

The Red Deer River Naturalist



March 2025

Editors: Myrna Pearman & Susan van der Hoek



RDP Students Present Research Projects

RDRN once again welcomes third and fourth-year RDP students to present summaries of their research projects.

27
MARCH
2025
7:00 PM
Kerry Wood Nature Centre
Red Deer

Summer Diet Overlap Between Coyotes and Black Bears in the Beaver Hills Biosphere:
Kiara Mickey



A Bioacoustics Survey to Monitor Bat Biodiversity at Half Moon Bay, Sylvan Lake:
Campbell Skelton

Big Brown Bat

Little Brown Bat

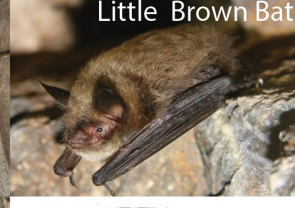
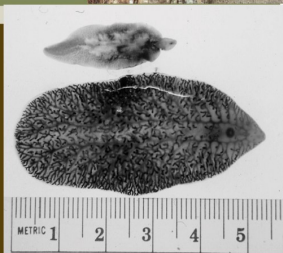


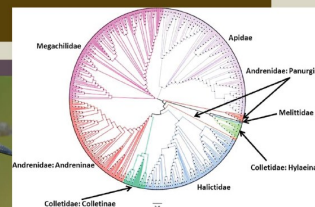
Photo by Ivan Kuzmini

Characterization of Ungulate Gut Parasites - The Hunt for *Fasciola magna*:
Ariana Dahmer



(*F. magna*) Photo by M. Kasny

Genetic Barcoding of Local Native Bees:
Jessie Thompson and Joyce Agot



Contribution of DNA barcoding to the study of the bees Hymenoptera: Apoidea) of Canada

All are Welcome



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SEASONAL SIGHTS AND SOUNDS OF ALBERTA: THE REVERBERATING SPRING SONG OF THE WOODPECKER

By Dr. Sally Stuart

While I was carrying in old poplar wood for the fire during the recent cold snap, I was fascinated to study the holes and tunnels of wood-boring invertebrates. I was reminded of how dead and decaying tree, which host these invertebrates, are so important to our resident woodpeckers and other wildlife.

As we move into March, the days are getting longer and spring is in the air! Woodpeckers are responding to this longer photoperiod, filling the air with their early spring drumming. Three species of woodpeckers are resident in Central Alberta: Downy, Hairy and Pileated. The defining characteristic of all of them (and all woodpeckers) is their beak. According to Eric Schuppe et al. (2021), the ancestral role of woodpecker beaks was for excavating nest cavities. I have frequently observed with interest as a Downy Woodpecker meticulously chisels away at an aspen tree, creating a cavity and leaving behind a trail of small wood fragments, only to later abandon the site for an entirely new location.

Our resident woodpecker species each have unique requirements— tree or limb diameter, height and core tree hardness—when selecting their nesting trees. Jerome Jackson (2004) reported that the Downy often selects a limb with a diameter as small as 12 cm, whereas the extinct Ivory-billed Woodpecker (IBWP) of the old-growth forests, required limbs of about 35 cm in diameter. Richard Bonar (2001) found similar results for Pileated Woodpeckers in the Alberta foothills, but observed that they preferred trees with fungal decay, despite having the ability to excavate solid wood. Will fate of Alberta's largest woodpecker some day follow that of the IBWP due to a lack of old growth forests?

Most woodpeckers prefer to excavate trees with cores weakened by wood decay fungi that decomposes cellulose (e.g., heart rot). Researchers have determined that there is a symbiotic relationship between woodpeckers and tree-inhabiting fungi: woodpeckers transport the fungi, benefiting in turn from the rotting core. The fungal communities found on both woodpeckers and at the excavation site are diverse, with one study identifying more than one thousand taxa!

Woodpecker beaks have also evolved to play an important acoustic role, especially drumming. It is a key form of communication, used to mark territory and attract mates. Both sexes can drum, and drumming is performed most frequently during spring mornings. At the start of the breeding season, adults must defend the best territories which include suitable trees for nesting and feeding. Woodpeckers likely select their mates based on drumming; those that drum rapidly are seen as the fittest.

Drumming is thought to be the equivalent of bird song, as it shares many of the same roles. Songbirds have forebrain regions which control the ability to learn songs.

Eric Schuppe et al. (2022) discovered that Downy Woodpeckers have similar anatomical regions and that brain activity in this area is triggered only while drumming. Its intriguing to wonder if woodpeckers might learn their specific drumming pattern, either from parents or surrounding birds?

Three important drumming parameters include: speed (number of drums per second); length (number of beats in a sequence); and pattern (rhythm). Downys drum at about 15 beats per second while the Hairy beats at 26. (The Japanese Pygmy Woodpecker holds the record at 38 beats per second!).

The speed at which a woodpecker's beak repeatedly strikes a tree is extraordinary, and this ability to drum so quickly is determined by both their anatomy and physiology. Powerful neck muscles (e.g., the longus colli ventralis, which is required to move the head and neck) are often hypertrophied (excessively enlarged). Physiologically, muscles consume vast amounts of energy during both contraction and relaxation. Calcium ions that are required for contraction must be removed during relaxation using specialized proteins, a process which consume further energy. Evidence suggests that adaptations occur at the molecular level: Downy Woodpeckers, for example, have an elevated quantity of these proteins, hence speeding up relaxation. It appears that drumming speed, but not drumming length, is generally constrained by body size. Rhythm also varies between species. Downys, for example, have a constant rhythm while sapsucker rhythm can be variable (they typically start drumming rapidly, then slow down).

To study the role of drumming, researchers play recordings to resident birds on territory and observe responses. These "simulated territorial intrusions" confirm that drumming is an aggressive signal in both sexes of resident birds. When presented with recordings, Red-bellied Woodpeckers drum for longer periods while Downys increase their speed. Territorial overlaps between different species (e.g., Downy and sapsucker), elicit no response from either species.



BUFFALO LAKE NATURE CLUB

Learning to Share Land – a Farmer's Perspective: Beth Davidson and Brenda Bohmer (farmers on Treaty 6 lands)

March 20, 7:00 PM

St. George's Anglican Church, 4817 - 51st Street, Stettler

buffalolakenc@gmail.com

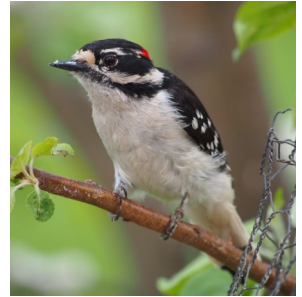
Treaty Land Sharing Network www.treatylandsharingnetwork.ca

Woodpeckers cont.

Unlike human hearing, woodpecker hearing allows for superb temporal resolution: not only can individuals differentiate the drumming of other species, but they can also recognize the drumming of individual birds occupying surrounding territories.

The ability of woodpeckers to drum without experiencing brain damage or concussions has been widely researched. A recent study by G. Farah et al. compared the brains of various woodpecker species and Red-winged Blackbirds from museum specimens. Unlike blackbird brains, woodpecker brains were found to have lesions and an accumulation of a protein known as tau. Tau is the same protein identified in the brains of Alzheimer's patients and individuals who have suffered severe concussions. The study raises questions about whether these symptoms are the result of repeated impacts or if they serve a protective function.

While noise pollution is a growing concern, a recent study in Germany found that habitat is the most critical factor for woodpeckers' drumming. The birds require suitable trees for drumming and breeding, with noise having little impact. Hopefully we will continue to hear woodpecker drumming for years to come.



SPRING BIRDING TRIPS WITH CHRIS OLSEN

Outings start at 10:00 AM unless otherwise noted. Directions, maps, and travel details (including schedule changes or destination updates) are posted on the RDRN website Calendar of Events. Birders of all skill levels are welcome!

March 22: Carburn Park, Calgary – meet in main Carburn Park parking lot

March 29: Riverbend Park perimeter trail – meet in the main parking lot

April 5: Gaetz Lakes Sanctuary – meet in KWNC

April 12: McKenzie Trails Park to Riverbend – meet in the main parking lot at Mackenzie

April 19: Maskepetoon Park – meet in the playground parking lot (Kerry Wood Drive/Oak Drive)

April 26: Wainwright Sharp-tailed Grouse Watch – see below

April 26-27: Tofield Snow Goose Festival – www.snowgoosefestival.ca



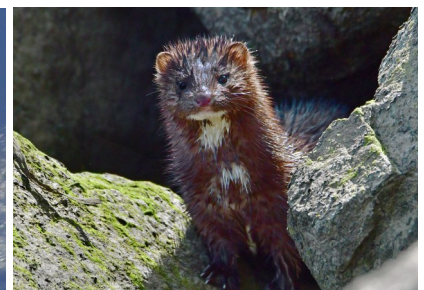
Photo by Chris Olsen

WAINWRIGHT SHARP-TAILED GROUSE WATCH: There are eight spots remaining on a "first come - first served" basis. Unreserved seats will be released in early April. Call 780-581-4430 or email olsencdel@gmail.com for more information and to register. We will meet in a parking lot (tba) in Wainwright at 3:45 AM and depart for the lek at 4:00 AM. Cost is \$35 per person. Plan to be in the blinds until about 8:00 AM, so dress warmly and bring a hot thermos and snacks. If you are unfamiliar with this spectacle, you will be amazed! Participants can also book for the Snow Goose Festival activities in Tofield on the same weekend.

DID YOU KNOW? WITH SUSAN VAN DER HOEK

A group of weasels is called a boogle, confusion, gang or pack. Alberta has four weasel species in the genus *Mustela* (images, from left—Short-tailed (*Mustela erminea*), Long-tailed (*Mustela frenata*), Least (*Mustela nivalis*) and American Mink (*Mustela vison*).

Weasels are active all winter and are fierce predators. They are carnivores, preying on mice, voles, shrews, chipmunks, snowshoe hares and red squirrels, and they will eat insects, worms, frogs, snakes, birds and eggs when other prey is scarce. Mink eat virtually anything, including fish. Weasels consume everything except their prey's stomach and use skins to insulate nests. Their short fur changes from brown in summer to white in winter. Territorial weasels can release a foul-smelling spray for defense.



NATURE CENTRAL WITH ABBEY VAN HEUVEL



On February 22, twelve participants joined Nature Central's winter snowshoe hike at Kinvig. The weather was perfect, with clear skies and a high of 9°C. As we hiked over hills and along the lakeshore, we explored the area and spotted a variety of wildlife signs. We came across tracks from mule deer, mice, snowshoe hare and mink, as well as deer and coyote beds, and even spotted a Ruffed Grouse. It was an enjoyable day, offering plenty of opportunities to connect with nature and have fun along the way. **The last hike of the season will take place on Saturday March 22 at the Innisfail Natural Area.** Please email nir.rdrn.nature@gmail.com to register and for parking details.



FLOWER FOCUS WITH DON WALES

Southern California Wildflowers and Wildlife Revisited

Wednesday, March 19

10:00 AM Kerry Wood Nature Centre



Photos by Don Wales

IN THE ALBERTA WILDERNESS

WITH DON AUTEN: RED SQUIRREL

Red Squirrels are Alberta's most common tree squirrel. They are active during the day and highly territorial, often chattering and scolding intruders. These squirrels are usually solitary, except during breeding season, when you might see high-speed chases through the treetops. Their bushy tails help with balance and steering as they jump from tree to tree.

This trail camera was set up for Northern Flying Squirrels, but it also captured many photos of Red Squirrels using horizontal logs to travel through the forest.



Social Media: 3206 Facebook Members; 307 X Followers; 507 Instagram Followers

The Red Deer River Naturalists, the first natural history organization to be established in Alberta, was founded in 1898 and incorporated 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.

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Our thanks to McElhanney for generously donating the printing of this newsletter and NOVA Chemicals for covering postage costs.



Cover poster by Doug Pederson

Photos, unless otherwise noted, by Myrna Pearman