

CSI for invasive species

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Pictures of the pointy toothed, blotched snakehead pulled from a pond in Burnaby's Central Park in December 2012. They were studied at SFU. Credit: Jonathan Moore

(Phys.org) —Several Canadian biologists, including two at Simon Fraser University, are breathing a collective sigh of relief after learning that a monstrous fish found in a Burnaby, B.C. pond is not a northern snakehead.

But they say their discovery that the half-metre-long, 3.7-kg snakehead

fished out of Burnaby Central Park's lagoon last December was a blotched snakehead, or a blotched/northern hybrid is still a serious concern.

Their findings are in a new study, published online by the *Management of Biological Invasions Journal*. The authors—SFU, UBC, University of Guelph and B.C. Ministry of Environment scientists—call for greater awareness of the risks of invasion that non-native species, such as snakeheads, pose in our waters.

There are 29 species of the Asian aquatic beast with home ranges in Southeast Asia, Russia and Africa. They are native to subtropical and warm waters. But due to aquaculture rearing and sale of the snakes as pets and medicine, various species have become established in the freshwaters of Hawaii, Florida and the eastern United States.

Last December, a YouTube video of a sighting of what was then feared to be a northern snakehead in a Burnaby pond made international news. It was the first sighting—and eventual capture by SFU and B.C. government scientists for analysis—of a snakehead in freshwater north of the 49th parallel.

In response to this capture, the B.C.'s environment ministry strengthened legislation so that it banned possession, transport and breeding of all snakeheads, as well as several other potential invasive fish and mussels.

Snakeheads flourish in a variety of environmental conditions, the northern variety in particular adapts to cooler climates. A lung allows them to breathe and move short distances on land for a few days, if they're in a wet environment that keeps them well hydrated.

These factors combined with the pointy-toothed fish's voracious appetite for a variety of prey, including large invertebrates, frogs and fish mean

its invasion is having broad ecological effects.

In their study the authors note, in eastern United States' Potomac River "...fisheries managers predict that continued uncontrolled range expansion of the northern snakehead population could lead to up to a 35 % population reduction of a valuable largemouth bass..."

"The prospect of a snakehead population becoming established in B.C. waters is a very scary thought," says David Scott, this study's lead author. He is also an SFU School of Resource and Environmental Management (REM) master's student.

"For example, if a pair of northern snakeheads had been released into the pond, the two could have reproduced and spread relatively quickly. The pond is located within the Fraser River watershed; thus it could have led to further spread with negative consequences for one of the most productive salmon producing rivers in North America."

The authors worry that, as is happening elsewhere, the B.C. government's amendment to the Wildlife Act to ban possession, transport and breeding of all snakeheads following the Burnaby find won't completely prevent another invasion.

"There is still the threat of snakehead introduction via illegal possession and trade," says Jonathan Moore, the other SFU author. The assistant biology/REM professor and Liber Ero Chair of Coastal Science and Management is also Scott's master's thesis supervisor.

"Snakehead introductions have continued in the U.S., even though possession has been illegal for more than a decade. Given this threat, continued monitoring, public education and rapid response planning are warranted. The public must be made aware of the serious negative ecological and economic consequences associated with the release of any

non-native species of fish."

Provided by Simon Fraser University

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