The Red Deer River Naturalist

RDRN

December 2023 Editors: Myrna Pearman & Susan van der Hoek

2023 Central Alberta Annual Christmas BIRD COUNT

Sunday December 17

Digitally enhanced, winter bird compilation of naturalists' art from the 1800s (public domain).

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RDRN

RED DEER RIVER NATURALISTS

Join other Central Alberta Birdwatchers by participating in the longest-running and most important bird census in the world.

- Contact Count Compiler, Judy Boyd (403-358-1098) to sign up.
- For more information and instructions about the Count go to www.rdrn.ca

Board Notes

Rick Tallas, President

- RDRN continues to be busy on several fronts. We are still looking for board and committee members. Feel free to contact us if you are interested (*rdrn.nature@gmail.com*)!
- As we approach 2024, I am hopeful common sense will prevail. It would be nice to have a world with no starvation and wars. Moving into December, I give thanks for what I have and I will do my best to help as many people as I can who are struggling. Sometimes all it takes is a bit of kindness, love, and understanding. Giving is certainly a wonderful gift.
- I would like to extend my thanks to all our wonderful volunteers and members.
- Our monthly meetings provide us with a chance to gather and to learn. Our special thanks to Anto Davis and Daryl and Dina Beck for overseeing the refreshments!

Merry Christmas and a Happy 2024 to Everyone!

IN THE ALBERTA WILDERNESS WITH DON AUTEN

Canada Lynx are dependent on Snowshoe Hares, their main source of food. This trail cam is in an area I call Tim's Creek. I initially set it up on a game trail on the side of the creek that was dominated by White Spruce. I wasn't getting much for wildlife activity at all so I moved the camera 100 m to the other side of the creek.

This new location has more deciduous trees, including some willows. It provides much better habitat for Snowshoe Hares and my camera proved that by daily recording the hare's activities. And it was no surprise that lynx were also frequenting the area. I have—and am still—consistently getting trail cam photos and video of the lynx as they travel through this area hunting the hares. The Snowshoe Hare population has been high over the past few years and seems to still be increasing. Thanks to this abundant food source, lynx numbers are also increasing and they are now very common in western and northern Alberta.

RDRN External Grant Update: Red Deer Urban Wildlife Project

By Sandra MacDougall, RDP

Ungulates such as moose, white-tailed deer and mule deer often thrive in low-predation urban environments like the City of Red Deer. The presence of these animals in the city can lead to varying perceptions among residents, with some considering them pests while others appreciate their presence. Conflicts arising from these populations include wildlife-vehicle collisions, the spread of zoonotic diseases, damage to plants and property, and occasional aggressive behavior.

The study's objective was to estimate the population density and winter distribution of these ungulates in Red Deer's green belt areas using a drone-based survey method, and to evaluate the use of drones for this purpose. We used a DJI Matrice 300 drone to intensively survey a 9.56-square-km green belt area of Red Deer. Flying at an altitude of 100 m, we counted deer and moose based on their heat signatures using parallel transects spaced 50 m apart in areas with limited visibility and 100 m apart in open areas. We recorded both infrared and colour video footage, along with still images. We found distinct spatial separation between white-tailed and mule deer herds in the city, with a population density estimate of approximately 20 deer per square km in the green spaces, consisting of a 70% white-tailed deer to 30% mule deer ratio. In larger patches of habitat, white-tailed deer formed herds ranging from 19 to 45 individuals, with smaller groups of eight to 12 nearby. Mule deer exhibited a more scattered distribution throughout the green belt, often found in smaller herds of three to nine individuals, with the largest group consisting of 18. Moose were less frequently observed, most often found outside of the green belt in nearby neighbourhoods. Notably, surveyed animals displayed no fear or defensive behaviors in response to the drone's presence. The study was conducted with the generous support of an external grant from RDRN. A manuscript for publication is in progress by Red Deer Polytechnic (RDP) student Kira Weddell.

The next phase of the Red Deer Urban Wildlife Project is now underway, with RDP students in the process of establishing a network of remote cameras within the city. We aim to capture wildlife data using these cameras over a three-year period. This data will be invaluable for a wide range of student research projects which will involve analyzing the temporal and spatial distribution of various wildlife species that inhabit our urban environment and comparing drone ungulate density estimates and remote camera-based estimates. Community members who are interested in "adopting" a camera in a natural area near their residence to assist with monitoring please reach out to sandra.macdougall@rdpolytech.ca.

BIRD FOCUS WITH CHRIS OLSEN

Dec 9 – Gaetz Lake and wind-up – meet at KWNC

Dec 17 – Central Alberta Christmas Bird Count

Dr Sally Stuart: Seasonal Sights and Sounds of Alberta

The Northern Flicker: One Species, Two Phenotypes

As November draws to a close, we no longer hear the distinctive vocalizations of the Northern Flicker (*Colaptes auratus)* calling from the woods. Flickers belong to the family Picidae (Woodpeckers and their relatives). They historically migrated further south for the winter, but in recent years it is not uncommon to find them overwintering. They are beautiful woodpeckers with intricately patterned and colored bodies which include black melanin spots and patches of carotenoid pigments.

The earliest reference I found to the Northern Flicker was made by the Rev. Wood in 1872 in his fascinating book "The Illustrated Natural History." Wood refers to a North American ground woodpecker he calls the "Gold-winged Woodpecker," a particularly charming name. Obviously describing the Yellow-shafted Flicker, he marvelled at their complicated coloring: "On the back of the head is a semilunar spot of blood red. The inner sides of the wings and tail, and the shafts of nearly all the feathers are of a beautiful golden yellow." Further describing it as a "feathered ant eater," he recounts how a fellow naturalist shot and wounded one, then kept it as a pet for a few days. During this time, it escaped from its cage of willows and roamed around the room. Apparently while captive he fed it on "young ears of Indian corn, sour gum berries, small winter grapes and other berries." Alas it succumbed to its injuries a few weeks later.

Northern Flickers appear to be everywhere; however, this may be deceptive. They are easy to spot because they often feed on the ground and are vocal, reasonably large and distinctively colored. The "Atlas of Breeding Birds of Alberta: A Second Look" notes it is at home in every natural region of the province.

There are two distinct colour morphs (phenotypes) with the Yellow-shafted morph predominating in the east and the Red-shafted in the west. Both are found in the Red Deer area. Distinguishing characteristics include six well-defined feather patches, the most noticeable of which are the wings and tail (the eponymous shaft) which is either red (in the Red-shafted or yellow (in the Yellow-shafted). Other characteristics include the nuchal patch behind the head (gray in Red-shafted; red in Yellow-shafted), ear coverts (gray in Red-shafted; chestnut in Yellow-shafted), throat (gray in Red -shafted; chestnut in Yellow-shafted), and crown (chestnut in Red-shafted; gray in the Yellow-shafted). The sixth difference, the moustache (malar stripe), runs across the cheek to the edge of the beak (red in Red-shafted; black in Yellow-shafted). It is only found in males and is an example of sexual dimorphism. In both phenotypes, the chest has black melanin spots and a characteristic bold black V. Despite the different phenotypes, in terms of their genes (genotype) they are remarkably similar. Where they overlap, they freely interbreed as they are the same species.

What causes the colour differences? In the past, studies concentrated on the different pigments. Birds can produce the pigment melanin (black, brown coloration) but the brightly colored carotenoid pigments (responsible for reds and yellow) must be consumed in the diet. Recently, studies have concentrated on the genetics of bird coloration. One such study, by Stepfanie Aguillon et. al (2021), looked at the genes influencing the complex coloration in flickers. Not only do genes control the melanin pigment, but there are also genes which allow the carotenoids to be biochemically processed. Stepfanie identified 112 genes which regulate coloration! Perhaps not surprisingly, there is a complicated relationship linking pigment genes to plumage patches. Specific genes cause yellow to red coloration in wing and tail feathers. However, in the Yellow-shafted, the black malar stripe started out yellow due to a carotenoid gene but was overlain with melanin thus appearing black—an example of genes which control both melanin and carotenoids being switched on. Furthermore, colour can be determined by switching off melanin genes.

As noted earlier, the red or black malar stripe is used to identify the sex. The importance of such signals was noted by Geoffrey Hill in his wonderful book "Bird Coloration." He recounts how, in 1936, G. Noble captured the female of a pair of yellow flickers. He then glued a black malar stripe to her, so she resembled a male. When released her partner mistook her for a rival male and proceeded to chase and pursue her. Once the stripe was removed the fatigued female was permitted to return to the nest. Such signals do not indicate a superior male, just that he is male. Superiority, however, might be indicated by the richness of the carotenoid and melanin pigments. Other slight differences are found between the sexes. Elizabeth Gow et al studied flickers in B.C., wondering if the significantly longer and wider bill found in males would affect feeding. Based on fecal pellet analysis, no differences were found between sexes, both feeding almost exclusively on ants. Different ant species were used at different seasons. There are over 117 species of ants in Alberta, so utilising an abundant food source such as ants provides a superb source of nutrition.

Breeding times may be dictated by ant availability, however, when it comes to choosing a suitable site for reproducing, their choice seems to be determined by ease of excavation. Their bills, adapted for ground feeding and digging in soil, are not as specialised for the task of tree mining as other woodpeckers; hence they prefer ones with a rotten core. Breeding strategies of flickers have been extensively studied, particularly by Karen Weibe and colleagues. Females have an almost unlimited ability to lay large numbers of small eggs, which do not require much energy. In one anecdotal study, eggs were removed from a female as they were laid. The resulting bird laid 71 eggs in 73 days! Average broods tend to contain about eight eggs. It is now apparent that both males and females share most tasks, including incubation. They both develop brood patches. Males do about 75% of the incubating, including all the nocturnal incubation. In another study, Wiebe sampled blood from 326 nestlings to determine offspring genetics. Some surprising results emerged. It was discovered that intraspecific parasitism was fairly common, with parasitic eggs being found in 17% of the broods. The authors suggest that the high rate might be due to the physical closeness of the nests. The most intriguing finding revealed about 5% of the females were polyandrous (had two or more partners). These females and their primary partner were older, experienced birds. The second partner tended to be younger and had not yet found a mate. The old saying "don't put all your eggs in one basket" is exemplified by this strategy as these females raised almost twice as many young compared to those in monogamous relationships. Interestingly, although she fed young in both nests, the extra work associated with raising two families was left to the males. The authors suggest the polygamous behaviour may be because females in this species are "emancipated." Freed from many of their typical tasks, they have time to invest in other activities.

Finally, there is evidence that the proportion of female offspring increases with the hatching order. Male offspring, which are larger, require more resources. How is it possible for females to manipulate the gender of their eggs? Unlike mammals, it is the female bird that is the heterogametic sex, meaning she has two different sex chromosomes Z and W. Male birds have only Z chromosomes, so only pass on male genes. During cell division (meiosis), when the chromosomes separate, the female follicle produces progesterone. This is the key to sex determination. Low doses result in males while elevated levels produce females.

The question remains as to how successful Northern Flickers really are. Perhaps the success of the species lies in the fact that it eats a ubiquitous food source, ants. However, it is probable that—like most species— it may be threatened by a lack of habitat and climate change. Certainly, competition from starlings for nesting sites results in many failed breeding attempts. Is it time for a third look at the Atlas?

Social Media:
1132 Facebook Members
312 X Followers
444 Instagram Followers

2023 Owl Award: Dr. Sally Stuart

It is our pleasure to recognize Dr. Sally Stuart as the 2023 recipient of the RDRN Owl Award.

Sally is a keen biologist and naturalist. She has taught in the biology and nursing programs at Red Deer Polytechnic since 1989 and has also served in a variety of other roles including Chair of the Biology Department and President of the Faculty Association. Over the years, she has shared her love of zoology, physiology and the natural world with thousands of RDP students. She has a keen interest in bioacoustics and has supervised numerous student research projects on local bat and bird vocalizations.

Sally served on the RDRN board from 2015-2017. In 2018, she took over the job of organizing our monthly speakers. Her ability to bring in excellent speakers has raised RDRN's profile in the community and beyond.

Sally is also a regular contributor to the RDRN newsletter though her interesting and informative "Seasonal Sights and Sounds of Alberta's Wildlife" articles.

Finally, Sally has strengthened the relationship between RDP and RDRN by encouraging students to attend our monthly meetings, and even providing opportunities for RDP students to present their research projects to our organization. Congratulations Sally! Well deserved! *(Our thanks to Sandra MacDougall for assisting with this tribute)*

RDRN Board and Staff (from left): Ed Graff, Myrna Pearman, Don Wales, Rick Tallas, Rod Trentham (Staff: Recording Secretary), Daryl Beck, Bob Krutchen, Anto Davis, Cathy Steele

The 2023 Nature Central Committee (Cathy Steele, second from left; Myrna Pearman, far right) were pleased to thank, at a recent board and volunteer appreciation evening, three volunteers who have contributed significantly to the success of Nature Central. Our thanks to Joey Temple (far left), Jim Potter (centre) and Eileen Ford (second from right) for their support, mentorship and volunteer commitment. You are appreciated!

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 7:00 PM on the fourth Thursday of most months at Kerry Wood Nature Centre. Non-members are welcome.

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

Box 785 Red Deer, AB T4N 5H2 Phone/Fax: 403.347.8200

rdrn.nature@gmail.com
www.rdrn.ca
wearenaturalwise.blogspot.com
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Our thanks to McElhanney for generously donating the printing of this newsletter and NOVA Chemicals for covering postage costs.

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Cover Poster by Doug Pedersen

Photos, unless otherwise noted, by Myrna Pearman