Biologists keep tabs on threatened snake

By Jennifer Pritchett
Whig-Standard Staff Writer

SCIENCE

THREATENED WITH EXTINCTION, Canada's largest snake is being monitored closely north of Kingston by scientists using surgically implanted transmitters.

The black rat snake, which can measure as long as two metres, used to be found across southwestern Ontario north of Lake Erie, but the species has almost completely disappeared in those areas.

The only healthy population remaining in Canada is found north of Kingston near the Queen's University Biological Station at Chaffeys Locks. In that immediate area, the population is an estimated 1,500.

Biologist Gabriel Blouin-Demers performs the implantation surgeries at the research station so he can study the snakes' movements and habitat.

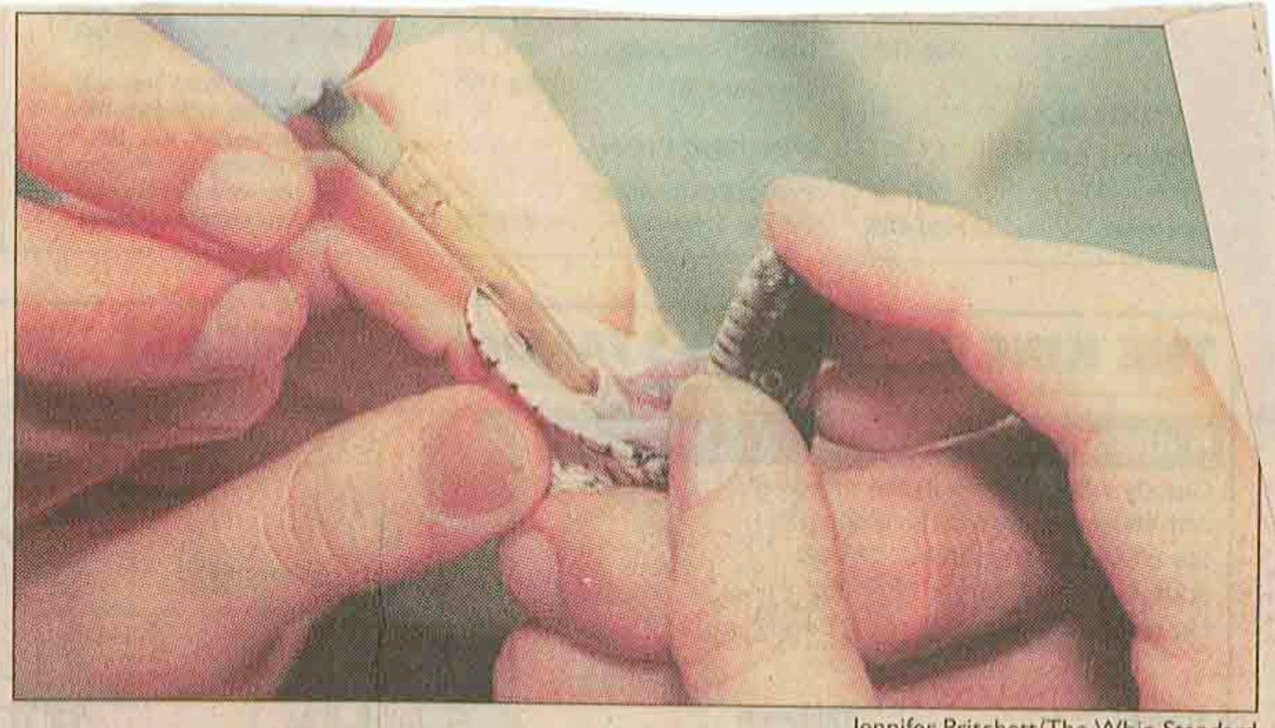
The work he's doing isn't being done anywhere else in Canada.

"[This research] is really useful because if we understand their habitat, then we'll know what kind of habitat to preserve," he said.

"This also allows us to see how the population is doing year to year."

The obvious long-term goal, he added, is to get the black rat snake off the list of threatened species.

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) deemed the snake to be threatened in 1998.



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A tracking device is being implanted in this black rat snake

Blouin-Demers and his team of two biologists capture the snakes in the area surrounding the station during the summer before the reptiles hibernate during the winter.

The biologists use the data they've collected since 1996 – when they started tracking the snakes – to find communal living areas.

They collect the snakes using a snake bag, a sack similar to a pillow case.

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Then the snakes are brought to the research station, where they are held for about three days.

The actual surgery takes about an hour and is performed soon after the snakes' arrival. The reptiles are kept for about 72 hours so biologists can monitor them and make sure they are healthy enough to be placed back in the wild.

The snakes are placed in a large plastic container resembling a pickle jar before they are anesthetized with gas through a tube at the top.

"We anesthetize them like one would a human," said Blouin-Demers, referring to the gas used.

After about 20 minutes, the reptile is stretched out on an operating table and the procedure begins with an incision into the snake's belly. The transmitter is then tied to the snake's ribs and the incision is sewn back up.

A snake typically needs about 15 stitches for the operation.

An hour later the anesthetic wears off and the reptile begins to move around again. If the reptile doesn't begin breathing on its own – they receive oxygen during the surgery – the biologist blows air into the reptile's mouth through a small tube.

The snakes are then injected with an antibiotic to reduce the risk of infection.

The reptiles don't feel a thing and "we keep them as short a period of time as possible to reduce the trauma to the snake," said Blouin-Demers.

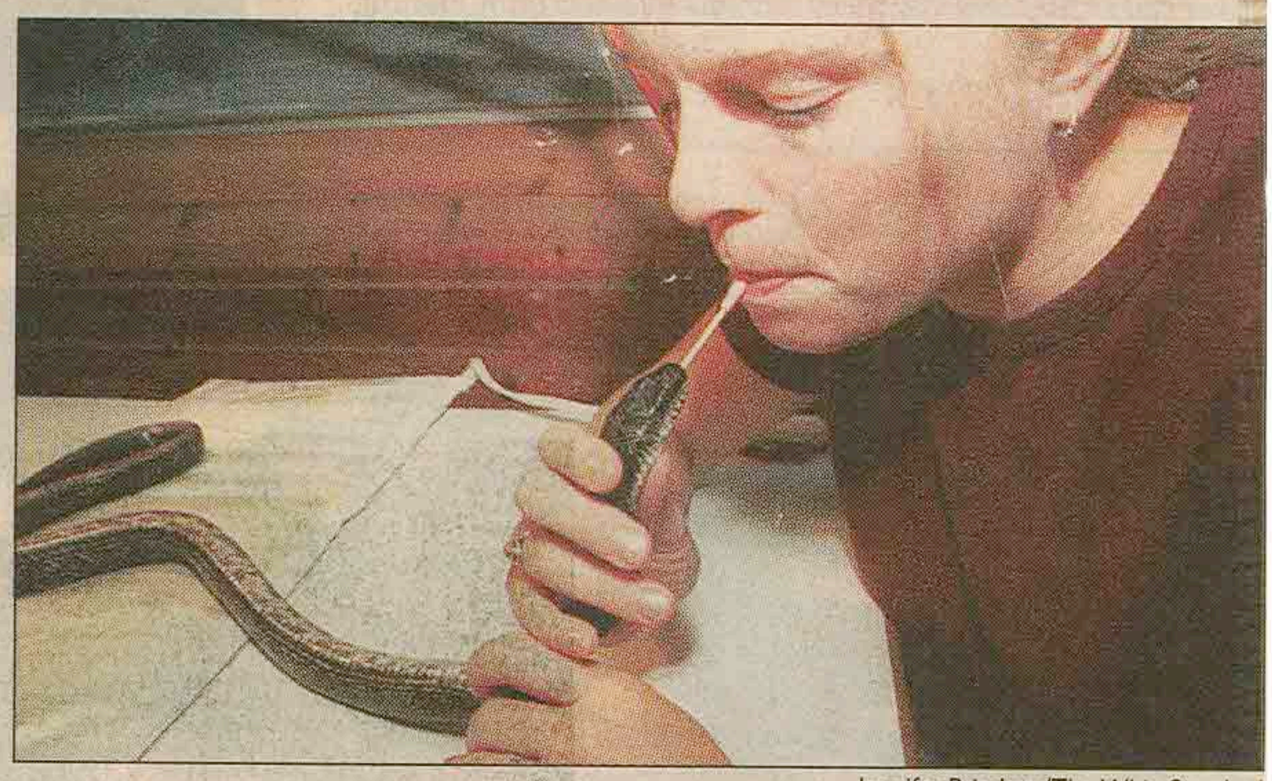
When asked if any of the snakes captured didn't wake up after the surgery, he says two died as a result of the wrong type of anesthetic being used.

"When we started there was very little information available about anesthetizing snakes," he said. "In developing this procedure, there were two fatalities ... There are three main anesthetics and one we tried caused two snakes to react badly."

Over the past five years, Blouin-Demers has implanted about 70 snakes with transmitters. They track the implanted reptiles at the station using a radio receiver.

Each transmitter costs about $400 and stays inside the body cavity of the snake. The device, which can't exceed five per cent of the snake's body weight, is removed when the battery runs out.

Transmitters come in two sizes – 8.6 grams and 4.5 grams.



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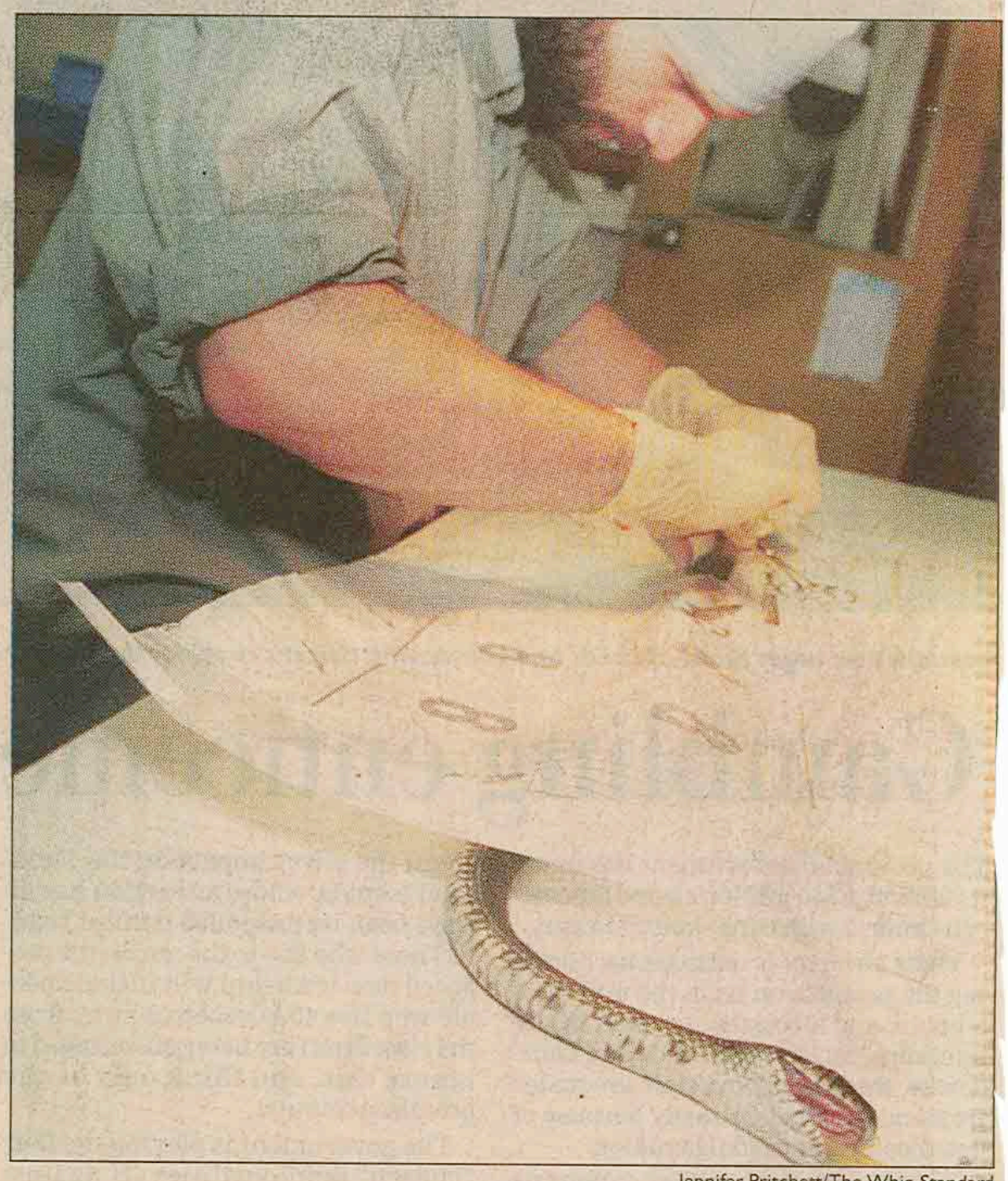
Heather McCraken resuscitates the snake after the operation



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Biologist Gabriel Blouin-Demers implants a tracking device in a black rat snake

At the end of the two years, a second surgery is performed to remove the device or a second one is implanted.

While Blouin-Demers finishes his doctorate this fall, he hopes the black rat snake project continues.

"We plan on monitoring the population as long as we can, but it's dependent on funding agencies," he said.