Alberta

C E L E B R A T I N G O U R N A T U R A L H E R I T A G E



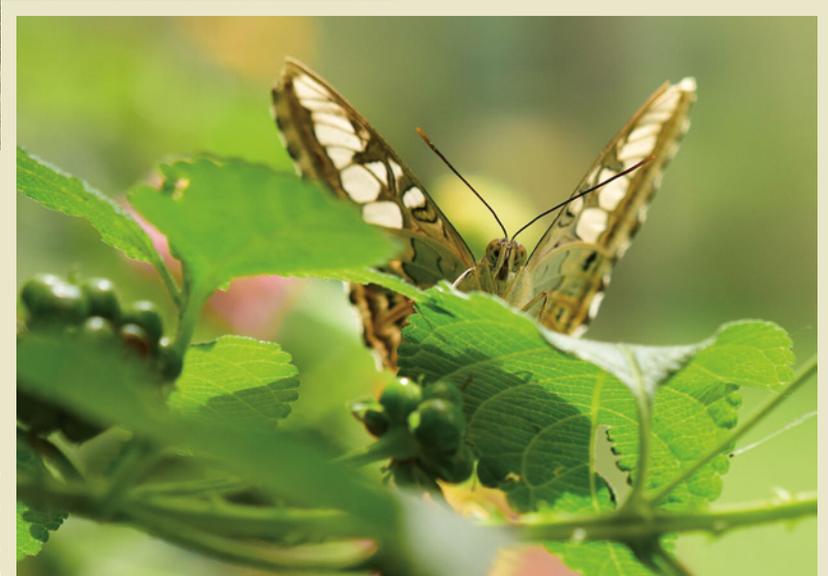
AN EXAMPLE OF HYBRIDIZATION; STORY PAGE 22. KEN ORICH

feature article

Waterfowl Hybridization: There May be More to a Flock



YUCCA GLAUCA IN THE LETHBRIDGE RIVER VALLEY, JUNE 2017. SEE STORY PAGE 34. DOUG DOLMAN



A PHOTO CONTEST WINNER; SEE THE STORY IN "ON THE COVERS," PLUS ON PAGE 8.

P. MARCINKOSKI

SNOWSHOE HARE. MYRNA PEARMAN



*Nature Alberta:
Celebrating our natural heritage*

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MANY THANKS TO THIS ISSUE'S CONTRIBUTORS

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WINTER ISSUE.NOVEMBER 30

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

- To encourage among all Albertans, by all means possible, an increase in their knowledge of natural history and understanding of ecological processes;
- To promote an increase in the exchange of information and views among natural history clubs and societies in Alberta;
- To foster and assist in the formation of additional natural history clubs and societies in Alberta;
- To promote the establishment of natural areas and nature reserves, to conserve and protect species, communities or other features of interest;
- To organize, or coordinate symposia, conferences, field meetings, nature camps, research and other activities whether of a similar or dissimilar nature;
- 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 BROOK SKAGEN, ASSISTANT EDITOR

NAB Report Features Rare Sightings in Alberta

Located in both the Pacific and Central bird migration flyways, a wide diversity of birds representing hundreds of species pass through Alberta each Spring and Fall. For many birders, the various flashy feathers and melodic cheeps, chirps, and trills of returning migrants are welcome and familiar sights and sounds.

However, there are vagrants found during every migration, birds spotted

in places they aren't supposed to be found. Whether they have veered off course as a result of weather phenomena, inexperience, or biological conditions, spotting these vagrants is a rare and exhilarating event to all who are lucky enough to catch a glimpse. According to the recently-released North American Birds [NAB] report on Alberta's Winter 2016-Spring 2017 sightings, the past year has brought

some truly rare and remarkable, some of which have never before been documented in the province.

The report, written by James Fox, is replete with many illustrations and is available, in full, on Nature Alberta's website, but below is a taste of what to expect. Alberta NAB Team Members are: Yousif Attia, James Fox, Milton Spitzer, Jason Straka, Michael Sveen. Advisors: Michael Harrison, Dr. Jocelyn Hudon.

WITH A BRIEF GLANCE, THE WHITE-WINGED DOVE COULD EASILY BE MISTAKEN FOR THE MORE COMMON EURASIAN-COLLARED DOVE.

REAGO & MCCLARREN, WIKIMEDIA COMMONS 2017



WHITE-WINGED DOVE

On December 5, 2017 in Fort McMurray, the White-winged Dove was spotted for just the 3rd time in the province. Normally found in desert thickets of the American southwest in search of grains and fruit, as well as urban areas in the coastal southeast, the White-winged Dove was found thousands of kilometers from its typical range. It's brown unspotted underparts and white wing margins distinguish the bird from the similar Mourning Dove or Eurasian Collared-Dove.

When one explores the eBird data, the range of the White-winged Dove appears to have expanded considerably northward within the past 20 years. Perhaps, like the **Eurasian Collared-Dove**, we will be seeing many more White-winged Doves in Alberta in the coming decades!



BECOMING INCREASINGLY COMMON THROUGHOUT ALBERTAN NEIGHBOURHOODS, THE EURASIAN COLLARED-DOVE IS YEAR-ROUND RESIDENT OF THE UNITED STATES.

GARGE, WIKIMEDIA COMMONS 2006

On the Covers:**FRONT COVER**

Three species were captured by photographer Ken Orich in this wetland image. You might say four species: a Blue-winged Teal, a Lesser Yellowlegs, and, on the left, a cross of two teal species. "The parentage of this vibrant duck," says author Brook Skagen, "can be determined by its white flank and speckled cinnamon colouration, characteristic of Blue-winged and Cinnamon Teals respectively." The

Feature Story starts on page 22.

**INSIDE FRONT COVER**

Yucca glauca goes by several different names: Soapweed, Yucca, Soapweed Yucca, Spanish Bayonet, Great Plains Yucca and Beargrass. It's an unusual, rare and lovely plant in the Agave family. Teresa and Doug Dolman have studied the flower found in the

Lethbridge river valley and report their finding on page 34.



The photo is entitled "Hello there!" and it is by P. Marcinkoski. It's one of the winners – a "Grand Prize Winner" - of Nature Alberta's photo contest held last winter. A glimpse of other winners' photos can be seen on page 8; to see all the winning photos, check out: <https://www.dropbox.com/sh/yx51x8movsx4glr/AAD00AkrkJZZReTLIBI7yz5Ja?dl=0>

"A wonderful encounter with two Snowshoe Hares this morning at Ellis Bird Farm. Yes, there are two! This world would be a better place if we spent more time watching bunnies." – Myrna Pearman

**INSIDE BACK COVER**

Flying Squirrels don't really fly, but they are proficient gliders. They are a mammal that isn't often seen, since they are nocturnal, which is when Don Auten took his images (see story, pg 20). However, you might be lucky enough to have one in your nestbox,

which is how Myrna Pearman got this shot, along with those in the article (pg 20).

One of the most spectacular birds in Canada is the endangered Whooping Crane, and its only nesting site is within Wood Buffalo National Park. But if forces continue to assault the park, it is most likely that it will become just another in a long list of casualties wrought by the National Energy Board. See "Alberta Issues in Brief" pg 7.

**BACK COVER**

"A Common Crane was near Veteran on 11 Apr 2017 was the seventh report of Common Crane for Alberta. Alberta has the second most state/provincial records of Common Crane in North America. Nebraska has the most." See the story, page 4.

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A GLOSSY IBIS (LEFT) STANDS ALONGSIDE THE SMALLER WHITE-FACED IBIS (RIGHT) ON THE EDGE OF PAKOWKI LAKE, AB. KEN ORICH

COMMON CRANE

A vagrant to North America, spotting a Common Crane (*Grus grus*) in Alberta is a truly unusual occurrence [photo: back cover]. On April 11, 2017, the 7th Common Crane in the province was observed near the village of Veteran, approximately 200 km east of Red Deer. The Common Crane is typically found in marshes, bogs and other wetland areas throughout Eurasia from March through the summer, departing to African overwintering grounds in early September. Like other cranes, the Common Crane is omnivorous, consuming various shoots, seeds, roots, grains, leaves and other plant fragments, as well as beetles, snails, earthworms, snakes, frogs, and small mammals. Extensive black facial and neck markings distinguish the species from native cranes in the province.

GLOSSY IBIS

The first confirmed sighting of a Glossy Ibis was made by Ken Orich in the wetlands of Pakowki Lake on May 28, just as the similar White-faced Ibis was first observed. The large and dark-iridescent shorebird is found primarily along the Atlantic Coast of North America, as well as throughout Europe, Africa, Asia and Australia. It boasts a long down-curved bill, which it utilizes for foraging through shallow water in search of aquatic insects, invertebrates, mollusks and crustaceans. Slightly larger, it lacks the white face of the very similar White-faced Ibis. As the species is known to be considerably nomadic, and nests in multi-species colonies in wetland habitats like Pakowki Lake, perhaps it is only a matter of time before we find breeding colonies of both Glossy and White-faced Ibis along its shores.

With new and intriguing visitors popping up in the province,

birding in Alberta is never short of exciting. The thought of coming across a rare migrant has kindled in me an eagerness and great desire to find something new on my next bird “treasure hunt”. I will certainly be looking over flocks with more care and attention than ever before; who knows what you might come across if you take the time to really look!

Sources

- Cornell University. 2015. All About Birds: White-winged Dove (webpage). Retrieved from: https://www.allaboutbirds.org/guide/White-winged_Dove/id
- International Union for Conservation of Nature and Natural Resources (IUCN). 2018. *Grus grus* (webpage). Retrieved from: <http://www.iucnredlist.org/details/22692146/0>
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- National Audubon Society. 2018. Common Crane (webpage). Retrieved from: <http://www.audubon.org/field-guide/bird/common-crane>

LETTERS TO THE EDITOR

BBS Route Open

Wow! How fast the time goes, already 2018 and the new birding season seems not that far away!

I am writing to you all to let you know I will not be running my BBS [Breeding Bird Survey] route in 2018 as I managed my 50th consecutive year running the same route from 1968 to 2017.

I will, however, continue to be the coordinate for the province. I have been doing this since 1970 and have had lots of pleasure

contacting the willing people who enjoy the early mornings listening for the wildlife about us and enjoying the wonderful sunrises that occur each year. While my mind says you can do it, my 84-year old body screams out, "no way, you've had enough", and I am listening!!

So now I am appealing to anyone who will continue on with this route, #04040 Thunder Lake, a few miles west of Barrhead. It

would make me feel wonderful to have said route continued.

I would like also to mention my longtime buddy Ian Halladay who also has run the same route (04007 Brooks) for 50 consecutive years and may well continue this year depending on his longtime assistant and driver. Hope you can make it, Ian.

My very best wishes to you all and may all your routes be 0-0 and 0-0.

JACK PARK [TO CONTACT JACK ABOUT HIS ROUTE: PHONE: (780) 469-8127; OR SEND A MESSAGE TO JACK PARK: YELLOWCERE@HOTMAIL.COM]

Are You Sure It's an Elk?

Love the magazine - but noticed something amiss in "Yikes! A Dike!" by Dennis Baresco.

The ungulate pictured in the story appears to be the closely related European Red Deer and not our North American Wapiti (as characterized by the crown of tines at the end of the antlers, something our bull Elk never have).

Keep up the good work (in all sincerity)!

TED NANNINGA

Wrong Zebra

I owe readers of *Nature Alberta* an apology. The photo on page 33 of the Fall 2017 edition ["Jewels of Nature in Namibia"] is a Plains Zebra. I originally planned to send a photo of the Hartmann's Mountain Zebra and I prepared a caption for that species. My photos of Plains Zebras were much superior, so at the last minute I changed photos, but I failed to change the caption. I sincerely regret that error.

GEORGE SCOTTER

CORRECTIONS

In the Fall 2017 issue, the opening four-line paragraph (in italics, beneath the heading) of the Feature Story, "The Supreme Predator," was actually a repeat of the opening of the Feature Story from the previous issue. We apologize for the error.

As well, in the Fall issue in the "Twelfth Report of the Alberta Bird Record Committee," a Little Stint photo was included. Though a Little Stint was reported by Gerald Romanchuk, the photo was obviously not that specific bird; it was from istockphoto.com; Gerald's photo was not available in the size required.

First Nation band to hunt in Jasper National Park

The news that Parks Canada invited members of the Simpcw First Nation to hunt in Jasper National Park [JNP] was unprecedented. The permit was for one week in November 2017 and restricted to the lower Athabasca valley. They shot three bull Elk, two Bighorn rams, and one White-tailed Deer.

The Simpcw chief claimed that his band had ancestral hunting rights to what is now Jasper National Park. Apparently, the band in question is from the Shuswap area in BC. And his claim appears to be correct.

In my research of historical wildlife populations in JNP, I looked for the earliest known information for old Jasper House, situated in the lower Athabasca valley. Apparently, in 1829-1830, the post was manned by a Scot named Michael Klyne. His diaries are preserved in the Winnipeg archives of the Hudson's Bay Company and were made available to me on microfilm. I have cited him verbatim on page 69 of my 1997 book *WOLVES of the Rocky Mountains from Jasper to Yellowstone*. (Hancock House, Surrey, BC).

Klyne's unpublished diaries paint a grim picture of wildlife conditions in the valley. During winter, his full-time Metis hunter made extensive foraging trips in the surrounding country but

often returned with nothing, sometimes without having seen a single track. Additional proof that game was scarce can be inferred from Klyne's frequent references to hungry Indians who came to the post to barter beaver skins. By early March of 1830, three families of Shuswaps arrived at the post. "They are starving all the time."

On March 25, a Shuswap arrived "almost dead of starving. I gave him a little meat to eat for himself and a little to take to his family. I cannot give him much. I have little myself. In the evening, my hunter arrived. Saw nothing."

On April 10, a Shuswap woman showed up at Klyne's post with three children. "A few days past, two other children and her husband died of hunger." Two weeks later, during the night, the Shuswap woman departed, leaving two of her children at Jasper House. Klyne described the tragedy in very few words. "I sent after her to come for her children but no-one could find her track."

The above first-person account leaves no doubt as to the original inhabitants of the lower Athabasca valley. Paul Kane, who visited old Jasper House in 1845, spelled their name as Shoo-Schawp. On page 106 of his 1925 book *Wanderings of an artist among the Indians of North America* (Radisson Society,

Toronto), he writes that a band of Shuswaps was entrapped by a hostile tribe, who invited them to sit down and "smoke the pipe of peace...but before they had time to smoke, their treacherous hosts seized their arms and murdered them all." A few Shuswaps managed to escape and fled to Jasper House.

Other historians, writing about the early residents of Jasper's lower Athabasca Valley, called them Snake or Snare Indians. Tribes from eastern Canada, including Iroquois, arrived at a later date. They had obtained metal tools and guns from European traders, whereas the Shuswaps were still living a nomadic lifestyle under stone-age conditions. The brutal treatment of the Shuswaps by the invading tribes is recorded by several early European visitors to Jasper House, as well as by Paul Kane.

Iroquois and other newcomers became the residents of the lower Athabasca valley. After JNP's establishment in 1907, they were told to leave and settled in the region near present-day Grande Cache.

THEODORE (DICK) DEKKER, PHD.
WILDLIFE ECOLOGIST

ALBERTA ISSUES IN BRIEF

Wood Buffalo National Park among most threatened

FROM FORTMCMURRAYTODAY.COM/BOB WEBER, THE CANADIAN PRESS

“This is quite embarrassing,” said Melody Lepine of the Mikisew Cree First Nation, many of whose members live alongside Wood Buffalo National Park.

One of the world’s largest groups of conservation scientists says Canada’s biggest national park is among the most threatened World Heritage Sites in North America. The International Union for the Conservation of Nature says Wood Buffalo National Park, which straddles the Alberta-Northwest Territories boundary, is significantly threatened by hydroelectric and oilsands development.

“It’s not looking good for Canada avoiding an endangered listing for Wood Buffalo.”

Wood Buffalo is a vast stretch of grassland, forest, wetland and lakes. Its 45,000 square kilometres contain one of the world’s largest freshwater deltas, uncountable flocks of waterfowl and songbirds, as well as ecological cycles and relationships that remain in their natural state. It’s also the nesting site for the last flock of endangered Whooping Cranes.

It is considered to have “outstanding and universal value,” according to its status as a UNESCO World Heritage Site. But the nature conservation union, which includes 1,300-member organizations and 10,000 experts, said those values have slipped considerably since the last report in 2014.

Only four other sites in North America are as threatened as Wood Buffalo — three in Mexico and one in the United States. Wood Buffalo is the only North American World Heritage Site to have deteriorated since 2014.

“The big threats are from hydro dam development,” said Carolyn Campbell of the Alberta Wilderness Association. Scientists have long warned about the slow drying of the Peace-Athabasca Delta from the Bennett Dam in British Columbia. BC Hydro’s planned Site C dam is expected to worsen those effects.

“There’s no water, no birds, no bison, no muskrats,” Lepine said. “People are getting stuck on mudflats. They can’t navigate. They can’t get through to their hunting grounds or sacred sites. “The loss of the delta is basically a loss of the Mikisew culture.”

The report says the park is also threatened by oilsands development upstream on the Athabasca River. The Frontier oilsands mine proposed by Teck Resources would be the closest to the park yet. Teck has been ordered to consider the effect on the park in its application.

In an emailed statement, Parks Canada said it welcomes the report, but added its focus is too narrow. “In many cases, the conservation challenges stem from outside the national park boundaries, such as climate change,” said the statement.



“(The report) does not take into account future management actions or Parks Canada’s specific responsibilities in managing Wood Buffalo National Park in the face of these potential challenges.” The agency said it is committed to securing Wood Buffalo’s future as a World Heritage Site.

Campbell said governments need to ensure that the area continues to get the volume of water it needs to sustain itself. “We need to really look at providing the flows that the Peace-Athabasca needs to stay resilient to climate change,” she said. “We’re poorly understanding the cumulative impacts.”

It’s not the first time Canada has been warned about the future of Wood Buffalo. Last June, UNESCO scientists visited the park at the invitation of the Mikisew. They found the same concerns listed in the report and warned the park’s world heritage status would be endangered unless Canada implemented 17 recommendations.

The group gave Canada **until March** to come up with a plan and **until December** to show progress. Parks Canada said it is “working with partners” to come up with an action plan for the park.



WHOOPING CRANES AT NEST. WIKIPEDIA COMMONS



Nature Alberta NEWS

A Community Connected by a Love of Nature Through Photography

Between spring 2016 and winter 2017, Nature Alberta put out calls for and received more than 350 amazing submissions for our photo contest in multiple categories. All the images that people sent in were beautiful and diverse, representing amazing animals, plants, people, scenery and hidden gems from across our beloved province.

We extend a very special thank you to everyone who submitted photos, sharing your views of nature from across Alberta with us. Also, a big shout out to our contest sponsors MEC, Wild Birds Unlimited, TrackN'Trail, The Running Room and The Wildbird General Store who provided the amazing prizes for our year-long contest.



"ROOM TO GROW"; PEOPLE IN ACTION CATEGORY.

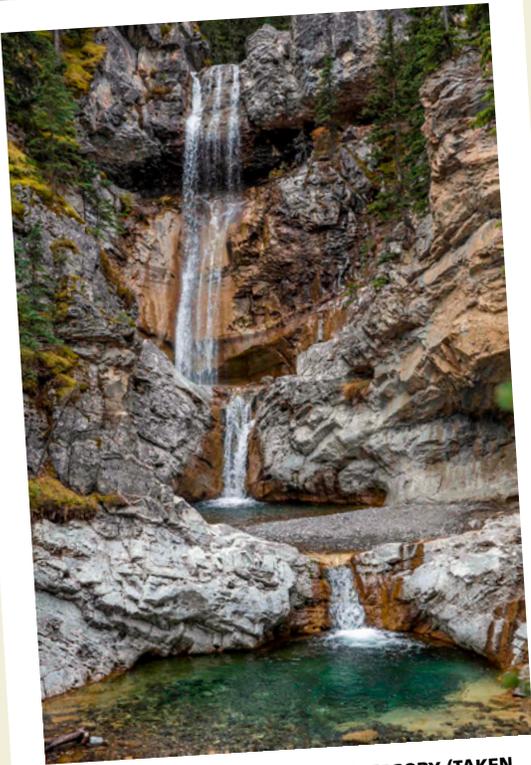
M. PENNEY



"THE MORE, THE MERRIER"; HIDDEN GEMS CATEGORY. F. SANDOVAL



"JUMPING SPIDER" FLORA AND FAUNA CATEGORY (TAKEN AT LAKELAND PROVINCIAL PARK). A. HILLMAN



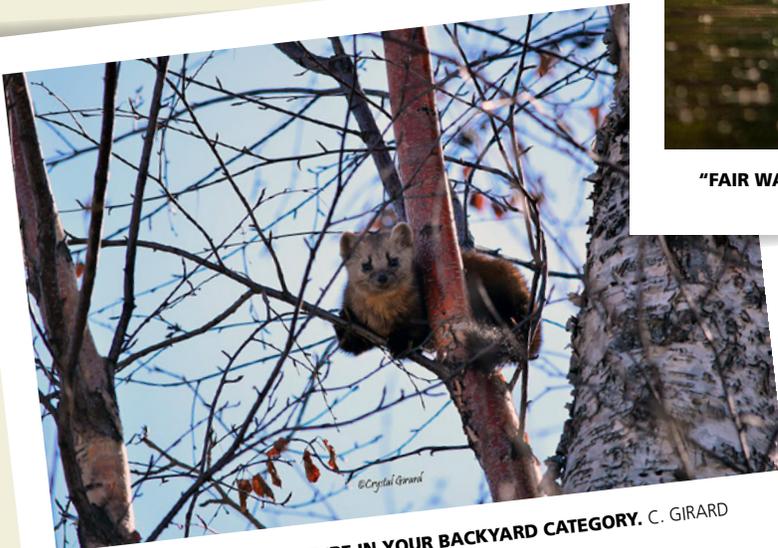
"HIDDEN GEM": HIDDEN GEMS CATEGORY (TAKEN AT JUNCTION CREEK FALLS). K. PRIDE



"HAIR-RAISING PORCUPINE"; GRAND PRIZE WINNER. K. HELGOTH



"FAIR WARNING"; FLORA AND FAUNA CATEGORY. S. KLUCZNY



"MARTEN VISITOR"; NATURE IN YOUR BACKYARD CATEGORY. C. GIRARD

Here's a look just some of our contest winners' stunning photos. To see all the photos, go to: <https://www.dropbox.com/sh/yx51x8movsx4glr/AAD00AkrkJZZReTLIBI7yz5Ja?dl=0>

To our Many Nature Kids Volunteers: Thanks!

Nature Kids is a marvelous and successful program, but it wouldn't be anywhere near the success it is if it wasn't for the volunteers who give of themselves for the sake of our kids. A big thank you to all of them for April through October.

CHAPTERS

Emily Dong and Alyssa Bohart (Edmonton)
 Marianne Masters and Erin Ritchie (Lakeland)
 Leanne Boissonnault (Morinville)
 Joan Walker and Katie Donohue (Calgary)
 Elizabeth Boileau (Grande Prairie)
 Amanda Lasiuta-Rinas and Natasha Lasiuta (Red Deer)

FAMILY NATURE NIGHTS

Margot Hervieux (Peace Parkland Naturalists)
 Zac MacDonald
 Bruce Christensen (Alberta Lepidopterist Guild)
 Marcella Boyle (John Janzen Nature Centre)
 Cassandra Brooke
 Sandi Giesler
 Ashley Hart
 Brittany Jackson
 Katherine Wang
 Alana Tollenaar
 Kate Tucker
 Jordan Bennett
 Ron Togunov
 Natasha Klappstein
 Chuck Priestley
 Hannah Olsen (John Janzen Nature Centre)
 Jessica Malik
 Jackie Winkler
 Katelynne Webb and everyone at Root for Trees
 Habba Mahal (John Janzen Nature Centre)
 Wayne Oakes
 Janet Ng
 Shannon Amos
 Michelle Knaggs
 Ryan Stevenson
 Jessica Liggett (Alberta Geological Survey)
 Mark Fenton (Alberta Geological Survey)
 Gavin Bradley (University of Alberta)

Hallie Street (University of Alberta)
 Sinjini Sinha (University of Alberta)
 Bryanna Belanger (John Janzen Nature Centre)
 Valerie Miller
 Susan Katzell
 Cynthia Pohl

NATUREWILD

Claudia Lipski (Buffalo Lake Naturalists and Ellis Bird Farm)

OUTREACH EVENTS

Tim Lasiuta
 Cherry Dodd (provided us seeds for our BioBlitz from the Edmonton Native Plant Group)
 Moira Cooke
 Rick Scott
 Wendy Kempert
 Angie Patterson
 Roberta Bater
 Michael Daudlin
 Amy Needham

ZOE MACDOUGALL IS THE NATURE KIDS PROGRAM

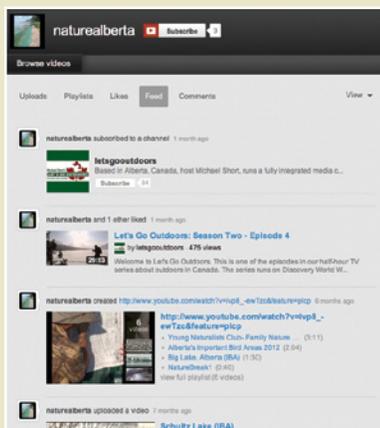
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youtube.com/naturealberta



Message from the Executive Director

BY BRIAN ILNICKI

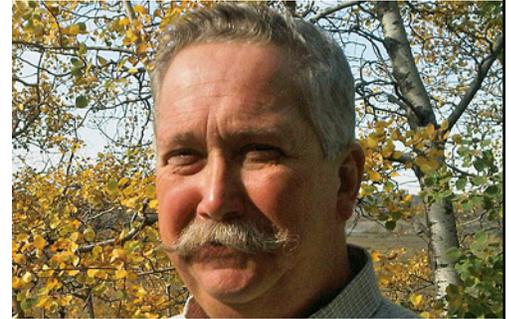
Winter this year just can't seem to make up its mind. One day we are at or above freezing and the next we are just plain freezing. Winter is also a time when we as staff reflect on some of our accomplishments over the past year and start the planning cycle for the coming year. But unlike this uncertain winter, we have a firm idea of where we are headed with our programs and initiatives in the coming months.

One of Nature Alberta's core programs is Nature Kids. Initiatives offered through the Nature Kids program are geared to youth (ages 4-12) and their families to encourage them to learn about and experience nature, and have fun at the same time. We provide educational materials and organize field experiences that promote being outdoors, observing nature, scientific investigation, environmental stewardship and healthy living.

Nature Alberta staff provide oversight, direction and resources for the program, however critical to the success of the program is our volunteers who plan and deliver activities locally through Nature Kids Chapters located in Calgary, Red Deer, Edmonton, Morinville, Lakeland and Grande Prairie. Our local volunteer Nature Kids Chapter Leaders are the "boots-on-the-ground" who are responsible for coordinating field trips, logistics, and event registration and for taking time

out of their own busy lives to ensure that our Nature Kids members have a memorable outdoor adventure. The Nature Kids Program Coordinator works with all of our Chapter Leaders to support and assist with local activities and events.

The Nature Kids program is flourishing. Over the past eight months, Nature Kids staff has attended or hosted more than 25 events, published three editions of NatureWILD e-magazine, and hosted two informative webinars connecting Nature Kids with Nature Alberta Corporate Clubs and the Important Bird and Biodiversity program. We have participated in International Migratory Bird Day (IMBD) events in Calgary, Edmonton and Beaverhill Lake. We hosted our popular Family Nature Night series (summer and winter editions) in Edmonton, Grande Prairie, Red Deer, St. Paul and Morinville. We attended Bluebird Festivals, Bug Jamborees, Nature Centre events and Farmers Markets, municipal events like the Strathcona County's CommuniTea party and St Albert's Botanic Park Picnic event, and hosted Christmas Bird Counts for Kids at Inglewood Bird Sanctuary. At these events participants experienced a variety of activities including building bee hotels, learning about tree diseases, pollinators and other wildlife, experiencing BioBlitzes, planting trees, and counting bird species through Project FeederWatch.



In all, we estimate that we have reached over 3000 people through these activities and have collaborated with almost 30 organizations and Nature Alberta member clubs; and we don't intend to stop there. We are excited about providing more opportunities for youth and families to experience and learn about nature. Planning is underway for more Family Nature Nights (both winter and summer editions) as well as BioBlitzes and the spring IMBD events. Have an idea for a great Nature Kids event or activity? Think there is something new we could add to the Nature Kids program? Drop us a note at naturekids@naturealberta.ca. We'd appreciate hearing from you.

When I look at all we've been able to do with this program, I count myself fortunate to be able to work with such a dedicated Nature Kids staff and volunteer compliment. Nature Kids truly does embody a community connected by a love of nature.



Eyes on IBAs



Brook Skagen

For the Love of the Wild

BY BROOK SKAGEN

An avid birder and nature enthusiast, I call the Dry Mixedgrass prairie of Southern Alberta home. It is within the golden oceans of swaying grass fields that I learned to appreciate the province's biodiversity, for the region is teeming with life; every blade of grass provides safety, nourishment, and home for our wild prairie residents. It is here where I first felt a love for the wild.

With short hot summers, long cold winters, and the lowest annual precipitation of any Grassland Natural Subregion in Alberta, it is hard to imagine that life can flourish within the harsh ecoregion. However, the prairies contain immensely rich populations of birds, to which the Greater Sage Grouse, Sprague's Pipit, Ferruginous Hawk, Chestnut-collared Longspur, and many other at-risk species belong.

Despite this resiliency, it is crucial that we monitor and protect the many birds that reside in our fragile prairie ecosystems, for not even the hardiest of species can overcome the urban, industrial, and agricultural encroachment on the fragments of grassland that remain, as made evident by ever-decreasing grassland bird populations since the 1970s.

It is for this reason that I first felt compelled to participate in the

Important Bird and Biodiversity Areas program. However, the thrill of every flock sighted, the refreshing crisp of prairie air as it carries the sweet scent of sage with the morning wind, and the uncertainty of what I may discover behind each coulee rise has kept me hooked into the program for years. I aspire for my observations as an Important Bird Areas Caretaker to highlight the diversity of Southern Alberta's avian species, for urban and industrial development continue to encroach on the little grassland that remains. It is crucial that we monitor the many bird species which reside in the prairie and other fragile ecosystems so that we may

offer them protection, and so that we as Albertans may continue to see the many species which inhabit our province's diverse landscapes, gaining a better understanding and appreciation of our natural surroundings.

The re-kindling of Alberta's Important Bird Areas program in recent years is a significant step forward for avian conservation. With sister programming in every province of the country, as well as the support of naturalist societies



and conservation organizations ranging from municipal scales to nation-wide, the IBA program is an effective way for Albertans to learn, appreciate, and contribute to the conservation of their feathered friends.

I feel fortunate to be able to contribute to both the future of the program and the conservation of our avian species, as well as for the opportunity to continually develop my knowledge and skill in bird identification. I recommend the IBA program highly, as well as Nature Alberta for the continued dedication of the organization and all who it has encompassed in the past, present, and into the future.

The IBA program may become a powerful voice, but it is only a voice as loud as the volunteers which stand up and speak for it. I encourage those who carry

a sense of passion, pride, and adoration for local wildlife to become IBA Caretakers too, so that we may carry the program's voice further. For the memories of hot summer days spent exploring eroded coulees and prairie rivers, for the excitement of every new experience and encounter promised by the early morning sun, and for a genuine love for the wild, I volunteer as an Important Bird and Biodiversity Area Caretaker; will you?

To learn more about the IBA program, and how you can get involved, visit: <http://naturealberta.ca/programs/birds-biodiversity/important-bird-and-biodiversity-areas>.

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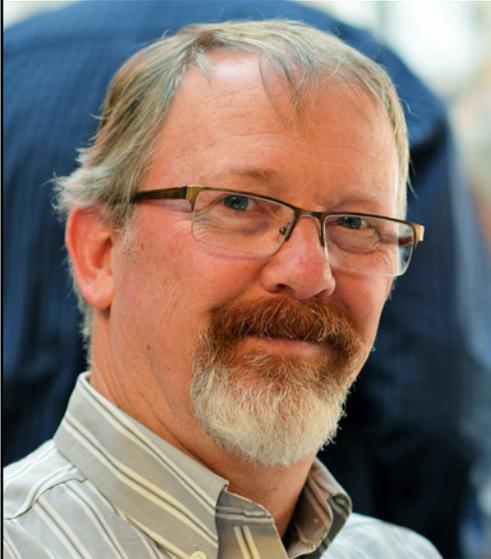
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Connecting with Nature



THE SECOND GENERATION OF NATURALISTS



BY LEE FOOTE

In 1971, I thought nirvana was a Kelty backpack, a pair of painful Vasque hiking boots and hitchhiking out to a State Park to camp for a long weekend. I thought litter was a significant environmental concern, and that the military industrial complex was keeping us in Vietnam for the same profit motives that drove old-growth logging along the West Coast. My tumultuous ideas and ideals were simplistic and often misplaced in the ways

[This is the second of three parts examining the future of naturalists and naturalist organizations. Part one was by Lu Carbyn, in the previous Nature Alberta. Part three is on page 25. Note: It was stated in the last Nature Alberta that John Acorn, rather than Lee Foote, would be the author of part two. Instead, John has penned a separate article, on page 31.]

they focused on individual events instead of longer-term trends and processes, but I was a fledgling environmentalist and naturalist.

I was flattered at Lu Carbyn's invitation to comment on the influences that steered my generation of naturalists and the events that colored our views in the 1969-2017 era. I also look forward to what Zac MacDonald [see page 25] will provide for the naturalists just arriving on the scene.

My formative influences draw partly from my father's generation. He was born in 1923, was a WWII Vet, and while running a small forestry business, was part of the great North American Conservation Movement of the 1920's through the 1950's. Dad used to quip "I am the original

conservationist because when fishing, I go to the trouble to actually SINK my beer cans instead of letting them float off as litter". Times change, thankfully.

As Lu mentioned, the 1940s and 1950s saw Aldo Leopold's *Sand County Almanac* and Rachael Carson's *Silent Spring* emerge. The public was enamored with a few high profile and highly symbolic icons of human-nature relationships. A syndicated show "Wild Kingdom" featured Marlin Perkin's capturing exotic wildlife for zoos but it was just a little too utilitarian and dominionistic in framing wildlife just for human enjoyment. Jane Goodall became a wildlife rock star (she still is!) in 1967 when National Geographic published a book *My Friends the Chimpanzees* on her Gombe, Tanzania research on Chimpanzees and written for public reading to illustrate the plight of our closest wild relatives. While

the public readership and many nature-lovers were delighted, the community of scientist resented it as inappropriate and unscientific advocacy. It came directly from her 1966 PhD research.

Conservation zeal leading up to my era was fueled by a deep sense of post-war nationalism, a rebounding economy, recreational hunting and fishing, car camping in the national parks and a sense of giving back. The 25 years between WWII and the Vietnam war saw a technological and economic boom with large families, high employment across all classes and the beginning of the US and Canadian Civil Rights Movement. The population spike was what author Landon Jones called “The pig in the python” as a cohort of babies arrived, blossomed into idealistic teens and young adults, rebelled against the establishment and set about changing the world for the better. That zeal included the Environmental Movement, the back-to-nature fad and a rejection of unbridled materialism and consumerism. That late Baby Boomer era was my generation and curiosity, idealism and a love for nature propelled me into various degrees in Forestry, Wildlife Management and ultimately a doctorate in Ecology.

In 1968, Paul R. Erlich’s book *The Population Bomb* was released, showing we were in a global crisis of resource shortages; then, in 1972, the most reproduced photo of all time appeared...the blue orb of earth as seen from space. You know the one, we all know it. The term “Spaceship Earth” resonated graphically and reinforced the

warnings out of a pivotal Club of Rome report from the same year. That report, *The Limits to Growth*, held that resources are finite and excessive or gratuitous use is a wrong against both humanity and the environment.

One might think that a rational program of resource moderation would be “ration-al” but such social change takes time. Because entrenched post-war businesses were thriving, change for environmental reasons was unwelcomed by the establishment, or as we liked to derisively call it, “The Man”. Understandably, political conservatism doubled down against the politically charged wave of naturalist baby boomers. Philosopher Thomas Hobbes said “Hell is the truth seen too late,” and a sense of our common guilt propelled that wave of idealistic and change-seeking youth to rail against an immovable wall of first-generation political entrenchment. There were protests and letter campaigns and votes further fueling the environmental movement and nature protection. We wrote letters, opposed drilling in the Arctic National Wildlife Refuge, and tried to save the whales. We organized; I joined the Audubon Society, Ducks Unlimited, and The Wildlife Society. The more radical went for Earth First, PETA and the Sierra Club.

Slowly, the boomer generation got organized, gained traction and achieved political representation because in the 1970’s the US got the Clean Air Act, the Clean Water Act, and The Endangered Species

Act. Canada and the US traded a great deal of influence across the border, but the rules manifested into policy and laws in different forms because of the emphasis on provincial power. Canada tracked the US with a time lag, gaining the Clean Energy Technology Funding and the Clean Air Acts in 2006.

My field of wildlife ecology had evolved from game management to wildlife management to Ecology to Ecosystem management (which firmly linked human activities with ecology). As a hunter, a bird watcher, and a conservationist, I carry vestiges of all of these eras. The 1990’s ushered in commitments to environmental protectionism, renewable resource use, sustainability initiatives and alternative energy exploration. Twenty years ago, who thought electric cars would be common and blue recycling bins would reside in most public buildings? Fortunately, Canada and the US are nearing a plateau of zero population growth at about 400 million citizens by 2050. Technology, however, has brought new awareness and we can no longer stick our collective heads in the sand regarding our global resource use, common air supply, dwindling fish stocks or mobilized carbon supply. More developed nations have little influence over burgeoning populations in the Southern Hemisphere, yet we share the earth’s resources of fish, fowl, global wood supplies, rare earth minerals, petroleum and atmospheric gasses with them.

Maybe we are all naturalists when it finally sinks in that both individual humans and entire populations are embedded in nature. As that blue planet goes, so goes its passengers. Nature holds many lessons for us

whether it is in the wonderment of a Williamson's Sapsucker drilling tree holes, the de-listing of Lynx across their range, work toward 17% of our country under protected status or acknowledging the effects of even a small rise in mean global temperature; we all need to be naturalists.

Although ecosystem management involved human land use effects, it did not go far enough. By 1990, a new framing of scientific understanding gained prominence as *conservation biology* joined the list of natural science disciplines. At first, it made some of us older baby boomer scientists uncomfortable because it incorporated human values and actions with issues of genetics, wildlife science and ecosystem health. Conservation biology is a "normative" science. Traditional wildlife biologists had struggled mightily to keep human ethical judgement, sentimentality, opinion or favoritism separate from the fate of the natural resources. We had struggled mightily to be objective and dispassionate about research outcomes as a way to avoid contamination of results through human biases. We numbered instead of naming our study animals, we used double blind experiments, randomization, and many statistical strictures of probability testing to avoid letting our beliefs interfere. We tried valiantly to not care which way the research results came out. The focus was on "the facts" about which we wanted to be robotically impartial. Someone else, maybe policy wonks, upper echelon administrators, politicians,

or even the courts had the job of formulating policy and deciding which outcomes were desirable.

The early naturalists and biologists were comfortable saying what *was*, but were extremely uncomfortable saying *what should be*. We now know that slavish adherence to the robotic steps of science's process is somewhat de-humanizing. If one loathes human influence, it is possible to lose a lot of wisdom, insight and synthetic knowledge by marginalizing professional opinion. Maybe excluding naturalists from the discussion is abnegating social responsibility. Conservation biology's tenets hold the following norms (a) untimely extinctions are bad, (b) natural biodiversity is good; (c) conservation decisions to act can't always wait for complete certainty because it may never come.

Interestingly, I am married to an Environmental Sociologist, Dr. Naomi Krogman who built her scholarship studying socially mediated environmental change and my career title is "Conservation Biologist" because I regularly integrate human interests into my studies of ecological processes. Even medium-aged dogs can learn new tricks it seems.

The role played by advanced technology during my lifetime deserves mention. I don't remember using carbon paper, but I do recall typing term papers on IBM Selectric typewriters then graduating to the first home computers. We learned the power of technological tools, but we

were not born into them and raised in a way to make digital technology our second nature. We own cell phones, use them and appreciate their convenience; it is a love-hate relationship because of their intrusion into our habits of deep thought, reflection, creativity and authentic hands-on experiential learning. My 20-year old daughter, however, is a social media whiz with no such misgivings. As a songwriter, poet and professional actor, she is plenty creative, social and thoughtful so I know it is possible, just maybe not for me.

I look forward to Zac's ideas on the strengths of the current wave of students, naturalists, ecologists and conservationists; my views of them are secondhand through my students. Their skills make me overwhelmingly optimistic though I believe hands-on fieldwork and the familiarity with nature through being an accomplished outdoors person is essential. As author Matthew Crawford contends in his books *Shop Craft as Soul Craft* and *The World Beyond Your Head: Becoming an Individual in an Age of Distraction*, our evolutionary history works best for us when we combine physical experiential work with thoughtful deliberation and conceptualization. A good field naturalist with skills in theory, abstraction, modelling, simulations and the newest technology represents the apogee of scientific skill.

In my era, good field biologists had to be trained in statistics, philosophy, sociology, and computer science. Today, tech-savvy and socially connected students benefit from training in field skills, identification and adaptive responses to uncertainty in physical nature. The public demands both families of skills and the role of expertise has never been easier to access; citizen science is a reality, and such learning can be a joyous exercise in understanding nature. Finally, collaborating to share



THE SPECTACULAR "BLUE MARBLE" IMAGE IS THE MOST DETAILED TRUE-COLOR IMAGE OF THE ENTIRE EARTH. [VISIBLEEARTH.NASA.GOV](https://visibleearth.nasa.gov)

skills is essential for tasks insurmountable by any one individual.

Thus, I end by reaching into antiquity for an ancient African proverb; "None of us knows as much as all of us together"; by that I mean all three generations of naturalist scientists described here still have much to offer for the good of our natural resources.

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Bridging the gap between Research and the Public:

Using Video Interactive Conferencing as an open line of communication.

BY CATHERINE BUTTS

I can vividly recall the days in middle school when I would walk into a classroom and seeing that big, outdated TV at the front of the classroom and would instantly know that it would be a great day.

This beautiful sight meant two things: (1) I would not have to sit and write monotonous notes while half listening to a lecture; and (2) Bill Nye the Science Guy was about to gain my complete and full attention.



BILL NYE, THE SCIENCE GUY. INDEPENDENT.
CO.UK/ARTS-ENTERTAINMENT/TV/NEWS/

While this could be interpreted as the average adolescent not wanting to do any “real” work, I view it as a teaching possibility that has yet to be fully utilized. My favorite part of those videos was that they showed multiple aspects of the scientific community and demonstrated how science was done in real life

settings. Coming from a medical family, I had no idea that you could study and build a career out of rocks, or that you could travel the world to study an animal that didn't belong to a zoo. These were always things I thought I could read about and watch on TV but never really attempt myself. These were the jobs of the professionals, the people who were chosen because they were the smartest and bravest individuals.

These science shows gave me hope that average students, like myself, with a passion to understand the world better, could aspire to attain successful careers in science. They were also presented in a fun and engaging way. There is not a person my age that I know who can't sing the theme song to Bill Nye's amazing show.

After 3 years of university with one foot in the medical pool, I decided to transition into the

natural sciences and now help conduct research in a fossil site in Kenya. I get to have a career in a field I never knew was even possible. I am finally able to be like the people I watched as a teenager, flying across the world to study fossils and live in a tent. I can advocate that I am not the smartest nor bravest of individuals, and so I attribute this good fortune to persistence, hard work, and sheer dumb luck; I happened to take a paleontology course in university and it all clicked.

While I appreciate the path I have taken, I cannot help but wonder where I would be if someone had introduced me to paleontology as a legitimate career at a younger age. I never would have thought that learning about prehistoric animals would be something I would one day be hired to do. There were, however, resources available to me that did introduce me to that field of study. Living in Alberta, I was a patron of the Royal Tyrrell Museum, but there was a disconnect

Catherine Butts is a MA candidate at the University of Calgary in the Department of Archaeology and Anthropology and specialize in Biological Anthropology, specifically paleoanthropology. She is currently working on an environmental reconstruction of a fossil site in Kenya, which is around 17 million years old. She is a part of an international research group called the REACHE project. Here is a link to the website: <http://www.reacheproject.com/>. Her work is on the West Turkana sites. Link to her profile: <http://contacts.ucalgary.ca/info/antharky/profiles/1-7090305>

between me as a member of the public, and the researchers providing the information.

It is in this gap that I propose the use of Video Interactive Conferencing as a new tool for professional scientists to communicate their science to the public in a more relaxed and less intimidating way.

Video Interactive Conferencing (VIC) is a new method being implemented in some museums (ex. Cleveland Museum of Natural History) which I believe could be applied across Alberta. VICs are run via a desktop computer, laptop or tablet and allow museum tour guides to walk through and explain the exhibits while displayed to the students in real time on screen. VICs also have the added feature of allowing students to pose questions to the tour guide while it is being conducted, thus encouraging engagement. This keeps an open line of communication, allowing the guide to answer questions instantaneously, and highlight interesting artifacts and specimens throughout.

Now imagine VIC technology being implemented in more dynamic environments, such as archaeological excavation sites near Head Smashed in Buffalo Jump, paleontological sites in Dinosaur Provincial Park or various laboratories and collection rooms in a few of the many secondary institutions across the province. This would showcase the methods behind scientific exploration rather



than just the final products. Using this technology, the public can be exposed to techniques used to acquire scientific information, such as the careful excavation of paleontological and archaeological findings and the precise laboratory methods used to isolate and analyze materials.

Ultimately, this would give the public an intimate look into the life of scientists, and give access to private research spaces without professionals having to worry about the handling of materials or needing to book child friendly locations. This would also provide a platform for researchers to connect with students by sharing personal experiences and anecdotes. Just imagine how much more engaging Bill Nye would have been in classrooms if he could have talked back and answered our burning science questions?

If implemented appropriately, VICs would provide cost effective

programming for all age groups, allowing schools with low-income situations an alternative to expensive field trips, as well as unique learning experiences for home schooled students and adult enthusiasts. I implore universities, museums and Nature Alberta to take advantage of programs available today --such as Georama, ZOOM, and Blackboard Collaborate - in order to extend the reach of the sciences to the next generation, as well as bridge the divide between researchers and the public. Showing children science through glass display cases is one thing, but allowing them to engage in methods behind the science is another. Video Interactive Conferencing will provide professional scientists an additional tool to connect and involve citizen scientists with the entire scientific process, nurturing new scientists from the earliest to latest ages.

Link to video at Cleveland: <https://youtu.be/xlhTkg0kcR4>

Cleveland Museum Website: <https://www.cmnh.org/>

VIEW OF MAINLAND KENYA FROM RUSINGA ISLAND.
CATHERINE BUTTS



EXCAVATION IN RUSINGA ISLAND, KENYA.
CATHERINE BUTTS





Wildlife! Starring... Northern Flying Squirrels

BY MYRNA PEARMAN (TAKEN FROM THE JANUARY RED DEER ADVOCATE COLUMN AND THE RDRN NEWSLETTER)

Northern flying squirrels are among our most interesting wild neighbours. Although they are quite common in Alberta, their nocturnal lifestyle means that they are seldom encountered by humans.

Some bird feeding enthusiasts report seeing them dining at their bird feeders after dark (they love sunflower seeds), and there are reports of them taking up residence in bluebird or duck nestboxes.

One fellow bluebird trail operator reported getting a very vicious bite last summer when he put his hand into one of his bluebird boxes to check the box contents. The box contained a flying squirrel family - Ma was determined to protect her babies! A fellow naturalist has also documented the fascinating nocturnal activities of flying squirrels with the use of a thermal imager. The squirrels, which show up as red dots on the imager screen, can be seen leaping great distances between tree branches.

Most people know that flying squirrels can't actually fly. Rather, their patagium (a unique membrane stretched between their front and back legs) enables them to glide with ease. Apparently, they have been recorded gliding up to 100 m. They bob their head up and down and from side to side before launching themselves and, once airborne, steer with their forelegs and use their flattened tail as a rudder.

The flying squirrels' large ears and huge, black and glossy eyes enable them to navigate easily in their night world. They are omnivorous, dining on nuts,



seeds, berries, insects and tree buds as well eggs and nestlings. Gregarious by nature, they will often roost with other individuals in a roosting cavity.

Several years ago, I found the tail of a flying squirrel in my yard, the only piece left of an individual

that had likely been killed by a neighbourhood cat. I remember stroking the flattened tail, amazed at how incredibly soft and delicate it was. More recently, I've had the opportunity to encounter flying squirrels in natural cavities and nestboxes. It is incredible to be

able to gaze into those massive black eyes!

Don Auten of Ponoka has captured these unique and rare flying squirrel images using a remote camera system.

BOTTOM PHOTOS: DON AUTEN



FEATURE ARTICLE

Waterfowl Hybridization:

There May be More to a Flock

BY BROOK SKAGEN

Have you ever seen a “Brewer’s Duck”? What about an “Avostilt” or a “Mule” bird?

Such sightings are very rare, but not for the reasons you might think: these birds aren’t threatened or endangered, limited in distribution, inconspicuous or especially adept at hiding; they are the result of hybridization between different species.

Hybridization has been observed in natural conditions in over 10% of all bird species. However, these incidences are most prevalent between members of the order *Anseriformes* (ducks, geese and swans), of which over 60% of all species are known to have hybridized in the wild. To date, over 400 waterfowl hybrid combinations have been documented, many of which are fertile despite of vast morphological and behavioral differences between parental species.

The group has therefore become the subject of numerous studies in an attempt to better understand introgression or the exchange of genetic material between these species, the role it plays

in maintaining, creating, or eliminating species boundaries, and the conservation implications associated with such events.

Hybridization primarily occurs in areas where the ranges of genetically distinct populations or species meet, known as “hybrid zones”. These zones may span hundreds to thousands of kilometers. The proportion of hybrids and parental species within these zones can be used to determine whether populations are genetically isolated, or if they are breeding freely, an indicator that they are in fact one in the same species. Avian species taxonomy is ever-changing as a result of these complex relationships.

Within hybrid zones, there are numerous mechanisms which may contribute to interspecific mating. Hybridization may occur as a result of facultative nest parasitism, extra-pair copulations, or due to the rarity of conspecifics in an area. In interspecific nest parasitism, a common occurrence

amongst waterfowl, one species will lay their eggs in the nest of another so that their young may be incubated and raised by a “foster parent”. Hatched young may imprint on the foster species, leading to interspecific mate selection later in life.

Extra-pair copulations, in which males copulate with females of a different species either forcefully or unintentionally, may also lead to hybridization. In other instances, conspecific availability for mating may be low, resulting in the selection of a heterospecific mate, such as in small populations with restricted ranges, populations with expanding ranges or the occurrence of vagrant species.

Hybrids often retain features of both parents, aiding in the identification of these peculiar birds and their parent species. Such is the case with the “Brewer’s Duck” (Mallard x Gadwall), which will often possess the Gadwall’s characteristic grey-brown mottled body plumage, along with traces



THE PARENTAGE OF THIS VIBRANT DUCK CAN BE DETERMINED BY ITS WHITE FLANK AND SPECKLED CINNAMON COLOURATION, CHARACTERISTIC OF BLUE-WINGED AND CINNAMON TEALS RESPECTIVELY. KEN ORICH

of the mallard's iridescent green head and brown chest. In other instances, exhibited traits may be the result of intermediacy or a "compromise" between parent traits, or may even be heterotic or outside the range of parent traits. The wide variety of appearances amongst hybrid birds, coupled with their rarity makes their identification a welcome challenge for experienced birders.

Despite the relatively common occurrence of hybridization in waterfowl when compared

to other avian groups, the phenomenon is overall a rare occurrence. In the instance that interspecies mating does occur, surviving offspring are often infertile, or may be unable to attract a mate. However, where fertile hybrids persist and successfully reproduce, conservation challenges may arise. This is evident between populations of the Mallard and American Black Duck, in which the expanding range of the former and hybridization between these

birds has reduced the genetic purity of the latter. Contrastingly, genetic exchange between differing species may aid in the genetic diversification of small populations. How hybridization between species is managed remains an ongoing conservation management challenge.

Hybrids challenge the species boundaries and evolutionary histories of which ornithologists and birders have grown so fond. The particularly high occurrence



NOT ALL HYBRIDS POSSESS CONSPICUOUS TRAITS. THIS CLARK'S GREBE X WESTERN GREBE SHOWS INTERMEDIATE TRAITS BETWEEN PARENT SPECIES, WITH BLACK CROWN PLUMAGE TOUCHING THE EYE. KEN ORICH



DESCRIBED BY JOHN JAMES AUDUBON IN 1840 FROM A SPECIMEN OBTAINED IN LOUISIANA, THE "BREWER'S DUCK" IS A MALLARD X GADWALL HYBRID. FRANKLIN, WIKIMEDIA COMMONS 2016

of hybridization presented in waterfowl raises many questions regarding such boundaries, as well as provides a fun and unique challenge to birders with every encounter. With a little patience and skill, and a lot of luck, a flock of Mallards or a gaggle of geese may be found to contain so much more.

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Connecting with Nature



THE THIRD GENERATION OF NATURALISTS



BY ZACHARY G. MACDONALD

I first began to study human-nature relationships during my undergraduate degree in environmental sciences at the University of Alberta. Professors and contemporaries would continually (and often repetitively) elucidate irresponsible environmental and conservation practices that typify recent generations.

At times, dominant attitudes and outlooks in the field came across

[This is the third of three parts examining the future of naturalists and naturalist organizations. Part one was by Lu Carbyn, in the previous Nature Alberta. Part two is on page 14.]

as misanthropic, regretting the existence of our own species, and borderline dogmatic. (Indeed, I half-expected “drink the cool aid” to appear in the syllabuses of select courses.) Still, I took to environmentalism, and enjoyed the sense of community it brought along with it. My cohort and I were well on our way to becoming out-and-out misanthropes. Typical discussions explored consequences of our generational distancing from direct contact with nature. Surely, we thought, such consequences must be dire.

Now a PhD student of conservation biology, I continue to contemplate how societal progress distances us from nature. I still think consequences of this distancing to be dire, and that

they do indeed warrant considerable concern, particularly when considering the future of conservation. However, I have found a more positive outlook on the situation helpful, both from a pragmatic and personal perspective. It is important that we abandon the post-apocalyptic narrative that is becoming increasingly popular among today's youth; the one that subtly, but unrelentingly, whispers: “it is already too late.” It is not too late, and the post-apocalyptic narrative is not constructive. We have time and the resources to save much of the biodiversity we share this planet with, but a serious societal gestalt switch away from the commodification of nature is required. We evolved in nature, and are a part of nature. As such, societal disconnection from nature is generally ill-advised.

Conservation savants, such as Dr. Lu Carbyn and Dr. Lee Foote, are integral

in maintaining strong connections to our natural world. Their generational perspectives give us a baseline, against which, my and future generations might measure and interpret changes in the ways we relate to nature. Sentiments among these sages generally point to an intergenerational shift away from nature, and we must take this seriously.

Consequences of intergenerational shifts away from nature are exemplified by Richard Louv's "nature deficit disorder." Today's youth are spending less time outdoors, and are developing a wide range of psychological problems because of it. In 2015, I had the pleasure of meeting with Louv, and he was quite convincing—there are undeniable social costs associated with the growing rift between today's youth and nature. Furthermore, other species are paying, too, with losses of biodiversity accelerating worldwide.

Unfortunately, this tragedy has positive feedback on its side. Continued technological development and human infrastructure distances society from direct contact with nature. Lack of direct contact erodes conservation ethics, which permits further technological development and human infrastructure. Our separation from nature is at the core of the problem. However, to say that young generations are not identifying with nature would be an oversimplification of the issue. There have never been more nature programs televised on television, more nature narratives tweeted on Twitter, or

more nature pictures snapped on Snapchat (a smartphone app for sharing pictures). The giant of all social media, Facebook, perhaps prostitutes nature most prolifically. Ways that people interact and identify with nature have indeed changed, and I do believe that the manifest consequences are worth exploring.

To this end, I hope the reader will humor 1) a brief detour into personal identity, and 2) the metaphor of nature as a conscious being (befittingly, *Nature* will warrant capitalization). In the latter portion of this essay, I hope to explore how these ideas relate to value structures that connect us to Nature, and their important role in cultivating our conservation ethics.

PERSONAL IDENTITY AND THE IDENTITY CRISIS

Personal identity helps us to find purpose and meaning in our lives. It is perhaps the most prominent theme in our society today. However, a growing social emphasis on personal identity has led to an incongruence between our internal identities and the way we present, and even advertise, ourselves. Many scientists, including Dr. Susan Greenfield of Oxford University, worry that the prevalent use of social media by today's generation is causing an "identity crisis." The majority of the pictures and stories we share to social media are not accurate representations of the lives we lead - we are lying by omission. Our identities and self-worth are often more tightly-coupled to what people can click on than

who we really are. The vetting of experiences we share with others is perpetuating a reporting bias that has become our new norm. People of recent generations are creating digital avatars of themselves that their true selves cannot hope to live up to. This is the identity crisis. No fault of her own, I believe Nature to be wrapped up in an identity crisis of similar origin.

As I am sure most readers of this magazine will attest, if there is one thing that typifies our time in Nature, it is stillness—beautifully underwhelming stillness. A sort of stillness, akin to our own identities, that cannot be distilled to words or posted to social media. This is, in many respects, a completely subjective experience. So then, given this subjectivity, what do we have to share with our contemporaries of our time outdoors? After all, the sharing and exchanging of experiences is central to our human condition and self-fulfillment. Well, if we spend enough time posted on the human-Nature interface, we inevitably accumulate a few tangible experiences that we can share to social media: the bull elk sparring, the gyrfalcons stooping, the gnarled grizzlies scratching at their posts. A visit to any Facebook page highlighting Alberta's Nature is sure to offer confirmation (e.g., Alberta Birds, Birds of Alberta Photography, Alberta Wildlife).

Photographers will sit patiently for hours, days, or months to capture single "post-worthy" moments. I do not mean to mount attack upon such photographers, for I am one myself. I mean only to identify that, while the pictures and stories we share to social media are proper subsets

of Nature (i.e., they are indeed real), they are by no means representative. They perpetuate reporting biases, and, again, we are caught lying by omission. Unfortunately, we cannot share to social media the wonderfully subjective experiences that typify a walk in the woods — the distant trill of a Tennessee Warbler that breaks the morning's silence, nor the pleasant, dewy petrichor that permeates the post-rain afternoon. Because social media does not provide means for effective communication of these subjective experiences, we post and share a subset of impactful images and stories. Through this reporting bias, we are creating a digital avatar for Nature. Can she consistently live up to it? This is Nature's identity crisis.

Television networks, such as National Geographic and the BBC, take this identity crisis to momentous levels. I could hardly sit still in my seat while watching the latest and greatest iteration of the BBC's *Planet Earth* series—raw excitement. However, perhaps unbeknown to the audience, film crews spend tens of thousands of hours cooped up in small blinds to capture mere seconds of Nature's epics. Couple this with thousands more hours of video editing, and you have a natural narrative fit to bear the BBC badge. And why shouldn't we, Nature's advocates, facilitate the sharing of these stories? Given the ever-increasing rift that separates today's youth from Nature, isn't any publicity good publicity? Perhaps high-profile Nature programs and social media play

vital roles in Nature engagement — a sort of gateway that might be used to get kids hooked on the real thing.

My thesis for this essay is that I do not believe this “gateway hypothesis” to be a credible one. High-profile nature programs may generate a few bucks for the World Wildlife Fund to save Panda Bears abroad, but they do not foster a connection to the Nature that persists in one's own backyard — a connection that is integral to a strong conservation ethic. I suspect that, following a one-hour *Planet Earth* episode, young folks leave with the subliminal sentiment that the Nature in their own backyard is relatively unimpressive — a product of the identity crisis. Indeed, I doubt I could fill one hand counting my own experiences that would aesthetically qualify for feature in a high-profile documentary. However, as I suspect is the case with most readers of this magazine, my appreciation and connection with Nature is not rooted purely in aesthetics. Value structures that connect us with Nature are diverse, and this diversity is integral to strong conservation ethics at the societal level.

VALUE STRUCTURES THAT CONNECT US TO NATURE

Dr. Edward O. Wilson is well known for exploring value structures that connect us to Nature. In his seminal work, *Biophilia*, Wilson describes the innate emotional affiliation human beings share with

other living things. He argues that our evolutionary history is tightly coupled to the intricacies of Nature, and that our affinity for natural things is ingrained in our genotype. Direct contact with Nature is therefore necessary to thrive in life and achieve individual self-fulfillment. While this idea has great heuristic appeal, I did not think it to be of much practical use until stumbling across Dr. Stephen Kellert's typology of biophilic values. Within this typology, Kellert describes 10 ways in which humans identify and interact with Nature:

Aesthetic: Appreciation of nature's physical beauty, with little emphasis on direct contact

Dominionistic: Mastery, physical control, and dominance of nature

Ecologicistic-scientific: Systematic study of structure, function, and relationships in nature

Humanistic: Strong affection, emotional attachment, and “love” for aspects of nature

Moralistic: Ethical concern for nature, often involving spiritual reverence

Naturalistic: Enjoyment of immersion in nature, with emphasis on direct contact

Negativistic: Fear, aversion, and alienation from nature

Spiritual: Feelings of transcendence; reverence for nature

Symbolic: Use of nature for metaphorical expression, language, or expressive thought

Utilitarian: Emphasis on the practical uses, mastery, and material exploitation of nature

Through direct contact with Nature, each of us develops a unique value complex that is likely an amalgamation of multiple values described above. This value complex is by no means static, evolving through time for individuals and entire societies. Indeed, as Aldo Leopold noted in *A Sand County Almanac*, many conservationists see the way in which they hunt animals evolve from guns to glass. This may be generalized to a transition from a consumptive to non-consumptive appreciation of Nature. Importantly, through such transitions, people maintain strong affiliations with Nature through direct contact. It is from this direct contact that our individual conservation ethics precipitate. The growing human-nature rift is therefore cause for concern. A digital human-Nature interface (i.e., social media and Nature documentaries) fosters a purely aesthetic appreciation of Nature, and, in my opinion, this value structure is unlikely to cultivate a strong conservation ethic.

Strong conservation ethics stem from an instinctual connection we have to natural things; a connection that is only realized in the flesh. I am sure that all readers of this magazine have felt a special faculty for thinking ignite when in direct contact with Nature. This faculty for thinking evolved in Nature, and it cannot be experienced apart from Nature. This is biophilia, and this is what social media and Nature documentaries cannot provide or even communicate. Put simply, people cannot possibly experience

a truly biophilic connection to Nature's digital avatar.

So, then, how do we get present and future generations in touch with Nature? Well, Dr. Michael Rosenzweig's concept of "reconciliation ecology" is one possible solution. Reconciliation ecology is based on the premise that Nature reserves on their own are too small and sparse to effectively preserve Earth's biodiversity. Therefore, conservation planning should also focus on integrating and preserving biodiversity in human-dominated landscapes. Rosenzweig interprets this as a win-win solution, as humans will be in direct contact with much of the biodiversity they are preserving. The cherished river valleys of many Albertan cities are fine examples of reconciliation ecology. The University of Alberta's main campus butts right up on the North Saskatchewan River Valley in Edmonton, and we have derived much utility from it. This brings me to a second suggestion, the de-institutionalization of direct contact with Nature.

It is difficult to get people outside, in Nature, away from the comforts of familiar surroundings. Especially when there are three days of bureaucratic paperwork in our way. I was lucky in my undergraduate degree to help lead weekly Nature walks for, what we called, "The Magpie Club." There were no waivers, no registration forms, and no fees. In groups of anywhere from five to 30, we ventured into the Edmonton River Valley every Friday morning,

looking for birds, insects, plants — anything that tickled our biophilic fancies. We were a guerrilla Nature club of sorts.

We got outside, and a strong conservation ethic followed suit. Our friend, Marcin Makarewicz, was an exemplar of this, never departing for one of our walks without his trusty garbage tongs. Citizen science followed as well, with students reporting their sightings to eBird, an online data repository. The Club still walks strong today, getting a diversity of students in direct contact with the Nature that persists in their own backyards.

It is worth noting that we live in an incredibly litigious time, and these "guerrilla" endeavors have their limits. But I can say with experience that nothing keeps young generations out of Nature like wavers, disclaimers, registrations, and extraneous safety plans. Degrees of unpredictability are central to the biophilic experience, and we must resist unwarranted bureaucracy whenever we can. Nature walks and other engagement activities should do their best to maintain an unfiltered exposure to natural things and wild places. I hope that Nature Alberta can continue to provide such experiences for all generations. As Lu Carbyn mentioned in his earlier article, I have experienced firsthand the success of the Nature Kids program, which gets children and their families in touch with their natural surroundings. This is the proper gateway to the biophilic experience; not social media or Nature documentaries.

CONCLUDING REMARKS

All said, I am concerned that our generational distancing from direct contact with Nature is leading to a

deterioration of conservation ethics. Habitat loss and degradation is rampant, and we are losing biodiversity at alarming rates. In universities, we are using ecosystem services as a justification for the protection of biodiversity, but I do not believe this argument will fly in the long run. As a species, we could persist in spite of wide-spread extinction, if, for say, we were prepared to sustain ourselves on algae blooms covering mass industrial production ponds. But this is not a world that we “biophilics” want to live in. I know this because I have spent much time in direct contact with Nature, and I know that my individual self-fulfillment depends on biodiversity. I suspect the reader can empathize.

This is at the root of our conservation ethic. Humans are a part of Nature, and a part of biodiversity. We need not stoop to the level of misanthropy and post-apocalyptic narratives to motivate conservation initiatives. Such initiatives should precipitate from a love of natural things, and not from a fear of losing them as commodities.

If we want to preserve Nature, we need to get future generations in touch with Her, and not just through digital means. Biophilia has no faculty for understanding the binary code of complex digital signals. It evolved to seek individual self-fulfillment through direct contact with Nature. This is the direction we need to head, and I do believe Nature Alberta to be a viable vehicle.

Wildlife and Habitat: Lu Carbyn's Gift of Nature

BY WWW.EALT.CA

Many know him as an internationally renowned wildlife biologist who specialized in the study of wolves and Swift Foxes; others know him as one of their favourite professors, as an active member of the Edmonton Nature Club, Past President of Nature Alberta, or as a former co-owner of The Wildbird General Store™.

Now, Lu Carbyn adds to his conservation legacy through the donation of land – to be called the Lu Carbyn Nature Sanctuary - to the Edmonton and Area Land Trust (EALT), the only nature conservancy to focus on this region.

Described by this leading ornithologist as the best birding land within a hundred miles of Edmonton, this quarter section of completely undisturbed Boreal forest and wetlands is home to a wide variety of wildlife, including over 74 bird species, recorded during field visits and breeding bird surveys. Songbirds find ideal habitat in the mixedwood forest, and waterfowl and other water birds – including Common Loon, Trumpeter Swan and Great Blue Heron – use the wetlands for nesting and feeding. Moose, deer, Coyote, bats, Beaver, Lynx and Cougar also find

sanctuary on this land; its biodiversity is truly amazing!

IMPORTANCE

The Lu Carbyn Nature Sanctuary is located close to the Lily Lake Natural Area, as well as to several other Crown Lands, significant lakes, natural areas and other types of protected lands. Collectively, they provide extraordinarily significant habitat for wildlife, and conserving this quarter section assures landscape connectivity for wildlife as they live and move in the area.

LU CARBYN, LOOKING OVER THE PROPERTY. LU CARBYN/EALT



LEGACY

Lu Carbyn, an Adjunct Professor from the University of Alberta, donated this land to EALT in 2017. The high diversity of wildlife makes this sanctuary an ideal location for nature study field trips for students, members of the Edmonton Nature Club, and others, led by Lu himself. Lu's career in wildlife biology focused on predatory mammals, especially wolves. He is the recipient of several awards, including the Wildlife Society's Distinguished Service Award, is a representative on committees and boards, and has written several books about wildlife.

Lu writes:

"Donating the Lu Carbyn Nature Sanctuary to EALT is just another step along the way to foster promoting avian conservation on many fronts, most importantly for teaching young and old about bird identification. It also gives me great satisfaction to leave this world a bit better for my grandchildren and their grandchildren."

The Lu Carbyn Nature Sanctuary is near the community of Darwell. It is home to a wide variety of

wildlife; in just one short walk on the property, it has been possible to identify 50 or more different bird species during peak breeding season in late May. Donating the lands to EALT will ensure that this quarter section continues to support a high level of biodiversity for future generations.

EALT has worked for some time to secure the land, and appreciates the assistance of Alberta's Land Trust Grant. We'd like to thank Lu for his extremely generous donation, and for entrusting his land and legacy to EALT.

SWANS ARE JUST ONE OF THE 74 AVIAN SPECIES ATTRACTED TO LU'S HABITAT. LU CARBYN/EALT



LU CARBYN/EALT



IT TRULY IS A SANCTUARY! LU CARBYN/EALT



AMPHIBIANS, TOO, CALL LU'S SANCTUARY HOME. LU CARBYN/EALT



THE FLORA OF THE SANCTUARY IS IMPRESSIVE! LU CARBYN/EALT



Nature, Alberta, and Nature Alberta

BY JOHN ACORN, NATURE ALBERTA PATRON



JOHN ACORN, NATURE ALBERTA'S PATRON.

Being named the new patron of Nature Alberta is a great honour, but I also realize with some humility that the purpose of denoting a patron is not to honour the patron, but to further the goals of the organization. As such, I am delighted to add what cachet my name might bring.

I have been very fortunate during my career, in that I was able to parlay my naturalists' obsession into work as both a book author and television host, and as a result I have become reasonably well known, in particular as "Acorn, the Nature Nut." Mind you, I don't want you, or me for that matter, to think that it has gone to my head. I'm still just a naturalist, and I still make plenty of mistakes. I just do it with a few more people watching.

My own involvement with Nature Alberta goes back quite a long way, to 1975, which by my count means that I have been involved for 43 of the group's 50 years. Had I joined FAN when it was founded, I would have been nine years old, which, I think you will agree, would have been a stretch. As it was, I joined when I was in high school, and soon had the pleasure of assisting Terry Thormin (who went on to help found the Bug Room at the Royal Alberta Museum) in compiling sightings from what were called

"Alberta Animal Record Cards" (a precursor of such citizen science projects as eBird) for publication in *The Alberta Naturalist*. You could look it up in the Nature Alberta archives, and I believe Terry and I dealt only with creatures other than birds, despite both of us being keen birders.

Since that time, I have had a long association with two of the member clubs in particular: the Edmonton Nature Club, and the Alberta Lepidopterists' Guild (and I have had the pleasure of addressing many of the other clubs around Alberta over the years). The ENC was originally two clubs, the Edmonton Natural History Club and the Edmonton Bird Club, and I am proud of the role that I played in helping convince those two clubs to merge, some time back in the 1990s. For the longest time, I was one of the youngest active members of the ENC. I had many older (and much older) mentors, and their guidance was well worth the price of putting up with a bit

of well-meaning condescension now and again. These days, I fit the nature club demographic more comfortably, although I am still a ways off from retirement (I have been on the faculty at the University of Alberta, in the Department of Renewable Resources, for more than a decade now, and I'm still enjoying it a great deal).

It is important to note, however, that the role of Patron is not to become involved in the affairs of the society to which they have lent their good name. Instead, it is to remain at arm's length, avoid meddling, say positive things about the group, and let it run itself. So, I have decided to decline Lu Carbyn's invitation to reply to his "generational perspectives" article, lest my opinions about societies, publications, and the current state of the world compromise my patronly duties. Instead, I want to pass on a few words about what it means, to me, to be a naturalist.

I am delighted that my friend and colleague Lee Foote has stepped in to respond more directly to Lu, and that my graduate student Zac MacDonald is willing to add his thoughts as well. My association with Lu, by the way, dates back to when he was a speaker for the Edmonton Natural History Club some time perhaps in 1977, during the heyday of the Canadian Wolf Defenders. I can still picture the moment I met him, outside the auditorium cloakroom at what was then the Provincial Museum of Alberta. He was indeed a generation older than me, and it was a thrill to meet the celebrated Dr. Carbyn, a genuine wolf biologist and outdoor adventurer.

The word naturalist seems to mean various things to various people. To me, it means someone with an interest in the non-human world. It means curiosity, and it means involvement in “natural history,” whether professional or amateur. Many working scientists think of naturalists as old-fashioned and unsophisticated, but many more (myself included) consider themselves proud naturalists, no matter how technical or sophisticated their research might be, simply because we are interested in what we believe to be the big picture, and not just a few narrow questions.

Fads and scientific fashions aside, it is clear that the word naturalist is extremely close in meaning to the word scientist. Naturalists are rationalists, and they believe in the value of evidence. Naturalists focus mainly on subjects that have typically interested geologists, or biologists. In other words,

they are interested in “nature,” in the folk sense of the term. I point these things out in order to distinguish naturalists from those who might be better thought of as “nature mystics,” more prone to emphasizing supernatural interpretations, and the so-called spiritual dimensions of the non-human world. Among any group of naturalists, you will always find a few nature mystics promoting their particular view of nature, but they typically tire of the scientific stance, and drift away into other spheres, so to speak.

Still, it is important to remember that there is also an aesthetic component to being a naturalist, and that aesthetics do not require mysticism. For many, aesthetics are also much more important than science. Nostalgia, the beauty of nature, and the notion of heritage all play a part. As well, many of us involved in the science of conservation biology are beginning to think that the aesthetic argument for biodiversity preservation is actually more defensible than the argument that each species plays a critical role, like a component in a clockwork motor. Working at a research university, I am constantly reminded that ecology is an emerging science, and that our understanding of the living world is continually changing. The clockwork ecosystem is not holding up to scrutiny, but that is another topic for another day.

For some folks, these aesthetic sensibilities can lead to reactionary views, and a deep desire to return the world to their vision of the good old days,

before the hand of humanity (or perhaps non-indigenous humanity) began to leave its traces. For others, keeping the importance of beauty in mind provides a stable perspective in an ever-changing world. And with photography more user-friendly than ever before, we are all in a position to not only celebrate the natural world, but to create images and video that shares this celebration with others. Of course, we can also make drawings, paintings, sculptures, carvings, poems, books, or articles. Those who create nature photographs, or related works of art are, in a real sense, naturalist artists. Those who simply appreciate the beauty of nature might be called naturalist aesthetes. Isn't it fascinating that there is not a more familiar term in English than “aesthete,” for such a common, and perhaps universal, human trait? E. O. Wilson called it “biophilia,” so perhaps we are “biophiles” instead.

Most people who call themselves naturalists are amateurs, and amateur contributions to our understanding of nature (both scientific and artistic) have been accumulating for centuries. Typically, amateurs work with a very small budget, but since many are retired, their time is typically not a limiting factor. Paid time is expensive, and in short supply for many professionals, so amateurs often possess a resource that the professionals lack.

Scientifically, amateur scientists contribute to a number of fields, but especially ecology, biogeography, behaviour, and

life history studies. Ecology, by my preferred definition, is the study of the distribution and abundance of living things, in both time and space. To study it, we count or measure things, and do it the same way each time. Biogeography is a sub-discipline within ecology, and it focuses on distributions in space. To study biogeography, we identify things carefully, or take photos, or collect specimens (ethically, of course), while carefully recording the place and date.

Then there is the study of behaviour and life history. Here, we carefully document new observations (reading widely to determine that they are indeed new), and share them with other naturalists. Amateurs realize that the professionals (biologists in government, academia, and non-government organizations) are not the only ones who are interested in monitoring plants and animals, and that the job is too big for the professionals alone. New records can be shared in scientific journals, newsletters, books, magazines, online databases, social media, blogs, YouTube, news media, and the like. This is the complex milieu in which naturalists are situated, and in which we continually negotiate our own ecological niches.

Of course, not all naturalists see themselves as amateur scientists, and many are instead environmentalists and conservation activists. Psychologically, naturalists typically interpret change in terms of loss, even when others see the same changes in terms of

gains, or progress. This is perhaps the most characteristic aspect of the naturalists' perspective, and it has the predictable result of placing naturalists in frequent conflict with both government and industry, not to mention much of the rest of society. Alberta has indeed changed a great deal over the course of the past few decades, especially in terms of population, politics, urban sprawl, the industrial footprint, and land use changes. It has also changed in more subtle ways, involving climate, forest cover, forest age, hydrology, and agricultural trends. The ranges of most living things have also changed, some expanding, some contracting, and some showing a mix of both.

It is not easy to find solutions to the resulting conservation challenges, but in general it seems clear to me that habitat (for each and every species, since habitat is a species-specific term) is the key: no living thing can exist without habitat, and most of the conservation issues listed above have their effects through changes in habitat. So I applaud those who work to establish limits to development, at least the sorts of development that destroy habitats for wild plants and animals.

For naturalists, the roles of scientist, artist, aesthete, and activist can be complementary, or they can remain somewhat distinct. In my own life, I tend to emphasise the first three, since I'm not by nature a fighter, or a conservation proselytizer. In my opinion, we should all recognize these differences in our ranks, and respect each other's choices. Let

the science-oriented naturalists do what they do best, and document the constantly changing world of plants and animals, without having to battle with government, or produce beautiful photographs. Let the artists and aesthetes help guide our appreciation of the world around us. And let the activists lead the charge when conservation issues are involved. Scientists care about truth, aesthetes care about beauty, and activists care about goodness, and doing what is right.

Choose your own style, and make sure to respect and keep in touch with those who choose other styles. As well, realize that the world is continually changing. Alberta evolves, nature evolves, and the naturalist community in Alberta evolves as well. Both nature and naturalists are examples of what some people are now referring to as "complex adaptive systems." In other words, they are self-organizing networks of interaction, in which the parts can change in response to changes in the whole.

To me the importance of this idea is that such systems are typically changeable (that is, changes can happen rapidly and spread quickly), but unpredictably, they are divided into sub-systems, but in a fuzzy and redundant fashion, and they are prone to great resilience. Resilience is the most important thing of all. It is the ability to remain functional, despite continual change. This is what I hope for Alberta, for naturalists, for all of you, and for myself. For Nature Alberta, it has worked for half a century, and I think that is good news indeed.

Yucca Moths at Work!

Soapweed (Yucca) Plants in Lethbridge Produce Seeds

BY TERESA AND DOUGLAS DOLMAN

Plants often have a special relationship with their pollinators, and this is certainly the case for Soapweed or Yucca (Yucca glauca) and its pollinator, the Yucca Moth (Tegeticula yuccasella).

The relationship between these two is known as obligate mutualism, whereby the plant relies exclusively on the moth for pollination of its flowers and therefore production of seeds, and the moth relies exclusively on soapweed seeds to feed its larvae. Neither species can survive without the other (although once established the plants can reproduce asexually by means of underground rhizomes).

In Alberta, Soapweed is native to only two sites along the Milk River drainage in the southeast corner of the province. The two sites are separated from each other by about 15 km and from the nearest population in Montana by about 200 km. Because of its limited distribution in Alberta and isolation from populations in the United States, Soapweed has been

listed as Endangered under the Wildlife Act in Alberta. Under the federal Species at Risk Act (SARA), Soapweed has been designated as Threatened and the Yucca Moth as Endangered. A Soapweed and Yucca Moth recovery plan has been prepared and enacted by Alberta Environment and Sustainable Resource Development, but it should be noted that all the goals and management actions of the plan pertain only to the two naturally occurring populations.

Other Soapweed plants do occur in suitable habitat throughout southern Alberta, but these are the result of deliberate plantings, usually by homeowners who purchase plants from nurseries. In time these will flower but very few will produce seed because of the absence of Yucca Moths.

The known exceptions are one population in Police Point Park in Medicine Hat (roughly 100 km N of the naturally occurring populations) and another in the town of Etzikom at the Etzikom Windmill Museum (about 50 km NW of the

naturally occurring populations). Despite the fact that Yucca Moths are considered weak fliers, fly at night when winds are generally calmer and live only three to five days, some obviously made the journey to those two areas, found flowering Soapweed plants and established their own populations.

In Lethbridge we know of two places in the river valley where Soapweed grows, although there may be other locations as well. The two populations are separated by about four km. The presence of dried flower stalks indicates that both have flowered in the past but to our knowledge no fruits have ever been produced, again presumably owing to the absence of Yucca Moths. Lethbridge is about 170 km WNW from the naturally occurring Soapweed and Yucca Moth populations along the Milk River, and therefore one would not expect to find Yucca Moths here. And yet, much to our surprise, when plants blossomed in 2012 we did find one adult moth (Photo 1) but no fruits were subsequently produced.

The larger of the two Lethbridge Soapweed populations consists



YUCCA MOTH. INATURALIST



ADULT YUCCA MOTH FOUND IN LETHBRIDGE, JULY 2012.

TERESA DOLMAN



SOAPWEED SEEDS: LEFT ONES INTACT, RIGHT ONES EATEN BY A LARVA. TERESA DOLMAN

of six plants, and each of these is composed of a cluster of rosettes produced by rhizomes. All of the descriptions outlined below are from this population.

In June 2017 the plants blossomed again (inside front cover: Photo 1) and an examination of some of the flowers failed to turn up any moths. However, when we returned in mid July we found to our amazement that seed capsules were developing! There were five fruiting stalks, which amongst them had a total of 39 seed capsules. There were also 12 enlarged pedicels on the stalks,

but then either browsed by deer or broken off by some means.

In mid September we again visited the site. Two fruiting stalks on one cluster drew our attention. The 17 capsules (seven on one stalk and 10 on the other) were brown, dry and beginning to break open but, more importantly, there were numerous “exit holes” on the capsules (Photo 3) indicating that Yucca Moth larvae had fed on the seeds within. Upon reaching maturity, each larva will chew a hole in the wall of the capsule and by means of a silk thread will lower itself to the ground and

suggesting that additional fruit were produced

then burrow into the soil. It will spin a cocoon around itself and remain in the soil for one to two years (sometimes longer) before pupating and then emerging as an adult moth. The capsules on these two fruiting stalks had a total of 40 exit holes.

One of the capsules was dislodged as we were examining it, and it had only one exit hole. We decided to take this capsule home and open it to see if, indeed, just one larva had occupied the capsule. The seeds immediately below the exit hole had been hollowed out and eaten by a larva whereas seeds to either side were intact (see Photo 4 for intact and eaten seeds). As we continued to open the locules (rows of seeds) of the capsule we were astonished to



SEED CAPSULES SHOWING LARVAL EXIT HOLES, SEPTEMBER 2017.

TERESA DOLMAN

find four mature and lively larvae, one of which is shown in Photos 5 and 6. As can be seen in the photos, the larva had already made a hole to exit from the “box” of seeds in which it had been feeding, and may well have begun chewing an exit hole in the adjacent capsule wall.

Two other fruiting stalks on another Soapweed cluster were clearly more immature than the ones described above, with capsule walls slightly soft and still greenish. The 20 capsules on these two stalks (eight on one and 12 on the other) had a total of only four exit holes. We removed one capsule that had no obvious exit holes and opened it. In one locule we found a mature larva. In another locule seeds had been eaten but the larva was gone. Our failure to find its exit hole might have been owing to its location – if it was positioned on the seam between locules or at either end of the capsule it could easily be overlooked.

The last two capsules were on a short stalk that grew from a third cluster of rosettes. One of those capsules had one exit hole. Therefore, amongst the 39 capsules present on the stalks in this population there were a total of 45 exit holes as of mid September, for a minimum estimation of 45 larvae. But the actual production of larvae was no doubt greater because, as we discovered, some larvae were still in their capsules but had not yet made or enlarged their exit holes and other larvae may have positioned their exit holes where we could not readily see and count them. As an aside, all the live larvae we exposed were later



MATURE YUCCA MOTH LARVA EXITING FROM THE BOX OF SEEDS IN WHICH IT HAD DEVELOPED. DOUGLAS DOLMAN

released into the duff at the base of a Soapweed cluster.

We made our last visit to the site in late September. The exit hole count rose to 55, but a complete count could not be made because by then some capsules had fallen off the stalks and others had fractured. Also by then we had had several light frosts, and that was followed on October 2 by 18 cm of snow and an overnight temperature of -10 °C. Any larvae left in the capsules would surely perish. Even the larvae that had already dropped to the ground and burrowed into the soil might not survive – research has shown that mortality during this phase of their life cycle may reach 75%. However, with luck some will survive to emerge as adults and to once again facilitate sexual reproduction and seed production by the Soapweed plants.

Total seed production in 2017 is unknown as we did not open every capsule and count all the seeds. However, we did count them in the two capsules we opened. The one that harboured two larvae produced 281 intact seeds, while the one with



MATURE YUCCA MOTH LARVA, APPROXIMATELY 10 MM IN LENGTH. THE EXIT HOLE IN THE BOX OF SEEDS IS CLEARLY VISIBLE. DOUGLAS DOLMAN

five larvae produced fewer, 236, reflecting a heavier larval predation on the seeds. To test the viability of the seeds we placed 10 on a moist paper towel indoors. Eight seeds germinated by day seven, one more on day 13 and the last on day 15. However, the seeds apparently remain viable for only one year, and therefore if the seeds shed from the capsules are to germinate next spring and add to the number of Soapweed plants in this population, they must first escape being eaten or otherwise destroyed during the winter and then they must encounter favourable conditions for germination in the spring. Fingers crossed for seed survival and moth survival!

SOURCES:

- Alberta Sustainable Resource Development. 2002. Status of the Yucca Moth (*Tegeticula yuccasella*) in Alberta. Alberta Sustainable Resource Development, Fish and Wildlife Division, and Alberta Conservation Association, Wildlife Status Report No. 44, Edmonton, AB. 21 pp.
- Alberta Environment and Sustainable Resource Development. 2013. Alberta Soapweed and Yucca Moth Recovery Plan, 2012-2022. Alberta Environment and Sustainable Resource Development, Alberta Species at Risk Recovery Plan No. 25. Edmonton, AB. 24 pp.

The Supreme Predator – Part Two: Hunting Habits of Peregrine Falcons Migrating through Central Alberta

BY THEODORE DEKKER

In spring and fall, at any moment of the day, migrating Peregrine Falcons, soaring among the clouds, may come down like a bolt from the blue to attack ducks or other prey.

But after years of hopefully scanning the clouds around Beaverhills Lake, I had learned that the surest method of seeing a falcon hunt high in the sky required patience as well as luck. It was a question of watching falcons that were perched on a field stone or fence post around the lake, and of waiting until that bird took flight of its own accord. To avoid disturbing them, I had to keep my distance.

The first high altitude duck hunt that I ever saw occurred on April 23, 1972, during a memorable walk around the lake's north shore accompanied by the late Loran Goulden. [For an article on Loran, see "Who was Loran Goulden?" page 44.]

A novice birdwatcher from Nova Scotia, he and his wife Gwen had recently moved to Alberta. Enthusiastic and gregarious, Loran soon became a prominent member of the Edmonton Bird Club, keen to

join their traditional excursions to the south shore of Beaverhills Lake. Like most club members, he did all of his birding from a vehicle. But one spring day, he accompanied me on a long hike around the rather remote north end of the lake.

The timing was great. After a long, cold winter, some county roads were blocked by melt water, forcing us to park the car well short of the lake. We began our walk in mid morning and did not get back until sundown. For me, it was a routine field day, but for Loran it became quite an experience. He later recalled it as the best day he ever spent at the lake.

A big, heavy-set man, not used to walking much, he did not complain because I often halted to scan the country ahead through binoculars to search for peregrines. My relaxed pace allowed Loran plenty of time for a rest and a snack. His lunch included a huge bag of kubasa

sausages and a fistful of licorice twizzlers.

Our day was filled with birds. The sky above was alive with Sandhill Cranes and geese. Ducks of half a dozen species massed on flooded fields, and we spotted the first migratory waders such as Lesser Yellowlegs and Hudsonian Godwits. Passerines were everywhere; including blackbirds, buntings, longspurs, and larks. Rough-legged Hawks and Bald Eagles were quite common, and one immature Bald turned out to be a rare Golden Eagle. Harriers and Short-eared Owls were performing their acrobatic courtship flights over the fields. And on the still frozen lake, six Snowy Owls were waiting for night fall.

What made my day extra special was finding a Peregrine Falcon perched on a fence post by the old windmill. We did not have to wait very long for action. The falcon took flight soon and

began to soar, circling high into the light overcast sky.

Suddenly, the falcon folded its wings, keeled over and fell perpendicularly, its aim a Pintail drake flying lower down. The drake narrowly evaded the stoop by an abrupt change in direction, veering upwards. He then descended at great speed, while the falcon tried to overtake him. The pursuit covered hundreds of metres of open grassland until both birds dropped low over the ground and became lost to our view. Days later, I found the plucked remains and wind-blown feathers of a Pintail drake roughly on the spot where the chase ended.

My next opportunity to see an aerial duck hunt took place in the same general area on an April day when flocks of migrating Pintails were passing over. High above, a Peregrine was soaring, a tiny speck in my binoculars. Sitting in the grass, leaning against my pack sack, I had to turn around and bend over awkwardly to keep the falcon in focus while it circled overhead. I ended up lying flat on my back. Each time the falcon launched an attack, the ducks side-slipped his stoop with a quick upward maneuver. They then descended like a meteor. Pintails and other ducks can drop almost as fast as a falcon can stoop. Outflown, or half-hearted in its approach, the falcon aborted every attack, but I was hoping

to see him capture a duck at any time.

Unfortunately, I had become conscious of not being alone. Prostrate on the ground, I was surrounded by curious cattle. Their stomping and snorting had come closer all the time, until I felt it wise to end my predicament and jump to my feet. The herd of cows and heifers stampeded off, but after scanning the skies, I was unable to relocate the falcon.

The first time that I actually witnessed the capture of what I thought was a duck occurred much later. One spring day, after scanning the lake shore through binoculars and telescope from the northwest corner of the county roads, I spotted an adult male Peregrine sitting on a fence post. The distance was too great to see him with the unaided eye (my sight is not that sharp). When another birder stopped and asked what I was looking at, I suggested to cooperate and walk closer to the Peregrine. While one of us kept him in the binoculars, the other walked a hundred steps farther. Alternating in this cautious way we managed to half the distance, while the falcon had stayed on his post.

Suddenly, he took off in hurried flight, his aim a duck which was flying from the lake shore to an inland slough. Just before the duck could reach the safety of water, it was overtaken and seized. Clutching his prey, the

falcon dropped down into the grassy vegetation on the edge of the slough. I felt like shouting for joy; I had seen my first successful duck hunt! Or so I thought.

Oddly, after a little while, instead of beginning to pluck his catch, the Peregrine flew away. Walking up to investigate, I found that his prey wasn't a duck but a Coot. Why the falcon had not eaten the Coot remains an open question. Perhaps he was not hungry enough? The Coot had been an easy catch. And Peregrines are always quick to take advantage of the straight and unbending flight of waterbirds such as Coots and rails.

How keen Peregrines actually are on a meal of duck became obvious one day when I saw an adult male Peregrine rob an immature male of a just caught Robin. The adult carried his ill-gotten booty to the flat top of a power pole and sat on it for several minutes, not eating and intently looking around. As it turned out, he was waiting for other prey. Leaning forward eagerly, with fluttering wings, he presently took off and ascended rapidly to meet a high flock of ducks approaching over the wooded sky line, some two kilometres away. Turning back down in hot pursuit of a teal, he seized it low over the ground.

Next morning, the dead robin was still lying on the pole until a gust of wind brought it down, giving me a chance to examine



ADULT MALE PEREGRINE BANDED AS A NESTLING ON THE GULF ISLANDS WEST OF VANCOUVER. MALE PEREGRINES OFTEN LOSE THEIR PREY TO BUTEO HAWKS AND TO FEMALE PEREGRINES, WHICH ARE ABOUT ONE THIRD LARGER THAN MALES. MIKE TABAK



ADULT FEMALE PEREGRINE ON A DUCK KILL. FEMALE PEREGRINES CAN HOLD OFF PIRATES SUCH AS BUTEO HAWKS, BUT NOT EAGLES OR A GYRFALCON. JAN UILHOORN

the carcass, which seemed untouched. This incident took place one winter day on Vancouver Island, but the same duck hunting strategy displayed by the adult male is commonly used by migrant Peregrines around Beaverhills Lake.

It is riveting to watch a Peregrine increase the tempo of its wing beats to meet far away ducks approaching from inland fields. Rising up to its prey, the falcon prevents the duck from using its routine evasion tactics. Seizing it from below, the falcon drops down onto the open ground.

Whether or not a Peregrine gets to feed on its catch depends very much of what happens next. On the prairies and elsewhere in open country, the sky has eyes, the envious eyes of other raptors and scavengers. I once watched an immature male Peregrine catch two teal in ten minutes. He lost the first

teal to a Red-tailed Hawk, and the second one to a Swainson's Hawk. The falcon then sat on a fence post until sundown before becoming active again. Could late evening hunting be a way of avoiding piracy by buteo hawks?

Male Peregrines are about one third smaller than females, and a Pintail drake is a rather heavy prey for a male Peregrine. One spring day, when an adult male had just seized a Pintail drake in flight, he was robbed by a pair of Red-tailed Hawks, while the Peregrine retreated to a fence post some distance away. After the red-tails had eaten their fill, the remains of the drake were taken over by three Harriers. But here the Peregrine drew the line. One vigorous swoop was enough to drive the Harriers away.

Bigger and more powerful, female Peregrines can deter thievish Harriers as well as

buteos, but they, in turn, are at the mercy of larger pirates such as Gyrfalcons and eagles. On the west coast of Canada, near Vancouver, where I have studied the hunting habits of wintering Peregrines over twenty years, falcons of both genders have given up on capturing ducks and now exclusively hunt small shorebirds, which can be carried away at the approach of the increasingly numerous Bald Eagles.

Watch for "The Supreme Predator 3," about Peregrines hunting shorebirds and gulls.

Up Close Naturally: Bird Song

BY MARGOT HERVIEUX

To most of us, bird song is a pleasant addition to a day in the woods but for the singers it is an important form of communication.

It is usually the males that use song to attract mates and maintain territories but in a few species, including wrens, the females will join in duets.

Not all of the birds that scientists classify as songbirds produce melodious songs but they all use distinctive sounds to announce their presence and communicate to their fellows. Songs are primarily used during the nesting season to advertise territories and deter rivals while other calls warn away predators or help keep the pair connected.

The best time to hear bird song is around dawn when the still air resounds with competing voices. Some species, especially Robins and other thrushes, also sing in the evenings. The famous line “blackbird singing in the dead of night” in the Beatles song refers to a British thrush that sings before dawn and after dusk.



YOU COULD GO CRAZY TRYING TO DISTINGUISH THE OVER 2,000 DIFFERENT SONGS OF THE BROWN THRASHER. WIKIPEDIA COMMONS

Red-eyed Vireos are famous for singing all day long, repeating their short phrases over 40 times per minute. Other species impress females not with their stamina but with the depth of their repertoire. Brown Thrashers sing over 2000 different songs while birds like Starlings and even Crows

incorporate the sounds of other birds into their own creations.

In forested areas, short simple sounds carry further in the dense growth while in open areas complex songs work well. Singing from a perch also helps broadcast the sound and some grassland birds will sing in flight to ensure



Margot also writes a column for the Peace Country Sun, archived copies of which are available at www.peacecountrysun.com.



RED-EYED VIREOS REPEAT THEIR SONG 40 TIMES PER MINUTE AND SING ALL DAY LONG. WIKIPEDIA COMMONS

their performance is heard from afar.

If songbirds make up the wind section of the outdoor orchestra, then grouse and woodpeckers provide the percussion. Non-singers still need to impress mates and hold territories, but they use other techniques. The low, resounding drum of the Ruffed Grouse is a familiar sound in poplar forests in early spring. Males find a favourite fallen log, fan their tails, fluff out the “ruff” feathers on their necks and then rapidly beat their wings against

their bodies to produce their distinctive drumming sound.

The loud, repetitive taps of woodpeckers also announce the presence of eager males. The birds usually choose dead trees or other resonant objects, including chimneys and eaves troughs, to send out their percussive messages.

Bird song never ceases to amaze me. Even tiny birds like wrens and Ruby-crowned Kinglets can belt out complex songs that are easily heard from a distance. Since I learned to identify different birds

by their voices, I really feel like I know my feathered neighbours better. Whether the singer is a Song Sparrow in the hedgerow, an oriole in the poplar woods or a Red-winged Blackbird in the cattails, the songs I hear make me feel more connected.

FOMITOPSIS PINICOLA;
PHOTOGRAPHED ON SEPTEMBER
16, 2017 IN THE J.J. COLLETT
NATURAL AREA. CHARLEY BIRD



Charley's Nature Note: Red Belted Conk

BY CHARLES BIRD

If you are hiking in the woods in the wintertime you are not going to find any fleshy, annual mushrooms, but if you are on the watch, you are likely to find tough perennial fungi on older or dead trees.

In a previous "Nature Note", The False Tinder Conk (*Phellinus tremulae*) found on aspen and balsam poplar was discussed. This Nature Note is about the Red Belted Conk (*Fomitopsis pinicola*) which shows up on dead conifers, especially on stumps and fallen logs.

It is one of a number of wood-rotting fungi that occur on trees. Most have upper and lower sides with gills (lamellae) or pores on their undersides. Of the ones that have pores, many have flat "caps" while others are hoof-like and are called conks. Individuals of the present species have a hoof shape, are woody and perennial. The conks are 4-30 cm wide, 6-40 cm long and 3-22 cm thick.

In the image (see photo), one can see 5 dark, older growth rings, a red one from the previous

year and a white one from the present year. The older rings often have a shiny or "varnished" appearance. The underside is whitish and bears 3-5 round to angular pores per millimeter. Many basidiospores are produced in the pore linings. When they are mature, they fall and are dispersed by air currents.

This species belongs to the Kingdom Fungi, Division Basidiomycota, Class Ascomycetes, Order Polyporales and Family Fomitopsidaceae.

As is the case with most wood-rotting fungi, infection occurs when spores land on damaged tissue, for example a scar where a branch has fallen, a fallen tree or a stump. Fungal hyphae then spread into the heart wood resulting in a brown rot. This degrades cellulose making the

wood brittle and less valuable to the timber industry. Along with other wood-rotting fungi, the present species is part of nature's clean-up crew that helps convert dead plants into soil.

This fungus shows up in most areas where coniferous trees, especially spruce, are found. It has rarely been found on deciduous trees.

You can find more information about this interesting fungus on the internet at: https://en.wikipedia.org/wiki/Fomitopsis_pinicola; on pages 96 and 97 of Ginn's (2017) "Polypores of British Columbia (Fungi: Basidiomycota)", B.C. Tech Rep. 104; and in a variety of books dealing with fungi.

Keep your eyes open when out on a nature hike. If you look closely, you will often be amazed at what you can see.



Dr. Charles "Charley" Bird is a university professor, publisher of 300+ scholarly articles, long-time advocate for Alberta conservation issues, active with Federation of Alberta Naturalists (Nature Alberta) and in particular with his local group, Buffalo Lake Naturalists Society (a Nature Alberta Corporate Club). In 1978, he received Nature Alberta's Loran Goulden Award. Charley's interests and expertise are broad indeed, but especially butterflies and moths; he was the lead author for Alberta Butterflies, published in 1995.

CELESTIAL HAPPENINGS

Winter/Spring 2018

BY JOHN MCFAUL

(Note: John has now covered all the main constellation in the night sky. However, because of its popularity, he will continue to provide you with "Celestial Happenings".)

CELESTIAL HAPPENINGS

Sun: Rise – Feb. 1 (8:18 MST), March 1 (7:21 MST), April 1 (7:06 MDT)
 Set – Feb. 1 (17:16 MST), March 1 (18:12 MST), April 1 (20:11 MDT)
NOTE: Day Light Savings Time will start on Sunday, March 11th.
 Spring Equinox is on Tuesday, March 20th, 2018 at 10:15 AM.

Moon: Full – February none, March 1, March 31, April 29
 New – February 15, March 17, April 15

Planets: **Mercury** will be best seen low in the west shortly after sunset from about March 3rd to March 23rd. On March 3rd it will be close to Venus. On March 18th the crescent moon will join Mercury and Venus.

Venus can be seen low in the western sky shortly after sunset starting in mid-February. It climbs higher in the sky throughout this time period. The moon will be nearby on April 17th. Venus will shine brightly near the Pleiades star cluster on April 25th.

Mars may be seen very low in the western sky shortly after sunset in early June. It then passes behind the sun and will reappear at the end of August low in the ENE before sunrise.

Jupiter is to be seen 20 degrees above the SSE horizon in the pre-dawn sky in early February. Through March and April it will appear further to the west. The moon will be close by on February 7th, March 7th and April 3rd.

Saturn is in the constellation Sagittarius and is best seen low in SE in mid-February an hour before sunrise. It will gradually move westward so that at the end of April it will be about 15 degrees above the southern horizon in the early morning. On April 2nd it passes a little above Mars. The moon will be nearby on February 11 and March 11.

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.



FULL MOON. GORDON/WIKIPEDIA COMMONS

Who was Loran Goulden?

The contributions of amateurs to natural history in general, and the study of birds in particular, are widely acknowledged by professionals. Loran Goulden was an Alberta example of the outstanding role amateurs can play in the natural sciences.

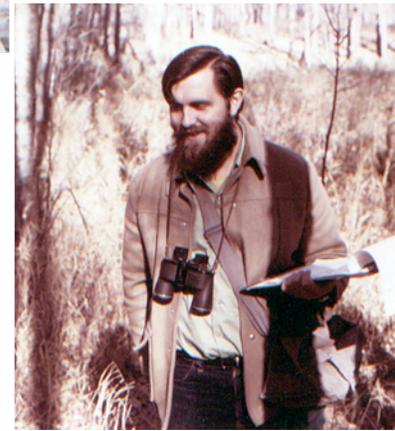
After arriving in Edmonton in 1971, employed as a photographer, Loran first gained notice when he expressed concerns about conservation of the Suffield area and national parks in Alberta. However, his main natural history focus was to develop his knowledge of birds and ornithology – a recently acquired and mostly self-taught interest.

Over the next three years, Loran devoted himself to studying Alberta birds in the field and in

publications. In short order, he became so knowledgeable of this topic that he was conducting bird censuses and coordinating others in the study of natural history. He wrote extensively about Alberta birds in natural history periodicals.

In addition, Loran played a leadership role in the Federation of Alberta Naturalists, the Edmonton Natural History Club and the Edmonton Bird Club. His enthusiasm and his willingness to share his knowledge through talks and writings motivated fellow naturalists.

In 1974, at the age of 27, shortly after taking a job as a professional biologist, Loran Goulden was killed in a plane crash in BC. His fellow naturalists in Edmonton felt he and his accomplishments should be



recognized and so established the Loran L. Goulden Memorial Award; this is the highest accolade that Alberta naturalists have to offer to those special individuals who stand out within the naturalist community. The inaugural recipient of the award, in 1976, was Theodore (Dick) Dekker.

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FLYING SQUIRREL; SEE STORY, PG 20. MYRNA PEARMAN

WHOPER AT WOOD BUFFALO; SEE STORY, PG 7. KLAUS NIGGE/WBNP



Nature *gallery*



A VAGRANT COMMON CRANE; SEE STORY PG 4. ASUZA WATSON



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