

Study Suggests Humans More Detrimental to Rattlesnakes Than Harvesting

What effect does timber harvesting have on rattlesnakes? Some people might answer that question with a curt “Who cares?” but you won’t get that response from the Pennsylvania Department of Natural Resources’ (DNR) Bureau of Forestry. The agency is on the tail-end of 4-year study in the Tiadaghton State Forest designed to answer that question and others, such as how the reptiles are affected by the presence of humans in their habitat.

Although the study is ongoing, the researcher’s preliminary findings suggest that not only are the effects of harvesting on timber rattlesnakes minimal, but there are easy things that land managers can do to improve rattlesnake habitat.

“There seems to be some very simple practices that can be implemented to enhance snake habitat, and timber harvesting has not been shown to have any cursory effect on snake populations,” said Tiadaghton State Forest District Forester Jeff Prowant.

Although it might be tempting to think that the study was conducted in response to challenges from a local environmental group, Prowant said that the bureau conducted the study to answer concerns from the bureau’s sister organization, the Pennsylvania Fish and Boat Commission, who felt that timber harvesting was detrimental to Pennsylvania’s timber rattlesnake populations.

The Pennsylvania Fish and Boat Commission, not the DNR, is charged with management of the state’s fish, amphibians, and reptiles. Currently, the timber rattlesnake is a “candidate” for the state’s threatened or endangered species lists.

To determine the effects of harvesting on timber rattlesnakes, the researchers took to the Tiadaghton State Forest in spring 2002, where they captured 39 rattlesnakes of different sexes and sizes and surgically implanted radio transmitters in them.

Implanting the snakes with transmitters allows the researchers to locate individual snakes in the field, for each transmitter emits a unique electronic pulse that can be picked up on a receiver tuned to a specific channel. Thus, when members of the research team try to locate snake No. 27, for example, they won’t find snake No. 125 by mistake.

This method of implanting transmitters in the snakes was pioneered by Howard Reinert, a biology professor at the College of New Jersey in Ewing, and David Cundall of Lehigh University.



Photo: Joseph M. Smith

Preliminary findings from a study being conducted by the Pennsylvania Department of Natural Resources’ Bureau of Forestry suggest that timber harvesting has little effect on timber rattlesnakes, a “candidate” for the state’s threatened species list.

According to rattlesnake research team member Bill Monroe, due to snakes moving out of the study area and transmitter failure, the researchers currently know the whereabouts of about 20 of the 39 snakes implanted with the devices.

“Sometimes a transmitter’s batteries will go out, or the snake’s body fluids will penetrate the transmitter’s antennae wire and cause a short,” he said.

Monroe said that the official start to the study came in 2003, when the researchers began tracking each snake’s movements within the study site between the months of April and October. When a snake was located, the researchers logged a variety of information about the environmental conditions in which the snake was found.

“We record a large amount of data when we visit a snake,” said Monroe. “We note such information as the temperature of both the snake and the air, the amount of rocks, leaves, logs, and soil, and whether it’s found on disturbed or undisturbed habitat.”

The logging portion of the study began in 2004 but was halted due to inclement weather. The harvesting was then finished in 2005 amid what Monroe referred to as “wonderful” human–snake interaction.

Initially, only one logger was sent to the study site, but that was “too minimal” said Monroe. So, he requested more loggers to increase the human activity on the site. Eventually, there were as many as 6

two-man crews harvesting trees at one time.

“Logging crews were here all the time and in each area of the site,” he said. “We assigned a team to each block and had them perform different kinds of cuts (e.g., overstory removal, shelterwood cut).

As the logging took place, the researchers monitored the locations of the snakes and recorded data about the environmental conditions in which they were found. Monroe and his colleagues will continue to collect data on the snakes until fall 2006.

“We have thousands of records of snakes on undisturbed habitat; now we’re getting it on disturbed habitat, meaning, where it’s been logged,” he said.

Although the study is ongoing, so far the data collected by the researchers suggest that the timber rattlesnakes are not avoiding logged areas.

“Do these snakes come out of their dens and say, ‘Oh no, this environment again! I’m going to go over there, where the forest isn’t cut.’ No,” said Monroe. “This is our fourth consecutive year of tracking [rattlesnakes] with radio telemetry. We know where [the snakes] went in 2003, 2004, and 2005. They know [the logging] is going on, but it doesn’t seem to be a threatening thing that makes them want to go away.”

Monroe acknowledged, however, that such evidence is anecdotal and that it is too early to say anything conclusive about the effects of logging on timber rattlesnakes.

“Does logging affect the behavior of timber rattlesnakes? I don’t know,” said Monroe. “No one knows whether logging is detrimental or positive. That will be determined by the statistics.”

Nevertheless, both Monroe and Prowant agreed that there seems to be simple things loggers and forest managers can do to enhance rattlesnake habitat in disturbed areas, such as placing log landings (or piles of logging debris) to maximize sun exposure.

“Log landings have an attraction for snakes,” said Monroe. “Pushing these log landings to the north and

northwest sides of a logging site so they are exposed to the direct sunlight instead of just randomly pushing them anywhere is a proactive step managers can take that is conducive to these reptiles.”

Monroe acknowledged that not everything in the study was beneficial to the snakes, as there were instances of rattlesnakes being inadvertently killed by logging equipment or purposely killed by loggers.

Thus, the easiest thing land managers can do to benefit rattlesnakes, said Monroe, is to ensure that crews refrain from killing rattlesnakes on sight.

“People assume that the snakes move out of an area when logging equipment comes in. No, absolutely not,” he said. “We tracked the snakes during the logging and knew when loggers were working right near a snake. But the rattlesnakes didn’t do a thing. They just stayed right there.”

Yet, just as the researchers didn’t tell loggers when they were working around snakes, they also refrained from stepping in when loggers killed snakes on sight.

“We had to be careful that we weren’t slanting the project,” Monroe said. “We could not control what the loggers did, how they behaved, and what their attitudes were.”

As a result, Monroe admitted that, too often, protecting snakes comes down changing “personal attitudes.”

“Seven to 9 snakes were killed last year, and some of the deaths were by accident. That stuff is going to happen,” he said. “But to maliciously kill them on sight, that’s not necessary.”

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