Living With Timber Rattlesnakes—
Our Silent Neighbors

There is more to a timber rattler than just its venom.

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The next time you are out near a wooded lot, driving by an abandoned farm, hunting in a wildlife management area, or even casting for crappie in a hidden cove take a moment to just think about all the wildlife surrounding you. Although you may be aware of most of the animals typically seen in Tennessee,

(right) The timber rattlesnake is the largest venomous snake in Tennessee. Notice how patterns on this male blend with its surroundings—one reason why they are rarely seen.

(left)MTSU student researcher Jake Pruett uses telemetry to relocate a snake surgically implanted with a transmitter.

(left) A female timber rattlesnake flattens its body to appear larger than it really is—a common survival tactic.

there are likely many that are escaping your attention. It may surprise you, but snakes actually make up a significant portion of the vertebrate (backboned) wildlife in most areas of Tennessee. In fact, Tennessee is home to 32 snake species. And, of course, the best known of this group is the timber rattlesnake *(Crotalus horridus)*; literally meaning "rough snake with little bell."

The timber rattlesnake is the largest venomous snake in Tennessee. At one time it could be found throughout the state, especially in the forested areas. Today, this snake is still found in many areas, although its numbers appear to have dwindled in the Ridge and Valley region of East Tennessee and the Gulf Coastal Plain and Mississippi River Floodplain of West Tennessee. While human expansion, habitat destruction and large-scale agriculture have taken their toll, the timber rattlesnake remains our neighbor.

It just so happens that this neighbor leads a secretive life most of us really don't know much about. We've all heard wonderful stories about rattlesnake encounters. Most of us, however, rarely see rattlesnakes in the wild. Over the past few decades, scientists interested in snakes (herpetologists) have been using the technique of radio telemetry to track individual rattlesnakes over months and years. This is the same system some hunters use for tracking their hounds except in this case the snakes are surgically implanted with transmitters.

Research has yielded much valuable information. For instance, timber rattlesnakes can move great distances each year. Males travel farther than females and it's not uncommon for them to crawl one to three miles from where they spent the winter. Interestingly, timber rattlesnakes reuse the same areas year after year; and this appears to be true for a number of snake species. Snakes establish a home range and may even revisit the same rock or log within a single year or between years. That's an amazing feat considering a snake's head is only two inches above the ground. How do they accomplish this? Herpetologists aren't sure, but they know chemical (pheromones) trails are an important feature. Male rattlesnakes use these pheromones to locate females in the late summer for mating. When a male snake comes to a female's trail, he can tell which direction she went and if she is receptive to mating or has already mated. These chemical trails are even used by newborn snakes to locate over-wintering sites.

Pregnant female rattlesnakes do not move far from over-wintering sites and give live birth to 5 – 15 babies, usually under a large rock or in rocky areas. In Tennessee, birth occurs in August and September. For a week to ten days after birth the mother will remain with the young until they shed their skin for the first time. After shedding (ecdysis), the mother leaves the birth site and the young disperse within days. The mother goes about her business hunting for food, typically small rodents and squirrels. Some snakes may only feed a few times per year, if squirrel-sized meals are a part of their diet.

The young do not follow their mother but appear to go out on their own, possibly hunting as well. By mid October the snakes begin moving to an over-wintering site. Because other rattlesnakes in the area are crawling to these sites as well, the newborns usually follow the scent trail of other rattlesnakes and thus rely on any rattlesnake (male or female) to locate an appropriate place to spend the winter.

The mortality rate for young snakes is high during the first year, but their chances of survival

(right) MTSU professor, Dr. Vincent Cobb, checks on a female timber rattlesnake and her newborns.

increase in the following years. Other than humans, adult snakes have few natural predators. Birds of prey take some, but research suggests that birds of prey can distinguish between rattlers and non-poisonous snakes, choosing to take the non-poisonous ones more frequently. Interestingly, one of the most significant threats to adult timbers is another snake. The non-poisonous king snake is an opportunistic constrictor that often feeds on snakes, including timber rattlesnakes.

Timber rattlesnakes make an important contribution to Tennessee's rich natural world. Even with expanding development there is hope that some sites may remain forested and undeveloped enough to maintain populations of rattlesnakes. Large expanses of forest are still available in Tennessee to provide suitable habitat, but we need to learn to appreciate these special creatures. Ensuring a place for timber rattlesnakes in Tennessee also preserves the kind of habitat that avid outdoor enthusiasts have long cherished.

Rattler Bytes

- Timber rattlesnakes may live from 30 to 35 years in the wild.
- A new segment is added to the rattle every time the snake sheds its skin, which can be one to three times per year.
- Timber rattlesnakes rarely rattle, even when you walk close to them.
- Snakes that mate in the spring give birth or lay eggs that summer; however, females of many rattlesnake species store sperm over the winter and give birth the next year.
- Timber rattlesnake bites are few, but most people are bitten while killing, bothering or attempting to manipulate the snake.
- It is illegal to kill, harm, or remove snakes from the wild in Tennessee.
- Death from snake bite is rare; of the 7000 – 8000 venomous bites per year in the U.S., only 0.2% are fatal.
- After striking their prey, rattlesnakes follow chemical trails to locate it.
- Rattlesnakes shed their fangs often and throughout their lifetime.
- Interestingly, rattlesnakes miss on a significant portion of their strikes.
- Rattlesnakes can limit the amount of venom released during a bite, sometimes releasing just enough to fend off a threat rather than enough to kill an intruder.
- Unlike snake handling practices often seen on television, researchers practice safe handling methods that minimize the need for bare handling venomous snakes.
- Timber rattlesnakes can be found in 33 states and Canada, but populations have declined in many states, particularly in the Northeast.
- Habitat loss remains the primary reason for decline in timber rattlesnake populations.

A native Tennessean, Vince Cobb is an Associate Professor in the Department of Biology at Middle Tennessee State University. His research expertise is in snake ecology and behavior. Vince holds a Ph.D.and an M.S. in Biology along with a B.A. in Zoology.

HERPETOLOGY 101

by David L. Shirk

When the prospect of documenting the work of a MTSU rattlesnake researcher presented itself, I jumped at the chance. The researcher was using radio telemetry to track and study snakes in Middle Tennessee. Previously, I had photographed wild timber rattlesnakes on just one occasion, and so the opportunity to learn more about this species excited me.

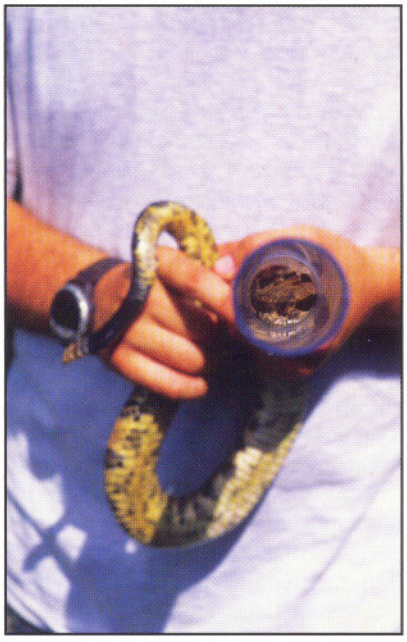
What immediately impressed me about the timber rattlesnakes I observed while accompanying the researcher was the reclusive nature of these creatures. More times than not we would find them coiled in cover and they demonstrated almost no reaction to our presence. Sometimes a snake would turn its head slightly if we approached it from one side or the other, but none of the snakes ever rattled in response to our approach. Even on those occasions when the researcher had reason to handle a snake with a hook or tongs the snake would not always rattle immediately. It was also interesting to see that the snakes did not really strike that often when being handled. More often than not, the snake would simply try to move away.

The other fact that really stood out to me related to the time I had previously spent in this particular area. As it turns out, I had photographed in this locality on many occasions and I never happened upon a timber rattlesnake on my own. The researcher I was with indicated that he and several others interested in herpetology spent a whole morning canvassing this area for rattlesnakes. In doing so, they looked under rocks, logs, and other likely hiding places without turning up a single rattlesnake. This suggests to me that the chances of stumbling upon a rattlesnake are not nearly as great as most of us believe.

During my early life, encountering a snake was an occasion for throwing stones or fetching a shovel, and more snakes than I would like to admit were sacrificed on the altar of my ignorance. Ironically, I learned to fear snakes long before I ever encountered one in the flesh. Over the years, however, my experiences have tempered my perspective and the sacrifices have stopped.

(above) The raised tail and rattle indicate that this snake is on alert.

(left) A juvenile timber rattlesnake is almost perfectly camouflaged in fall leaves.



(above) A clear plastic tube over the head protects a handler from the snake's venom.

I have played, fished, hunted, and photographed in timber rattlesnake country for over 40 years, but I have never accidentally encountered one in the wild in all that time. I understand that there is always some risk in frequenting areas where poisonous snakes live, but I also know that the risk associated with some of my everyday activities such as driving on the interstate is much greater. I will continue to be cautious in snake country, but little by little, my fears have been replaced with a healthy respect for poisonous snakes and I have come to understand the important roll they play in our environment. Now I appreciate them as much as I do the cute furry critters that first captured my attention.

David L. Shirk is a nature photographer and writer based in Murfreesboro. To see more of his photography visit his Web site at www.davidlshirk.com.