

# THE FORKED TONGUE

THE MONTHLY NEWSLETTER OF THE GREATER CINCINNATI HERPETOLOGICAL SOCIETY

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## The Editor's Den

Thanks to Marc Frevola we have an article on mimicry in snakes. Also included is a description of finding a "lifer".

## Calendar of Events

October 3, 2007- Monthly Meeting featuring Jeff Davis speaking on the Eastern Massasauga, an Ohio Endangered Species.

November 7, 2007 – Monthly Meeting featuring Carl Brune Speaking on Herping in Ohio

December 5, 2007 – Holiday Meeting

## Mimicry in snakes

By Marc Frevola

There are many toxic animals that sport bright, contrasting colors to advertise their dangerous nature. This warning coloration sends a signal to potential predators that this animal is one that is perhaps best left alone. There are many completely harmless species that also display bright coloration and enjoy the same benefits. In 1862, a British scientist by the name of Henry Bates suggested that the mimics benefit when predators confuse them with the actual harmful species, therefore affording them a certain degree of protection. Several questions arise with this hypothesis. First, would an animal benefit if it displays the bright warning coloration of a species that does not exist within its home range?

Second, this could not be a learned behavior of predators, given that an attack on an actual toxic species would most likely result in the elimination of that organism permanently from the population.

So how would the bright colors act as a deterrent at all?

In 2001, biologists David and Karin Pfennig,

along with William Harcombe, designed an experiment to put these beliefs to the test. In Southeastern United States there are two snakes that exhibit bright red, black and yellow warning coloration; the extremely venomous coral snake (*Micrurus fulvius*) and the harmless scarlet king snake (*Lampropeltis triangulum elapsoides*). Both species exist together in south eastern South Carolina, but the range of the scarlet king extends much farther north and west into areas where the coral snake does not exist. The Pfennigs and Harcombe suggested that the mimicry of the scarlet king will provide protection in areas where the coral snake is found, but offer no protection in areas where the coral snake does not exist. Likewise, they suggested a mechanism behind the process. Their hypothesis stated that being a predator would most likely perish if bitten, therefore affording no learning, natural selection would select predators to survive that possess an instinctive recognition and avoidance of the warning colors.

To test their hypothesis, the biologists constructed hundreds of artificial snakes. One version was a plain brown color and acted as a control group. The experimental group bore the bright red, yellow and black bands of the king snakes and coral snakes. Equal numbers of these fake snakes were placed in dozens of field sites throughout North and South Carolina, including areas where the coral snake did not exist. After one month, the snakes were gathered back up and observed for attack marks. The results were enlightening. In areas where the coral snake was found, the brown snakes were attacked much more frequently than their boldly colored counterparts. Eighty-four percent of the attacks were on the brown snakes compared to sixteen percent on the boldly colored ones. In areas where the coral snake was not found, the exact opposite was found. Eighty three percent of the attacks were on the brightly colored

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snakes whereas only seventeen percent of the attacks occurred on the brown colored animals. The experiment showed that in areas where the coral snake was found, mimicry does indeed provide a certain amount of protection for harmless species. However, in areas where the coral snake did not occur, the bold coloration was more of a hazard. It prevented the animal from camouflaging with its habitat, thereby advertising its presence to predators. The experiment also falsified the hypothesis that all predators instinctively avoid brightly colored animals. This tends to open up future experiments to determine exactly why the brightly colored animals are selected for survival so often. The number of brightly colored animals exist in many areas across the United States that have never seen coral snakes. Perhaps, as suggested by several prominent herpetologists, the diffusion of colors on a moving snake confuses predators, therefore making it much more difficult to catch and a benefit to having such gaudy coloration and patterns.

#### Reference:

Campbell, Neil & Reece, Jane; Biology, AP Edition. Pearson, Benjamin Cummings Press, 2005

#### **Lifer**

By Grady Calhoun

I have taken many vacations in areas where Hellbenders are supposedly plentiful. When in these areas I have actively searched for them and enlisted the advice of locals. Until this summer I have always come up empty. I was at a state park in western Virginia and asked woman at the Ranger Station about Hellbenders. She didn't know what they were and said that she didn't think any were at the park. Luckily, another guy was listening and said, "Yeah we have those but I'm really not sure where you could find them." He did, however, know of a local state fish hatchery that had hatched some out. He gave me directions and I made the trip the next day. I almost didn't go because when I called the hatchery and told the lady answering the phone that I wanted to see the Hellbenders she said we

don't have those, only fish. I went anyway. The main building was closed but I found a guy working in a lab-type building. I asked him if there was any truth to the info I received that they were working with Hellbenders. He said yes, that's me. His real job is reintroducing endangered freshwater mussels into local streams but was interested in Hellbenders. He seemed excited that I was as interested as he was. He said that he would see egg masses that had apparently been washed away from the nesting sites. He said that he didn't flip any rocks to get them nor did he see them being guarded. He hatched out a fair number of babies and released most back into the river. He had 10 there in the lab in a 10 gallon tank. They were about 5 inches long. He is keeping track of their growth. After I talked to him for about a half hour he told me he would be off work in about 15 minutes and asked if I would be interested in going to the river to find some wild ones. I had to think about it for about a microsecond. This river was no more than 10 feet across in most areas and about 18 inches deep. It is not what I would have considered "Hellbender habitat. I have incorrectly been targeting larger streams/rivers. The water was flowing pretty quickly in the riffle areas. It was obviously a very health stream as there were stocked rainbow trout living there. There were also crayfish under every rock I flipped. There was one guy fishing downstream of where we were flipping and he caught a 22 inch rainbow which is absolutely giant. Anyway, we both flipped rocks for about fifteen minutes, really, before he turned one up. He called me over before he grabbed it so I could see it in the water. It was in the 14 inch range. Another misconception that I had was that the 'benders would only be found under giant rocks requiring two or more people to lift. I didn't have that much time so I quit right after the big find. He said that it's not unusual to turn up 3 or 4 in 45 minutes in that area. They are in the process of completing a population study in that area using PIT tags. Needless to say it was an awesome find. I can now check that off of my life list but will certainly look for them again anytime in an area that has them.

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### 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
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.**

### Requirements for Submitting Articles to the Forked Tongue

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

Articles may be e-mailed to Grady Calhoun at [gradycalhoun@embarqmail.com](mailto:gradycalhoun@embarqmail.com).

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 editor's possession no later than the meeting previous to the publication.

### Classifieds

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)

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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.

P.O. Box 14783  
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