

## Nature's Ways ~ Rattlesnakes on the Bruce (They're quite nice, really)

written & illustrated by  
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There are persistent myths around Georgian Bay about the snakes that live here. The simplest way of dealing with them all at once is to say that there are no pointy-tailed poisonous snakes here! (And the correct term is "venomous", by the way.)

There are no water moccasins, copperheads, cottonmouths, or adders; indeed, in all of Canada, the only venomous snakes are rattlesnakes.

We do have a local rattlesnake. It's called the Eastern Massasauga Rattlesnake. (There are 27 species of rattlesnake. The only other one occurring in Canada is the Western Rattlesnake, found in Saskatchewan, Alberta and B.C.) This chubby, mid-sized snake (up to 1 m) has hourglass-shaped dark patches along its back. These markings cause it to be confused with the milk snake and the water snake.

These local rattlesnakes are "pit vipers"; that is, they have a small heat sensitive pit between the eye and nostril on each side of their head. This enables them to hunt in the night, finding their prey by detecting its body heat.

Mice and frogs make up the bulk of their diet, but they will go for most small living things, like other snakes or young birds. Their venom is primarily a sort of mouse tenderizer, designed to help the snakes digestive system.

Due to human development encroaching on their preferred habitat, and the attitude that "the only good snake is a dead snake", the Eastern Massasauga Rattlesnake is on the Canadian Endangered Species list as a threatened species, and is protected by law.

For many years now rattlesnake research has been a part of the wardens' workload in Bruce Peninsula National Park and Fathom Five National Marine Park. At the moment we're in the second year of a three year project on the "Thermal Ecology and Critical Habitat of the Eastern Massasauga Rattlesnake". (Thermal Ecology is the study of how temperature affects the relationships between an organism and its

environment.)

Habitat loss is considered the leading threat to the Massasauga's survival throughout its range, so knowing what kind of neighbourhood it needs to survive is crucial. Examples of rattler habitat being studied include gestation sites (where pregnant females hang out all summer keeping their developing embryos warm) and winter hibernation sites (where rattlers spend nearly half of the year).

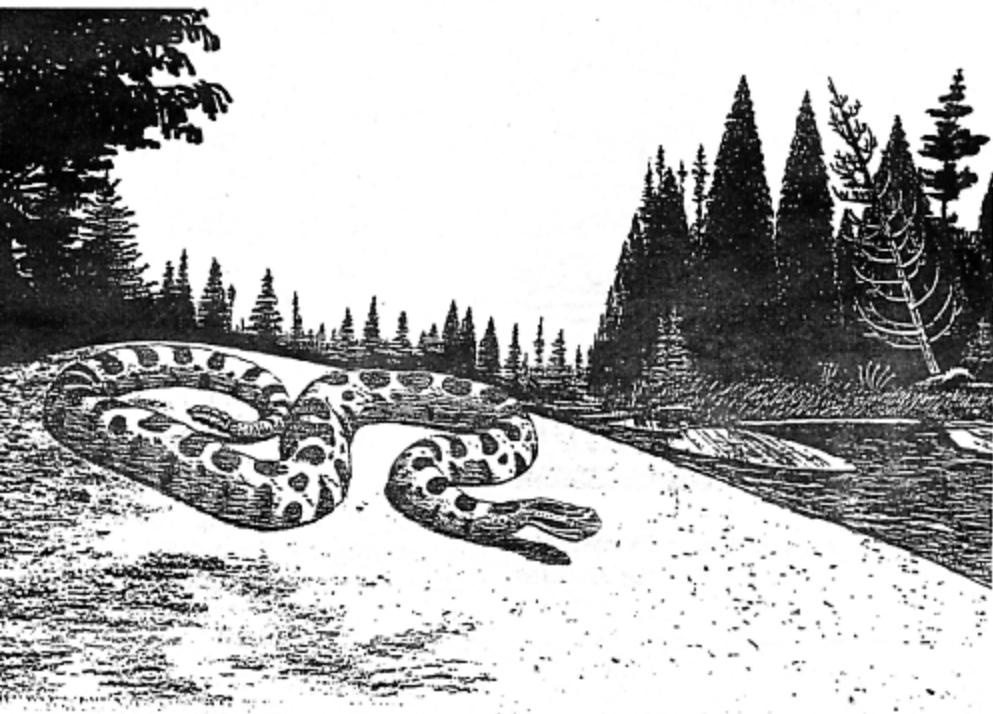
With that info we can move beyond merely protecting critical habitat to restoring habitat in areas that have been altered or damaged. The thermal element is important in this study because for a cold-blooded animal like a snake, the type of habitat it chooses is largely based on temperature as opposed to structural features (rocks and bushes).

The use of radio transmitters is currently the only way to study these cryptic little reptiles. We now have 21 snakes with radio transmitters surgically implanted into them. The surgery is a delicate procedure, so we take the snakes to a vet in Owen Sound who has been trained in the process. To avoid undue stress to the snake, the transmitters are only implanted in large snakes (200g+ or 7+ oz).

A number of newborn rattlesnakes were studied this summer. The tails of newborn rattlesnakes are yellow near the base of the rattle — colour which is lost as the rattlesnake ages. Although the role of this pigmentation is unknown in rattlesnakes, it's used by newborns of other snake species (i.e. cottonmouths) to attract the insects which they feed on. This could certainly apply to rattlesnakes as well, considering that a newborn rattlesnake can't fit much more than an insect into its mouth.

Newborn rattlesnakes are about the size of a pen and are born live near the end of August. While newborns never have a sharply pointed tail like most snakes, they don't have a proper rattle when they're born either, just a





creamy-yellow coloured "button".

Each time they shed they add a rattle to the button. They can shed from one to three times a year, so you can't tell their age by counting the rattles.

We'd be very interested in finding out what happens to newborn and juvenile snakes but unfortunately we'll have to wait for technology to produce a smaller transmitter to get that info. Over the past two summers, movement and habitat use patterns of older snakes have been recorded. (About 100 habitat assessments and over 1000 snake locations observed.)

The hope is to extend this project another 2-3 years beyond the current deadline in 2003. The study would then move into translocation experiments to test two sorts of snake relocations: short distance translocations (within 1 km), to study the effect of moving snakes away from campsites and cottages, and long distance translocations (more than 5 km), which are meant to test the effectiveness of reintroducing snakes into areas within park boundaries where rattlers lived in the past. The study will also attempt to create an effective monitoring program for the Upper Bruce Ecosystem population.

Dan Harvey, a PhD student and Field Ecologist with the Department of Natural Resources and Environmental Sciences at the University of Illinois, will use this data as the basis for his graduate thesis. If the project ends next year he'll earn a Master of Science degree....if it can be extended he may get a PhD. (By

external funding (Species at Risk) to investigate a topic of direct practical importance to the Park (Conservation Biology of the Eastern Massasauga Rattlesnake).

Dan says: "The Massasaugas so far have surprised me with the range of habitats they occupy. The word "Massasauga" is a First Nations term for "Great River Mouth" and may be based on the fact they are often found in wet areas (fens, marshes, wet fields).

They certainly occupy those habitats here but I've found them on alvars, dry fields, coniferous and deciduous forests, roads, trails, on the beach.....just about any habitat you could name might possibly have a snake."

Massasaugas are generally slow to strike, particularly at the feet of people walking by.

Most bites are actually on hands and arms from reaching into bushes, over ledges, and from trying to pick them up. (Don't.) In two years of tracking Dan has yet to have a snake strike while he was locating it, which is pretty remarkable considering that he walks right up to them and takes a GPS (Global Positioning System: satellite mapping) location from directly overtop of each snake.

Our two national parks on the peninsula play an important role in preserving within their boundaries suitable habitat for this much maligned snake. To learn more about the Eastern Massasauga Rattlesnake visit the

## They don't want to bite you!

If you are walking through the woods and hear the buzz of a rattlesnake, freeze! Look carefully around and try to locate the direction the sound is coming from. Then move calmly away. The rattle is a warning that you are too close, but if you back off the snake will not chase you. It's much more likely to try to disappear into the underbrush.

When hiking where there are rattlers, wear long pants or thick socks, and boots.

Always look where you are putting your feet and hands. Keep your pet on a leash. Do not attempt to capture or confine any snake. (Don't let all this ruin your enjoyment of the natural wonders of the Bruce Peninsula. You have a better chance of winning a lottery than of getting bitten by a rattlesnake.)

can be extended he may get a PhD. (By the way, Dan started here in 1999 working in the Park Visitor Centre, and later worked with me as a park naturalist.) This study is being funded by Environment Canada's "Species at Risk" program.

This type of collaboration is great for Parks Canada. We get a specialist in a given field leading a project (Dan's professor), and a student devoting several years to the project (Dan), and

following websites:

<http://www.terra-plex.com/sin/>  
and <http://www.city.windsor.on.ca/ojibway/rattler.htm>

For species at risk in Canada generally, check out the Canadian Wildlife Service's website at:

<http://www.cws-scf.ec.gc.ca/theme.cfm?lang=e&category=12>

(It's a really good website!)

Special thanks to Dan Harvey for his help in preparing this column!

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