



University of
Lethbridge

NEWS RELEASE

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University of Lethbridge students shine a light on rarely seen local toad

The summer students working in Dr. Julie Lee-Yaw's biology lab at the University of Lethbridge are very keen about amphibians — so keen they're spending the summer conducting research across Alberta on these exceptional indicators of ecosystem health. What's more, they even spent their free time looking out for the elusive Plains Spadefoot Toad.

Because the Plains Spadefoot Toad spends most its time underground, many local residents may have never seen one, even though their range includes southern Alberta. They've been spotted as far north as Wainwright and as far west as Pincher Creek. While they may pop up from time to time to find food, they only emerge in large numbers to breed and only in certain weather conditions.

"With every rain for the past three years, I would be out driving around the outskirts of town trying to find these toads," says Lee-Yaw. "The thing that's very interesting about them is that they're very secretive and cryptic. They will spend vast amounts of time underground, and they only come out when the conditions are just right and that means lots of rain and temperatures of 10 degrees or higher."

Dustin Snider, a fourth-year NSERC-funded student in Lee-Yaw's lab, had seen a Plains Spadefoot in Cottonwood Park and was determined to find the breeding site of the population in the area. Along with others in the lab, he combed the park paths at night in the middle of June and one night heard them calling in the distance. He eventually located the source of the calls in West Lethbridge and alerted his lab mates, who went out to observe the toads for themselves.

"It was a real win for us to see this toad that's at the northern edge of its range and that's very rarely seen until it comes out in these really unique conditions," says Dr. Arianna Kuhn, a post-doctoral fellow in Lee-Yaw's lab.

In Alberta, the Plains Spadefoot Toad is listed as a species at risk of declining and is a high priority candidate for a status with the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).

“COSEWIC has stated that 77 per cent of spadefoot toad habitat has been lost through the 20th century, mainly due to agriculture,” says Snider. “The breeding site we located is very close to current residential areas and in a prime location for residential expansion. It could be bulldozed over within the next few years. With dwindling habitat for breeding, it’s important we protect the remaining sites.”

Those concerns are echoed by Lee-Yaw. Because the toads spend most of their time underground, the size of the population is hard to gauge. When environmental impact assessments are completed for development projects, sensitive species like the Plains Spadefoot, which won’t be visible if the conditions haven’t been right, will be missed completely.

Other amphibians being studied by Lee-Yaw’s group include the long-toed salamander and the Western Toad.

Jayna Bergman (BSc ’22) and Shay Marks, a biology student from the University of Victoria, are conducting research on the Western Toad. Alberta is home to calling populations of the toads, where males produce calls to attract females, while Western Toads in other jurisdictions do not produce calls. They hope to learn if Alberta’s population is genetically unique.

As a field technician in Lee-Yaw’s lab, Snider is working with Kaegan Finn, a graduate student, looking for new long-toed salamanders in under surveyed parts of the province. Other students in the lab include Chinook Summer Research student Brianna Constable, who recently completed her second year in the biology department’s Research Internship Concentration (RIC) and who is studying colour pattern variation in these salamanders across seven states and provinces.

Daemon Wisniewski, who’s just completed his first year in the RIC program, has also been working in the lab and with collaborators at Yale University, preparing wood frog samples for genetic analyses and helping keep the lab’s large amphibian tissue collection organized. He recently tried his hand at night-time amphibian surveys and spotted the lab’s first tiger salamander of the season.

“The biodiversity of Lethbridge and Alberta more generally is impressive,” says Lee-Yaw. “Taking a break from our regular project work just to appreciate this diversity is important to the lab and we encourage others to check out what’s right here in their backyard.”

This news release can be found online at [Plains Spadefoot Toad](#).

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