

The truth about poop

A few weeks ago, as I was watching the flocks of redpolls, goldfinches and chickadees swoop between hemlock boughs and my one little feeder, I noticed that the hemlock needles had spots. Could it be snow? No, not after one of our long dry spells this winter. Since the plow pile hadn't yet grown to enormous heights, I was able to nose in close to the trees for a better look.

As I examined the small, whitish, cylindrical lumps frozen to the twigs, first I started chuckling to myself, and then I went to grab my camera. The trees were covered in little nuggets of redpoll poop — of course I had to get some photos!

You know, I probably say the word "poop" more than your average 3-year-old. During presentations about my Natural Connections books, I've been tempted to ask my adult audience if someone would count the number of times I say "poop." Why does it come up so often? We'll, for starters, poop is essential to the flow of nutrients in nature.

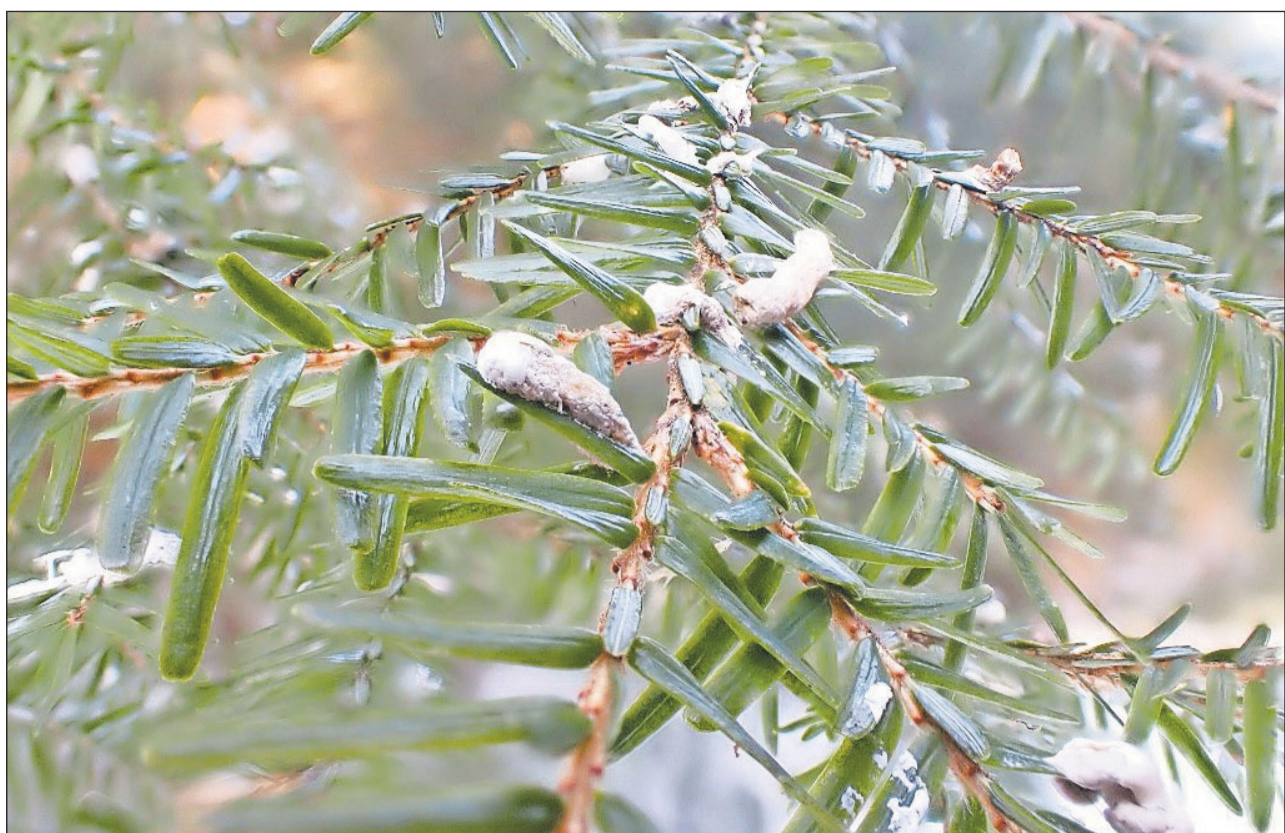
For example, inside the leaf of a pitcher plant lives a community of critters. When an ant or other food item drops in, fly larvae, mosquito larvae and midge larvae all work together to break it down. Bacteria and other microorganisms help, too. At each step in the food chain, a

community member eats something, takes what they need, and poops out the rest. Their poop might still contain valuable nutrients that are useful to another critter. Eventually, the nutrients take a form that the pitcher plant itself can absorb directly through its leaf.

Poop comes up when I teach kids, too, of course. Almost every lesson I present starts with a review of the food chain. Food chains really do make the world go 'round. After Sun, plants, herbivores, omnivores and carnivores, I like to include scavengers and decomposers. Since both of these groups eat dead stuff, I had to find a kid-friendly way to differentiate them.

My solution: scavengers have regular poop, and decomposers poop out soil! This is shorthand for the fact that decomposers break their food down into its chemical components — nutrients like nitrogen and carbon — that are essential for plants.

Poop is also valuable for studying wildlife. When I was in Alaska in 2018, I tagged along with a few different research projects, and two of them were gleaning information from the scat of snowshoe hares. "We can't just walk out there and say 'hey animals, come out, I want to count you,'" explained Denali National Park's wolf technician, Kaija Klauder, to a group of high school students



Contributed / Emily Stone

Little white nuggets of ammonium urate are frozen onto the hemlock twigs near my bird feeder.

from Anchorage who were attending a summer science camp. "Luckily," she continued, "all animals poop, and that's awesome for science."

My student buddy and I counted all the Skittle-shaped, sawdust-filled hare pellets in a one-foot radius sample plot. The 200 plots our group sampled that day would get plugged into a spreadsheet. With a little bit of math, scientists could estimate how many bunnies must be in the area in order to make that many poops.

Later that summer, I joined Claire Montgomerie, a graduate student from the University of Alaska Fairbanks, doing research in the Brooks Range. She was trapping the snowshoe hares to count their population numbers, and then also drawing blood to learn about body condition and stress levels. In addition, we filled little whirl-top bags with fresh hare scat from under the

wire mesh of the trap. Chemical analysis of the blood would give a seasonal average of body condition, while scat analysis might reveal a snapshot just from the hare's stay in the trap.

Poop also comes up quite a bit while doing animal tracking. From seed-filled bear scat to hairy wolf turds, and even the frass of caterpillars and leaf miners, animal poop can tell us a lot about who lives where and what they are eating. Little piles of worm castings can even clue us in to when these non-native wigglers have moved into our woods.

So, as a naturalist, I don't think it's weird that I spend time looking at, thinking about, and teaching about poop. I don't even think it's weird to Google it.

And today, I'm glad I did! I've always been taught that the white part of bird poop is their version of urine. It is concentrated uric acid that goes straight

from the kidneys to the cloaca because birds don't have a bladder. Water is reabsorbed in the cloaca, which reduces the need for birds to drink. It gets excreted at the same time as their feces — the dark parts of bird poop. At least that's the conventional wisdom.

In 2019, a researcher following his curiosity and a hot tip from an ornithologist, analyzed poop from six varied species of birds. Instead of uric acid, he found ammonium urate, struvite and two unknown compounds. The resulting hypothesis is that birds do turn their wastes from protein digestion into uric acid, but that bacteria in their cloaca break down the uric acid into other materials before it leaves their body. So much for conventional wisdom!

That doesn't explain why I suddenly saw so much bird poop on my trees, though. That occurrence has several causes. First, I have

many more birds than usual at my feeder. The redpolls have more than tripled my population counts! Second, the cold weather meant that birds were eating a TON in order to stay warm. Eat more, and you have to excrete more, too.

Finally, birds tend to poop during lift-off. This lightens their load and makes flying more efficient. So, when they take off from my hemlock boughs, they leave a little package behind. In the sub-zero temps of those weeks, the poop froze to the needles and built up over time.

Next time your favorite 3-year-old starts talking about poop, maybe you'll have to join them in some scientific discourse.

Emily's award-winning second book, *Natural Connections: Dreaming of an Elfin Skimmer*, is available to purchase at www.cablemuseum.org/books and at your local independent bookstore, too. For more than 50 years, the Cable Natural History Museum has served to connect you to the Northwoods. Follow us on Facebook, Instagram, YouTube, and cablemuseum.org to see what we are up to.

State Conservation Congress gears up for online hearing

Superior Telegram
SUPERIOR — The Wisconsin Department of Natural Resources (DNR) and Wisconsin Conservation Congress (WCC) will hold the 2022 spring hearing online beginning at 7 p.m. April 11.

Members of the public will have the opportunity to provide input on proposed natural resources rule changes from the DNR and advisory questions from the Natural Resources Board (NRB) and WCC through the online input opportunity.

Wisconsinites can also recommend changes to natural

resource issues by submitting citizen resolutions online at <https://dnr.wisconsin.gov/about/wcc/springhearing>. Click on the submit a resolution button and follow the directions to propose a change. Citizens must submit resolutions by 11:59 p.m. March 11.

The 2022 spring hearing online input webpage will go live at 7 p.m. on April 11 and will remain open for three days. Results will be posted as soon as they are available.

"With the pandemic, this has been a challenging couple years for everyone around

the state and the country, and we've witnessed just how important it is for everyone to have access to our natural resources," Tony Blattler, chair of the Wisconsin Conservation Congress, said in a news release. "We are excited to provide an opportunity for citizens to weigh in on these different management issues. I hope that everyone who has an interest in the issues being discussed will utilize the online option to provide their input."

This year there are 16 advisory questions from the DNR related to fisheries and wild-

life management. There are also two advisory questions from the NRB and 45 advisory questions from the WCC. All questions are available to preview on the Wisconsin Conservation Congress website.

"As far as the delegate elections go, we will not be holding elections, but there is an application available for individuals interested in filling a vacant seat," Blattler said. "The applications will be due March 11, which is also the deadline for citizens to submit resolutions."

Information about the

spring hearing questions is also available on the DNR webpage. The link will go live at 7 p.m. on April 11.

The Wisconsin Conservation Congress is the only statutory body in the state where the public elects delegates to advise the Natural Resources Board and the Department of Natural Resources on responsibly managing Wisconsin's natural resources for present and future generations.

Douglas County residents can contact Tom Johnson, 218-591-9158, for more information.

EMPLOYEE SPOTLIGHT

Shelley is a reporter with the Superior Telegram. She started her career as a news assistant at the Duluth News Tribune, primarily writing people's last story (obituary) in June 1997. In 1999, she moved to the news desk and became one of four reporters working in the Superior bureau of the Duluth News Tribune, covering the community and city/county government. After the company purchased the Superior Telegram and closed the bureau, Shelley joined the Telegram staff in 2006 where she has covered Superior and Douglas County government ever since, in addition to serving as the news editor and editor of the Telegram.

She enjoys spending time playing with and training her Labrador retriever and Lab-Siberian husky mix.

"Nothing could be more irrational than to give the people power, and to withhold from them information without which power is abused. A popular government, without popular information, or the means of acquiring it, is but a prologue to a farce or a tragedy; or, perhaps both."

Shelley Nelson
Reporter
715-395-5022
snelson@superiorelegram.com

James Madison, 1822

Superior Telegram

It's time for a getaway.

10 Daily Round Trips to MSP

Learn more at landline.com/landline.