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Newfound aquatic parasite named after longtime University of Lethbridge professor

A significant find by a University of Lethbridge graduate student has led to a key paper in the International Journal for Parasitology: Parasites and Wildlife, as well as a touching tribute to one of the most respected aquatic biologists in North America.

As an undergraduate student, Molly Tilley found large, white, disfiguring lesions surrounding the eyes of fathead minnows in the University Pond. Her observation kicked off a long process of discovery that uncovered what she and supervisor Dr. Cam Goater refer to as an “emerging parasite” that has the ability to disrupt the aquatic food chain. Given its prominence as a new species and being identified in southern Alberta waters, the duo felt it was fitting for the parasite to be named after retired ULethbridge professor Dr. Joe Rasmussen — *Myxobolus rasmusseni*.

“Joe and I had been close friends and colleagues for many years,” says Goater. “His stature within Canadian science circles is legendary — I can’t think of an award in his field that he hasn’t won. Naming this parasite after him was another way to honour his range of contributions. To me, he is the top aquatic biologist in the country, maybe North America, and nobody is more deserving of a recognition of this type.”

The new parasite is known as a myxozoan. One member of this group of parasites has become infamous in recent years, especially in Alberta, for causing ‘whirling disease’ in trout. This disease is spreading rapidly in western North America, posing a major challenge for fisheries management and conservation. *Myxobolus rasmusseni* represents a novel form of this condition. The new parasite infects fathead minnows, a species that plays a significant role in the food webs of prairie ponds and lakes.

“The problem is that fatheads tend to occur in the middle of our aquatic food chains,” says Goater. “Pike eat them, trout eat them and all sorts of fish-eating birds like herons and pelicans eat them. Our worry is that infection rates are often so high in juvenile minnows that they are unlikely to survive through the winter to reproduce the following spring. You’re really upsetting the ecosystem by losing a key part of the food chain.”

Rasmussen, who spent 16 highly productive years at ULethbridge, says one of the most significant honours a biologist can experience is to have a new species named after them.

“The naming of species is an integral component of the communication of information about nature, and the stability of our system for describing and naming new organisms is a cherished aspect of our science,” he says. “To have your name attached to a new species is, therefore, one of the finest forms of immortality that can be conferred, and to be recognized in such a distinguished manner by my colleague Dr. Goater and his student, Molly Tilley, is gratifying beyond words.

“Indeed, my involvement with Dr. Goater as a friend and colleague has been a major highlight in my career at the University of Lethbridge.”

Tilley recently completed her master’s thesis on the discovery of *M. rasmusseni*. She says that she is now authoring another paper on its effect on individual minnow behaviour and survival.

“The results suggest that not only does infection with *M. rasmusseni* ultimately cause the death of the host, we found that infection reduces the physiological performance of individual fish which in turn impacts their functional role in the ecosystem,” she says. “This work will provide a solid foundation for future research which could ultimately inform management strategies.”

Rasmussen is impressed with the work of Tilley and Goater on the parasite that bears his name, and is keen to follow its progression.

“Since Dr. Goater’s lab has characterized the complete life cycle of this new parasite, as well as its genetic profile, *M. rasmusseni* can be cultivated in the laboratory, and will likely contribute significantly to our understanding of these interesting organisms and the pathology and immunological challenge they represent,” says Rasmussen.

This news release can be found online at newfound parasite.

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