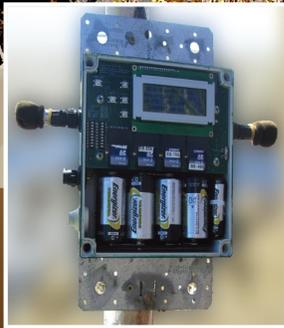


THE BEAUTY OF BIRD SONG: HOW AND WHY BIRDS SING AND HOW SOUND IS BEING USED TO MAKE BETTER CONSERVATION DECISIONS



24 March
2022



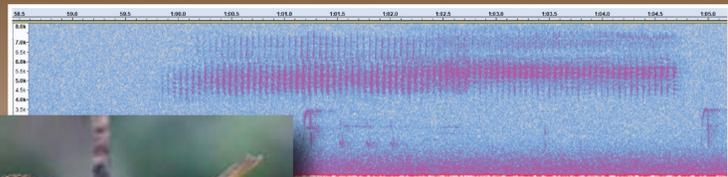
7:30 p.m. - 9:00 p.m.
RDRN Zoom Virtual Series
Join Zoom using
Meeting ID 920 9704 3905
Passcode 213745

Join Dr. Erin Bayne for an Introduction to Bioacoustics and its Impact

Dr. Erin Bayne is a Professor at the University of Alberta where he runs the Bioacoustic Unit. This Unit is focused on using sound recording technology to understand the cumulative environmental impacts of human activities on biodiversity. The Unit studies behavioral, population and community ecology of many species but mostly birds. They do this by linking bioacoustics, remote sensing and advanced analysis to map and model future scenarios for species. The lab strives to provide recommendations on how various vocalizing species react to various types of human and natural disturbances with the goal of achieving better conservation outcomes. Dr. Bayne, along with his many students, post-docs and staff have published over 200 papers in areas related to biodiversity conservation.



All Photos by Dr. Erin Bayne



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Red Deer River Naturalists

DR. SALLY STUART'S SEASONAL SIGHTS AND SOUNDS OF ALBERTA: COMMON REDPOLL

It is one of the delightful experiences of winter. A gregarious, noisy flock of Common Redpolls (*Carduelis flammea*) descend on the feeder bringing a splash of colour to the drab winter, consuming large quantities of sunflower seeds. Others sing from the birch trees while feeding on birch seeds. Some winters not even a single redpoll appears. This winter they have been abundant since early December. Looking back over the years, my notes indicate that they were common last year and in 2020 some even stayed until mid March. Several years prior to 2020 they were absent, appearing at my feeders only once December, 2014 and January, 2015.

According to *The Atlas of Breeding Birds of Alberta. A Second Look*, Common Redpolls are rare breeders in Alberta. During the period 2000-2005 there was no evidence of breeding. Instead, they move southward during the winter if food is scarce.

Like most birds, redpolls maintain a body temperature of about 42 C. In terms of winter survival, access to an abundant food source, plus insulation provided by a dense coverage of feathers and possibly strategies such as night time torpor, are all important. It is also thought that they may use nocturnal shelters, perhaps even snow burrows.

Redpolls belong to the family *Fringillidae*, subfamily *Carduelinae*. Many members are brilliantly coloured (e.g., Purple Finch, House Finch and Pine Grosbeak). As seed eaters, they tend to have large powerful beaks and jaw muscles. John Reilly suggests in his book *The Ascent of Birds* that, sometime after the Pleistocene glaciations an environmental event led to a shortage of seeds, forcing the ancestors of redpolls to move. Subsequently feeding on smaller seeds, they evolved smaller beaks.

There are three recognized species of redpolls: the Common, Hoary and Lesser. A study published in *Molecular Ecology* by Mason and Taylor (2015) concluded that – after studying redpoll DNA – there are no genetic differences between the three species. Confirmation that there is only one species of Redpoll, the Common, was confirmed in 2021 by Funk et al in *Nature Communication*. From further genetic analysis, they concluded that a “supergene” controls different traits. Thus, differences in appearance such as plumage colour and even body size are phenotypes: differences due to varied expressions of the same genes, not from different genes.

Bird coloration is complex. In redpolls, the plumage differs between birds based on age and sex. The red crowns (which all sexes dis-

play) and the pink breast feathers (restricted to adult males) are due to accumulations of carotenoid pigments. Diet is the only way to obtain carotenoids, which come in two main colours: red and yellow. Yellow is more commonly seen than red. When consumed, they are either deposited unaltered as yellow or are mixed, resulting in a range of colours from yellow to maroon. Some birds, such as those in the family *Carduelinae*, use mechanisms to convert yellow carotenoids into red. Intensity of colour is determined by the amount of pigment. The method of transport to where they are needed and incorporated into feathers is complicated, requiring energy. Geoffrey Hill is famous for his research on bird pigmentation. In his book *Bird Coloration*, he notes that certain families of extant birds (e.g., those to which waterfowl and grouse belong) may exhibit carotenoid coloration in bare skin parts but not in feathers. He hypothesises that the ability to incorporate them into feathers evolved later in the course of bird evolution.

Adult male redpolls complete a moult of all feathers after breeding in the summer. As the new feathers grow, carotenoids must be incorporated. Their diet includes seeds as well as wildflowers (such as buttercups and mustard) and sometimes invertebrates. Studies by Stradi et. al found that the red plumage in both Common and Hoary Redpolls shared the same four carotenoids although the Hoary had an additional one.

Redpoll coloration appears to intensify towards spring; however, the colours cannot change once feathers have grown in. Thus, the change in colour is due to feather structure as well as wear and tear. The most intensely pigmented breast feathers lose their barbules (small side branch filaments), exposing the coloured, carotenoid-rich rami (which branch off the central part of the feather).

Resources and energy are required to produce such brightly coloured feathers. The advantage to the males is to be more attractive to females. A famous study by Geoffrey Hill demonstrated that House Finch females preferentially chose mates who displayed saturated red patches of colour. Size was not as important as quality of colour. Mating with such males led to more offspring surviving. Hill presumed dominant males monopolize resources, including the best nesting sites and food. Furthermore, carotenoids stimulate the immune system and provide antioxidant effects. Feather colour is affected by a myriad of factors such as viruses and parasites. Strong colour is therefore indicative of a healthy bird.

So now we can all enjoy watching redpolls. There is no need to agonize over which species: you now know that they are all Common Redpolls, to be enjoyed in all their various phenotypes.



WELCOME NEW BOARD MEMBERS!

JOEY TEMPLE: Joey grew up in Calgary, where she and her husband raised their two children. Once the kids left for University, they moved to Lacombe in 2006 where they currently reside and operate their own business. For the last 35 years, Joey's passion for environmental education fueled her creativity to develop education and outreach programs for the Calgary Zoo, the Weaselhead Preservation Society and the Red Deer River Watershed Alliance. Her programs are still in use today. She also carries a strong background in NGO's and contributed her knowledge and insight to various boards including Alberta Luge, Calgary Canoe Club, and Battle River Watershed Alliance.

She can be found, canoeing, kayaking, hiking, snowshoeing and spending time at her cottage in Nova Scotia whenever she can and also relaxes with painting and sewing.



CHARITY BRIERE: Charity is a friend to all bugs. The fascinating world of insect biology never ceases to delight! In addition to a BSc (Entomology/Botany) from the U of A in 1999, she decided in 2017 to pursue a Masters in Science to improve her opportunities as an instructor at Red Deer Polytechnic. Charity is a life-long learner who seeks to continue expanding and to share her understanding of the significance and importance of native bee conservation in Central Alberta through partnerships with scientists, non-profit groups and community organizations of all kinds. Many have seen "Save the Bees" rhetoric and/or alarming reports of declining insect populations, but haven't the background knowledge or supports to know how to do something about it, this is where Charity aims to contribute. In the interest of making first-hand observations of invertebrate ecology in an urban habitat, she has been working on a yardening project for several years by turning her large front yard into habitat for wild bees, insects, and other invertebrates.



We also welcome **Rod Trentham** back on the board and welcome **Judy Brownlee**, who has volunteered to sit on the Policy Committee.

ISSUES COMMITTEE UPDATE

Coal Mining in Alberta's Eastern Slopes:

The Alberta government is reviewing feedback gathered to inform Alberta's long-term approach to coal development. We expect that the information gathered from Albertans was generally in opposition to coal mining, especially along the Eastern Slopes. We continue to monitor their website as the results of the coal policy engagement should be made public soon. <https://www.alberta.ca/coal-policy-engagement.aspx>

The Government of Canada has proposed weakening some coal effluent regulations. More information can be found at <https://www.canada.ca/en/environment-climate-change/services/managing-pollution/sources-industry/proposed-coal-mining-effluent-regulations.html>

Gravel Extraction in Floodplains: On February 1, 2022 the RDRN requested that the Government of Alberta suspend new aggregate extraction approvals within alluvial (shallow) aquifers in the 1:100 year floodplain zone until further research analyzing risks to water security and aquatic ecosystem health is completed. See a summary of our letter on the Nature Alberta website. https://naturealberta.ca/gravel_pits/



BUFFALO LAKE NATURE CLUB MEETING

Exploring the Ants of Alberta with Dr. James Glassier
Thursday, March 17, 7:00 PM

By Zoom or in person at St. George's Anglican Church (4817-51 St., Stettler)
Email: buffalolakenc@gmail.com for the Zoom link

By Myrna Pearman

HABITAT STEWARD

The Habitat Steward program is progressing well. A press release has been sent out to all local papers and we are starting to receive application forms.



We are pleased that ALUS (Alternative Land Use Services) staff throughout Central Alberta have endorsed the program, which will complement their efforts to facilitate habitat enhancement and restoration on agricultural lands.

We are working on the gate signage, which should be ready for board approval by mid-March. They are beautiful!

We encourage all RDRN members who protect habitat on their own property to become Habitat Stewards, and we encourage members to tell like-minded friends and neighbours about the program.

Forms can be found on the Nature Central website <https://www.naturecentral.org/habitat-steward-program.html>

Board Notes

By Peggy Birse, Managing Director

- Thanks to our Committees which are working diligently on Issues, Communications, and Policy. We have a follow-up meeting scheduled with an MLA on the Sand and Gravel issues documented by resolutions at our Annual General Meeting in January.
- Planning has begun for Nature Central 2022 and we look forward to another summer offering conservation related activities and guided hikes to some of the gems of Central Alberta's protected areas for people of all ages.
- During February, we offered an Orientation Session for our newly elected Board members, Charity Briere, Joey Temple and Rod Trentham, and new Policy Committee member, Judy Brownlee. We appreciate their fresh ideas and energy and are continuing discussions with other potential new members to diversify the skills and experiences on our boards and committees.

From Our President, Rick Tallas: *Russia invading Ukraine gives me pause, and certainly give me another reason to put everything into prospective. It is really encouraging to me to see how committed our board and committee members are to making a difference. Yes, we do important work. Emails and social media sometimes demanding quick responses give rise to our stress levels. Except for exceptional circumstances, the issues and problems will still be there next month. Please keep your stress levels as low as possible and prioritize your time with your family and friends being the # 1 priority. I give thanks to living in a democratic society. Please send your thoughts and prayers to the people of Ukraine and for that matter all the suppressed people in the world.*

DID YOU KNOW: By Susan van der Hoek

A group of skunks is called a **surfeit** or a **stench**. Skunks belong to the weasel family, *Mustelidae*, whose members have well-developed scent glands and a musky odour. Several skunks, generally one mature male and several (up to 12) females, gather at and cohabitate in a winter den site from fall until spring. Skunks do not hibernate but generally remain inactive during winter, surviving on their fat stores. However, they may leave the winter den for short periods during warm weather. Skunks are omnivorous, eating a wide variety of foods. They eat insects, mice, ground squirrels, young rabbits, birds' eggs and various plants.

There are four skunk species found in North America but only one species resides in Alberta—the Striped Skunk. The Latin name is *Mephitis mephitis*, which means "skunk smell". February through March is skunk mating season. The stink occurs when males try to court females who may not be "in the mood." When that happens, female skunks generate an aroma to repel their rejected suitors. If mating is successful, generally four to seven kittens are born about nine weeks after mating in May or June. Yes, baby skunks are called kittens!



Medicine River Wildlife Centre (MRWC) is launching a weekly bird watching program led by Judy Boyd. There will be an initial meeting at MRWC on Sunday April 10, 2022. Anyone interested in getting more information or joining this group is asked to email info@mrwc.ca. RSVP to join before April 1.



FLOWER FOCUS WITH DON WALES

MARCH 16 – 10:00 AM

Wildflowers of Waterton and Glacier National Park

KWNC — In Person



ANPC March Workshop: https://anpc.ab.ca/?page_id=7032

Social Media: 594 Facebook Members, 283 Twitter Followers and 277 Instagram Followers

The Red Deer River Naturalists, the first natural history organization to be established in Alberta, was incorporated as a society in 1906. The objectives of the society are to foster an increased knowledge, understanding and appreciation of natural history, and to support conservation measures dealing with our environment, wildlife and natural resources.

Annual membership is \$15.00 for individuals and \$20.00 for families.

Regular meetings are held at 7:30 PM on the fourth Thursday of most months by Zoom. Non-members are welcome.

Members are encouraged to contribute to this newsletter. The deadline is the last Friday of the month.

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