

The signs of springs

By MARY MACKAY
THE GUARDIAN

UPEI student Kyle Knysh has sprung into an unexplored research subject: the biodiversity of P.E.I. springs and the effects from different agricultural practices on their water quality and aquatic life

UPEI student Kyle Knysh is breaking new ground by exploring the biodiversity of natural springs on Prince Edward Island.

His research is part of an overall examination of the ecological effects of different agricultural practices on the Souris River watershed in eastern Kings County.

"Off the top of my head I've found at least 10 different species (of insects) that haven't been recorded on P.E.I. and a few that haven't been recorded in the Maritimes," says Knysh, who at

some points in the past year was suspended in a harness like a Mission Impossible character, scooping up unwary insects to determine their number in forested spring areas as compared to those in agricultural areas.

"Very little is known about the species that live in P.E.I. springs, and little is known about the effects of increased nutrients on springs as an ecosystem," adds Knysh, whose master of science project began in January 2011 under the supervision of UPEI biology professor Donna Giberson and Michael van den Heuvel, who is Canada research chair, watershed ecological integrity with the department of biology and department of biomedical sciences, Atlantic Veterinary College and Canadian Rivers Institute.

It is part of the Project W.E.B. (Watershed Evaluation of Beneficial Management Practices), an ongoing federally-funded initiative that is measuring

the economic and water quality impacts of selected agricultural beneficial management practices (BMPs) at nine watershed sites

across Canada.

W.E.B. was launched in 2004 with Ducks Unlimited Canada as a major funding partner. More than 70 other government, academic and local watershed conservation groups are also partners in the project.

"The original (Project W.E.B. focused on the effects of) spring plowing versus fall plowing on stream insects (to see) if the leeching of nitrates and sedimentation was different between the two tillage practices," says Knysh, who decided to target springs as study sites.

"My study has two main goals: to document the biodiversity present within P.E.I. springs and to examine

how agricultural land use affects the ecological community as springs are natural sources of groundwater discharge. P.E.I. groundwater in agricultural areas can have higher nutrient levels.

"So I sampled springs that originate in areas under agricultural production and springs that discharge in forested sections."

Knysh has 20 springs on his study list from which he is taking water and soil samples for testing and is monitoring the water flow rate.

He is also monitoring 10 of those springs for biodiversity.

"Springs are focused points of water discharge from groundwater sources and often possess unique

See The signs, C2

UPEI student Kyle Knysh of Edmonton, Alta., fished this caddis fly out of a bubbling spring in Bear River. His master of science project is studying the biodiversity of springs in eastern Kings County and examining the ecological effects of different agricultural practices. GUARDIAN PHOTO BY MARY MACKAY

Kyle Knysh gets some help from fellow UPEI student Liane Leclair of Ottawa, Ont., on this spring monitoring day in eastern Kings County. GUARDIAN PHOTO BY MARY MACKAY



Suspended by a harness, Kyle Knysh is lowered to capture insects in a spring in Selkirk to determine the biodiversity in this particular habitat. SUBMITTED PHOTO



Strategically placed emergence traps are just some of the tools used by Kyle Knysh to determine the biodiversity of 10 springs on P.E.I. for his master of science project. SUBMITTED PHOTO



Kyle Knysh collects a sample of water from a spring in an agricultural area. This spring is one of 20 on his monitoring list. GUARDIAN PHOTO BY MARY MACKAY