

Join us for Fungi in the environment: from decomposition to the "wood-wide web" with Dr. Heather Addy

▶ **September 23, 2021**
7:30pm-9:00pm

RDRN Zoom Virtual Series Join the meeting here:
Meeting ID: 833 3196 7126 Passcode: 069910



When you think about fungi, what springs to mind? For many of us, the first thing we think of is their role as decomposers. But there is so much more to these fascinating and often over-looked organisms, including their symbiotic partnerships with plants in mycorrhizal associations (the "wood-wide web"), the promise they hold in bioremediation and even as building materials and their increasing threat as pathogens to many organisms, including humans. In this session, we'll start with a look at the basic biology of fungi and the features that enable them to be successful in a range of lifestyles. We'll then look at the diverse roles played by fungi in the environment, focusing on local examples.



Photo by Bernard Spragg



Photo by André Lage Freitas



Dr. Heather Addy

Dr. Heather Addy is a Teaching Professor in the Biological Sciences Department at the University of Calgary. Her PhD research at the University of Guelph and subsequent postdoctoral research at Penn State University and the University of Alberta focused on mycorrhizal associations and other fungal symbioses; during this training, she also discovered a love of teaching. In 1998, she joined the University of Calgary in a faculty position that emphasizes teaching and teaching-related scholarship. Currently, she teaches courses in plant and fungal biology and studies the impact on student learning of collaborative learning methods such as team-based learning.

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SEASONAL SIGHTS AND SOUNDS OF ALBERTA: THE GRAY CATBIRD—A REMARKABLE BIRD VIRTUOSO

By Dr. Sally Stuart

As the seasons pass in a somewhat predictable manner, so do bird vocalisations. However, this year I was quite disappointed to hear so little of one of my favourite visitors, the Gray Catbird (*Dumetella carolinensis*). Some would describe the catbird as dull, after all it is a predominantly grey bird with a only a splash of red under the tail. The colours are due to two different chemical pigments, both of which are types of huge melanin molecules. Both are synthesised by the bird instead of being taken in with their diet, by specialised cells called melanocytes. The different colours are due to each pigment having different chemical structures which allows them to absorb different wavelengths of light. Eumelanin is responsible for the gray colour, while Phaeomelanin conveys a reddish brown shade. This bird may look drab, however, melanin confers many advantages such as protection against UV light and feather strength.

Most of my experiences with the Gray Catbird have been of a visually reclusive, secretive bird often located by a plaintive cat-like mew. According to *Stokes Guide to Bird Behaviour*, Volume 1 the call can be given by both sexes and is usually issued as a warning sound or a sign of aggression between birds. What delights and intrigues me about this bird is its singing abilities.

Mid-June is catbird season. In the willow bushes bordering our property, the male can be heard singing. At 10:00 PM one evening in 2017, I recorded a bird for several minutes. The same bird continued to sing until at least 2:30 AM the following morning. The males sing this prolonged song, usually while establishing territory. According to Stokes, males may also sing due to the presence of a human.

The Gray Catbird belongs to the family *Mimidae*, which in Alberta also includes the Brown Thrasher, Sage Thrasher and Northern Mockingbird. The family is well known for its singing abilities.

Each part of a birds' song is known as a phrase. Catbirds do not repeat phrases (or at least not very often) while thrashers sing in couplets (repeat each phrase twice) and mockingbirds often in triplets (three times). All three species live in similar habitats with overlapping ranges and often imitate each other. While most birds (e.g., Song Sparrows) have a limited repertoire of a few different, perhaps a dozen or so, songs. By contrast, the *Mimidae* have an incredible range of vocalisations. According to a study by Thomas and Jane in 1969, one five-minute recording of a catbird singing was made up of approximately

180 different sounds. Quite the virtuoso! However, a study by Donald Kroodsma documented a Brown Thrasher that sang 4,654 songs over a two-hour period! Kroodsma ended up in the 1981 Guinness book of records because he documented that Brown Thrashers sing “2,400 distinctly different songs.”

Gray Catbirds may well have a similar repertoire. Although this family of birds are somewhat unique in their ability to acquire new songs, it is not yet known how much of their vast song inventory is memory based and how much is improvised as they go along.

A unique and very complicated structure—the syrinx—is responsible for sound production and has two tubes with vibrating membranes and muscles, controlled by nerves from the brain. It was a study involving the Brown Thrasher which allowed scientists to determine that both tubes can function independently, therefore enabling birds to essentially have “two voices.”

An interesting, rather different picture of the Gray Catbird emerges based on *Illustrated Natural History* by Rev Wood, published in 1872. It is a fascinating old book, with abundant examples of Victorian attitudes about the natural world. It seemed important during those times to ascribe human characteristics and emotions to wildlife. One person describes a walk in the woods, imitating the calls of young birds. The result was that a catbird was “thrown into fits, his emotions and agitation are so great. . . . he bewails, he implores.” Another story involved a person describing her pet catbird, General Bem, that lived free in the house. It was extremely jealous of a pet mockingbird and, when fighting it, was “seized with convulsions, to the point she thought him dead!” When the family bid adieu to their pet to go travelling, Bem responded vigorously: he “bit our lips till the blood came in the energy of his farewell.”

Bird physiology is fascinating, and the Gray Catbird is no exception. It undergoes remarkable physiological changes prior to migration. Migration is understandably energetically demanding. A study by Kristen DeMoranville et al in 2019 found that birds, to prepare for migration, raised their metabolic rate and their cardiac muscle mass increased to support the elevated metabolic activity. At the same time the absolute mass of their pectoralis (main muscle responsible for wing movement) increased, preparing them for the long migration. During the tropical winter these changes were reversed.

By the time you read this article most Gray Catbirds will have begun their long migration to Southern North America perhaps even as far as Central America.

Imagine the surprise in England, when in October 2018, at Land's End in Cornwall a Gray Catbird was spotted. People came from hundreds of kilometres away to view this “amazingly rare” bird!



NATURE CENTRAL: A SUCCESSFUL FIRST SEASON!

The RDRN are pleased to report that the first season of *NATURE CENTRAL: Celebrating Our Wild Alberta Parklands* was a success. The program, a partnership between RDRN and Nature Alberta, was delivered by Naturalist in Residence, Shaye Hill, and Assistant Naturalist, Sherry Scheunert. Myrna Pearman acted as the volunteer RDRN Liaison.

The goal of Nature Central is to celebrate the protected areas in Central Alberta and to increase the appreciation, thoughtful exploration, non-consumptive use and ecological understanding of these areas.

Our Nature Central team visited 109 sites over the summer, out of the approximately 164 protected areas that have been identified within a 100-km radius of the City of Red Deer. Information collected at each site, including basic biophysical information as well as details about access and facilities, has been posted to the website (www.naturecentral.org). A total of 45

sites were profiled with videos that were posted on various social media platforms.



The team also networked with stakeholders, promoted the program and RDRN through posters and press releases, led well-received Saturday walks and hosted family-focused events, including a well-attended event in partnership with Nature Alberta and Kerry Wood Nature Centre. A summer newsletter was published and can be downloaded from the website. A wrap-up celebration was held in late August. Thank you Shaye and Sherry, for making Nature Central such a success.



Given the resounding success of the first year of Nature Central, RDRN is looking at options for continuing and expanding the program.



From Top Left: Sherry Scheunert on the Narrows paddle; Sherry Scheunert, Tony Blake, Shaye Hill, Myrna Pearman, Peggy Birse, Rick Tallas, Bob Krutchen, Daryl Beck enjoying the end-of-season celebration; Teresa Neuman, Shaye Hill, Dr. Rick Schneider, Myrna Pearman at a Saturday morning hike; Shaye Hill, Tony Blake, Teresa Neuman, Sherry Scheunert, Myrna Pearman at a planning meeting; Dr. Cliff Soper and Shaye Hill at the July 1 celebration; Shaye Hill conducting a site inspection. Centre image of Common Yellowthroat by Shaye Hill.



THANK YOU TERESA: WELCOME PEGGY!

We would like to say a big thank you to Teresa Neuman (left). Teresa worked for RDRN on a four-month contract as the Administrative Manager. Under her guidance, we (among many other things) finalized our Strategic Plan, updated our Policy Manual and developed Terms of Reference for our Committees. Thank you so much, Teresa, for guiding RDRN into a more streamlined and professional organization. Our new staff member is Peggy Birse (right). As Managing Director, Peggy—who comes to us with much experience with not-for-profit organizations and in various related fields—will continue assisting us with management and administration and will also help us obtain future funding so we can increase our profile in the community, deliver important programs, and continue to be an important voice for nature.



MOLLY BANISTER DRIVE EXTENSION UPDATE (1991 – 2021)

By Rod Trentham

After purchasing the Bower Sister's property, including the Bower Woods Natural Area in 2019, Melcor proposed an amendment to the East Hill Major Area Structure Plan (MASP) in 2020 to remove the protection for the Molly Banister Drive Extension (MBDEx) across Piper Creek, through Waskasoo Park—for good. Melcor also proposed adding 40 acres (16.2 ha) to Waskasoo Park.

The professionals in the city of Red Deer Administration agreed with the Amendment, seeing no need for this arterial road in 2054 when the city may have a population of 188,000.

With Mayor Tara Veer recused, five Councilors – Buchanan, Handley, Higham, Lee and Wong – voted against administration's recommendation. Retired City Manager Craig Curtis made a presentation supporting the need for the MBDEx as a major arterial road; it was also the Curtis administration that turned down the Bower Sister's offer to **donate** the Bower Woods Natural Area to the City.

This past summer, Melcor proposed alternative crossings of Piper Creek and amendments to the East Hill MASP. After public hearings by phone on August 30, 2021 with Bower residents still wanting no crossing, a presentation by Curtis followed by me after 6

We are looking for new board members. If you are interested in joining us, please email rdrn.nature@gmail.com

Social Media stats: 552 Facebook, 268 Twitter, 245 Instagram

DID YOU KNOW? BY SUSAN VAN DER HOEK

A group of ferrets is known as a “business.” The black-footed ferret (*Mustela nigripes*) is a prairie mammal usually associated with prairie dog towns, but has ranged beyond them in southern Alberta and Saskatchewan. Its main food is prairie dogs but gophers (Richardson's ground squirrel) and other small mammals are also taken. Listed as extirpated in Canada in 1978, in 2009 a Canadian reintroduction program began releasing black-footed ferrets into the Grasslands National Park. Both gophers and prairie dogs are rodents, but prairie dogs are members of the squirrel family while gophers are not. Gophers have bigger teeth and bigger claws for digging.

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.

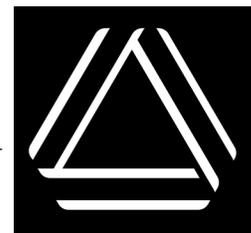
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hours on Monday and then another 1.5 hours on Tuesday afternoon. Council voted 5 – 2 to reduce the MBDEx protection to a 4-lane Collector road that meets up with 22nd Street (roughly 26 m as opposed to 44 m plus collateral damage) – if ever needed, which I doubt. Councilors Handley, Higham, Lee, Johnson and Wyntjes voted for this Collector compromise. Councilors Wong and Dawe voted against the amendment – Dawe because no crossing is needed. This means Melcor can proceed with plans. It will be interesting to see their Neighbourhood Area Structure Plans (NASPs).

There is no other neighbourhood in Red Deer that has a major arterial road through the middle of it.

So far, we know Councilors Handley and Wong are not running for re-election, although Mr. Wong said this last election too. Councilors Johnson and Buchanan—and several others in the community—are running for Mayor. Councilors Dawe, Lee and Wyntjes are running for Council. The deadline for filing papers is September 20, 2021. I have heard from several sources that Craig Curtis plans to run for Council.

RDRN NEWSLETTER PRINTING: The City of Red Deer (Printing Services) is no longer able to print our newsletter, after many years of dedicated and excellent service. Our thanks to the City and to Chris, Betty and the other team members who were so generous with their time and expertise. We are grateful. Our new printing company is Abacus Datagraphics. They have kindly offered to print our newsletters at no charge. We are very grateful for this generous support!



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