

THE FORKED TONGUE

THE MONTHLY NEWSLETTER OF THE GREATER CINCINNATI HERPETOLOGICAL SOCIETY

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The Editor's Den

The May Forked Tongue includes features an article on the Louisiana Pine Snake.

Rare Pine Snake Needs Fire to Survive

(http://www.srs.fs.usda.gov/newsroom/newsrelease/2004/nr_2004-04-30-pinesnakes.htm)

In March 2004, eight State and Federal agencies met at the [New Orleans Audubon Zoo](#) to sign a landmark Candidate Conservation Agreement (CCA) to protect the Louisiana pine snake (*Pituophis ruthveni*) on Federal lands in Texas and Louisiana.



The Louisiana pine snake may be one of the most rarely seen vertebrates in the United States. Already listed as threatened in Texas and as a species of conservation concern in Louisiana, the snake is a candidate for an endangered listing. Four to five feet long as an adult and marked with a striking pattern of black, brown and beige, the Louisiana pine snake is certainly noticeable; yet there have been only 178 sightings documented since the reptile was first described over 70 years ago.

Over the past 13 years, [Craig Rudolph](#), research ecologist with the [Southern Research Station unit in Nacogdoches, TX](#), has monitored the decline of the Louisiana pine snake as the longleaf pine forests the snake inhabits continue to disappear. As a founding member of the group that signed the CCA, he has worked tirelessly for the reintroduction of fire into the animal's habitat. "Fire is critical to the longleaf pine ecosystem that once

covered much of the Gulf Coastal Plain of western Louisiana and east-central Texas," says Rudolph. "Only three percent of the original longleaf pine forest remains, in fragments that have been further degraded by fire suppression. Part of the new agreement involves using controlled burning to restore the open understory of the longleaf pine systems that the Louisiana pine snake inhabits."

In the late 1990s, Rudolph conducted an assessment of locations in the known historical range of the Louisiana pine snake, categorizing each location in terms of habitat quality. Of the 77 sites he assessed, only 26 were still capable of supporting a viable population of pine snakes. The Louisiana pine snake has not been documented in the best remaining habitat within its historical range for over a decade: either the species is no longer present in these areas, or it has become extremely rare.

Rudolph monitors the Louisiana pine snake by setting passive traps, basically big boxes with funnel entrances on both sides. "Unless we are lucky enough to trap one, we rarely encounter the pine snake above ground," says Rudolph. "They actually spend most of their lives in the burrows of their main prey, the Baird's pocket gopher. When above ground, they are usually moving from one burrow system to another."

The survival of the Louisiana pine snake depends on that of Baird's pocket gopher, whose abundance in turn depends on the understory plants and loose, sandy soil of the longleaf pine savannahs. Most of the longleaf pine forests were cut in the intensive logging period that lasted from 1870 to 1920. The land was then converted to commercial pine plantations where trees are grown very close together. As the plantation matures, the understory becomes very sparse and the pocket gophers move on. As the original longleaf forests declined, gopher populations have decreased in forests, and the range of the Louisiana pine snake has contracted into the 13 small patches of woods in Texas and Louisiana. The densest known pine snake population has been found on industrial forest land in Bienville Parish, Louisiana, where burning was used to reduce and manage undergrowth in a mixed pine forest. Over the last five years, this forest has been cut and replanted with very intensive loblolly stands, and managers have started using herbicides to manage the undergrowth, leaving the future of Louisiana pine snake populations on the site doubtful.

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The management actions proposed by the partners in the CCA are designed to restore and protect the remaining longleaf pine forests of east Texas and western Louisiana. “Over 30 plant and animal species associated with longleaf pine ecosystems are endangered or species of concern, including the Louisiana pine snake, the red-cockaded woodpecker, Bachman's sparrow, and the Rafinesque's big-eared bat,” says Rudolph. “Plants include the Texas trailing phlox, Texas trillium, and white firewheel. Longleaf pine forests are very special habitats, among the most biologically diverse outside the tropics. Frequent, low-intensity ground fires are required to maintain the open midstory of these forests; many of the plants must literally be burnt to reproduce or grow.” Collaborating with other scientists, Rudolph researches other factors that may contribute to the decline of the Louisiana pine snake. With the largest eggs and hatchlings of any U.S. snake, the Louisiana pine snake only produces 3 to 5 eggs per clutch. This low reproductive rate means that the species may not recover quickly if reduced to a few individuals. “We know less about the biology of this snake than any other large snake in the United States,” says Rudolph. “Tracking the snakes we have found using radio-telemetry devices has added to our knowledge; but there is still a lot we do not know—including reproductive biology, predatory behavior, and the effects of habitat fragmentation and traffic—that directly impacts the snake's ability to survive.”

The Louisiana pine snake has developed specific behaviors to catch the pocket gopher. “It takes a big snake to tackle a pocket gopher,” says Rudolph. “The large size of the pine snake hatchlings may be an adaptation to enable young to feed relatively early,” says Rudolph. “The snake may have evolved this strategy in response to the lack of small mammals in the longleaf pine savannahs of the western Gulf Coastal Plain. The Louisiana pine snake also seems to react well to periodic fire. All nine of the snakes we tracked during prescribed burns survived with no apparent damage. They simply retreat into pocket gopher burrows as fire approaches.” As in other parts of the United States, the landscape of the Gulf Coastal Plain is increasingly fragmented by roads. Though it is apparent that road traffic kills large numbers of snakes, the effects of road kill on animal populations is not well known. Rudolph and other Forest Service researchers gathered data on road kills for the Angelina National Forest in east Texas: they found that moderate to high traffic can reduce populations of large snakes by 50 to 75 percent, and that the impact on populations can extend up to 805 meters (2,805 feet) from the road. In one area surveyed for a 1999 study, 79 percent of the landscape lay within 500 meters of a highway or Forest Service road. The researchers

concluded that a substantial proportion of the snake species expected in the area had been eliminated due to road-related deaths.

As part of the new agreement, Rudolph will continue to monitor the Louisiana pine snake in Texas and Louisiana, comparing trapping data to habitat quality to assess how marginal the habitat can get and still support snake populations. There are six general areas still occupied by the Louisiana pine snake; the three areas in Texas are very tiny, less than 100 acres each, probably not large enough to maintain a viable population. The three sites in Texas are larger; one of these is on the Fort Polk military base, where prescribed burning is still done.

On a practical level, that means endless hours of trapping. “In reality, we are doing well if we trap one Louisiana pine snake a year,” says Rudolph. “On a good site and in the right season, it can take 400 trap days to catch one snake. On marginal sites, it can take 800 to more than 1,000 trap days. We expected Fort Polk to be a very good site, but trapping has been surprisingly dismal, with only one snake for 8000 trap days.”

In addition to the USDA Forest Service Southern Research Station, other signatories to the CCA included: Texas and Kisatchie National Forests, Texas Parks and Wildlife Department, Louisiana Department of Wildlife and Fisheries, Fort Polk Military Installation, and the U.S. Fish and Wildlife Service's Southeast and Southwest Regions.

The voluntary agreement provides a way for the agencies to collaborate on projects to avoid and minimize impacts to the snake. The agreement also sets up a mechanism to exchange information on successful management practices and to coordinate research efforts. Again, fire is central to the effort. “The suppression of natural fire events is the greatest threat to the Louisiana pine snake in recent years,” says Rudolph. “Without fire, these upland pine savannah ecosystems rapidly develop a mid-story that excludes the herbaceous understory needed by pocket gophers. When gopher populations decline, so do those of the pine snake.”

For more information: Craig Rudolph at (936-569-7981) or crudolph01@fs.fed.us

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Calendar of Events

8/02/06, Tim Sisson, President of the local Wildlife and habitat conservation organization, *The Western Wildlife Corridor*, speaking on how the WWC preserves critical habitats in Hamilton County.
9/13/06, Danna Baxley is conducting extensive field research on Black Pine Snakes in Mississippi.

Classified Advertising Policy

GCHS Members may run a free classified ad of 7 lines or less at no charge for an unlimited time; however, the ad will be canceled after one month unless the editor is informed to continue it. Please include scientific names for the animals with your ad as well as your phone number and area code. Ads of up to 7 lines for non-member are \$2 per issue; ad charges for items more than 7 lines long are as follows:

Business card size	\$3 per issue
1/4 page	\$6 per issue
1/2 page	\$10 per issue
Full page	\$20 per issue

The GCHS is not liable for the quality of the merchandise advertised. The Society also reserves the right to refuse any ad considered inappropriate.

Classifieds

Rats and Mice for sale. Reasonable price. Call Jesse or Tom (513) 876-0579.

For Sale: 75 gallon aquarium including freshwater filter system, lighting, hood, all accessories, fish, solid pine stand. Excellent condition. Asking \$400 OBO. Please call Erin at 513-471-2950.

For Sale: 0.0.6 Grey banded kingsnakes. \$100 each. Hatched on 7/22/06. Will be eating pinks before I sell. Call Grady Calhoun at (812) 926-1206.

Discount: A 10% discount is offered to all card-carrying members of the GCHS at *All Creatures Animal Hospital*. Dr. Dan Meakin, All Creatures, 1894 Ohio Pike, Amelia, OH 45102, 513-797-7387.

Discount: A 10% discount is offered to all card carrying members of the GCHS at Dr. Dahlhausen's Veterinary Clinic, 5989 Meijer Dr., Suite 2, Milford, Ohio 513-576-0131

(Number to left of decimal indicates males; number to right of decimal indicates females; number to right of second decimal indicates number of unknown sex. For example, 3.2.1=3 males, 2 females, and 1 unsexed specimen)

Requirements for Submitting Articles to the Forked Tongue

Articles can be submitted via 3.5" floppy disk or hard copy to Editor, GCHS 11470 Gatch Hill Road, Aurora, IN 47001.

Articles may be e-mailed to Grady Calhoun at gradycalhoun@earthlink.net.

Black and white photographs can be included with articles. Photo submissions should include your name, phone number, and description of photo on the back. Photos can be returned.

All time dependent submissions must be in the editors possession no later than the meeting previous to the demaled publication.

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Currently Held Positions

President	Grady Calhoun	(812) 926-1206	Vice President	Dean Alessandrini	(513) 347-0099
		(513) 564-6041	Editor	Grady Calhoun	(812) 926-1206
Treasurer	Peggy Fille	(513) 528-4452			(513) 564-6041
Sergeant-at-Arms	Bruce Fille	(513) 528-4452	Education Committee Chairman		
Advisor	Vacant		Peggy Fille		(513) 528-4452
Secretary	Kyle Becker	(513) 831-4898			

About the GCHS

The Greater Cincinnati Herpetological Society holds monthly meetings which typically consist of a short business section, a refreshment intermission, and a program related to herpetology. Both members and nonmembers are invited to attend. Membership is open to anyone with an interest in reptiles and amphibians. New members may sign up by mail or at the monthly meetings. Members receive monthly issues of *The Forked Tongue* and free classified advertising. Annual dues should be directed to the secretary at the society's mailing address, according to the rates below:

Student	\$10.00	Corresponding	
	\$10.00		
Individual	\$15.00	Sustaining	\$25.00
Family	\$20.00	Institutional	\$30.00
Contributing	\$50.00		

Why Be a Member?

Receive monthly issues of *The Forked Tongue*

- Meet individuals knowledgeable about herpetoculture
- Have access to captive-bred herps and feeder animals
- Participate in society-sponsored field trips, and outings.
- Receive a 10 percent discount on herp-related items and services when you show a valid membership card at the following establishments:

Delhi Pet Center	(513) 451-4015
Kentucky Reptile Zoo	(606) 663-9160
Harrison Pet Center	(513) 367-1115
All Creatures Animal Hospital	(513) 797-7387
Dr. Dahlhausen's Veterinary Clinic	(513) 576-0131.

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