

KANSAS HERPETOLOGICAL SOCIETY



NEWSLETTER No. 110

DECEMBER 1997



ANNOUNCEMENTS

25TH ANNIVERSARY MEETING TO BE HELD IN LAWRENCE

The *Silver Anniversary Meeting of the Kansas Herpetological Society* will be held 5-8 November 1998 in Lawrence. At this time, exact details of the meeting are not set but the following activities will be featured: paper sessions hosted by KHS Distinguished Life Members Dwight R. Platt, Robert F. Clarke, Henry S. Fitch, and Hobart M. Smith; a social; a banquet; an auction led by Joseph T. Collins; introduction of all past KHS Presidents; presentation of the *Gloyd/Taylor Scholarship*; and first presentation of the *Suzanne L. & Joseph T. Collins Award for Excellence in Kansas Herpetology* (which has been set at \$1000 for the initial award). The keynote speaker for the paper sessions will be Andrew Holycross and the featured banquet speaker will be David Grow. The theme of the meeting will be *Great Plains Herpetology*, and both submitted and invited papers will be presented. Unlike past meetings, activities will be conducted at a number of venues around the city. There are no major athletic events planned for this weekend in Lawrence so there should be plenty of hotel space available. Please mark these dates on your calendar and make plans to attend. Further details and a Call for Papers will be available in the March 1998 issue of the KHS Newsletter. Let's make the 25th Anniversary Meeting the largest and most successful event in the history of Kansas herpetology and the Kansas Herpetological Society.

TOPEKA COLLEGIATE STUDENTS TO LEAD

ANTI-RATTLESNAKE ROUNDUP EFFORT

Led by KHS member and teacher Larry Miller, a number of students in a special class at Topeka Collegiate School are spearheading a campaign to have the annual rattlesnake "roundup" in Sharon Springs banned. The students will concentrate on legislative initiatives in next year's state Senate and House of Representatives session. Those wishing to offer assistance to the class should contact Larry Miller at 840 SW 97th Street, Wakarusa, Kansas 66546; phone 785-836-2119; E-mail: wakarusa@cjnetworks.com You may also want to visit the group's World Wide Web site at www.geocities.com/Rainforest/Vines/1532/.

MINNESOTA HERPETOLOGICAL SOCIETY

GRANT FUNDING AVAILABLE

The Minnesota Herpetological Society (MHS) hosted the annual Midwestern Herpetological Symposium from 17-19 October 1997. MHS started this symposium in 1984 and has been the host society for three of its thirteen years. The Board of Directors passed a resolution to disperse seventy-five percent of the net income from this year's symposium to conservation work related to herpetology. Preferences are to be given for local (state) or regional (midwest) based studies or projects currently receiving limited or no funding.

Please notify your staff and students of this opportunity. More than one application may be selected based on the number of applications and total money available. All applications should include the following information: the nature of the study or project, species, study or project location, timetable, name and address of applicant(s), supervisor (if applicable), and a budget showing the amount requested.

To be considered, all applications must be received by December 31, 1997. The successful study or project will be selected by February 7, 1998 and notification will be mailed to the recipient(s) no later than February 28, 1998. Funds will be dispersed upon request after notification has been given.

Applications should be submitted to Randy Blasus, Minnesota Herpetological Society, 3224 Idaho Avenue South, St. Louis Park, Minnesota 55426. Questions can be directed to the above address or by phone at (612) 925-4237, evenings.

At the completion of the project, MHS requests that a brief topical article be submitted for publishing in the MHS Newsletter detailing the results of the study or project.



KHS BUSINESS

24TH ANNUAL MEETING A SUCCESS

The 24th Annual Meeting of the Kansas Herpetological Society was held the weekend of 8–9 November at the Sedgwick County Zoo in Wichita and was, as usual, an outstanding success. The Saturday paper session was led off by Keynote Speaker Rick Hudson, assistant curator of the Department of Herpetology of the Fort Worth Zoo in Texas. Rick gave an intriguing presentation on current conservation efforts for West Indian Rock Iguanas (*Cyclura*), concentrating on *ex situ* and *in situ* programs. This group of spectacular lizards is the most endangered large vertebrate group in the Caribbean, but it appears that substantial progress has been and continues to be made in efforts to conserve and preserve the group. We thank Rick for his enlightening talk and slide show.

Papers throughout the meeting covered such diverse topics as Box Turtle races in western Kansas and the herps of Nepal, and all were uniformly enlightening.

The Business Meeting of the Society dealt with a number of topics. Elections were held and the following persons were added or re-elected to the Executive Council of the Society: President-Elect—Chris Mammoliti, Secretary—Daren Riedle, and Treasurer—Karen Toepfer. John Lokke will preside over the Society in the year to come. The Executive Council extends their thanks to outgoing Past President Stanley Roth for his excellent service to the Society for the past three years.

Special recognition was given by the Society to our newest *Distinguished Life Member*, Dwight R. Platt. Dwight was shown appreciation for his many efforts over the years to Kansas herpetology and for his role in numerous conservation efforts in the state.

There was considerable discussion of a proposed guideline being considered by the Kansas Department of Health and Environment. This guideline would ban the use of *any* amphibian and reptile in state classrooms as a potential health threat. It appears that the proposal is based on poorly documented evidence without any demonstrated significant health threat in Kansas. Those wishing to respond to KDHE or wanting more information on this topic should contact Stan Roth at the address and phone number listed on the inside front cover of this Newsletter.

Saturday evening festivities were highlighted by the annual KHS auction, expertly conducted by auctioneer extraordinaire Joe Collins. Over \$1000 was added to the KHS treasury as a result of Joe's pleadings, cajoling, and badgering. Many thanks to all those who so generously contributed both items and money.

The Sunday session featured an outstanding morning

lineup of papers, and the meeting was adjourned after noon. In all, 72 people attended and \$1959 was added to the Society's coffers. Thanks to all who helped pull the meeting off and hope to see all of you next year at the *KHS Silver Anniversary Meeting* in Lawrence!

A REPORT ON THE KHS FALL FIELD TRIP TO THE MARAIS DES CYGNES WILDLIFE REFUGES

With diligence and spirit, 33 hardy souls braved the wilderness of Linn County, Kansas, to make the Kansas Herpetological Society Fall Field Trip a stunning success. Stunning, in the sense that the assembled members made themselves available for a splendid feast by one of the largest concentrations of chiggers ever experienced on a Society outing, and a success in the sense that ±424 specimens of 22 species of amphibians and reptiles were observed, including a rarely-seen adult female Broadhead Skink (*Eumeces laticeps*).

Some other interesting discoveries included the shell of a Common Musk Turtle (by Andrew Moriarty), a Milk Snake (by Jim Gubanyi), five Copperheads (by Joe Collins, Dan Murrow, Curtis Schmidt, and Mark Van Doren), and a Smallmouth Salamander (by Gregory Sievert). The latter was an exceptional find for a fall trip.

The KHS Fall Field Trip covered four areas, each exhibiting a distinct habitat, and each containing its own army of chiggers. Weather was excellent, including a refreshing light shower on Sunday morning. Breakfast, lunch and dinner were enjoyed by all at the well-known Trading Post restaurant, and Karl Karrow, refuge manager for the Kansas Department of Wildlife and Parks, joined us at breakfast on Sunday (although he sat a table distant because of the chiggers that marched in formation across our clothing and skin).

Details of the amphibians and reptiles observed are as follows:

Kansas: Linn Co: Lake LaCygne State Park
27 September 1997. 0900-1200 hrs

Smallmouth Salamander (subadult)	1
Northern Cricket Frog	±100
Bullfrog	±25
Southern Leopard Frog	±30
Eastern Box Turtle	4
Ornate Box Turtle	4
Painted Turtle	5
Slider	±20
Ground Skink	1
Five-lined Skink	4

Broadhead Skink	1
Western Worm Snake	10
Ringneck Snake	10
Rough Green Snake	1
Racer	1
Eastern Rat Snake	2
Western Ribbon Snake	1
Common Garter Snake	1
Diamondback Water Snake	1
Northern Water Snake	1
20 species	±223 specimens

Kansas: Miami Co: Miami County State Fishing Lake
27 September 1997. 1400-1700 hrs

American Toad	3
Northern Cricket Frog	±25
Cope's Gray Treefrog	1
Bullfrog	1
Southern Leopard Frog	6
Common Musk Turtle (shell only)	1
Ornate Box Turtle	1
Painted Turtle	1
Slider	1
Smooth Softshell	1
Ground Skink	1
Western Worm Snake	2
Ringneck Snake	8
Racer	1
Milk Snake	1
Western Ribbon Snake	1
Common Garter Snake	9
Plainbelly Water Snake	2
Northern Water Snake	10
Copperhead	5
20 species	±81 specimens

Kansas: Linn Co: Marais des Cygnes
National Wildlife Refuge (USFWS)
28 September 1997. 1000-1045 hrs

American Toad	1
Ornate Box Turtle (shell only)	1
Ringneck Snake	96
Racer (shed skin only)	1
Prairie Kingsnake	3
5 species	102 specimens

Kansas: Linn Co: Marais des Cygnes Wildlife Area
(KDWP)
28 September 1997. 1100-1200 hrs

Bullfrog	±10
Southern Leopard Frog	5
Plainbelly Water Snake	1

Diamondback Water Snake	1
Northern Water Snake	1
5 species	18 specimens

Grand Total

22 species	±424 specimens
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The 33 participants of the 1997 KHS Fall Field Trip were Lucia Baldwin, Mary Kate Baldwin, Aaron Bennett, Andrew Bennett, Sheila Bennett, Dee Boeck, Dan Carpenter, Nathan Carpenter, Shelbi Carpenter, Joseph T. Collins, Suzanne L. Collins, Jim Gubanyi, Damon Mar, Larry L. Miller, Suzanne Miller, Andrew Moriarty, Anne Moriarty, Carolyn Moriarty, Dan Murrow, Danny O'Connor, Alexis Powell, Little Rasmussen, Stan Rasmussen, Theresa Rasmussen, Alison Reber, David Reber, Tabitha Reber, Emily Reimer, James Reimer, Jill Reimer, Curtis Schmidt, Gregory Sievert, and Mark Van Doren.

Not bad, both in turnout and species count, for a fall field trip in eastern Kansas. The KHS owes Larry Miller a big thanks for organizing yet another stimulating Society activity, a task that he does better and better with each passing year.

— Joseph T. Collins
Adjunct Herpetologist
Kansas Biological Survey
The University of Kansas
2041 Constant Avenue
Lawrence, Kansas 66047



KHS WEB PAGE

The address for the KHS home page on the World Wide Web has changed. It is now located at <eagle.cc.ukans.edu/~cnaar/khs/khsmain.html>. Please note the change and bookmark it appropriately.

Also, there have been several changes to the links in the Herpetological Resources and Kansas Resources sections of the home page. The links currently posted in the Herpetology section should allow the user to find virtually any herpetological resource available on the Internet. In addition, a number of links to what I judge to be the best regional herpetological society home pages and resources of particular interest to ongoing KHS projects (deformed frogs, amphibian declines, etc.) have been added.

The Kansas resources section contains a number of sites that should be of interest to KHS members. Of particular

interest is a real-time radar site for current weather conditions in the state of Kansas and surrounding states. I have found it invaluable for planning field activities and it should be of value to anyone planning on stomping around in the boonies.

If there are other links that you would like to see posted, please send the URL to me at my email address listed on the inside front cover of this Newsletter.

— EMR

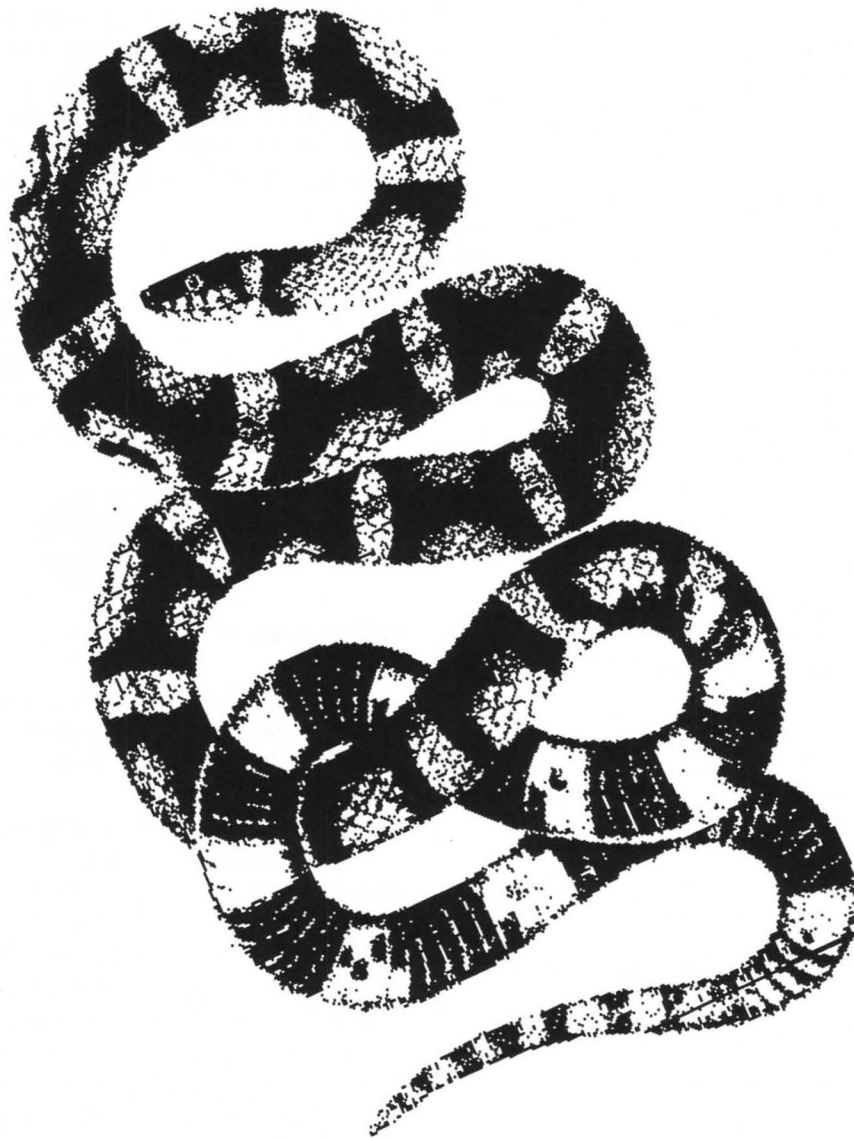
KANSAS BIOLOGICAL SURVEY ADDS KU HERPETOLOGIST

A Kansas University herpetologist and author of a number of Kansas nature guides and books has been appointed adjunct herpetologist by the Kansas Biological Survey.

Joseph T. Collins, KU herpetologist emeritus at the Kansas University Natural History Museum and director of The Center for North American Amphibians and Reptiles, will assist the KBS in critical habitat assessments for endangered species. The eventual goal: sufficient habitat protection.

Collins, whose books include *Fishes in Kansas*, *Amphibians and Reptiles in Kansas*, *Kansas Wildlife*, and *Kansas Wetlands*, will also help create a new desktop publications series and an expanded Web site.

Lawrence Journal World
2 December 1997



KHS BRINGS YOU GREAT NEWS OF THE WORLD

TURTLES HOT ON ILLICIT MARKET

There's big money in the illicit turtle trade, and Kansas' official state reptile, the Ornate Box Turtle, is right in the middle of it.

On Friday, Jackie Williams, the U. S. attorney for Kansas, announced that a federal grand jury had indicted two men on charges of illegally buying and selling more than 1,000 of the small, colorful reptiles.

These are the same animals often found munching on backyard gardens or attempting to cross busy highways.

Kansans view them as cute curiosities, with their small dark shells marked with yellow and orange-yellow lines. But to those who engage in the illegal business of capturing and shipping them abroad, they look more like four-legged dollar signs.

Missouri has experienced problems not only with people catching turtles for resale but also with people misusing paddlefish and mussels.

The paddlefish have been taken in large numbers for their caviar, which can be highly profitable, said Dave Beffa, a wildlife protection expert with the Missouri Conservation Department in Jefferson City. The mussels, which in the past have brought \$5 to \$6 a pound have been used to grow pearls, he said.

Joe Collins, herpetologist emeritus at the University of Kansas Museum of Natural History, said the turtles can sell initially for \$5 or \$10 each, but that jumps to as much as \$300 each once a broker ships them to Japan or countries in Europe.

"People put them in ornamental gardens," Collins said. "They are very beautiful turtles, and I'm sure they lead a fairly good life. It's the inordinate number of deaths between the time they are captured and the time they arrive."

Collins, who aided federal and state wildlife officials in their investigation, said the turtles are shipped by "just cramming as many as they can in a crate because they want to hold down shipping costs."

Named in Friday's announcement were Daniel Newton, 44, of Elk City in southeast Kansas, and Terry Luke Stevens, 42, of Thibodaux, La.

Newton was indicted in two counts of transporting and selling 837 box turtles in interstate commerce. If convicted, he could serve a maximum of 10 years in a federal prison.

Stevens was indicted on three counts of receiving, acquiring and purchasing numerous snakes and 175 box turtles that had been caught in Kansas. Conviction could bring him a maximum sentence of 11 years in a federal prison.

Both men are scheduled to appear before a U. S. magistrate on Nov. 18 in Topeka.

The illegal taking of wild animals for commercial use poses a constant threat for conservation officials around the country, said Beffa of the Missouri Conservation Department.

"It's a recurring thing," he said. "When dollars are involved, sometimes significant dollars, people do much the same thing in regard to the illegal wildlife trade as they do with the illegal drug trade."

Richard Harrold, chief of special operations for the Kansas Wildlife and Parks Department, said the illegal turtle trade probably has been under way in the state for some time, but only recently has the department become involved in curtailing it.

As a result of the investigation, about half a dozen people were charged in state court in southeast Kansas with illegal wildlife trafficking he said.

Some of the box turtles confiscated during the investigations were taken to Caldwell, Kansas, which claims to be the "Ornate Box Turtle Capital of the World." The turtles were released during a ceremony at a roadside park at the edge of town.

Sixth-graders in the town's elementary school had persuaded the 1986 Kansas Legislature to honor the ornate box turtle, and today there is a mural of the reptile on the side of a business building on Main Street.

Besides turtles, Harrold said, there is an active market of capturing and selling snakes.

Collins said Kansas milk snakes can sell for "hundreds of dollars" elsewhere in the country. They are purchased for pets, breeding stock or resale. "People who engage in this traffic will capture and sell about anything they can get their hands on," Collins said.

In Missouri, Beffa said the state actively pursues criminal poaching cases, and sometimes the guilty receive prison sentences.

Nevertheless, the problem continues. "It's always going to be with us," he said.

—Kansas City Star, 25 October 1997

Submitted by Suzanne L. Collins, Lawrence

THE PROOF IS IN THE X-RAY

Snake "C", the temporary name given to the ancient fossil that visited Kansas University recently, had legs.

Actual legs.

"It's a pretty spectacular specimen," said Brad Kemp, marketing director at KU's Natural History Museum.

Before visiting the KU campus, Eitan Tchernov, chair of the paleontology department at Hebrew University in Jerusalem, brought the fossilized remains to a specialized facility at the University Texas. Paleontologists there used a one-of-a-kind digital imaging system to give Tchernov a better look at it.

Tchernov plans to publish a paper on the fossil in a scientific journal, probably "Science" or "Nature."

The recent trip—including a stop in Chicago—marks the first time the snake remains have been in the United States. The remains are estimated to be 100 million years old.

Larry Martin, curator of vertebrate paleontology at KU's Natural History Museum, used the opportunity for some hands-on instruction.

"You're about to look at the oldest snake in the world," Martin told his evolution of vertebrate communities class, setting himself up for the punchline. "Do you know where it comes from? Israel ... Maybe the snake from the Garden of Eden?"

With legs?

"All the better to cling to the tree," someone piped up.

"Yes, yes," said a grinning Martin.

Snake "C", along with snakes "A" and "B", were discovered in limestone quarries just north of Jerusalem. The first two were missing key abdominal portions. The most recent specimen was discovered in the early 1980s. But the significance of Snake "C", an X-ray of which clearly shows a tiny limb, has only recently been documented.

"At that time (the first unearthing), they did not know this creature possessed legs," Tchernov said.

The evidence, first of all, shows that the back leg was an aberration or mutation.

"I think the possibility of that being a coincidence is very small," Martin said.

Added Linda Trueb, the museum's curator of herpetology: "It would be like you winning the lottery twice."

Perhaps the most significant thing about the discovery is that it flies in the face of conventional scientific theory that says snakes were descended from lizards.

"It has always been assumed that snakes evolved from something (else) with limbs," said Trueb. "Here we have a creature with limbs that was a snake."

The snake has traits, such as certain skull characteristics, that are more in line with modern snakes than with lizards. For example, lizards do not have pliable-enough heads to swallow something bigger than them. Snake "C" does. And one of the creatures, were ... seafarers, was found with an entire fish in its innards.

Above all else, though, Martin had this advice.

"If it offers you an apple, turn it down," he said.

—Lawrence Journal-World, 19 October 1997
Submitted by Ralph Black, Lawrence

PAIR PLEAD GUILTY TO SMUGGLING SNAKES IN PANTS

The two men couldn't wiggle out of this one—not when customs agents found snakes writhing in their pantyhose.

That's why a pair of wildlife collectors crossing with reptiles in their underwear pleaded guilty to smuggling Monday in Los Angeles federal court.

Paul James Lynum, 24, of Long Beach, and Jon Sterling Nelson, 33, of Pacific Palisades, admitted they tied snakes into pantyhose and then tucked them in their groin area as they crossed the border two years ago at Eagle Pass, Texas.

Other snakes were found hidden in their boots and in a pickup truck after customs inspectors noticed that bulges in the pair's pants were wiggling.

Three bull snakes, six green rat snakes, two Sinaloa milk snakes, a Nuevo Leon king snake, a Nelson milk snake and a boa constrictor were found after inspectors ordered the pair to drop their trousers.

"I don't think the boa constrictor was one of those in their pants," said Robert Dugdale, an assistant federal prosecutor. "Boa constrictors squeeze."

Lynum confirmed the boa wasn't one of the reptiles in the pantyhose. But he had little else to add following the hearing in downtown Los Angeles.

"I'm not saying anything until the judge says it's over," Lynum explained.

Prosecutors said the Texas border crossing agent initially had suspected Lynum and Nelson were hiding narcotics.

"But drugs don't move around like that," explained Dugdale.

Investigators said Lynum and Nelson had spent two weeks snake-hunting in the Mexican desert before returning to the United States on July 31, 1995.

A four-count indictment handed down last January by a federal grand jury in Texas charged the pair with illegal importation of wildlife, smuggling of contraband, failure to declare fish of wildlife and the unlawful importation of a boa constrictor.

Under terms of Monday's guilty pleas, the pair are scheduled to be sentenced Dec. 1 to three year's probation by Los Angeles federal Judge Audrey B. Collins—provided they pay about \$5,500 each in restitution to the San Antonio Zoo. The snakes, all nonvenomous, now reside at the zoo's reptile house.

"We kept them there because we didn't want the evidence slithering away," Dugdale said.

One of the snakes died following the smugglers' arrest. But the surviving 13 will likely be returned to the Mexican desert and released.

The snake-hunting expedition violated a 1951 Mexican federal hunting law and a 1988 ecological protection law, according to Thom Mrozek, spokesman for the U. S. Attorney's office.

—Los Angeles Times
Submitted by Suzanne L. Collins, Lawrence

POND CREATURE TURNS OUT TO BE SEVERAL BULLFROGS

There have been some strange goings on at the office complex pond. Strange ripples on the water. Mysterious eyes poking up just above the surface in the depths.

Locals say it is Seymour the alligator. Experts say it's more likely Jeremiah the bullfrog.

The legend got started last month, after a young boy said he saw a man dump an 18-inch alligator into the pond in this central Ohio town.

So Ron Hatcher, the Columbus Zoo's senior keeper for reptiles, trooped out to the pond last week. If he could find him, Hatcher planned to rescue the alligator and give him a home.

Instead of an alligator, Hatcher found several large frogs.

"They could have been mistaken for a foot-long alligator because whenever they stretch out and swim, they could be about that size," he said.

But the legend of Seymour lives on. Said Heather Totten, a worker at the office complex: "Some people still think there is an alligator out there."

— Lawrence Journal World, 24 September 1997
Submitted by Suzanne L. Collins, Lawrence



SNAKES ALIVE! ONE SERPENT SIGHTING SETS OFF ALARM IN HAWAII

Shortly after a huge transport plane unloaded its cargo at Hickam Air Force Base one day earlier this month, Airman John Herist happened to spot a brownish, three-foot-long snake slither into a nearby canal and disappear.

An unremarkable event by almost any measure, except that Hawaii does not have snakes and the cargo plane was from Guam, a combination of circumstances that had state and federal wildlife officials scurrying to set traps and turn loose snake-sniffing Jack Russell terriers in a frantic round-

the-clock hunt for the elusive reptile, which still has not been found.

Brown tree snakes are an aggressive, venomous predator that grows to lengths of eight feet and has spread throughout Guam like a plague since arriving aboard U.S. military cargo ships from the Solomon Islands shortly after World War II. They now number 12,000 per square mile in some forested areas of the Pacific island and are eating into extinction its native bird species and most of the non-native birds as well.

Now officials here are worried that the brown tree snake, hiding in aircraft cargo holds and wheel wells, may be invading Hawaii, threatening its wildlife habitat and tourist dependent economy. More than a third of all the threatened and endangered birds in the United States are found in Hawaii.

A nocturnal reptile with a large head and bulging eyes, the brown tree snake prefers birds over other prey, but it has been known to eat small pets such as cats and has even been found curled around babies sleeping in their cribs. It is particularly adept at climbing trees and raiding nests. It also crawls along electric lines and causes an average of one power outage every four days on Guam.

Hawaiian wildlife officials say that while there have been only seven confirmed cases of brown tree snakes being killed or found dead on Hawaii's Oahu Island since 1981, the Hickam Air Base incident was the sixth snake sighting in two months. They also warn that even one pregnant female slipping through could begin a colonization far more costly than Guam's.

"It's an enormous threat to Hawaii, and while we always look for the 'silver bullet' to kill these things off, we haven't found one yet," said Robert Smith, Pacific islands manager for the U.S. Fish and Wildlife Service. "We've got to apply resources to this effort that match the cost of this threat."

Animals have evolved with few diseases and natural predators, and therefore have few natural defenses. There are no effective predators with which the brown tree snake would have to contend while it multiplied.

But the threat is not only to Hawaii, according to U.S. Agriculture Department officials. One brown tree snake was found in a cargo in Texas, and experts predict that the reptile could easily thrive in Southern California, Florida, and other warm climate states.

Thomas H. Fritts, a biologist with the U.S. Geological Survey in Washington who is widely regarded as the leading authority on brown tree snakes, said he was attempting to confirm sightings in Spain, Singapore, Okinawa and Darwin, Australia. An incipient colonization is already occurring in Saipan, he said.

The sighting at a military airfield in Darwin was ironic because Australia is where the reptile is believed to have evolved before island hopping through the Pacific to Guam.

“So we seem to have moved it from Guam back to Australia,” Fritts said.

Because Hawaii ostensibly has no snakes—other than two reptiles on display in the public zoo here and those illegally imported by residents who like to have them as pets—state and federal officials take their snake control effort very seriously, even though the state’s congressional delegation is often the butt of jokes when it lobbies for appropriations for alien snake control programs.

Anyone caught with a snake faces as much as a year in jail and a maximum fine of \$25,000. An amnesty program allows snake owners to turn the reptiles in without prosecution.

A number of measures have been taken or proposed to intercept snakes that arrive from Guam in military aircraft or other conveyances. These include a newly designed concrete barrier with a curved lip that could be erected around an airport tarmac where cargo is off loaded.

Other measures include dog detection, which is used extensively in Guam; development of new kinds of snake traps; fumigation of cargo containers; and the training of snake searchers who are marshaled when a brown tree snake is spotted loose.

—Lawrence Journal World, 24 August 1997
Submitted by Suzanne L. Collins, Lawrence

SMUGGLERS ARRESTED

Puff adders, pythons and scorpions were among 150 animals seized in a police crackdown on a reptile smuggling network with links to the United States and Europe, police said Monday.

The raid, which ended a two-year investigation dubbed “Operation Cobra,” led to the arrest Sunday of seven people. If convicted, the suspects face a \$21,000 fine or ten years in jail.

“Reptiles are the fourth most common commodity in illegal trade after drugs, diamonds and weapons,” said Capt. Gert van der Merwe of the Endangered Species Protections Unit. “They are mostly being bought as pets.”

Police said the investigation was prompted by an Interpol report showing that South Africa was a major supplier of reptiles to dealers in the Netherlands, Germany and other European countries.

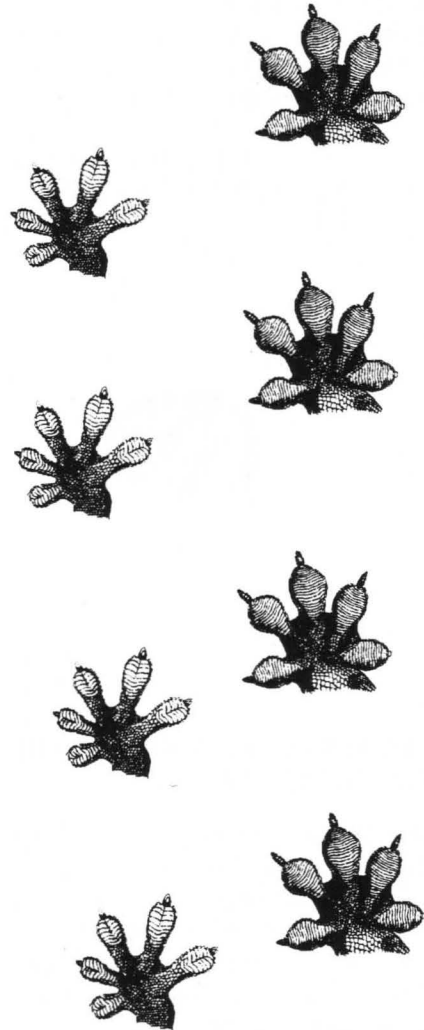
‘The seizures included three crocodiles found in a bedroom in Pretoria, as well as scorpions, birds and computers containing information about the network.

Indigenous reptiles will be released to their natural habitat, while foreign species will be taken to zoos, said spokeswoman Petronel Niewoudt.

“To avoid detection, smugglers would either carry reptiles on their bodies or in personal baggage, through border controls,” Supt. Pieter Lategan said.

Postal services were also used, causing between 60 to 80 percent of the animals shipped to die from stress, he said.

—Internet Mail Server
Submitted by Alan Salzberg, New York



FEATURE ARTICLES

HERPETOFAUNAL OBSERVATIONS ON THE LITTLE RIVER WILDLIFE REFUGE, OKLAHOMA

J. DAREN RIEDLE,¹ KENNETH J. COLE² and TIFFANY TALBOT²

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Department of Zoology Life Sciences West
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While conducting Alligator Snapping Turtle surveys for the Oklahoma Department of Wildlife Conservation, we had the opportunity to work on the Little River Wildlife Refuge, just south of Broken Bow in McCurtain, County Oklahoma. From 10 July 1997 to 15 July 1997 we conducted a count of amphibian and reptile species observed while sampling for turtles on the refuge. The number of species and individuals of each species observed while checking turtle traps, conducting foot searches, and road cruising were recorded.

Total search effort included 96 trap nights for turtles (1 trap x 1 night = 1 trap night), and 17 person hours of foot searches and 3 hours of road cruising. All anurans calling had been captured and identified either on this trip or previous trips by the authors.

10 July 1996

Observations made while checking turtle traps.

Spiny Softshell	
<i>Apalone spinifera</i>	1
Alligator Snapping Turtle	
<i>Macrochelys temminckii</i>	1
Razorback Musk Turtle	
<i>Sternotherus carinatus</i>	7
Slider	
<i>Trachemys scripta</i>	1
Diamondback Water Snake	
<i>Nerodia rhombifer</i>	1

Foot searches and road cruising. 1730-2100 hrs

Sequoyah Slimy Salamander	
<i>Plethodon sequoyah</i>	2
American Toad	
<i>Bufo americanus</i>	1

Eastern Narrowmouth Toad	
<i>Gastrophryne carolinensi</i>	7 + calling
Northern Cricket Frog	
<i>Acris crepitans</i>	10
Spring Peeper	
<i>Pseudacris crucifer</i>	6
Gray Treefrog	
<i>Hyla chrysoscelis/versicolor</i> complex	calling only
Green Treefrog	
<i>Hyla cinerea</i>	calling only
Bird-voiced Treefrog	
<i>Hyla avivoca</i>	calling only
Southern Leopard Frog	
<i>Rana utricularius</i>	5+
Green Frog	
<i>Rana clamitans</i>	50+
Slider	
<i>Trachemys scripta</i>	1
Razorback Musk Turtle	
<i>Sternotherus carinatus</i>	1
Common Musk Turtle	
<i>Sternotherus odoratus</i>	2
Six-lined Racerunner	
<i>Cnemidophorus sexlineatus</i>	1
Fence Lizard	
<i>Sceloporus undulatus</i>	1
Ground Skink	
<i>Scincella lateralis</i>	5
Racer	
<i>Coluber constrictor</i>	1
Plainbelly Water Snake	
<i>Nerodia erythrogaster</i>	1
Cottonmouth	
<i>Agkistrodon piscivorus</i>	3
Pigmy Rattlesnake	
<i>Sistrurus miliarius</i>	1

11 July 1997

Observations made while checking turtle traps

American Toad	
<i>Bufo americanus</i>	1 + tadpoles
Northern Cricket Frog	
<i>Acris crepitans</i>	1
Green Treefrog	
<i>Hyla cinerea</i>	3 + calling
Spiny Softshell	
<i>Apalone spinifera</i>	3
False Map Turtle	
<i>Graptemys pseudogeographica</i>	1
River Cooter	
<i>Pseudemys concinna</i>	1
Slider	
<i>Trachemys scripta</i>	1
Razorback Musk Turtle	
<i>Sternotherus carinatus</i>	3
American Alligator	
<i>Alligator mississippiensis</i>	1
Racer	
<i>Coluber constrictor</i>	1
Cottonmouth	
<i>Agkistrodon piscivorus</i>	1

12 July 1997

Observations made while checking turtle traps

Razorback Musk Turtle	
<i>Sternotherus carinatus</i>	16
Slider	
<i>Trachemys scripta</i>	1

Foot searches and road cruising

Eastern Narrowmouth Toad	
<i>Gastrophryne carolinensis</i>	6
Bird-voiced Treefrog	
<i>Hyla avivoca</i>	calling only
Green Treefrog	
<i>Hyla cinerea</i>	calling only
Green Frog	
<i>Rana clamitans</i>	50+
Southern Leopard Frog	
<i>Rana utricularius</i>	5
Painted Turtle	
<i>Chrysemys picta</i>	1
Broadhead Skink	
<i>Eumeces laticeps</i>	2
Western Ribbon Snake	
<i>Thamnophis proximus</i>	1
Cottonmouth	
<i>Agkistrodon piscivorus</i>	3
Timber Rattlesnake	
<i>Crotalus horridus</i>	1

13 July 1997

Observations made while checking turtle traps

Green Treefrog	
<i>Hyla cinerea</i>	calling only
Spiny Softshell	
<i>Apalone spinifera</i>	3
River Cooter	
<i>Pseudemys concinna</i>	2
Slider	
<i>Trachemys scripta</i>	1
Alligator Snapping Turtle	
<i>Macrochelys temminckii</i>	1
Razorback Musk Turtle	
<i>Sternotherus carinatus</i>	3
Common Water Snake	
<i>Nerodia sipedon</i>	1
Cottonmouth	
<i>Agkistrodon piscivorus</i>	1

14 July 1997

Observations made while checking turtle traps

Slider	
<i>Trachemys scripta</i>	4
Alligator Snapping Turtle	
<i>Macrochelys temminckii</i>	1
Razorback Musk Turtle	
<i>Sternotherus carinatus</i>	3
Racer	
<i>Coluber constrictor</i>	1

15 July 1997

Observations made while checking turtle traps

Spiny Softshell	
<i>Apalone spinifera</i>	3
Slider	
<i>Trachemys scripta</i>	6
Razorback Musk Turtle	
<i>Sternotherus carinatus</i>	2

Conclusion

A total of 31 species and +246 individuals were observed during our six day stay at Little River Wildlife Refuge. We would like to thank the following: Paul Shipman and Corey Fincher, and students from Oklahoma State University for their assistance in the field on previous trips to the refuge.



TAKING UP SERPENTS: AN ESSAY DISGUISED AS A BOOK REVIEW

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Serpent-Handling Believers. 1993. by Burton, Thomas G.

The University of Tennessee Press, Knoxville. x + 208 pp. \$21.95, paperback.

Salvation on Sand Mountain: Snake Handling and Redemption in Southern Appalachia. 1995. by Dennis Covington. Penguin Books, New York. xv + 240 pp.

\$14.00, paperback.

Taking Up Serpents: Snake Handlers of Eastern Kentucky. 1995 by David L. Kimbrough. University of North Carolina Press, Chapel Hill. xvi + 232 pp. \$14.95, paperback.

On a hot summer day in 1909, George Went Hensley climbed up White Oak Mountain, which sits on the edge of Grasshopper Valley in southeastern Tennessee, near Chattanooga. He was contemplating a New Testament passage, Mark 16:17-18, in which Jesus said, "And these signs shall follow them that believe: in my name they shall cast out devils; they shall speak with new tongues: they shall take up serpents and if they drink any deadly thing, it shall not hurt them; they shall lay hands on the sick and they shall recover" (King James Version, KJV). Hensley, then in his early 20s, had seen people in church cast out demons, speak in tongues, and heal the sick, but what about taking up a venomous snake or drinking poison? He believed that the verses were a direct command from Jesus to perform not just some of these acts, but all of them. Near the top of White Oak Mountain, Hensley found what he was looking for in the form of a large Timber Rattlesnake, *Crotalus horridus*. He captured the rattlesnake and carried it back down the mountain. The following Sunday, at a small church in Sale Creek, to the surprise of his fellow church members, Hensley picked up and handled the snake without being bitten. Convinced he had found the true practice of religion, something overlooked by other Christians, Hensley began preaching in local churches. Although he was illiterate, he was a charismatic speaker, and had memorized vast passages of Biblical text. Hensley soon began attracting converts who, while in a state of religious ecstasy, as part of their worship of God, handled rattlesnakes and drank poison.

The religious snake handlers of Appalachia have long been sensationalized and unfairly stereotyped as misguided and ignorant cultists. A 1962 book stated that "The sometimes picayune fanaticism of these rural folks must be seen to be believed" (Le Barre, 1962:7). Three recent books, however, treat the subject of serpent handling and the serpent handlers themselves fairly and evenhandedly. *Serpent-Handling Believers* is a thoughtful book by Thomas G. Burton. He presents a well-written, carefully documented history of the snake handling movement and an objective study of a number of the participating congregations. Dennis Covington's *Salvation on Sand Mountain: Snake Handling and Redemption in Southern Appalachia* takes a very different approach. Covington, a journalist, was covering a snake handler's murder trial. During the proceedings, Covington became fascinated by the snake handlers and their religious practices, and began visiting their churches. Somewhat to his surprise, he then became a participant, handling rattlesnakes himself during church services. David L. Kimbrough's book, *Taking Up Serpents: Snake Handlers of Eastern Kentucky*, fits somewhere in between the other two. Kimbrough takes a scholarly, sociological approach to the subject, blending oral history with his own personal observations and experiences, but admits to being what perhaps can best be called an objective participant. Kimbrough explains that "I participated in churches as far as my personal beliefs would let me...I have handled poisonous snakes on many occasions, to the astonishment of the snake handlers" (Kimbrough, 1995:4). All three of these authors have deep roots in the region, but different approaches to the subject. Burton shows obvious respect for the serpent handlers, but retains his academic objectivity. Covington realizes that he is but a generation or two away from the handlers, his family having migrated from the hills into the city. Kimbrough considers himself one of the mountain people, explaining that "I did not suffer from the common problems that many non-Appalachians find when they embark on these research trails. I am a native speaker with a suitable hillbilly accent. Others who have not had command of the mountain

language have informed me that they had tremendous problems trying to understand Appalachian jargon and accents” (Kimbrough, 1995:3). All three of these books contain fascinating photographs of the serpent handlers and serpent handling. The Kimbrough book includes photographs of the author handling rattlesnakes during church services.

The snakes handled are usually Timber Rattlesnakes (*Crotalus horridus*) and Copperheads (*Agkistrodon contortrix*), although it is not unusual to find Cottonmouths (*Agkistrodon piscivorus*) in the services, too. In areas where they occur, Eastern Diamondback Rattlesnakes (*Crotalus adamanteus*) are also handled. Some church members keep snakes in their homes especially for the serpent handling services, others use freshly caught snakes which are then released. Many serpent handlers keep their snakes in small, screened wooden boxes, decorated with religious symbols, words or slogans. Contrary to many exaggerated press reports, the snakes used in the services are wild caught and not tampered with in any way. All have perfectly intact venom glands, ducts, and fangs.

A lot of folklore has sprung up around the snake handlers. Typical of the false stories that circulate in the region is one repeated by a herpetologist writing about the use of Timber Rattlesnakes, *Crotalus horridus*, by snake handlers in Kentucky. He reported that “One native told me he saw the pastor of a local church crawl under a ‘huckleberry’ (*Vaccinium*) bush and after chanting the ‘magic words’ capture a 4-foot rattlesnake with his bare hands” (Barbour 1950:106). This kind of story is not supported by the direct testimony of the many handlers interviewed by the authors of the books under review here.

On occasion, an exotic venomous snake may be handled. There are published photographs of snake handlers at an outdoor service in 1974 in Carson Springs, Tennessee, handling a “... ferocious Indian cobra” (Pelton and Carden, 1974:100). The snake was “provided by a professional snake exhibitor, John ‘Doc’ Walls, of Pensacola, Florida.” It is not possible to identify the snake accurately from the black and white photographs, but it appears to be a species of the genus *Naja*.

Thanks to the efforts of George Hensley and his followers, serpent handling soon spread beyond the Grasshopper Valley of Tennessee. Hensley pastored many churches, and moved frequently, mostly due to local hostility toward his serpent handling beliefs. Serpent handling had spread as far as New York and California by the 1950s, presumably as people from Appalachia migrated northward and westward.

Serpent handling congregations are not grouped under a formal name or association. They are part of the Holiness movement, which emerged from the fundamentalist Pentecostal movement, which itself is an offshoot of Methodism. The serpent handlers believe that the Bible is literally true,

and that modern day Christians receive the spiritual gifts referred to in the New Testament. These gifts include “anointing,” or being filled with the Holy Spirit, speaking in tongues, divine healing by the laying on of hands, and the ability to prophesy. The anointing of the Holy Spirit is described as the Spirit of God “descending upon, entering, possessing, filling, baptizing an individual” (Burton 1993:139). Speaking in tongues, or glossolalia, is when an anointed believer, usually in a trance-like state, speaks in an unknown language. The subject of glossolalia is very controversial within Christian churches.

Serpent handlers are sometimes bitten, and sometimes they die. The vast majority of the bitten handlers refuse medical treatment, depending instead on prayer and their faith in God to pull them through. In fact, the serpent handlers generally eschew medicine and medical assistance for all illness or accidents, preferring to rely on faith, prayer, and the laying on of hands. The handlers believe that when they are bitten, it is because the anointing has left them. They refer to Ecclesiastes 10:8 for explanation, “He that diggeth a pit shall fall into it; and he whoso breaketh an hedge, a serpent shall bite him” (KJV). They believe that if they are bitten while they are under the anointing, they will not be hurt. This belief is supported by observation. All of the serpent handlers relate stories of someone who was bitten but did not suffer any ill effects from the bite. But it is not really so mysterious. Estimates are that approximately 18-22% of venomous snake bites in North America are “dry” bites, meaning that no envenomation occurs (Russell 1983:287). This not only explains why the serpent handlers believe in the protection of anointing appears to be supported by experience, but also explains why so many folk remedies for snake bite treatment have persisted so long in this country. In any case, the serpent handlers believe that if they die from a snake bite, it is because it is God’s will that they die.

Ironically, the key Bible verses to which the serpent handlers point for justification of their beliefs (Mark 16:17-18) are probably not part of the original Biblical text. Although included in the King James Version of the Bible, most scholars agree that “For some unknown reason—most probably damage to very early copies of the Gospel—the best manuscripts we have of Mark end abruptly at 16:8. Verses 9-20 represent early attempts to round the Gospel off more satisfactorily” (Alexander and Alexander 1983: 513). However, another commonality of the serpent handling believers is that most of them believe that the King James Version of the Bible is the only “true” text. The serpent handlers, in their literal interpretation of the Bible, point to a number of other references in the Bible to snake handling under the influence of God. For example, God commanded Moses to throw his staff on the ground and it became a snake, which God then commanded Moses to pick up (Exodus 4: 3-4), and St. Paul was bitten on the hand

by a viper that crawled out of a fire, but he showed no effects of envenomation (Acts 28: 3-5). Those who do not share the snake handler's interpretation of scripture point to other Bible verses, such as "Surely the serpent will bite without enhancement..." (Ecclesiastes 10:11; KJV) or "Neither let us tempt Christ, as one of them also tempted, and were destroyed by serpents" (1 Corinthians 10: 9; KJV).

Although the focus in most books and newspaper stories is on snake handling, members of serpent handling churches may also drink poison (favorites include strychnine and various pesticides) and apply fire from oil lamps or blow torches to their hands and faces, in accordance with their interpretation of "the signs following" of Mark 16:17-18.

Contrary to the perceptions of those outside of the community, snake handling is not considered a test of a person's faith, nor a test of God. This is an important distinction to the serpent handling believers. Many sources erroneously make such assumptions as "Removing a snake from the box is regarded as a supreme test of faith..." (La Barre 1962:19). Even the usually cautious Lawrence Klauber reported that snake handling was "...a test of faith..." (Klauber 1972: 978). Rather, the serpent handlers believe that they are commanded to handle venomous snakes when they feel that they have been anointed as a demonstration of God's power. The importance of the belief in anointing cannot be overstated. For Biblical support of anointing, Pentecostals point to the description of what happened to the apostles in the second chapter of Acts and other verses, such as "How God anointed Jesus of Nazareth with the Holy Ghost and with power..." (Acts 10: 38; KJV). To an observer, a person under the anointing seems to be in a state of religious ecstasy, not conscious of what they are doing. The testimony of one of the believers, Arnold Saylor, is that "When you are anointed, colors look different, people look different, sometimes you can see into the future. It is hard to describe. When the power is on me, I can handle any snake. I have had them strike me, over and over, and not be able to get a fang into me. It is a wonderful thing...it is hard to explain" (Kimbrough 1995:25-26). The Burton book includes a report on an electroencephalogram taken of a serpent handler as he received an anointing of the Holy Spirit. The report concludes that during anointing, the cerebral neocortex is very active, so that the "EEG is that of an aroused individual—not that, for example, of a Zen monk in contemplation" (Burton, 1993:144)

Serpent handling is strictly voluntary in the churches—not all members of the congregation feel the anointing, not all snake handlers feel it every service. The decision to handle snakes is not made by logical choice. Usually, the person who does it is a bit surprised when the spirit moves them to pick up a serpent. The handlers all say that they put the snakes away the instant they feel the power leave them.

Many handlers attribute being bitten to not putting the snake away immediately when they felt the anointing leave them, or trying to handle snakes when they had not yet felt the anointing. Snake handling is never done in public, but only in the context of a religious service. As one church member, Reverend Alfred Ball said, "We don't take up serpents, handle fire, or drink strychnine to test the faith of the people at all. That's not the point of it. These are signs that God said would follow the believers. And these signs confirm the Word of God. And that's the only purpose for them. They are *not* to test the faith of the person doing it. They're *not* to test whether he's a good person. It's simply and only to confirm the Word of God. That's all God intended the signs for, and that's the only reason we do them" (Pelton and Carden 1974:22).

The snake handling worship services are usually several hours long, with serpent handling playing only a small part. The services begin with hymn singing and prayer, followed by scripture reading and preaching. Some of the serpent handling pastors are poorly educated or even illiterate, as was Hensley, although they know vast amounts of the Bible from memory. In any case, a member of the congregation is usually called upon to read from the Bible for the minister, who then preaches and expounds on the text. To an outsider, the services are at times raucous, with hand clapping, loud and repetitive music, and the repeated shouting of "hallelujah" and "amen" by the congregation. Pentecostals point to Biblical references in support of many of the things that happen during their services, such as hand clapping, lifting up hands in the air, singing, dancing, and speaking in tongues. The music is almost always accompanied by guitars, which are often electrified, sometimes augmented with electric bass, drums, or other instruments. In a bit of hyperbole, Covington described the music as "a cross between Salvation Army and acid rock" (Covington 1995). Finally, with members of the congregation singing, dancing, praying, and speaking in tongues all around the church, the time comes. The snakes are removed from their boxes, by hand, and either held or passed from person to person. The handler may hold the snake out on stiffened arms, or lift the snake high overhead. Sometimes a handler will drape the snake over his head or around her neck. The handlers may lay the snakes on the floor and tread, barefoot, on top of them. Sometimes serpent handlers rub the snakes against their faces and lips.

Although serpent handling is indigenous to Appalachia, it has remained very much a minority religious practice, and the serpent handlers are often viewed with hostility by the remainder of the community. In 1938, a farmer named John Day became upset when his wife joined a serpent handling congregation and began handling rattlesnakes. He sued the church, and eventually three members of the congregation were charged with breach of the peace. They were acquitted, but the trial was covered by the Associated

Press, which was probably the first time that the existence of the serpent handlers had been brought to nation-wide attention. The attention they received in the national press was mostly biased and sensational. As a result, several states passed laws prohibiting the handling of snakes or the drinking of poison during religious services, beginning with Tennessee in 1947. The Tennessee law called for the arrest of offenders, who could be punished with fines or jail. Many other states and some cities (such as Raleigh, North Carolina) enacted similar legislation.

Serpent handling congregations are concentrated in Alabama, Kentucky, and Tennessee, but are by no means now confined to Appalachia. There have been reports of serpent handling congregations in California, Florida, Georgia, Indiana, Michigan, North Carolina, Ohio, South Carolina, Virginia, and West Virginia as well.

Covington was drawn into the movement when he went to Scottsboro, Alabama in 1992 to report on the trial on charges of attempted murder of Reverend Glenn Summerford. An article in *The Atlanta Journal/Atlanta Constitution* (Yardley 1992) reported that Summerford, then 47 years old, was the pastor of the small Church of Jesus Following Signs, which met in a small "white-washed shack" in Scottsboro. He was accused of trying to murder his wife, Darlene Summerford (then age 36), by forcing her, at gun point, to twice stick her hand inside a cage of rattlesnakes. She was bitten both times. He then refused to let her seek medical treatment for two days. Summerford claimed that his wife had stuck her hand in the snake cage in an attempt to commit suicide. Darlene Summerford had handled the rattlesnakes before, both in church and at home. She claims that her husband was violently jealous and frequently accused her of infidelity. The accusations divided the church and the community. Church members pooled their property to post the pastor's \$45,000 bond. At the trial, Pastor Summerford was convicted of attempted murder and sentenced to 99 years in the state prison.

In the course of his interviews with Summerford and other church members, Covington became intrigued by the serpent handlers. He realized that some of the plain-dressing, simply-living mountain folks could well be his relatives. He began to travel to serpent handling churches in Appalachia, befriending many of the believers, and visiting them in their homes. Finding that he shared many of their beliefs, he began to participate in the serpent handling religious services.

Although both Covington and Kimbrough "took up serpents" themselves, Covington writes about the experience in a much more mystical way. He felt that he was, at the moment he picked up the snakes, anointed by the Holy Spirit. He did not make a conscious decision to hold the rattlesnakes, although he was aware that he was coming closer and closer to doing so over the course of several

months of participation in the church services. Kimbrough does not dwell much on his own experiences, but does include several photographs of himself handling rattlesnakes in religious services. It is worth noting that in the photographs, Kimbrough does not appear to be in a trance-like state of religious ecstasy at all, but rather, appears quite concerned about what the rattlesnake in his hand is doing.

All three of the books reviewed here are well worth reading. If you are interested in a detailed history and philosophy of the serpent handlers, I recommend the book by Burton. It is very well written, contains a wealth of photographs of snake handlers and their churches, and is carefully documented. The book by Covington is the most compelling of the three. It is extremely well written, highly personal, the story is gripping, and the book reads like a novel. Covington makes no pretense to objectivity, telling instead a very personal story. The book by Kimbrough is recommended for those who want more information about what it means to be a serpent handler and to participate in the religious services. Although not as gracefully written as the other two books, it makes an excellent supplement to both.

Kimbrough estimates that there are probably about 2500 serpent handling believers in the United States. Indeed, the photographs in the three books tend to have some of the same people in them over and over again. It has always been a small movement, attracting the amount of attention that it has because the religious practices of the believers seem so outlandish to most of us.

In a sidebar (Yardley 1992) to a newspaper story about the Summerford murder trial, it was reported that in 1973, Jimmy Ray Williams and Buford Pack died in Tennessee after drinking a strychnine solution during a religious service. Buford Pack's brother, Liston, tried to get the Tennessee law overturned to allow serpent handling and poison drinking in religious services, but was unsuccessful in his attempt. Liston Pack befriended both authors Burton and Kimbrough, contributing much to their two books. Jimmy Ray Williams' son, Jimmy Ray Williams, Jr., died of a snakebite received in a religious service in July of 1991 in Kingston, Georgia. An anthropologist named Steven Kane has reported that there were 69 deaths from bites received during serpent handling religious services between 1984 and 1992. Russell (1983: 527) reported that between 1910 and 1977, there were 40 deaths among the handlers, but he also cites an observer who claimed to have witnessed over 200 instances of serpent handling without ever seeing anyone bitten. The actual number of snake bites that occur among the serpent handling congregations is very hard to estimate. Because the victims almost always refuse medical treatment, usually only the deaths from snakebite are reported, not instances of "dry" bites, nor instances of recovery from envenomation without medical assistance. The founder of the movement, George Hensley,

claimed to have been bitten over 400 times. On 24 July 1955, at the age of 70, Hensley was bitten in a Sunday night church service near Altha, a small town in the Florida panhandle. He had handled an Eastern Diamondback Rattlesnake for about 15 minutes, and was returning it to the box when it bit him on the wrist. True to his faith, Hensley refused medical treatment, and died early the next morning.

Most of us find the idea of believing that a holy anointing will protect us from the bites of venomous serpents to be irrational. But then, perhaps we are not so removed from the simple faith of the serpent handlers as we like to think. In his book, Kimbrough thanks a company which "furnished me with an experimental shock device that is being used to treat rattlesnake victims, in case I was bitten" (Kimbrough 1995: ix). The catch is, these devices don't work. There is no scientific evidence whatsoever that electric shock has any effect on snakebite (Hardy 1990, 1991). Even so, thousands of these devices have been sold to people who, full of confidence, head off into the wilderness without further thought to equipping themselves to deal with snakebite. Is this irrational faith in a modified stun gun so different from faith in the protection of a holy anointing?

Acknowledgments

Thanks to Rosily Caught for numerous conversations about snake handling believers and insights into the Pentecostal and Holiness religious movements. Also, thanks to Dave Advise for his insights into Appalachian culture and for providing me with a copy of the Yardley article from *The Atlanta Journal/The Atlanta Constitution*.

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Appendix: Web Sites About Taking Up Serpents

Culture Watch, Sojourners Magazine, Mar-April 1996
 URL: <http://www.sojourners.com/sojourners960332b.html>

An introduction by Carol LeMasters to the book, *Salvation on Sand Mountain* by Dennis Covington. This site includes a link to some selections from the Covington book.

Godsnake

URL: <http://www.ralphmag.org/snake.html>

This site contains an essay by Douglas Cruickshank called "If God was a rattlesnake, would you pick it up? Lost in the land of faith, home and venom" The essay includes a review of *Salvation on Sand Mountain*.

Annotated Bibliography

URL: <http://www.ced.appstate.edu/appalachia/religion/bib.htm>

An annotated list of books about religion in Appalachia, including the Kimbrough book; *The Airwaves of Zion* (an ethnographic study of radio evangelism in the Appalachian region); and *Appalachian Mountain Religion: A History*.

NRM Links: Snake Handlers

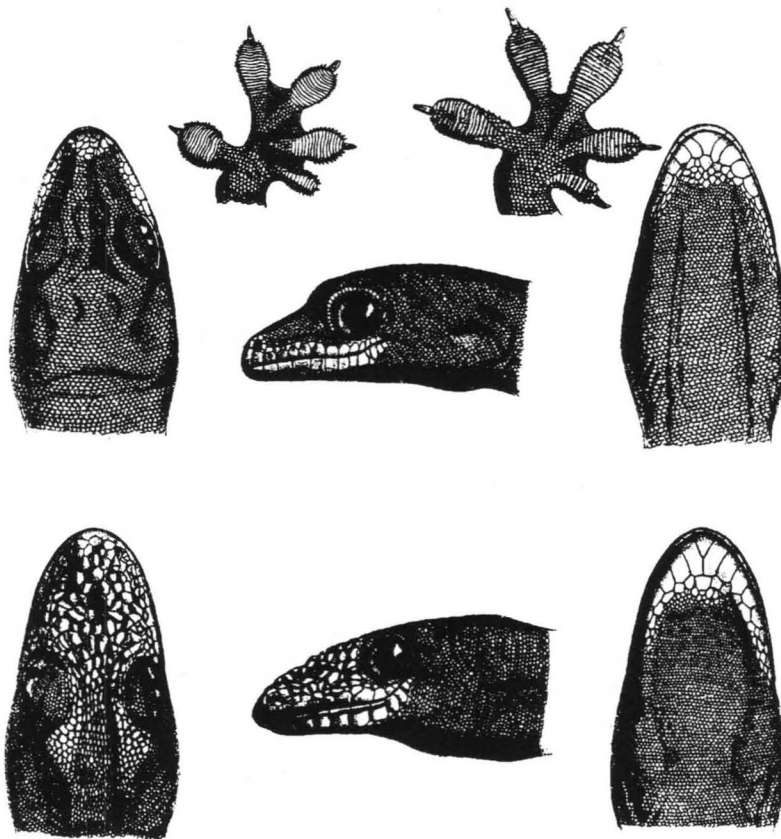
Snake Handlers

URL: <http://cti.itc.virginia.edu/~jkh8x/soc257/nrms/snak.html>

A brief summary of the beliefs of the snake handlers with some links to other snake handler sites.

URL: <http://www.ced.appstate.edu/appalachia/religion/snake.htm>

A short essay on snake handlers.



REVIEW

Snakes by Harry Greene. 1997. University of California Press. 351 pp. Hardbound. \$49.95.

Wow! It is rare that I read a technical treatise from cover to cover but that is exactly what I did with this volume and was disappointed at the end that there was not more to come. In my judgment, this is best book yet on these remarkable animals.

Snakes is arranged in three different sections and 16 separate chapters. Part One, titled Lifestyles, covers aspects of the basic biology of snakes, such as diet, defense, predators, venoms, reproduction, etc. Part Two deals with the taxonomic diversity of snakes, from blindsnakes to vipers. Part Three, Synthesis, covers snake evolution and biogeography and an overview of snake history and their projected future. An Epilogue and Appendix address additional topics not thoroughly covered in the body of the book. Each chapter is preceded with an essay, usually of a personal encounter by the author with some individual of his subject or some aspect of the author's research. Most chapters also contain a Special Topic section that addresses in detail a particular aspect of snake biology or evolution. The book is liberally illustrated with uniformly excellent photographs by Michael and Patricia Fogden. Rarely seen snakes such as *Tripnanurgos* and *Azemiops* are shown.

The author is obviously passionately attached to his subject and possesses a profound knowledge of virtually every aspect of snake biology. Greene's essays that precede each chapter are highly personal and, in some cases, moving. It is exceptionally rare for an author of a technical treatise to reveal himself in such a manner and I salute Greene's courage in doing so. Frankly, I view these essays as the highlight of the book and found myself cheating a bit and moving ahead to a number of these essays before thoroughly reading a chapter. Greene indicates that he was inspired to write this book in the manner he did by a conversation with the late Norman McLean, as fine a writer as this country has ever produced and possessor of an extremely personal and moving writing style. In this, Greene has succeeded admirably. Greene reveals himself thusly at the end of the epilogue: "As for the serpents themselves, we still can't say what it's like to actually *be* a Black-tailed Rattlesnake, much less a little Ridgenose. I must go farther and closer." That, folks, is an inspired bit of writing and MacLean would have been proud.

Greene reveals a number of surprises about snakes throughout the book, most of them taxonomic in origin. For example, I am sure some readers will be surprised to learn that the snake formerly called the African Burrowing Python (*Calabaria*) is now included with the North American Rubber and Rosy Boas (*Lichanura*). The Madagascan

boids formerly of the genera *Acrantophis* and *Sanzinia* are now allied with the New World Common Boa Constrictor. Greene's treatment of the problematic African Stiletto Snakes (*Atractaspis*) and their relatives is outstanding. That some blindsnakes (*Typhlops*) are primarily arboreal will surprise some people, I'm sure (although E. H. Taylor uncovered this fact in the Philippines in the early part of this century). The self-waxing behavior of certain African Sand Snakes (*Psammophis*) was a surprise to me. The dietary restrictions and specializations of certain species (e.g. Blackhead Snakes and centipedes) and their bearing on venom evolution and delivery systems are exceptionally well-explained by the author.

The book is finely edited and copy read. I could find only one minor misspelling and an error of transposition (both in the References section, which are notoriously difficult to proof). I do have one complaint with this book, but it is relatively minor. The author's common name usage is puzzling at times and I do not agree with his rationale for such uses. Greene states, "I would as soon call a Black-headed Python ... a "Teenage Pimple Serpent" as refer to colubrids of the genus *Tantilla* by their "standard" common name, blackhead snakes!" Why a colloquial term for a human skin condition continues to rankle certain herpetologists when used as a physical character descriptor for laymen is beyond me and, at times, the lengths to which people will go to express their opposition approaches the ridiculous (e.g. being described as "politically incorrect" [Degenhardt, Painter, and Price 1996], of which it is neither). Additionally, Greene abandons the long-established name "Eastern Coral Snake" for "Harlequin Coralsnake," a replacement I find puzzling. However, in Greene's defense, he is many times dealing with taxa for which common names have not been proposed or which do not exist. In the case of the enigmatic genus *Anomochilus* he has coined the excellent term "Dwarf Pipesnakes."

All in all, I give this volume my highest recommendation. This is an essential volume for anyone with an interest in vertebrate biology and particularly for herpetologists. The book's price may seem a bit high to some, but I have read works of one third the value for three times the price. Save your pennies, people, and buy this book. It will be many years before you find a better investment.

Literature Cited

Degenhardt, W. G., C. W. Painter and A. H. Price. 1996. *Amphibians and Reptiles of New Mexico*. University of New Mexico Press. 431 pp.

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