KANSAS HERPETOLOGICAL SOCIETY NEWSLETTER NO. 89

AUGUST 1992

ANNOUNCEMENTS

NINETEENTH ANNUAL MEETING OF THE KANSAS HERPETOLOGICAL SOCIETY AND CALL FOR PAPERS

The nineteenth Annual Meeting of the Kansas Herpetological Society will be held on 7-8 November 1992 in Krehbiel Auditorium in the Fine Arts Center of Bethel College in North Newton, Kansas. At this time, we are issuing a ***Call for Contributed Papers*** from anyone who is interested in speaking at this meeting. Any and all contributors are welcome on any topic of herpetological interest. Send title and a short (one paragraph) abstract of your paper to Dwight Platt, 702 NE 24th Street, Newton, Kansas 67114. *Titles and abstracts must be received by no later than 15 October 1992.*

To get to the meeting site, follow these directions. If you are coming by Interstate 135, exit at the North Newton exit (#34) and go south to 27th Street for the entrance to the Bethel College campus. If you come by U.S. Highway 50, go to Main Street in Newton then turn north to 27th Street. After entering the campus at 27th Street, turn right on Minnesota Avenue and you will find the Fine Arts Center parking lot in less than a block. If that parking lot is full, there is a large parking lot west of Main Street at 27th and Main.

The featured keynote speaker this year will be Dr. David Chiszar of the University of Colorado. Although the subject of his talk has not been set at this time, Dave is one of the most dynamic and entertaining speakers on the herpetological circuit and his insights are not to be missed. Other speakers include John Lokke of the Nebraska Herpetological Society, Dr. David Edds of Emporia State University, Dr. William M. Bryant, DVM of the Sedgwick County Zoo, Joe Collins of the University of Kansas, and Dr. Dwight Platt of Bethel College.

Registration will open at 8:30 am on Saturday and the registration fee will be $5 to cover costs of the meeting. The opening session will begin at 9:30. The traditional social and auction, led by the indefatigable Joe Collins, will be held Saturday night at 7:00 pm. Remember to bring all those valuable and precious items for the auction, as this is the primary way in which we are able to keep membership fees low. Remember, though, no live animals. Sunday's session will begin at 8:30 am and the meeting will adjourn at 12:00. There will be a display of live Kansas herps available for photographing. You may also want to visit the Kauffman Museum which has exhibits on prairie natural history and cultural history ($2 entrance fee). There will be a field trip to the sandhills in western Harvey County on Sunday afternoon for those interested.

Lodging is available in Newton at the following locations (all of which are at exit #31 of I-135):

- Super Eight Motel, 1620 East 2nd, (800)843-1991. These folks have given KHS a 10% discount (be sure to identify yourself as coming to the KHS meeting). Rates run from $28.69-43.09.
- Best Western Red Coach Inn, 1301 East 1st, (800)777-9120. Rates are $37.00-45.00
- Days Inn, 105 Manchester, (800)325-2525. Rates are $39.92-53.23.
- First Interstate Inn, 1515 East 1st (316)283-8850. Rates are $27.46-37.37.
- Newell Motel and Truck Plaza, 200 Manchester, (316)283-4450. Rates are $32.72-39.37.

For information on camping or additional information on facilities or the meeting contact Dwight Platt, 702 NE 24th Street, Newton, Kansas 67114, phone (316)283-2500 ext. 215 (days), (316)283-6708 (evening).

1992 NATIONAL BREEDER'S EXPO

The annual herp Breeders' Expo will be held this year at the Orlando Florida Twin Towers Hotel on 14-16 August. Featured speakers at this year's extravaganza include KHS' own Joseph T. Collins, Whit Gibbons, Sherman Minton, Bernard Bechtel, Bob Henderson, Richard Funk and Raymond Hoser. The Expo organizer's have also arranged for Joe Collins to autograph his Peterson Field Guides for the participants. Pre-registration is $10 and should be sent to the Central Florida Herpetological Society, P. O. Box 3277, Winter Haven, Florida 33885. For hotel reservations call the Orlando Twin Towers Hotel at (407)351-1000 or (800)327-2110. Those wanting additional information should call Wayne Hill at (813)294-2235 or FAX him at (813)299-8844.

KHS BUSINESS

EXECUTIVE COUNCIL NOTES

It's almost a record; your Executive Council has actually met twice this year. They have even accomplished something (which is not to say that past Councils haven't). Herewith a short report on the meeting of 22 June of this year.

As of 31 May 1992, the treasury stands in good stead, with $2479.30 lining the coffers. Current active membership stands at 198, of which 161 are regular members and 37 are contributing members. Eighteen new members have been added this year.

Past-president Larry Zuckerman will be making a presentation at the Society for the Study of Amphibians and Reptiles Regional Societies Conference on 6 August this year. We are assured that it will be the zenith of papers given then.

Progress continues to be made on Edward Taylor's *The Lizards of Kansas* and a bid from the printer has been accepted and the manuscript forwarded.

The Council voted to pledge $200 towards the publication of Bill Brown's soon-to-be-classic treatise on the Timber Rattlesnake (*Crotalus horridus*) in the United States.

President-elect Dave Edds made a presentation on a student scholarship proposal and the Council voted to present this proposal at the annual meeting.

The Council also voted to accept credit card sales for the first time at the annual meeting. All you plastic junkies be sure to bring plenty along and add to our overwhelming treasury this November.

Various and sundry items were also discussed, bandied about, and generally worked over without further action and the meeting adjourned pleasantly as the assorted Council members sallied off into the sunset.

KHS OFFICER NOMINEES

Candidates for the position of KHS President-Elect are as follows:

Allan Volkmann (Wichita) and Travis Taggart (Hays). Al is an active and long-standing member of KHS and has been a zoology teacher at Wichita's North High School for nearly the past 20 years, where, in addition to teaching standard curricula, he has also instilled an appreciation of amphibians and reptiles into thousands of students. Al enters into a new position with the Wichita school district this year as curriculum developer for the city's elementary schools. He will place special emphasis on herps because of their great diversity, high educational value, and ease of maintenance in the classroom or lab.

Travis is an active KHS member and is currently Chairman of the the KHS Field Trip Committee. He organized the recent and successful spring trip to Sheridan County. Travis is an avid collector and is always searching to add to the list of the state's county records. In addition to his pen-and-ink drawing (see February 1992 Newsletter cover), Travis is conducting a restoration project for the Green Toad in the Cimarron National Grasslands.

Karen Toepfer will stand for reelection as KHS Secretary-Treasurer.

Respectfully submittedby the
1992 KHS Nominating Committee
Larry Zuckerman (presiding)
Stanley D. Roth
Robert F. Clarke

PROPOSED CONSTITUTIONAL BY-LAW CHANGE

A proposal to change the KHS Constitutional by-law Article IV, Section 5 has been made. The original by-law reads as follows:

> Voting shall take place at the general meeting of the Society. The Secretary-Treasurer shall receive and count the votes. The results of the elections shall be communicated to the membership via the Newsletter.

The proposed by-law (with changes in italics) reads as follows:

> Voting shall take place at the general meeting of the Society *and will be conducted by secret ballot.* The Secretary-treasurer shall receive and count the votes. *Absentee ballots received by the Secretary-Treasurer prior to the general meeting of the Society shall be counted at this time.* The results of the election shall be communicated to the membership via the Newsletter.

Voting on this proposed constitutional change will take place at the annual meeting in November.

YOUR SECRETARY-TREASURER SPEAKS

I would like to thank all of you who promptly responded to my dues reminder notices. To avoid any confu-

sion for 1993, let me explain how the dues will be handled for that period.

Regular dues for 1993 will be $10 (up $2 from 1992) and dues notices will be be mailed in November this year. I would like to have *all* 1993 dues paid by 1 March 1993, before the the herpetomadness of the season takes its toll on this otherwise responsible group of people. Thank you in advance for your cooperation.

For those of you who will be traveling to North Newton to attend the annual meeting this year, I will be accepting your 1993 dues at the reception table. There will be dues envelopes available for this purpose.

I would also suggest that you polish up those dusty credit cards. Approved credit cards will be accepted for payment of purchases at the annual auction this year.

As of 1 July 1992, the society counted 201 active members. We can be proud of the fact that KHS is one of the strongest conservation-oriented regional herpetological societies in the country, as well as being a strong voice for conservation within the state.

Last, if any of you fail to receive your Newsletter or have any other questions or concerns, please contact me.

Karen Toepfer
Secretary-Treasurer
303 West 39th Street
Hays, Kansas 67601
(913)628-1437

SPRING FIELD TRIP

Although the annual KHS Spring Field Trip held 6-7 June was a success, with over 30 people attending, no further information had been received at the time this issue went to press. Details of this field trip will be included in the next Newsletter.

ENDANGERED SPECIES ACT REAUTHORIZATION

As many of you are aware, the federal Endangered Species Act comes up for reauthorization in September of this year. Early indications are that the Act is going to face a tough challenge and efforts are going to be made to attempt to significantly alter it or even eliminate it altogether. An anti-environmental movement called the Wise Use movement is the latest actor on the anti-Endangered Species Act scene and statements coming from these folks are, at the very least, alarming. These are very scary people and they appear to be gaining strength. Their tactics are clever and they mean business. Those involved in the attempts to conserve our remaining fauna and flora cannot afford to ignore these people as just another bunch of right-wing, fascist crackpots. They are dangerous and they are gaining strength and popularity through a sharp propaganda campaign, even to the extent of drawing tactics learned from environmental groups.

I strongly urge all of you to contact your senators and representatives and let them know that you support the Act as it stands and are against any changes in its structure. The Endangered Species Act has proven to be an outstanding piece of federal law and the vast majority of people in this country strongly support it. Please make your feelings and comments known to your elected representatives.

CONSERVATION COMMITTEE REPORT

The Kansas Wildlife and Parks Commission has passed several changes in the state's Endangered, Threatened, and Species In Need of Conservation (SINC) lists, as authorized the the Kansas Nongame and Endangered Species Conservation Act. Herp-related changes are as follows.

Of note, the Northern Crawfish Frog (*Rana areolata circulosa*) was downgraded from Threatened to SINC based on petitions and evidence of additional populations. This frog is still protected from from "taking," which includes killing or removing these frogs from their habitat. Also reclassified fromThreatened to SINC were the Kansas Glossy Snake (*Arizona e. elegans*) and the Eastern Hognose Snake (*Heterodon platirhinos*).

The Common Map Turtle (*Graptemys geographica*) was designated a Threatened Species and the Timber Rattlesnake (*Crotalus horridus*) was added to the list as a SINC species. These forms were listed primarily through the efforts of KHS President-Elect Dave Edds and KHS member Joe Collins.

The Alligator Snapping Turtle (*Macroclemmys temminckii*) was also reconsidered for higher status but was rejected on the basis that one turtle in the Caney River drainage in Montgomery County does not constitute a population.

—KHS Legislation/Conservation Committee
Larry Zuckerman, presiding

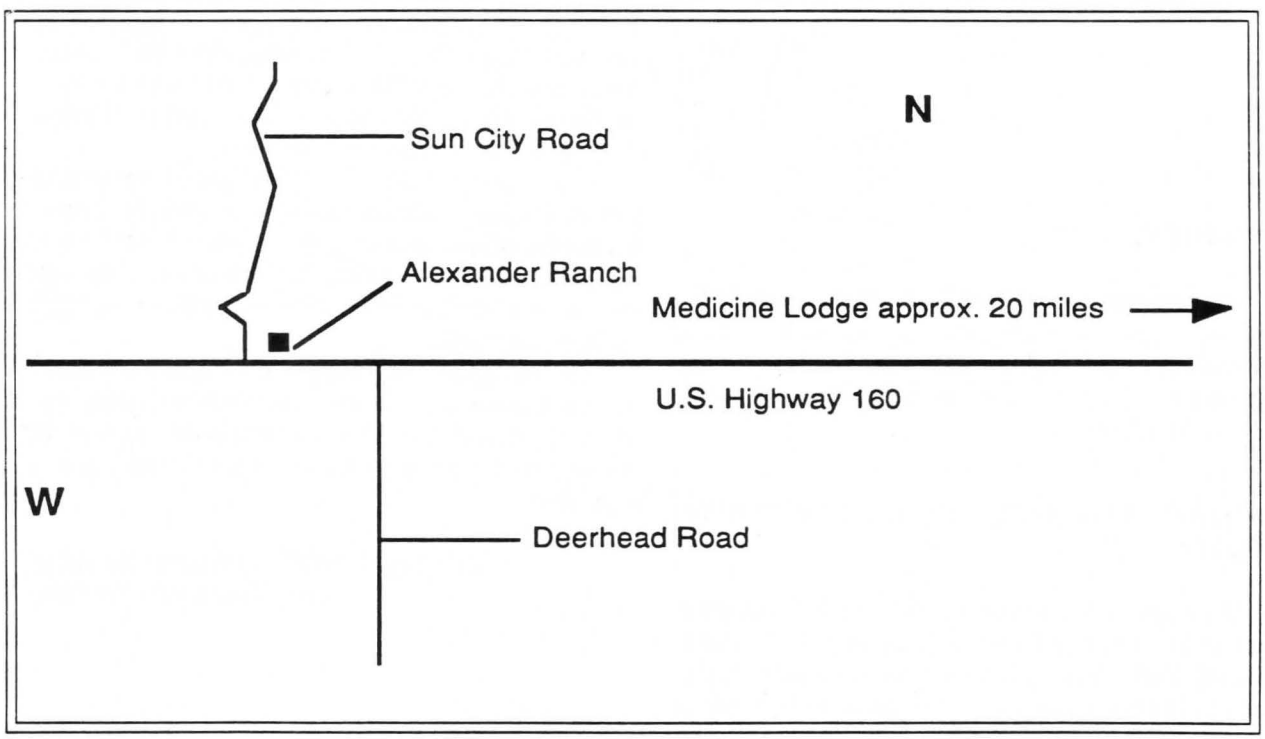
FALL FIELD TRIP

The fall KHS field trip will be held 19-20 September at the Alexander Ranch in Barber County, west of Medicine Lodge (see map). The Alexander Ranch is located approximately 20 miles west of Medicine Lodge on U.S. Highway 160, between the Deerhead and Sun City Road turnoffs. The ranch is on the north side of the road just prior to the Sun City turnoff and displays a large metal sign that says "Alexander Ranch". This ranch contains some of the most unique habitat in the Gypsum Hills and is host to a number of rare herps (*Bufo punctatus, Eumeces obtusirostris, Tantilla nigriceps, Hypsiglena torquata, Leptotyphlops dulcis*, etc.) For those with more esoteric tastes, this site is the only locality for the pallid bat (*Antrozous pallidus*) in Kansas. Herping will be strictly look-and-identify, no actual take, as Mr. Alexander prizes the denizens of his territory and wishes the area to remain as undisturbed as possible.

Limited camping facilities (basically a place to set up tents, no bath, no electricity) will be available at the ranch and those wishing to take advantage of Mr. Alexander's facilities should RSVP me as soon as possible to make sure that enough room is available for everyone. For those wanting more sedate creature comforts, Medicine Lodge offers a dandy Best Western [(316)886-5673] and there are a number of eateries therein (I personally recommend the Hereford House).

One last note: as this area has unpredictable weather, assume that it will be hot and be sure to bring plenty of water. You do not want to drink the local well water unless you enjoy massive gastrointestinal disturbances. I speak from personal and unfortunate experience. Hope to see you in Barber County in September. If you have any questions, please drop me a line or give me a call.

—EMR



KHS BRINGS YOU GREAT NEWS OF THE WORLD

ZOOS TO TRADE SLITHERING AMBASSADORS

As heads of state talk about sharing U.S. and Russian technology, zoo officials in Moscow and Wichita are talking about swapping [venomous] snakes.

Sedgwick County Zoo officials are helping the Moscow Zoo find baby Timber Rattlesnakes (*Crotalus horridus*), a native Kansas species that the Russian zoo has on its wish list.

In exchange, the Sedgwick County Zoo will receive baby Lar Valley Vipers (*Vipera latifi*), a rare mountain snake on the endangered species list (sic).

Officials from the two zoos have been talking for several months about establishing an animal exchange, said zoo director Mark Reed. The Sedgwick County Zoo has adult Timber Rattlesnakes, but Moscow wanted juveniles, so Jeff Ettling, curator of [herpetology], helped find some. Two snakes are being held in Utah, where zoo officials are gathering several species to send to Moscow.

Sedgwick County Zoo officials expect to receive vipers that will be born in July, Ettling said. They will be the only snakes of their species in the United States.

The snakes are particularly important to Ettling and Sedgwick County's zoo because they will help researchers expand their study of rare mountain vipers. Already, the zoo is [working with] two species.

Lar Valley vipers are found only in a particular mountain range in northern Iran. Most of the snakes habitat was destroyed when a reservoir was built in the 1970s. They grow to 24 to 30 inches and can be yellow with a stripe or silver with a dark zig-zag pattern. Ettling's hope is that the zoo eventually will have two pairs of the snakes and will be able to breed them.

— Wichita Eagle, 17 June 1992
(submitted by J. Stalin, Moscow, Ks.)

SNAKE BITE PUTS MAN IN HOSPITAL

A man was hospitalized after a [venomous] Copperhead (*Agkistrodon contortrix*) bit him Thursday in northwest Shawnee County, authorities said.

Silver Lake Township firefighters identified the victim as Artie Dahlstrom, 35. Dahlstrom was in stable condition late Thursday at Stormont-Vail Regional Medical Center, a nursing supervisor said.

Shawnee County deputies, Medevac MidAmerica ambulance workers and Silver Lake Fire Department emergency technicians were called about 6:25 p.m. to the 4500 block of N.W. Huxman Road, where Dahlstrom was bitten. Fire Captain Joe Hawkins said Dahlstrom was unloading debris from a trailer when a snake that had been in the debris bit him on the finger.

Firefighters later killed the snake, which was about two feet long.

—Topeka Capital Journal, 22 May 1992
(submitted by Suzanne L. Collins, Lawrence)

STATE LAWMAKER FINED FOR SHOOTING A TURTLE

A legislator running for state treasurer is $75 poorer but figures his run-in with the law for illegally shooting a turtle has increased his name recognition.

State Representative Mark Holloway, a St. Louis County Republican, pleaded guilty Wednesday in Carroll County Circuit Court to two misdemeanor charges–taking a turtle by illegal method and shooting wildlife from a highway. Associate Judge David Thomas fined him a total of $75.

Holloway testified that he was driving in northwest Missouri to a GOP function April 10 in Chillicothe, Missouri, when he saw a turtle on U.S. 24 and heard a "thunk" as he passed it.

He said he thought he had hit the turtle, so he turned around, stopped at the side of the road and fired three shots at the turtle with a 9mm semiautomatic pistol he carried in the trunk. He said the turtle was in a ditch about nine feet away.

"I consider what I did the humane thing," he said. "I would do the same thing under similar circumstances, although I might call a conservation agent."

Martha Castle, who works in the Saline County prosecutor's office, said she was driving behind Holloway and at one point saw "an average everyday Snapping Turtle that was not harmed in any way" crawling across the road.

She said she saw Holloway's car going in the opposite direction a short time later and that she turned around because "I had a gut feeling that something was going to happen to the turtle."

She said she did not see Holloway shoot the turtle but saw him put something into his car.

When she got home, she called conservation agent Vernon Renne, and they went to the scene and examined

the dead turtle.

Renne testified Wednesday that he "found the turtle to be in perfect condition with no cracked shell, no marks on the head and no scratches. There was no physical damage whatsoever except for the bullet wounds."

Thomas said before imposing the fine that the crime had "brought the defendant unwanted notoriety... The general public will form their own opinion."

In response to testimony from Castle and Renne, Holloway said in an interview later that he "would not have any reason to lie in this case."

— Kansas City Star, 21 May 1992
(submitted by Suzanne L. Collins, Lawrence)

Editor's note: Well, I don't know about you, but the above case tends to confirm my suspicions that most politicians are road-kill scavengers, especially state treasurers. 'Course, here in Kansas, we elect 'em governor.

TRADING IN TURTLES

The sinking sun disappeared behind a distant island, illuminating patches of gold, red, and orange on fluffy cumulus clouds above the Sulu sea. I was in the Sulu archipelago, not far from the Philippine border with Malaysian Sabah. I had just photographed a fisherman in the process of landing a Hawksbill Sea Turtle (*Eretmochelys*), and I was eager to film the illegal marketing of this bounty. The capture of sea turtles in the Philippines has been banned since 1977; however, my research had disclosed that a profitable underground trade in turtles, both Hawksbills and Greens, was flourishing.

Locating Hawksbills in their natural habitat had been even more difficult than I had imagined, due to widespread overfishing prior to the ban and continued illegal exploitation in subsequent years. Once abundant around the Philippine islands, Hawksbill turtles have been largely depleted by poaching. Hawksbills have become seriously endangered, and if it were not for the Convention on Trade in Endangered Species (CITES), the turtles would probably disappear from the Western Pacific north of the equator by the end of the century.

The coral reefs of the Sulu archipelago, like other parts of the Philippines, show the effects of poverty and overpopulation. A major source of protein throughout the archipelago is turtle eggs. Hawksbill eggs, which are somewhat smaller than those of Green Turtles, seem to be favored by many. Yet the use of turtle eggs for protein purposes poses no serious threat to the sea turtle population. the threat, which is immense and is rapidly depleting the Sulu Hawksbill population, is from the demand created by the markets of Japan, South Korea, and Taiwan. More turtles are being killed than are being replaced by their young growing to maturity.

It is not surprising that poaching continues in spite of strict laws against it. A large Hawksbill can bring a fisherman as much as $38.70 from secret buyers, a high price in a nation where schoolteachers earn a monthly average of only $155. However, one never sees a turtle in the marketplace. All dealings are done "under the table."

Taiwan and South Korea have not joined CITES. Thus, once smugglers from these nations pass Philippines' customs officials and Department of the Environment and Natural Resources inspectors, they face no further risks. Japan and Hong Kong, however, are members of CITES. Japan still permits limited imports of Hawksbill turtles, mostly from Cuba, and will continue to do so through 1992. Yet, according to Japanese government records, no Hawksbill Turtles have been imported from the Philippines in recent years. This means that such traffic must be smuggled into Japan and Hong Kong.

Discussing the situation with people close to the scene, in both Japan and the Philippines, there was never any doubt that the turtle trade was illegal. Most people in the isolated islands of the Philippines have not heard of CITES, but all are very much aware of Philippine laws against the capture and sale of turtles. those actually engaged in the illegal tortoise-shell trade were evasive and secretive, eventually guiding me to back rooms where a few tortoise-shell boxes and ornaments were kept, out of sight to all but the purposeful buyer.

In Japan, the situation is somewhat different. Far removed from nature and only vaguely aware of it, many Japanese see CITES as another form of Japan-bashing. Japan is the world's leading consumer of Hawksbill turtles in the form of stuffed turtles and tortoise-shell ornaments, combs, brooches, hair clips, earrings, eyeglass frames, boxes, and elaborate, wonderfully artistic tortoise-shell treasures. The Japanese make great efforts to preserve their artistic traditions, including the tortoise-shell craftmanship of Nagasaki prefecture. "Why is CITES trying to ruin our traditional way of life?" they ask.

According to Romeo B. Trono, head of the Philippine government's sea turtle conservation program, if it were not for CITES, the Hawksbill would already be extinct in the Philippines. He takes great pride in explaining the remarkable success experienced by the turtle conservation program that he heads. The large reserve for Green Sea Turtles (*Chelonia mydas*)near the Philippine border with Sabah has been so successful that a large percentage of the annual egg supply can now be allotted to the fishermen to sell to the markets of Sulu and Sabah. By keeping Philippine-born turtles alive and in the Philippines, Trono says, CITES guarantees a sustained supply of turtle eggs for the Sulu people. Thus, instead of threatening traditional lifestyles, CITES provides major method for preserving them.

The Philippine government is acting within the spirit of CITES when it permits the Sulu people to harvest a share of the turtle eggs at the reserve. Such a harvest does not tip the ecological balance. Predator-prey relationships that survive for more than 1,000 years, such as the Sulu-Hawksbill relationship, are probably evolutionarily stable.

The Hawksbill-Sulu situation serves as an excellent example of how CITES can contribute to saving human lives. Similarly, in the long run, acceptance and enforcement of the CITES agreement is the best, if not the only, way to save the traditional Nagasaki tortoise shell craft from extinction.

— Jack Moyer, World Press Review, May 1992
(submitted by Dave Edds, Emporia)

LEATHERBACK MUTANT NINJA TURTLE?

A Service team surveying endangered species in the Trust Territory of Palau was startled to find itself part of a pitched battle between a Leatherback Turtle (*Dermochelys coriacea*) and a gray reef shark. The 5-foot, 1,000 pound turtle broke the surface near the team's open skiff and, after forcing the shark to dart away, began ramming the underside of the boat with the leading edge of its shell. The turtle surfaced repeatedly, lifting its head, a fore-flipper, and a part of its body out of the water. On one occasion, it surfaced upside down and swam several meters with its plastron (ventral shell) up. After 5 to 10 minutes and a half dozen rammings, the turtle swam away. It returned when two crew members put on masks and snorkels and entered the water. The turtle swam aggressively toward one swimmer but veered away when faced with a wide-armed threatening gesture. The turtle then located the other swimmer and approached from below with its mouth open. Several kicks discouraged an attack, and the swimmer returned safely to the boat.

The entire encounter lasted 15 to 20 minutes and gave the crew a rare opportunity for viewing and recording behavior of the Leatherback Turtle, an uncommon species in Palau and Micronesia.

—Fish & Wildlife '91: A Report to the Nation
U. S. Fish and Wildlife Service
(submitted by John Simmons, Lawrence)

SNAKES ALIVE

Two barefoot men walk in silence along one of the mud ridges that divide the flooded rice paddies in the Thanjavur Delta, in southern India. The autumn monsoons have ceased temporarily and the day promises to be blisteringly hot. As they walk, the men poke at the soft earth with crowbars. The only other equipment they carry are machetes and cloth bags. the older man, Chockalingam, is about 60 years of age—there is no record of his date of birth. He is small and well muscled, with dark chocolate skin, a weathered face, and sparkling black eyes. The younger one, thin and boyishly cocksure, is Chockalingam's nephew Kumar.

Chockalingam stops and bends down on one knee to finger a small hole near the roots of a bush. "Scorpion," he says. To prove it, he digs in the earth with his crowbar and flushes out a large black scorpion. He touches it with his forefinger and the scorpion raises itself into striking position. Chockalingam pushes the scorpion back into its burrow and gently pats the earth in place.

Up ahead, Kumar calls to his uncle. he has disturbed a nest [sic] of young keelback water snakes and they've fled into the white-green sea of the rice paddy. Chockalingam quickly joins Kumar and the two of them move about in the shallow water, expertly gathering snakes by the handful. They look like giddy children playing a crazy game, splashing and laughing, showing off their prizes. Kumar puts one of the snakes into his bag to take home and the men return the remainder to the paddy filed.

A few steps farther on, Chockalingam points to another small hole in the clay. "Sand boa," he says confidently. He falls to his knees and scoops out earth until his arm and shoulder disappear into the hole. When he pulls his arm out, he's holding a beautiful pink- and brown-speckled Sand Boa. "For Kumantra," he explains, dropping it into his bag. Kumanta is Kumar's three-year-old daughter and Chockalingam's grandniece. She had asked the men to bring her some snakes to play with.

Her request would seem peculiar to most people, but to the members of the Irula tribe it is not only normal, it's a happy reminder that their traditions continue to be passed on to the next generations, something that seemed uncertain not too long ago. During the past 14 years, the Irula have been able to capitalize on their skills as snake catchers and have become the primary source in India of snake venoms used to manufacture antivenin. They have successfully adapted their tribal customs to the needs of a country in which more than 10,000 people die each year from snakebites.

The Irula are hunter-gatherers who have lived for thousands of years on the scrub plains of southern India. During the 1900s, as the coastal cities built by the colonial British spread inland, the upland forests were cut down and the big game traditionally hunted by the tribe disappeared. Faced with possible cultural extinction, as well as starvation, the Irula survived by hunting small game, rodents, reptiles, and insects for food.

They also sold snakeskins to British exporters to earn money in the cash economy they could no longer entirely avoid. During the latter part of the nineteenth century and continuing into the twentieth century, the snakeskin indus-

try boomed, reaching a peak in the mid-1960s, at which time the industry was consuming an estimated 10 million skins a year. Then, in the early 1970s, international concern over the havoc being wreaked on snake and other reptile species killed for the skin trade forced India to start shutting down the industry, and by 1976, the legal snakeskin trade there was finished. Finished too was the economic independence that the trade had brought the Irula.

"Along with the loss of income from the demise of the skin industry, the tribe's entire way of life was in jeopardy," says Romulus Whitaker, a noted American-born herpetologist, who has worked in India for many years.

Whitaker's wife and co-worker, Zahida, agrees, "There has been an increased awareness among anthropologists that tribal groups are quick to decline morally and physiologically once their interests and traditions are lost. In the case of the Irula, their long association with wildlife and forests was in danger."

Similar conflicts have frequently resulted in the rapid and unsuccessful acculturation of tribes into societies vastly different from their own. The Irula were luckier than many other tribes, for Rom Whitaker took a personal interest in their problem.

Whitaker's association with Irula began during the late 1960s, when they supplied snakes for his venom-extraction business in Bombay. He later abandoned that operation and moved to Madras, where he opened the Snake Park, supplied with animals captured by the Irula. It was during the years he ran the park that he and other conservationists became acutely aware of the peril facing several species of Indian snakes. "In a way, we were responsible for the ban on [the trade in] snakeskins because we were helping the government formulate policies on wildlife protections," Whitaker says. "At the same time, we knew many Irula who were making their living in the trade. So I thought we might try to utilize their unique skills to provide some alternatives for them."

Whitaker's first suggestion was that the Irula extract the venom themselves, rather than sell the snakes to the government-run extraction centers. He convinced the Irula to form a cooperative that would satisfy all concerned parties. The Irula would continue to catch snakes, but instead of killing them for their skins, they would release them into the wild after a series of venom extractions.

The Irula Snake Catchers Industrial Cooperative became a reality in 1978. Whitaker continues to assist with marketing and running occasional bureaucratic interference for the Irula, but since 1980, the co-op has been wholly operated by tribespeople and for the past 10 years has nearly cornered the market on snake venom in Inida.

The co-op's venom-extraction center is located in the village of Vadanemmeli, on the grounds of the Madras Crocodile Bank, a research and breeding facility operated by Whitaker. The building housing the center is along narrow, unwalled structure with a sunken floor surrounded by a chest-high brick safety fence to prevent enthusiastic visitors from entering the extraction area. At one end is the business office; at the other, a raised platform on which venom extracting is done. The floor is covered with small clay pots holding snakes.

Tribesmen bring their catches to the business office, where they are paid per snake, the fee depending on species. Of the four types of snakes used in the making of antivenins in India, the Krait (*Bungarus* sp.) brings the highest price, followed by the Saw-Scaled Viper (*Echis* sp.); the Asiatic Cobra (*Naja* sp.) and the Russell's Viper (*Vipera russelli*) bring the lowest prices. The co-op extracts venom from each snake once a week for three weeks, after which the snakes are released on reserve forest land. A marking system ensures that no snake is recaptured.

Extracting venom is a simple but dangerous procedure: the snake is removed from its pot with a wire hook and placed on the platform. The man performing the extraction picks up the snake, holding it behind the head and below the jaw, and forces it to bite through an elastic shield covering a conical glass tube. The pressure of the shield on the fangs triggers the release of venom, which runs down the side of the tube and collects in a beaker. The entire "milking" operation takes less than 15 seconds per snake.

When the beaker is filled, the venom is freeze-dried and sold to antivenin manufacturers. "We're doing the initial part of the whole operation here, extracting and drying the venom," Whitaker says.

During the winter, there are as many as 15,000 snakes in the extraction center at any one time. Of those, the vast majority are tiny, harmless-looking, but very dangerous Saw-scaled Vipers. To produce a single freeze-dried gram of its venom requires milking 500 to 800 snakes. The same quantity of venom can be realized from 40 to 80 Kraits. Cobras and Russell's Vipers produce even larger quantities of venom: a gram of venom crystals requires as few as 5 to 10 individuals of either of these species.

Asked whether catching and handling venomous snakes cost many Irula lives, Whitaker's normally cheerful face darkened. "No one has died here at the center, but they do get a little careless sometimes, especially with the Saw-scale. In the last couple of months there have been three or four bites, but fortunately they had the antidote. I even found my own son playing out in the road one day with a Saw-scaled Viper that had somehow gotten loose!"

"We have had three co-op member die since the beginning," he said, looking toward Chockalingam, who nodded in agreement when Whitaker translated this statement. "Two from Cobras and one from a Krait. With the Krait, it was a straightforward case of a guy getting bitten in the field and not being able to get back in time to receive the antivenin. A lethal dose of Krait venom will kill you in

couple of hours; even with antivenin it can be touch and go. The other two cases involved men who were asked to catch nuisance snakes in the villages where they lived and they got nailed and then said, 'No, no, we don't need treatment.' Unfortunately, they died."

That members of the Irula tribe, especially those who live in isolated villages, wouldn't ask for antivenin following a venomous snakebite—particularly a Cobra bite—isn't as strange as it sounds. The Irula religion is based in part on ancient serpent-worshiping cults in which deities were known as nagas and generally represented as Cobras. Irula lore is filled with Cobra-naga stories. Women who want to conceive a male child still pray to Shesh-nag, the world snake of Hindu mythology, and Irula shaman are said to consult Naga-Kanni, a serpent goddess, about important village and tribal matters.

Some of the tribal elders believe it was involvement in the skin industry that caused the Irula's cultural and economic problems. They say that every time the tribesmen took a snake, they were killing the goddess Kami. The ancient beliefs are deeply rooted, and cobra bites are frequently seen as deserved retribution for affronts against the nagas. Not using antivenin is a way to allow the will of the offended naga to be carried out.

Even among those who no longer hold strictly with ancient beliefs, tribal remedies are preferred for most snakebites. By Whitaker's reckoning, Chockalingam has been bitten more than a dozen times by cobras and Saw-scaled Vipers and has never used antivenin. The one bite he sustained while milking a Russell's Viper was treated with antivenin, however. The Irula have no antidote for that venom, and the fatality rate is close to 40 percent. Chockalingam is lucky that he has never been bitten by a Krait; the mortality rate for untreated Krait bites is nearly 90 percent.

The Irula remedy for snakebites is called veley verege. It is a crude paste made from pulped leaves and roots that is applied directly to the bite as a poultice and brewed in a tea that the patient drinks three times a day for three days, by which time he or she is usually cured.

Knowledge of herbal medicine is passed orally from father to son. Chockalingam is the herbal doctor at Vadanemmeli and is teaching his 10-year-old son Kali the secrets of his art. Whitaker believes that some of the tribal medicines are effective but that all snakebites should be treated with antivenins.

The Irula cooperative has been an unqualified success, enabling the tribe to continue their traditional lifestyle. In addition, the amount of available venom, which was in extremely short supply in India only 10 years ago, has increased tenfold, allowing the country's medical practitioners to keep pace with the burgeoning number of venomous snakebites caused by the relentless human invasion of forests. The quality of the venoms used in making antivenins has increased dramatically, too. The cooperative uses only fresh snakes rather than milking snakes until they die—a common practice elsewhere that not only shortens the snakes' lives but produces venoms of progressively poorer quality.

Because the Indian government has severely restricted the number of Irula authorized to catch snakes for the extraction program, the cooperative has started up two new businesses: a rodent control program in which society members employ their hunting skills to exterminate rats on commercial farms without using chemical pesticides; and the Irula Women's Society, which is engaged in a massive agroforestry project to replant thousands of acres of what is now wasteland. And more projects are planned.

Whitaker has applied for government permits to export venoms to the West, where they can be used in making painkillers and blood coagulants and in the study of nerve and tissue disorders. He has also applied for permission to farm Mugger Crocodiles (*Crocodylus palustris*) at the Crocodile Bank to supply surplus captive-bred animals to supplement the protein-deficient diets of the Irula and to raise money for the tribe through the legal sale of skins.

The Irula Snake Catchers Industrial Cooperative may prove to be a model for solutions to similar problems faced by other peoples. As Zahida Whitaker points out, "Most of the Irula tribespeople would rather die than work in factories and learn city ways. The tribal identity and pride in doing skilled and dangerous work better than anyone else may, in the long run, be as helpful as the cash income the cooperative provides."

For a man like Chockalingam, the best reward of all may be that he is teaching Kali tribal medicine, and that there are still mornings when his grandniece Kumanta asks him to bring her new snakes to play with.

—Wildlife Conservation, January/February 1992
(submitted by C. M. Bogus, Trading Post)

OLD STUFF

Special poisons are secreted by the toad, salamander, newt, frog, etc. M. Paul Bergh has collected a liquid from the glands on the neck of the frog, which caused the death, with convusions, of a sparrow to which the substance had been administered.

— The Emporia Republican, 12 March 1882
(submitted by Olin Karch, Emporia)

FEATURE ARTICLES

RESULTS OF THE FOURTH KANSAS HERP COUNT HELD DURING APRIL–MAY 1992

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The fourth series of KHS-sponsored Kansas Herp Counts, a controlled census of amphibians and reptiles held annually by many Kansas herpetologists during the months of April and May, took place in 1992. A total of 13 counts were conducted this year and are reported herein, demonstrating various approaches to censusing amphibians and reptiles. Common names are those standardized by Collins (1990).

Ellis County Herp Count

Led by Karen Toepfer, this earliest 1992 herp count in Ellis County was held on 11 April from 9:30 to 12:30 am and 2:00 to 5:30 pm at five sites: Sec. 13, T12W, R16S; Sec. 22, T15W, R16S; Sec. 19, T15W, R17S; Sec. 20, T15W, R17S; and Sec. 26, T15W, R18S

The herp count technique consisted of rock-turning, and the final tally is listed below:

Tiger Salamander	1
Ornate Box Turtle	1
Collared Lizard	28
Great Plains Skink	3
Northern Prairie Skink	1
Six-lined Racerunner	1
Ringneck Snake	65
Racer	1
Great Plains Rat Snake	6
Milk Snake	5
Lined Snake	3

Total

11 species ..... 115 specimens

Participants were (in alphabetical order): Charlie Bliese, Joe Dreiling, Goren Gasbarovic, Michael Harman, Monica Klaus, Ben Lowery, Scott Meyer, Curtis Schmidt, Paige Smith, David Spalsbury, Travis Taggart, Karen Toepfer, Russell Toepfer, and Mark Van Doren.

Russell County Herp Count

Led by Scott Meyer, this Russell County herp count was held on 12 April from 11:00 am to 3:00 pm at the following site: Sec. 28, T12W, R14S. The herp count technique consisted of rock-turning. The final tally is listed below:

Collared Lizard	27
Great Plains Skink	8
Six-lined Racerunner	1
Slender Glass Lizard	1
Ringneck Snake	10
Plains Blackhead Snake	5
Great Plains Rat Snake	6
Common Kingsnake	1
Milk Snake	2
Ground Snake	3

Total

10 species ..... 64 specimens

Participants were (in alphabetical order): Scott Meyer, Curtis Schmidt, and Mark Van Doren. Verifier was Karen Toepfer.

Cowley County Herp Count

Led by Al Volkmann, this count was held in Cowley County east of Winfield at Sec. 24, T32W, R6S, on 18 April from 10:30 am to 1:30 pm. The herp count technique consisted of rock-turning. The final tally is listed below:

Northern Cricket Frog	7
Great Plains Narrowmouth Toad	3
Bullfrog	1
Ornate Box Turtle	2
Collared Lizard	3
Great Plains Skink	2
Ground Skink	2
Ringneck Snake	7
Flathead Snake	18
Racer	1
Great Plains Rat Snake	2
Milk Snake	1
Common Garter Snake	1

Total

13 species ..... 50 specimens

Participants were (in alphabetical order): Eric McCarrier, Quoc V. Truong, Al Volkmann, and Todd Volkmann. Verifier was Al Volkmann.

Sumner County Herp Count

Larry Miller conducted this Sumner County herp count in Sec. 15, T35S, R3W on 18 April from 12:30 to 2:30 pm. Technique consisted of rock-turning only. Despite the obvious odor of deadly farm chemicals throughout the area, Larry persisted in the count. The tally is listed below:

Northern Cricket Frog	3
Great Plains Narrowmouth Toad	12
Southern Prairie Skink	1
Ringneck Snake	84
Coachwhip	1
Prairie Kingsnake	1
Common Kingsnake	1
Milk Snake	3
Ground Snake	21

Total

9 species ..... 127 specimens

The only participant was Larry Miller. Verifier was Larry Miller.

Ellis County Herp Count

Led by Travis W. Taggart, this herp count was conducted on 24 and 25 April at four sites in EllisCounty, Kansas, as follows: Sec. 35, T11S, R16W (24 April, 1:00–3:00 pm); Sec. 25, T15S, R19W (25 April, 8:45–9:15 am); Sec. 27, T15S, R18W (25 April, 9:30–10:30 am); and Sec. 25, T11S, R18W (25 April, 4:00–5:00 pm).

The herp count technique consisted of rock-turning, and the tally is listed below:

Great Plains Narrowmouth Toad	4
Ornate Box Turtle	1
Collared Lizard	20
Prairie Lizard	8
Great Plains Skink	1
Northern Prairie Skink	1
Six-lined Racerunner	3
Ringneck Snake	28
Plains Blackhead Snake	6
Racer	1
Great Plains Rat Snake	13
Milk snake	1
Lined Snake	1
Western Rattlesnake	1

Total

13 species ..... 89 specimens

Participants were (in alphabetical order): Joseph T. Collins, Suzanne L. Collins, Goren Gasbarovic, Chris Havel, Travis W. Taggart, Karen Toepfer, Russell Toepfer, and Mark Van Doren. Verifier was Joseph T. Collins.

Douglas County Herp Count

David Reber conducted a spring herp count from 2:00 to 3:30 pm at Sec. 20, T13S, R19E in Douglas County on 29 April. The tally was a follows:

Great Plains Narrowmouth Toad	1
Five-lined Skink	3
Ringneck Snake	1
Racer	2
Copperhead	2
Timber Rattlesnake	1

Total

6 species ..... 10 specimens

Participant and verifier was David Reber.

Douglas County Herp Count

David Reber and Richard Reber conducted a herp count on 2 May from 2:00 to 4:00 pm at Sec. 31, T12S, R18E in Douglas County, and tallied the following:

Gray Treefrog	1
Ornate Box Turtle	1
Five-lined Skink	2
Western Worm Snake	1
Ringneck Snake	31
Common Garter Snake	1

Total

6 species ..... 36 specimens

Participants were (in alphabetical order): David Reber and Richard Reber. Verifier was David Reber.

Pottawatomie County Herp Count

On 2 May Joseph T. Collins led a spring herp count in Pottawatomie County, Kansas, at two sites, as follow: KPL Gas Service Jeffrey Energy Center (10:00-11:30 am & noon-1:15 pm) and Sec. 12, T8S, R7E (3:15-5:15 pm), and the tally was:

Northern Cricket Frog	46
Western Chorus Frog	2
Plains Leopard Frog	4
Bullfrog	5
Great Plains Narrowmouth Toad	18
Snapping Turtle	2

Ornate Box Turtle	5
Ground Skink	3
Great Plains Skink	68
Northern Prairie Skink	9
Western Worm Snake	8
Ringneck Snake	96
Racer	6
Great Plains Rat Snake	2
Rat Snake	1
Common Kingsnake	8
Milk Snake	18
Common Garter Snake	1
Lined Snake	20
Northern Water Snake	2
Copperhead	1
Timber Rattlesnake	3

Total

22 species ..... 328 specimens

Participants were (in alphabetical order): M. Roy Bachman, Lucia Baldwin, Mary Kate Baldwin, Karl R. Bechard, Matt Cole, Joseph T. Collins, Suzanne L. Collins, Kevin Freed, Errol D. Hooper, Jr., Kelly J. Irwin, Richard Kazmaier, John Lokke, Daniel Magill, Larry Miller, Carolyn Moriarty, Emily Moriarty, Lisa Nodolf, Mike Pearce, Tanner Procter, Chris Reed, Rachel Reed, Anne Russell, Cindy Shepherd, Milen Spanowicz, Travis W. Taggart, and John M. Young. Verifier was Joseph T. Collins.

Johnson County Herp Count

A herp count was conducted by David Reber and Randall S. Reiserer in Johnson County, Kansas, at Sec. 5, T13S, R23E on 4 May from 5:00–8:00 pm. The tally was:

American Toad	1
Great Plains Narrowmouth Toad	5
Five-lined Skink	10
Great Plains Skink	10
Slender Glass Lizard	1
Western Worm Snake	4
Ringneck Snake	50
Flathead Snake	1
Racer	1
Rat Snake	1
Common Kingsnake	1
Milk Snake	1
Copperhead	2
Timber Rattlesnake	1

Total

14 species ..... 89 specimens

Participants were Randall S. Reiserer and David Reber: Verifier was David Reber.

Leavenworth County Herp Count

A spring herp count was conducted by Suzanne L. Collins and Joseph T. Collins for four hours (9:00–11:00 am & 4:00–6:00 pm) on 10 May in the western half of Leavenworth Count, from its northern border to its southern border and back. Road-cruising was the only technique employed. The tally was:

Ornate Box Turtle	3
Ringneck Snake	1
Racer	1
Prairie Kingsnake	2
Common Garter Snake	2
Smooth Earth Snake	1

Total

6 species ..... 10 specimens

Participants were Suzanne L. Collins and Joseph T. Collins. Verifier was Joseph T. Collins.

Douglas County Herp Count

A herp count was conducted by David Reber and Randall S. Reiserer in Douglas County, Kansas, on the north side of Clinton Lake at Secs. 3, 10, and 13, T13S, R18E on 14 May from 12:30–3:30 pm. The tally was:

American Toad	1
Great Plains Narrowmouth Toad	1
Painted Turtle	7
Slider	3
Ground Skink	1
Five-lined Skink	3
Great Plains Skink	4
Western Worm Snake	1
Ringneck Snake	7
Milk Snake	1
Timber Rattlesnake	2

Total

11 species ..... 31 specimens

Participants were Randall S. Reiserer and David Reber. Verifier was David Reber.

Belvidere Area Herp Count

The fourth Belvidere Area herp count was conducted from noon on 15 May to noon on 16 May in the area of Belvidere (Pratt, Barber, and Kiowa counties). Rock-turning and observations while walking were the techniques used (80 person hours walking) plus road-cruising (266 miles with seven observers in three vehicles for four hours = 28 person hours driving). Recent heavy rains. The tally was:

Plains Spadefoot	3
Great Plains Toad	50
Woodhouse's Toad	29
Unidentified Toad	13
Northern Cricket Frog	32
Western Chorus Frog	95
Spotted Chorus Frog	21
Bullfrog (tadpole only)	27
Unidentified Tadpole	27
Plains Leopard Frog	17
Great Plains Narrowmouth Toad	15
Snapping Turtle	2
Yellow Mud Turtle	1
Ornate Box Turtle	2
Painted Turtle	5
Slider	12
Collared Lizard	19
Prairie Lizard	1
Great Plains Skink	4
Southern Prairie Skink	2
Unidentified Skink	2
Six-lined Racerunner	8
Ringneck Snake	1
Western Hognose Snake	1
Plains Blackhead Snake	2
Common Kingsnake	1
Bullsnake	5
Common Garter Snake	2
Plainbelly Water Snake	8
Northern Water Snake	2
Graham's Crayfish Snake	2

Total

28 species ..... 411 specimens

The 16 participants were Kevin Becker, Andi Brunson, Katelin Brunson, Ken Brunson, Lee Ann Brunson, Bugs Jantz, Danela Jantz, Garrett Jantz, Marvin Jantz, Tammie Jantz, Mark Kumberg, Carol Mammoliti, Chris Mammoliti, Kirk Mammoliti, Rebecca May, andMatt Monda. Verifier was Ken Brunson.

Johnson County Herp Count

A herp count was conducted by Randall S. Reiserer and Troy D. Smith in Johnson County, Kansas, at the jct. of Ks. Rt. 10 and Cedar Creek Parkway on 24 May from 6:00–8:00 pm. The tally was:

American Toad	2
Ornate Box Turtle	1
GroundSkink	1
Five-lined Skink	4
Great Plains Skink	5
Slender Glass Lizard	1
Western Worm Snake	2
Ringneck Snake	4
Racer	1
Milk Snake	2
Copperhead	1

Total

11 species ..... 24 specimens

Participants were Randall S. Reiserer and Troy D. Smith. Verifier was Randall S. Reiserer.

Grand Total of 13 Counts Held Statewide in 1992

49 species ..... 1,384 specimens.

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SOME THOUGHTS ON THE STATUS OF THE WESTERN FOX SNAKE (*ELAPHE VULPINA*) IN SOUTHEAST NEBRASKA, SOUTHWEST IOWA, NORTHWEST MISSOURI, AND NORTHEAST KANSAS

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It is April 1974, a beautiful spring day, with trees budding, birds singing away, a stiff breeze and a bright blue sky. Three teenage males are wandering along a hill overlooking Papillion Creek in west Omaha, Douglas County, Nebraska. The hillside is typical Douglas County fare; brome-covered, with elm and sumac invading, and an occasional isolated cedar. A generous amount of debris of human origin lies in the still brown grass. Limestone is far, far below the surface. One of the hunter-gatherers turns over a downed road sign (appropriately it was a "No Dumping by Order of Douglas County Sheriff" sign) and immediately and ecstatically announces at the top of his newly acquired vocal strength that he has just found a "Bullsnake". His brother rushes in, not quite sure if he should pounce on the snake or not. The third and conspicuously taller member of the party snatches up the 30-inch plus reptile almost without hesitation and the spotted serpent instantly chomps into his skinny fingers, and smears a pungent, coffee-colored liquid across the back of his left hand. The tip of the tail of the "mystery snake" is a blur, producing a muffled buzz as it rapidly vibrates against the shirtsleeve of the now beaming youth.

Although this was the first Fox Snake I had ever seen, my first edition of Roger Conant's field guide to the amphibians and reptiles (1958) had not failed me, for I knew almost instinctively what I was seeing. This animal had the definite *Elaphe* form, featuring the flat ventral scutes at right angles to the sides of the body, the broad, squarish ratsnake head and the divided anal scute. The head was fairly distinct from the neck and the snake was rather strong as the well-developed constricting muscles tested on my fingers and wrist showed. Our snake had a yellowish-tan ground color, which became bronze posteriorly. The dorsal surface was adorned with perhaps 40 dark chocolate, fairly regular blotches (we didn't concern ourselves with counting spots back then) which is in agreement with the description of *Elaphe vulpina* by Lynch (1985). The top of the head was a richer shade of tan than was seen on the dorsal surface. The lips and chin were off-white with obscure gray bars. The venter was creamy yellow, heavily checked in dark brown. Another row of blotches met the ventrals along each side of the snake's body and the tail bore at least a dozen rings that became rather obscure toward the tip of the tail. The tail itself was quite interesting; it was thick and round, but tapered abruptly to a fine point with a long terminal scale and the snake could vibrate this tip easily and for varying lengths of time, all to our delight. But would I have mistaken this interesting serpent for the ever-popular Bullsnake? No. Even if I hadn't had my trusted Conant? No. To me, this snake looked as different from a Bullsnake as Iowa looks from Arizona! All of the Bullsnakes I have seen in eastern Nebraska (there have been many) bear blotches that change from jet black to brown, then back to black as one looks along the dorsal surface from anterior to posterior. The ground color is almost always a saturated straw-yellow and the blotches are more square and in vivid contrast against the ground color, especially posteriorly. The head is the real giveaway; the Bullsnake's proportionately smaller, pointed head with the raised rostral scale, the fierce-looking tiger-like face is heavily streaked and barred with black. These characters remove all doubt—to me at least. Yet many persons misidentify the Fox Snake, often calling it a rattlesnake. I have "birder" buddies who can look at a silhouette of some tiny songbird perched on a powerline some distance away and identify it, no problem! But a medium-sized snake that we're holding in our hands ... uh, well, hmm. I guess it's all in the conditioning.

As I moved from my teens to my twenties and thirties, Fox Snakes became a common feature of my herping efforts in eastern Nebraska, and I found them in a variety of habitats from the rather remote and forested to the flat and cultivated. Nowhere, however, were they more joyfully common than on the Missouri River floodplain; where one finds flat stands of cottonwood on the often sandy soils between the river and the bluffs, covered in hardwoods, and which sport a few oxbow lakes or, if one is lucky, a marsh. In many places, futile efforts to harness

the Big Muddy are evidenced by old levees and wing dikes — vestiges from the pre-channelization days. These dikes are often made of piles of limestone, called rip-rap for jobs like this. In these places, the Fox Snake seems to reach its acme as the ruins comprise suitable hibernacula as well as harbor many rodents. Occasionally, an old rock quarry from the 1930s or earlier can be seen at the base of the bluffs, which attracts fauna and flora from both the forested uplands and the bottoms. In many eastern Nebraska counties, these quarries are entirely too few and far between. Fox Snakes are common enough from the Platte River, north through Omaha, and are abundant in many parts of northeast Nebraska. In these areas, it is normal to see them commonly when herping in the floodplain. Interestingly, this has not been my experience when working south of the Platte River in Cass County, Nebraska. I have worked Cass County regularly for 11 years, searching in vain for the probably extinct (in this county) Timber Rattlesnake, *Crotalus horridus*. In that period, I have seen a total of four Fox Snakes, all from a fairly limited area of the eastcentral part of the county. Conversely, a May 1982 field trip to Fremont County, Iowa with the Iowa Herpetological Society revealed a number of these snakes. Johnson (1987) shows *E. vulpina* occurring as far south as Buchanan County, Missouri on the east side of the Missouri River. Many people have reported seeing them at Squaw Creek National Wildlife Refuge in Holt County, Missouri. All of this time I was asking myself: "So, why does the range of *Elaphe vulpina* seemingly reach its terminus in central Cass County, Nebraska, on the west of the Missouri River but continues southward for approximately 50 miles on the east side in Iowa and Missouri?"

In late May 1982, an attempt was made by several members of both the Kansas and Nebraska Herpetological Societies to fill this distributional hiatus. Those present and participating included Mary Kate Baldwin, Keith Coleman, Suzanne and Joe Collins, Jim Gubanyi, Larry Miller, Pam and Bill Peterson, Denise Lokke and myself. We met in Elwood, Kansas and worked our way north along the eastern edge of Doniphan County, Kansas, terminating our efforts in Rulo, Richardson County, Nebraska. A whopping good time was had by all and a fair number of amphibians and reptiles were found, despite the all-too-dry conditions of an oncoming drought and it being somewhat late in the season. Our best efforts notwithstanding, the Fox Snake eluded us. All was not lost, however, as we found some good-looking habitat that would, in my experience, be suitable for *Elaphe vulpina*. The last area, maybe ten miles of northeastern Doniphan County, from about Iowa Point to the Nebraska state line looked like the place to search for the Fox Snake. Precipitous and heavily wooded bluffs on the west side of the road and a broad, undulating floodplain with a number of wet ditches on the east side characterized the drive to Rulo, Nebraska.

Although these bluffs are comprised mostly of loess soil and only a limited amount of limestone shows itself near their bases, I feel that there are more than enough places for hibernacula here. I realize that no limestone spells anxiety for a lot of you Kansans but, well,..."change is good for you..."

The story doesn't end here, though. Recently, the Nebraska Chapter of the Nature Conservancy acquired approximately 200 acres of wooded bluff land south of Rulo, very near the aforementioned area in Doniphan County. Biologists surveying the area described two DOR (dead on road) snakes that they said looked like "dark Bullsnakes". These were seen in the summer of 1991 on the road running from Rulo to White Cloud, Kansas. Just what these unfortunate ophidians really were is anybody's guess because the well-meaning researchers intended to secure the corpses on their way back from the study site, probably wishing to minimize the amount of time they had to ride with two offensive-smelling dead snakes. This is, as many of you can attest, not an unreasonable action. This probably would have worked out fine except that the heavily wooded bluffs of the extreme southeast corner of Nebraska host a substantial population of turkey vultures and these birds have a well-deserved reputation for keeping the roads clean. Alas, by the time the biologists returned, the DOR's were gone, the researchers were frustrated, and the vultures were satiated. Since it is anyone's guess as to the identity of these snakes, I will venture mine through a process of elimination and some experience in the area. Five suspects come to mind. These are the Bullsnake (*Pituophis catenifer*), the Black Rat Snake (*Elaphe o. obsoleta*), the Eastern Hognose Snake (*Heterodon platirhinos*), the Prairie Kingsnake (*Lampropeltis c. calligaster*), and, of course, the Fox Snake. In my years of herping in southeast Nebraska, I have found the Bullsnake to be not as generally common as one might expect and even scarce in several areas, including the Missouri river floodplain. A serious contender in this question is the Black Rat Snake, probably the most common large snake in the wooded areas of southeast Nebraska. As many of you know, a percentage of Black Rat Snakes do not completely lose their juvenile pattern and color as they mature, maintaining the appearance of a dark, blotched snake. This closely resembles the description provided above. G. E. Hudson (1942) mapped the Eastern Hognose Snake in this area, probably in the late 1930s. Lynch (1985) has not recorded *H. platirhinos* from this locale. By any account, the Eastern Hognose Snake is rare along the rivers of Nebraska and I consider it unlikely that the aforementioned roadkills were of this species, although the habitat is right. The lovely Prairie Kingsnake could easily fit the description provided by the researchers and it occupies a number of habitats in Nebraska, including river bluff and floodplain forests. My encounters with *L. calligaster* have been in disturbed areas such as prairie

pastures, parks, old railroad right-of-ways, and roadside ditches. I have never seen one on the Missouri River floodplain. As in the case of the Eastern Hognose Snake, the Prairie Kingsnake was last mapped in the Rulo area in 1942. This brings us to the Fox Snake. It fits the description given even more closely than the Black Rat Snake, the habitat is right, and it is known to occur on the opposite side of the Missouri River. In my final consideration of these five species and the area in question, I believe that the two species of *Elaphe* would most likely occur in sufficient numbers to allow the observation of two roadkills in this small area. I acknowledge that these two roadkills could consist of two species.

The story doesn't end here, however. W. E. Taylor (1891) mentions Nemaha County Nebraska (no specific locality) in his account of the Fox Snake in "*The ophidia of Nebraska*". This report, in Nebraska's first herpetological account, was long viewed with skepticism because records south of Cass County did not exist (Lynch 1985). All doubt ended on 10 May 1992 when I led a field trip into Nemaha County, Nebraska to search for Timber Rattlesnakes. Accompanying me were Tom McKean and John Young. Of course, no Timber Rattlesnakes were found but ... We stopped at Brownville, Nemaha County, for a short search of the outskirts of town and, in turning a nice piece of tin roofing, uncovered an adult male Fox Snake! This confirmed Taylor's report and extended the known range of the Fox Snake in Nebraska by approximately 33 miles. This new southernmost record is approximately 26 miles from the Kansas border.

In conclusion, I feel that the prospects of finding *Elaphe vulpina* in Richardson County, Nebraska and in adjacent Doniphan County, Kansas are very good. For a number of reasons, the corners of these two states have been overlooked and underinvestigated; a lack of surface rock and limited access to the floodplain from discontinuous county roads are two limiting factors. Perserverance will pay and the reward would be a southern range extension for this species which could represent a new county record or even a new state record.

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AN OBSERVATION ON THE STOMACH CONTENTS OF A TEXAS LONGNOSE SNAKE (*RHINOCHEILUS LECONTEI TESSELLATUS*)

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On 5-6 June 1991, Eddie Stegall, Keith Coleman, and I traveled to southwestern Barber County, Kansas in a quest for the Red-spotted Toad (*Bufo punctatus*). We hoped to record calls of this toad as it had rained within the previous day. At 0100 hrs, after recording a large mixed chorus of Plains Leopard Frogs (*Rana blairi*), Plains Narrowmouth Toads (*Gastrophryne olivacea*), and Spotted Chorus Frogs (*Pseudacris clarkii*), we ended our search and headed back toward Wichita. We left the recording site (ca. 4 mi due S of Aetna), and drove east down an unpaved road toward Hardtner. Approximately 2-2.5 mi along this road, we found a DOR adult *Rhinocheilus l. tessellatus* in the middle of the road. This was an exciting find in that this is a rare snake in Kansas (Collins 1982). The untimely demise of this animal may have been of our doing, as we were unable to stop our vehicle immediately after sighting the snake. Nonetheless, the animal was freshly killed and we noted that it had recently eaten.

The next day, I took a single-edge razor blade and made a 1.5 in incision on the snake's venter at midbody. I removed the stomach and discovered an adult Prairie Racerunner (*Cnemidophorus sexlineatus viridis*). The specimen was subsequently placed in the preserved collection at the Museum of Natural History at the University of Kansas.

Discovery of this food item causes me to speculate on whether this lizard is a common food item for this snake, as racerunners are abundant in this area.

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