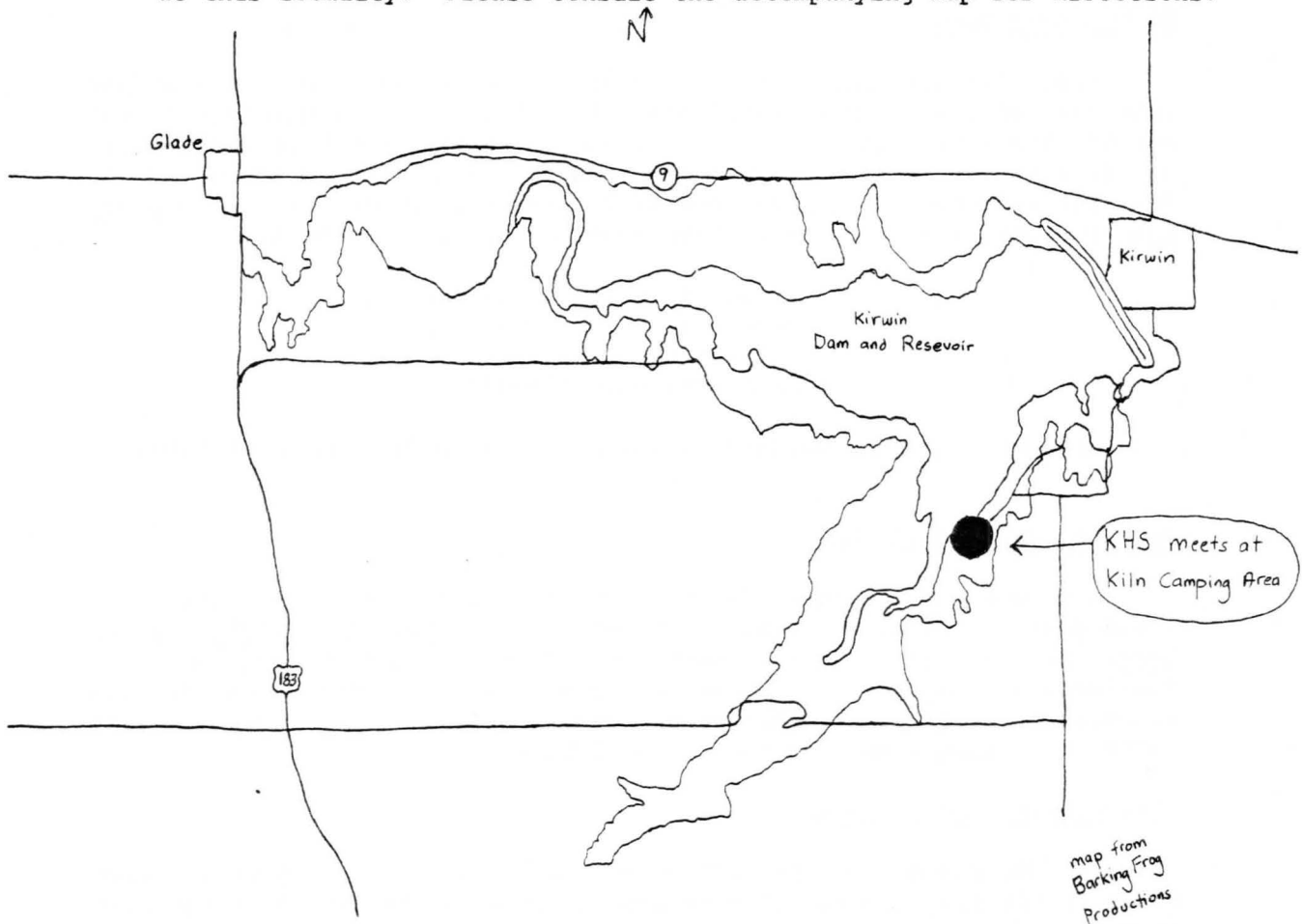


MARCH, 1985

ANNOUNCEMENTSField Trip Time Again

The 1985 KHS Field Trip will be held at Kirwin Reservoir, Phillips County, Kansas, 17-19 May 1985. We will meet at the Kiln Camping Area on the south side of the lake on Friday evening. Your program chairperson has consulted his maps carefully this year, and has determined that camping, rest rooms, picnic shelter, and grill facilities are available at this locality. Please consult the accompanying map for directions.



It has recently come to the attention of Joe Collins, University of Kansas Museum of Natural History, that specimens of the redbelly snake (*Storeria occipitomaculata*) were collected in this area some years ago. These records are somewhat substantiated by the collection of this species in adjoining Nebraska. With this information as a stimulus, KHS members have an opportunity to verify this highly disjunct population of

redbelly snakes. Also, it makes for a great excuse to go collecting in general along the banks of the North Fork Solomon River situated in the northwest corner of the scenic Smoky Hills.

Remember to come fully equipped for a weekend campout. If you forget anything, the town of Kirwin is just below the dam should you need supplies. See you there and don't forget to bring a friend or three. For further information, contact:

Kelly J. Irwin  
Box 128  
Wakarusa, Kansas 66546

### Do Pay Your Dues

Yes, KHS Members, it's that time of year again, when you must pay your dues or else. Dues envelopes went out in the last newsletter, but few of them have come back. Due to increased expenses, we will not be as generous as in past years about sending newsletters to those who do not pay promptly. Dues are now \$5.00 for regular members (see Membership inside the back cover). Your dues may be paid to KHS at:

Kansas Herpetological Society  
Museum of Natural History  
University of Kansas  
Lawrence, Kansas 66045

Remember, the KHS depends on you paying your fair share on time.

### New Book on Wildlife Laws

The World Wildlife Fund-U.S. recently published a compilation of Latin American wildlife laws. The book, Latin American Wildlife Trade Laws, is said to be an excellent work. It contains 354 pages and is available in both English and Spanish for \$11.50. Make checks payable to World Wildlife Fund-Trade Law and send orders to TRAFFIC(USA), 1601 Connecticut Avenue NW, Washington, DC 20009.

### Herp Classes and Workshops

The Museum of Natural History at The University of Kansas in Lawrence is offering several classes and workshops which may be of interest to KHS members. Joe Collins will teach an adult workshop on photographing small animals on 31 March from 1:30 to 4:00, entitled "Closeup Color Wildlife Photography." On 21 April from 1:30 to 4:30 pm will be a field trip, "How to Collect a Dinosaur" for ages 8 to adult, explaining how paleontologists work, led by Mike Gottfried of the Division of Paleontology. The annual "Friday Frog Frolic" will be on 26 April, 7-9:30 pm, led by David Hillis and John Simmons of the Division of Herpetology. Coming up this June will be two sections of the summer workshop on reptiles and amphibians for children. For information on how to enroll in any of these events, contact the Public Education Office, Museum of Natural History, The University of Kansas, Lawrence, Kansas 66045, phone (913) 864-4173.

KHS BRINGS YOU NEWS OF THE WORLD AND WAY BEYOND...

Pine Snake Hatched

On 24 July, a Louisiana pine snake (Pituophis melanoleucus ruthveni) was hatched at the Ellen Trout Zoo [Lufkin, Texas]. This is believed to be the first captive reproduction of this subspecies, and the zoo would appreciate any information on other successful hatchings.

--AAZPA Newsletter 26(1):16-17  
(Submitted by Ruth Gennrich, Lawrence)

Cuban Dwarf Boas Born

Recently, three separate litters of Cuban dwarf boas were born at the Toledo Zoo from a breeding group of 1/3 specimens captured in 1977 on the U.S. Naval Base, Guantanamo Bay, Cuba. Litter sizes ranged from five to nine snakes weighing an average of 1.5 g, and the young are feeding well on newly metamorphosed Bufo. This brings the total dwarf boa litters born at the Toledo Zoo to five. The zoo believes these are the only births of this species in North America, and is interested in exchanging information with other zoos studying the biology of Tropidophis.

--AAZPA Newsletter 26(1):16-17  
(Submitted by Ruth Gennrich, Lawrence)

Dwarf Caiman Hatched

Between 21 December 1984 and 5 January 1985, seven dwarf caiman (Paleosuchus palpebrosus) hatched at the Rio Grande Zoological Park. The female, on loan from the Baltimore Zoo, laid 16 eggs on 17 September. Three eggs were broken in oviposition and, of the thirteen eggs incubated artificially, nine proved fertile and seven hatched. Incubation ranged from 96 to 111 days, and the hatchlings averaged 22.1 cm and 40.2 gm at hatching. The female, and a male from the Atlanta Zoo, have been on loan since 1980.

--AAZPA Newsletter 26(2):14  
(submitted by Ruth Gennrich, Lawrence)

The San Diego Zoo Has Become A Veritable Hot Bed of Activity

If all else fails to improve a lizard's love life, try a waterbed. That's what the folks at the San Diego Zoo did when their Komodo dragons, the only ones in the Western Hemisphere, slithered away from any romantic entanglements on the cold cement floor of their cage. The 300-pound Indonesian lizards now share a king-size (8-foot square) 100-degree-Fahrenheit bed. Though the lizards have yet to scale the heights of passion, "they have gotten more active," says John Andy Phillips, a research physiologist at the zoo and inventor of the beds.

The zoo's 40-odd waterbeds, now used by 100 animals including leopards, monkeys and jaguars, aren't typical. The "mattress" is coated with puncture-resistant aluminum and contains a dash of anti-freeze to

prevent corrosion. The thickness of the metal depends on the strength of the occupants' jaws or claws. Hyenas, with the strongest bite, receive a quarter-inch thick mattress. Heating units are the same as those used by Homo sapiens.

Mr. Phillips installed the first bed in 1982 in the oldest sections of the zoo, where heat lamps were the sole sources of warmth. Besides using five times more electricity, the hot lamps posed a danger to the animals and disrupted their biological clocks, he said.

The zoo's rare Chinese dholes have had some of the best luck using the invention. Three pups delivered on a waterbed have survived, giving hope that these red wild dogs will escape extinction.

While the have-nots aren't exactly clawing for a bed, several animals have become quite attached to theirs. The leopards, for example, won't eat until they have dragged their ground horse meat and occasional bone back to bed. "They've become protective; they believe the bed is their den," says Mr. Phillips. Animals at the California Primate Center at the University of California at Davis and the Toledo Zoo in Ohio will soon be testing waterbeds made by Mr. Phillips.

For animals that prefer climbing or perching, Mr. Phillips has designed an artificial tree branch that contains heated aluminum cylinders. He is also searching for a specific-wave-length light to aid mating among endangered species.

Will zoo visitors soon see mirrors on the ceilings, too? Says Mr. Phillips: "If that did the trick we'd use them."

--The Wall Street Journal, 14 February 1985  
(submitted by Adrian Crane, San Antonio, Texas)

#### Commercial Herping in Kansas

According to the Project Synopsis for 1983-1984 from the Fisheries Investigation and Development Section of the Kansas Fish and Game Commission, 15 permits were issued for commercial harvest of amphibians and reptiles in Kansas during the last eight months of 1983. Forty application packets were desiminated, seven of them to non-residents. One of the permits granted went to a non-resident.

According to the report, "Bait sales and commercial animal dealers, whose greatest volume of sales is suspected to be destined for the retail pet store trade, proved to be the most frequent uses made of the Kansas herptile harvest."

Here is what was taken from the state:

<u>Group</u>	<u>Authorized Harvest</u>	<u>Reported Harvest</u>	<u>Success percent</u>
Frogs	6,500	1,597	31.9
Toads	1,000	50	5.0
Salamanders	26,600	6,018	40.0
Lizards	5,458	429	7.9
Snakes	6,891	48	0.7
Turtles	9,300	162	1.7

### A Western Diamondback Rattlesnake Released in Sumner County, Kansas

Smith (1956) considered the western diamondback rattlesnake (Crotalus atrox) to be a part of the Kansas herpetofauna on the basis of two specimens collected in extreme southeastern Kansas. Collins (1982), however, discredited these reports since he could find neither preserved examples from the localities cited by Smith (1956) nor any suitable habitat in the area where they were supposedly caught. Collins (1982) stated that since this dangerously venomous snake is known from adjacent areas of western Oklahoma, and that since suitable habitat does exist for the species in Barber and Comanche counties of western south-central Kansas, it may eventually be recorded from those counties.

Ten years of personal searching in southcentral Kansas (Barber and Comanche counties in particular) have failed to show me a single C. atrox from Kansas. Some suitable habitat does exist in those regions, and cattlemen seem capable of distinguishing a "ground" rattler (often olive colored and abundant near prairie dog towns, i.e. Crotalus viridis) from "coon-tails" (C. atrox), usually found higher up on rim-rock. However, herpetologists from all over Kansas have criss-crossed the region during all types of weather and at all times of the year, and have never found a western diamondback. It seems doubtful anyone ever will.

On 27 October 1984, a western diamondback rattler (C. atrox) was found and killed in Sumner County, Kansas, near the town of Belle Plaine. A picture of the snake appeared in the Belle Plaine News (Wed. 31 October 1984) on page four. I was contacted in regard to the finding of this rattlesnake and initially assumed it to be a massasauga (Sistrurus catenatus tergimimus), a snake not uncommon to that area. On contacting the individual who found the snake, and examining the snake's skin, I found it to be a western diamondback. The snake was found inside a stock shed, coiled beneath a tractor.

Weather prior to this date had been cool, but not unpleasant, and I had observed Pituophis, Heterodon and Elaphe moving during this time. The snake in question was healthy and appeared well-fed. Also, the nearest human habitation to the collection site is two miles away. The town of Belle Plaine is five miles distant.

It is my opinion that this snake is without a doubt an individual that had been released by persons unknown prior to its discovery in the stock shed. Due to its well-fed appearance, I would imagine that it had been released long before it was discovered in the shed and had been making a fairly decent living in the farm and pasture land of rural Sumner County.

A great many people from southern Kansas attend the rattlesnake "roundups" of western Oklahoma in the spring. For one reason or another, many of these same people drag western diamondbacks home to Kansas with them. Often they are later butchered and eaten and their skins used for hat-bands or belts. However, some also are kept as dangerous personal "pets" in homes and garages, or on porches, etc., by persons with no knowledge of herpetology and captive reptile husbandry. The snakes are usually poorly maintained and often kept in unsuitable enclosures that permit easy escape. Some western diamondbacks may be released in rural areas when their owners tire of them or the owners face the fact that adult, wild rattlers often refuse to eat in captivity.

In short, another form of animal pollution takes place, often with

the added, dangerous element of rattlesnakes being introduced in areas of heavy human population. One can imagine the serious consequences that could result if a large C. atrox were to turn up in a garden, playground or park.

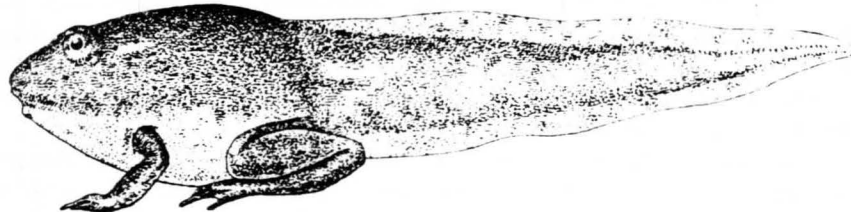
This whole scenario is another good reason for banning "rattler round-ups" in Oklahoma and other western states. Not only do they endanger the lives of the participants and interfere with the ecosystem, but they now appear capable of endangering innocent lives hundreds of miles away through the introduction of highly dangerous reptiles in areas where they do not naturally occur.

So Kansas, at long last, can say that a western diamondback has been found within it's borders, however dubious the record and honor. It is hoped that this isolated incident will not be repeated, but as long as people flock to towns like Okeene and Waynoka for rattlesnake hunts, and take home their "trophies" alive, the possibility of further introductions of this dangerous snake into our state can be expected.

#### LITERATURE CITED

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- Collins, J.T. 1982. Amphibians and reptiles in Kansas. Second edition. Univ. Kansas Mus. Nat. Hist. Pub. Ed. Ser. 8:1-356.

--Martin Capron  
Box 542  
Oxford, Kansas 67119



#### June Herp Meeting in Tennessee

The 65th annual meeting of the American Society of Ichthyologists and Herpetologists will be held in Knoxville, Tennessee, from 9-14 June. The meeting will include the usual papers and symposia, plus several field trips to observe both herps and fish. Preregistration fee is \$30 (\$20 student), rooms available at University of Tennessee dorms for \$10-\$12/night. For more information, registration forms, etc., contact ASIH Conference, Department of Conferences and Non-Credit Programs, The University of Tennessee, 2016 Lake Avenue, Knoxville, Tennessee 37996-3515. Deadline for preregistration is 1 May 1985.

## Southeast Oklahoma At It's Best

Sunday, 22 April 1984, Mike Puckett, Earl Ray and I left my house at 9:00 a.m. destined for the coastal-floodplain area in extreme south-east Oklahoma. We traveled in my old faithful 1978 Datsun pickup, which registered 80,000 mostly "herping" miles. Within an hour we crossed into Oklahoma, then connected with the Indian Nation Turnpike just south of Henryetta. On the outskirts of Hugo we turned on to US 70 and proceeded east. Nearing Hugo Dam and Lake, I noticed a few rock outcrops, so we stopped to hunt. We uncovered one coachwhip (Masticophis flagellum) and four flathead snakes (Tantilla gracilis) between 4:00 and 4:30 p.m., under partly cloudy skies with the air temperature in the low 70's.

Continuing eastward, we entered McCurtain county and went to a farmer's residence to secure permission to camp and collect the area.

While I was unloading the camping gear from the truck, I heard Earl shout at the top of his lungs, "Milksnake!" I ran over to see the snake. Earl was ecstatic over his find, and he had every right to be. It was a brilliant 15-inch red-banded Louisiana milksnake (Lampropeltis triangulum amaura), and was the first milksnake of any type that Earl had ever found. We praised Earl for his success and immediately joined in, all of us searching the hillside under rocks, logs and any other conceivable piece of cover. We hunted until 7:00 p.m., under partly cloudy skies and an air temperature of 56 F. We found one five-foot coachwhip (Masticophis flagellum), six ringneck snakes (Diadophis punctatus), twelve flathead snakes (Tantilla gracilis), five ground snakes (Sonora episcopa episcopa), one southern black racer (Coluber constrictor priapus), one speckled kingsnake (Lampropeltis getulus holbrooki), twelve five-lined skinks (Eumeces fasciatus) and eleven ground skinks (Scincella lateralis). In addition to the reptiles, numerous nine-banded armadillos were observed and we made several useless attempts to catch one of the primitive-looking mammals. At one point, I had one's tail, but it slipped out of my grasp and into its burrow. Back at camp, we hurriedly set up the tent and built a small, yet rewarding campfire.

Monday, 23 April, we were up at 6:00 a.m. and set out on foot to another hillside across the valley. This morning was cool (53 F), under a cloud-free sunrise. Two hours quickly passed, and we all found a variety of herps. By 8:15 a.m. we had one speckled kingsnake (Lampropeltis getulus holbrooki), three Louisiana milksnakes (Lampropeltis triangulum amaura), two ground snakes (Sonora episcopa episcopa), fifteen flathead snakes (Tantilla gracilis), ten ringneck snakes (Diadophis punctatus), two western worm snakes (Carphophis amoenus vermis), one southern black racer (Coluber constrictor priapus), twenty ground skinks (Scincella lateralis), fifteen five-lined skinks (Eumeces fasciatus), one fence lizard (Sceloporus undulatus) and five slimy salamanders (Plethodon glutinosus glutinosus).

We stopped to explore a small rock outcropping along OK 37 at 9:00 a.m. Mike lifted a piece of damp cardboard in the ditch and found a beautiful two-foot speckled kingsnake (Lampropeltis getulus holbrooki) under it. As we continued searching here, we found a coachwhip (Masticophis flagellum) and five flathead snakes (Tantilla gracilis). Leaving this area, we went several miles further and explored another partially forested valley. Here we found one 12-inch speckled kingsnake

(Lampropeltis getulus holbrooki), three flathead snakes (Tantilla gracilis), two ringneck snakes (Diadophis punctatus), five five-lined skinks (Eumeces fasciatus) and two ground skinks (Scincella lateralis).

Following lunch, Earl and I set out on foot to investigate a new area while Mike relaxed in the security of the tent. We hiked a little over two miles and found two Louisiana milksnakes (Lampropeltis triangulum amaura), four five-lined skinks (Eumeces fasciatus) and four ground skinks (Scincella lateralis). When we arrived back at camp at 3:30 pm, the skies were still clear and the temperature had reached 71 F. The remainder of the day was spent fishing and relaxing, followed by a cookout over the campfire that night.

Tuesday, 24 April, we woke around 7:00 a.m and after a cold, yet filling assortment of junk foods, we began pulling up camp. Taking a last look around the camp site, we began the the seven-hour trek back towards home.

Leaving McCurtain County and entering Choctaw County at 8:00 a.m., I pulled off onto the highway shoulder to examine one last area. Here we found seven ground snakes (Sonora episcopa episcopa) and three five-lined skinks (Eumeces fasciatus). Skies were clear and the air temperature was 65 F.

Some two and a half hours later, we made a short stop in Okmulgee for fast food and gas, and pulled into Fredonia at 3:30 p.m.

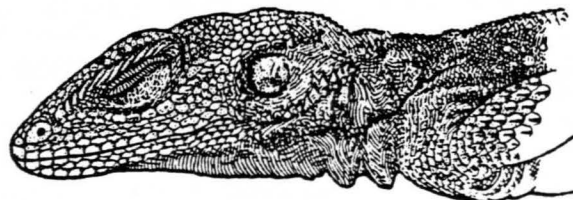
This was a short, yet memorable three-day journey, totaling 775 miles. It was one we'll always remember, but it certainly won't be the last...

--John C. Fraser  
119 North 15th  
Fredonia, Kansas 66736

EDITOR'S NOTE: If you are inspired to try herping in Oklahoma, here are a couple of publications in addition to your field guide which you may find useful.

Webb, Robert G. 1970. Reptiles of Oklahoma. University of Oklahoma Press, Norman, Oklahoma. 370 pp. Available from Stoval Museum, University of Oklahoma, Norman OK 73019.

Secor, Stephan M. and Charles C. Carpenter. 1984. Distribution maps of Oklahoma Reptiles. Oklahoma Herp. Soc. Special Publication 3:1-57. Available from Jeffrey H. Black, Department of Biology, Oklahoma Baptist University, Shawnee, OK 74801.



B.

Fig. 57.—*Agama agrorensis*.  
A. Dorsal view. B. Side view of head.



## Effects of Aglyphous and Opisthoglyphous Snake Bites

Human envenomation has been documented from a variety of "harmless" snakes. I have acquired, over the past several years, numerous case reports dealing with this little known subject. My chief quest is to contact people who have experienced to some degree what I have been through. This article deals in detail with two bites I have received from so-called "harmless" snakes. The two genera involved are the water snakes, Nerodia, and garter snakes, Thamnophis. I have also included a list of other genera which have produced unusual symptoms after biting me (Table 1).

### CASE REPORT: ENVENOMATION SUSPECTED AFTER BITE FROM Nerodia

On 19 February 1981, I was bitten by a 40 inch (101.6 cm) female northern water snake, Nerodia sipedon sipedon, on my right thumb. Only the dorsal surface was affected. The snake chewed for 12 seconds and in doing so, brought her right posteriorly enlarged tooth (4 mm) into contact with my skin and penetrated to its total depth. The time was noted as 1:50 pm. The snake repeated this process several times before releasing its grip. My thumb was covered with numerous puncture marks. The largest puncture was hemorrhaging profusely. I immediately scrubbed the bitten area with mild soap and water and the hemorrhaging subsided after a full 5 minutes. I then placed a bandage over the puncture.

At 2:20 pm a mild itching sensation was noticed. I observed that the entire dorsal surface of my hand was experiencing severe erythema and at the site of the initial bite the wound was grossly inflamed. Compared to the normal hand, the affected hand was now 2x as large.

I then applied a large quantity of ice for 30 minutes. At 3:01 pm, the inflamed hand had virtually subsided to normal with only the bitten area itself swollen. The erythema, though, was spreading both to my fingers and wrist. At 3:30 pm, the erythema was still advancing but rather slowly. It had reached the largest portion of my forearm at this time. At 3:50 pm, the inflammation had subsided completely, but at the site of the deepest puncture, an amber-colored fluid was oozing. This was wiped away and did not appear again.

The erythema progressed as far as my elbow, and did not completely subside until 3 days later (22 February) at 5:20 pm (total time for symptoms to subside was 75.5 hrs).

After having received this bite, I wrote to Dr. Sherman A. Minton and asked him about this particular bite. In his reply, dated 7 April 1981, he wrote, "It sounds to me as though the bite you got from the large Natrix [=Nerodia] may have been accompanied by some envenomation."

### CASE REPORT: EASTERN GARTER SNAKE BITE

On 22 April 1979, I was bitten by a 24 inch (60.95 cm) eastern garter snake, Thamnophis sirtalis sirtalis, directly behind my left thumb. The time was noted as 10:46 am.

Once the teeth made contact, I experienced a sharp pain shoot through my hand, traverse up my arm to my elbow, and then reverse direction to the point of origin, then subside. The pain was substantial enough to knock me off-balance. At this point, with the assistance

of a nearby friend, I tried to pry the snake's mouth loose, but without success. The snake released its grip after 79 seconds, at 10:48 am.

Immediate inflammation and erythema accompanied the bite. Within an hour (11:48 am) I noted the onset of severe bifrontal headache. At the time of the headache, I took 1000 mg aspirin, and the headache gradually subsided. Within four hours (2:48 pm), I was quite nauseous and this was accompanied by the emesis of bloody fluid. This continued for another hour (3:48 pm).

I was then seen briefly in my doctor's office, where the nurse administered an antitetanus shot for tetanus prophylaxis and another shot of an antibiotic, which was so strong that my whole body perspired profusely. Both shots were administered in the right buttock. My instructions were to apply an ice pack to the affected area every hour for half an hour until I went to bed. After leaving the doctor's office, I noticed that my hand was now inflamed to the extent that it could not be used to any degree, and it was twice as large as the normal one.

For the next four days the inflammation never receded and then on the fifth day (27 April) disappeared for the most part.

From the time I was bitten until the fifth day, I felt weak and slightly nauseous, and the bitten area was extremely pressure sensitive.

Approximately 122 hours elapsed before the final symptoms subsided. I felt that after being bitten by this species that the skin secretions of Plethodon sp. contributed to the reactions more than did the saliva of Thamnophis, although I believe now I received venom, because the snake had not fed in three days.

Because the symptoms were noticed immediately after the bite, it would be possible that venom was injected though the wound, which would rule out, but not completely, the possibility of an allergic reaction to a foreign substance injected into the skin, such as snake saliva.

#### Table 2. Reports of Bites of Harmless Snakes\*

##### Boa cooksi cooksi, Cooks tree boa [Corallus enydris cookii]

Time attached: 9 seconds. Symptoms subsided after 12 minutes.

Symptoms: Wounds (6 mm deep) hemorrhaging profusely for 3 minutes, intense pain (attributed to two 6 mm teeth imbedded in flesh). Burning sensation, traversed from bitten extremity, up forearm to elbow, then subsided, 1-2 seconds. Intense itching (2 minutes) accompanied by erythema (4 minutes).

##### Python molurus bivittatus, Burmese python

Time attached: 7 minutes. Symptoms subsided after 3 days, 10 hours, 10 minutes.

Symptoms: Wound hemorrhaging profusely (5 minutes), intense pain (attributed to 8 teeth embedded in flesh, 5-8 mm). Extensive erythema (two red streaks radiating from initial bitten area, measuring 5 inches in length, one-half inch wide, replaced by dots, covered dorsal and ventral areas of arm. Spread from finger tips to shoulder and left chest area (2 hours). Inflammation advanced from elbow to wrist (66 minutes). Bitten area discolored (purplish-blue hue), covered dorsal portion of forearm, turned to dark purple (3 days). Three punctures oozing pus, wiped away. Bitten area very pressure sensitive (7 days).

Coluber constrictor, black racer

Time attached: 2 minutes. Symptoms subsided after 77 minutes.

Symptoms: Profuse hemorrhaging from bitten area for 8 minutes, mild inflammation accompanied with erythema (67 minutes), swelling (45 minutes).

Elaphe obsoleta obsoleta, black rat snake

Time attached: 21 seconds. Symptoms subsided after 17 days.

Symptoms: Severe itching for nearly 8 hours, mild inflammation of joint, progressed within minutes to severe (nearly 8 hours). Ulcer formed, oozing pus (incised and drained), continued to ooze pus for 17 days. Ulcerated area pressure-sensitive, tender, and sore for 6 days. Ulcer sloughed numerous times during a 17 day period.

Heterodon platyrhinos platyrhinos, Eastern hognose snake

Time attached: 3 seconds. Symptoms subsided after 6 hours, 40 minutes.

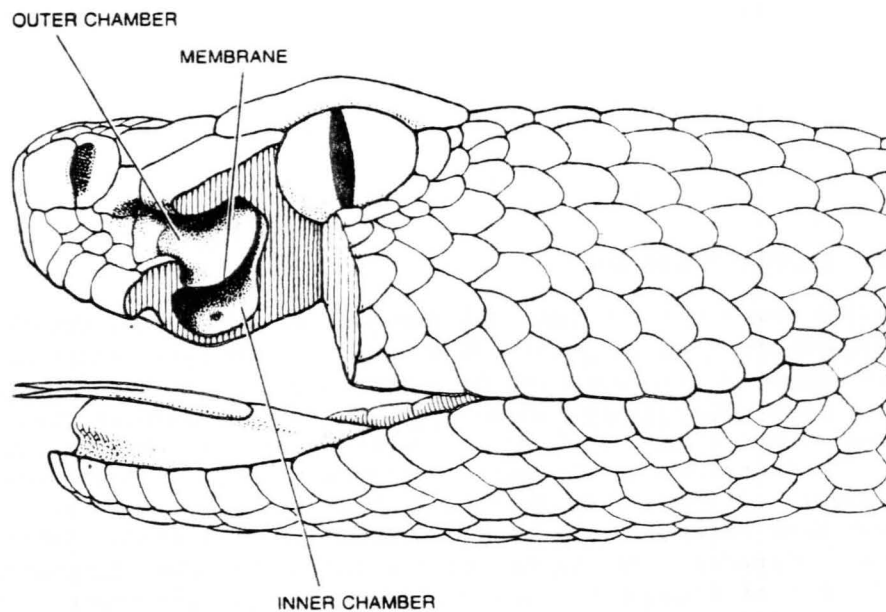
Symptoms: Immediate inflammation (30 minutes), intense itching (6 hours, 15 minutes), severe erythema (6 hours, 30 minutes)

Opheodrys aestivus aestivus, Eastern rough green snake

Time attached: 14 seconds. Symptoms subsided after 6 minutes.

Symptoms: Mild stinging sensation (12 seconds), severe erythema (3 minutes, 30 seconds), mild itching sensation (3 minutes, 30 seconds). Two deepest punctures (3 mm) raised into welts (3 minutes), pus oozed from punctures, wiped away, did not appear again.

--Norman J. Reynolds  
8611 Running Fox Circle  
Fern Creek, KY 40291





Photograph of hands of subject 24 hours after being bitten by a western hognose snake (Heterodon nasicus). Hand on left was bitten, and exhibits sufficient swelling that subject could flex fingers only with difficulty. Photo by Larry Miller.

#### Just How Dangerous Are They

Before you panic and fear all snakes, or worse yet, decide this is all exaggeration, let me point out a couple of things. Although most of us have been bitten hundreds of times by water snakes (Nerodia) or garter snakes (Thamnophis) there are some well documented cases of some individuals having bad reactions to these bites, as the following table shows. Whether any one of these reactions is due to toxic snake saliva or an unusual allergy to snake saliva is not well understood. It will be a long time before enough is known about these snakes, their saliva, and the individual reactions to the bites to say definitely what happens. Few of these bites are dangerous. It is something to be aware of as you handle snakes, and I urge all of you to read some of the papers listed in the table to learn more about it.

Colubrid Snakes Known to be Capable of Human Envenomation

POTENTIALLY LETHAL

<u>Dispholidus typus</u>	Minton and Mebs, 1978
<u>Thelotornis kirtlandi</u>	Minton and Mebs, 1978
<u>Rhabdophis tigrinus</u>	Mittleman and Goris, 1974

PAINFUL BUT NOT DEADLY

<u>Ahaetulla</u>	Minton, 1978
<u>Alsophis</u>	McKinstry, 1978
<u>Boiga</u>	McKinstry, 1978
<u>Coluber</u> (Old World)	Minton, 1978
<u>Coniophanes</u>	McKinstry, 1978
<u>Conopsis</u>	McKinstry, 1978
<u>Drypophis</u>	McKinstry, 1978
<u>Enhydris</u>	McKinstry, 1978
<u>Erythrolamprus</u>	McKinstry, 1978
<u>Heterodon</u>	Bragg, 1960; Kroll, 1976; Minton, 1978
<u>Leptodeira</u>	Minton, 1978
<u>Leptophis</u>	Minton, 1978
<u>Macrelaps</u>	Minton, 1978
<u>Nerodia</u>	Minton, 1978
<u>Oxybelis</u>	McKinstry, 1978
<u>Philodryas</u>	Nickerson and Henderson, 1976
<u>Pliocercus</u>	Seib, 1980
<u>Tachymenis</u>	[personal experience]
<u>Thamnophis</u>	Minton, 1978

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NOTE: For a good general review of this interesting topic, see the papers by McKinstry (1978) and Minton (1978). Table compiled by John E. Simmons.

### Thoughts of a Midwestern Naturalist

This is being written in January, the day after a two-inch snowfall. Until just a few years ago I thought of winter as any non-collecting season, and having grown up in New Jersey, that meant about ten months a year. I remember well my first collecting experiences here and there as opportunities arose, but Kansas provided my first regular collecting grounds. Released from a very long adolescent "winter" I went nuts trying to bag anything that wasn't nailed down--and a few things that were. Having seen some other collectors at work over the past decade, I can conclude that growing up in New Jersey, though a liability, is not the determining criterion for habitat razing.

One thing the northeastern naturalist becomes very aware of is the arbitrary dollar value given anything from the living world, be it tropical fish or fossil. In 1972, ringneck snakes were selling in New York City for about \$2.50. Imagine, then, my agile mind doing calculations after turning over my very first rock, on my very first Kansas expedition, only to discover a community of ringnecks. I counted by twos, "\$5, \$10, \$15..." Somehow, I overcame the urge to take more than two. I was still \$5 ahead, and I had caught these myself!

I recently read a review, by a noted University of Kansas graduate, of a new book on caring for lizards. A major drawback, stated the reviewer, was the lack of a section on the conservation and protected status of lizards. The gist was that the author had omitted a vital section, and that this might lead the layman to think of lizards as a largely disposable, non-vital natural resource.

The reviewer made a valid point. I do not know the book's author, or the nature of his original manuscript, but I do know about what happened in the case of my own book some years back. In it, I made a special effort to provide a thoughtful final chapter discussing the unique role of lizards, and reptiles in general, arguing for their conservation. I included examples of State legislation protecting Gila monsters, information on California's protection of wildlife, and praised the strong conservation efforts of Australia and Madagascar. In fact, I took pains to gather information from some zoo people who import legally from overseas, talked to customs agents, and the US Fish & Wildlife Service.

The entire chapter was dropped by the publisher. Simple economic logic explains why. A book on reptile care is going to be sold, in large part, through pet stores. While the pet industry and conservation need not be at odds, for the most part they have been opposing forces for many years. Mere mention of the Lacey Act makes many animal dealers cringe as if kicked in the vitals. If lizards don't sell, books about lizards in captivity will suffer in sales also. Strangely, my book was NOT mainly about lizard care, but general biology and classification...

But returning now to the collector, I've noticed that herpetologists with access to a good local fauna tend to regard it protectively, almost with proprietary rights. Maybe they go through a collecting phase when very young, then outgrow it. In Oklahoma, one old lizard chaser told me outright, "Take one or two, but leave the rest of the family to go about their business!" For me, I already had gotten to the point where I would collect, photograph, and release, all on the spot. You don't have to feed slides, and they don't die or smell. One day, having collected a dozen collared lizards, I computed the going New York

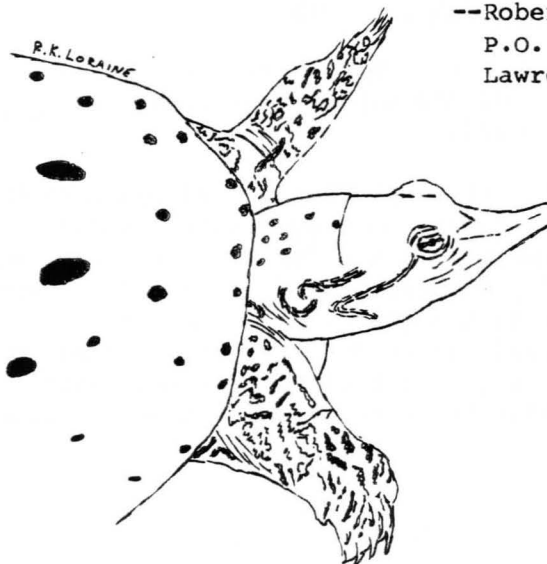
price for the haul. At \$15 each, I figured \$180 was too rich for my blood; I kept one male to join a female I already had, and released the rest. From what other photographers have told me, the end of their collecting was about as sudden.

Now don't get me wrong. I see nothing wrong with collecting responsibly, or keeping reptiles in captivity so long as they can be properly cared for. To keep a small, healthy collection is quite a feat in itself. Perhaps true conservation is like religion, it has to be personally experienced before any of the dogma becomes intelligible. I've met very few collectors who, after few years, didn't regulate themselves responsibly, unless their livelihood depended on numbers. Generally, these people keep very specific kinds of collections (i.e., rattlesnakes, kingsnakes, geckos) and provide far more than merely adequate care for their animals. In these collections, captive breeding is common, and specimens are readily exchanged with zoos and other breeders.

Frankly, the KHS and its membership have held an admirable and strong position on the conservation of Kansas' herpetofauna. Specimens can neither be sold nor advertised through the KHS Newsletter or the annual meetings. Neither does anyone seem to mind. For those feeling restraint growing dim before the first spring herping, maybe a glance at a domestic reptile price list will once again drive home the value of our native wildlife. In this way, perhaps we shall also value what we already have even more. Like gold and other precious commodities, wildlife value is very unlikely to drop to the comparatively cheap levels of the 1960s.

Perhaps the bottom line in conservation is rank sentimentalism. An animal in the wild may be useful to some field ecologist, but otherwise be inaccessible to the rest of us. I must admit that I feel better being able to enjoy for years the photographs of many grand reptiles, knowing that at least some have gone on to contribute their genes to future generations. Some day, I want to take my nephew, Patrick, out to Chapman and show him thriving colonies of collared lizards and skinks, lizards whose ancestors I studied in the field in 1980-1981. I shall still enjoy stalking wildlife, hunting the animals on their home turf, and shooting them all.

With a Nikon.



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## RECENT LITERATURE OF INTEREST

### New Found Frog Found New

Platz, J.E. and J.S. Frost. 1984. Rana yavapaiensis, a new species of leopard frog (Rana pipiens complex). Copeia 1984(4):940-948.

This article describes a new species of leopard frog recently found in Arizona and adjacent Sonora, Mexico. The holotype came from Tule Creek in Yavapai County, Arizona. The frog and its call are thoroughly described.

Leopard frogs, once all thought to be Rana pipiens, are now recognized to be a complex of species. At least two of the forms (Rana fisheri and Rana onca) have become extinct within the last 30 years.

### Snake Shake and Bake

Harlow, Peter and Gordon Grigg. 1984. Shivering thermogenesis in a brooding diamond python, Python spilotes spilotes. Copeia 1984(4):959-965.

Indian pythons (Python molurus) are known to raise their body temperature by muscle contractions (shivering) to incubate their eggs. This paper reports on the ability of the diamond python from Australia to raise its temperature 7 degrees C above the ambient temperature. To do this, the snake shivers up to 50 times a minute.

The authors studied two sequential broods of 44 and 66 eggs each from the same female. Temperatures were measured with a recording thermometer. Shivering was monitored by measuring the pressure in a water-filled balloon. With the first brood, the female shivered for 64 days without feeding.

Only 22 eggs from the second clutch were left with the female, and this time oxygen consumption was also measured.

### Those Are Also Served Who Sit and Wait

Reinert, Howard K., David Cundall and Laretta M. Bushar. 1984. Foraging behavior of the timber rattlesnake, Crotalus horridus. Copeia 1984(4):976-981.

In the Appalachians of Pennsylvania, 21 adult timber rattlesnakes, Crotalus horridus, were fitted with surgically implanted radio transmitters and followed between 1979 and 1982. The snakes were found to be mostly "sit-and-wait" predators, usually coiled in ambush position behind a fallen log, with the head resting on top of the log. In this position, they are ready to feast upon small mammals which run up and down the length of the log. The posture of the snake enables it to use vibration, infrared radiation, and visual image detection to zero in on its prey.



## HERPER HELPERS

### Some Helpful Hints for Herp Keepers

It's nice, and necessary sometimes, to know the ins and outs of the parasites and illnesses that affect your captives. To know the complex systems and methods of disease and treatment in the world of herp husbandry takes extensive research, friends in high places, a vast technical vocabulary and much trial and error. While we are lucky to have access to such information, a great many novice herp keepers, biology teachers and pet fanciers may still have trouble keeping their charges alive and well.

There are a lot of problems and matching solutions floating around out there, however. A lot of herp care problems are rather easily remedied if experience is shared...or at least written down into readable doses. Much of it is common sense practice that is too often overlooked by herpers seeking some more profound answer. In this spirit, I hereby offer some of my own observations.

Feeding problems are a common trouble in snake collections with a variety of common answers, ranging from temperature to the size of prey being offered. Sometimes it is a bit more tricky. Imported specimens of the ball python, Python regius, frequently give their new owners fits as they try to get them to eat mice or rats. However, in their native haunts these pythons prey heavily on rodents very similar to gerbils in size, color, odor and-- most significant of all, apparently--taste. Tried on gerbils, most ball pythons are easily fed.

An anaconda I once had went 11 months without feeding, it's health apparently good, it's temper as bad as always. Then, one day, it began to feed again, and has fed weekly ever since. Whatever its problem was, it must have been psychological for it worked it out on its own. Some snakes, particularly giant varieties, often fast without any easily identifiable reason or effect.

Wild caught adults of many species tend to make poor captives. Many large rattlers will accept only cottontail rabbits as food, and all do better with large hide boxes to feel safe and secure in. Even the notoriously difficult bushmaster, Lachesis muta, can thrive in captivity if it is given a place to hide in, kept in the 70's to simulate the cool conditions of the forest floor and is misted before feedings.

Choose hardy varieties to keep as captives, particularly in schools or if you're just beginning with herps. Tiger salamanders, Ambystoma tigrinum, rank high on the list of easy-to-keep herps. I have a trio in a glass-topped aquaria with three inches of mud in the bottom that are going on twelve years in captivity now! They will eat dog food (canned), worms, insects, raw liver, hamburger, and pinks. During times of extreme neglect due to world travel or other crisis they have endured nearly a month without food or notice.

Similarly, Tokay geckos, Gekko gecko, are hardy critters in the home or school. They bite, always, but they too will eat all of the above mentioned food items and live long, grouchy lives in captivity. A word of caution--during January or February most Tokays make loud, obscene sounding calls in the middle of the night that could wake the dead. Be prepared!

Certain snakes seem easier to keep than others...or at least kept more often. The ever popular Boa constrictor is among the most beautiful

and easily maintained of all snakes. Kept warm and well fed, boas make striking (pardon the pun) additions to a collection and I recommend them highly. However, small babies are often difficult to get through their first three or four months...for reasons unknown.

Experts, particularly in books, warn against the dangers of keeping venomous snakes. The dangers are real, and the consequences of an accident often severe. However, I do keep venomous varieties and many others do so as well\*. It is the responsibility of the owners to meet the requirements and obligations that come with keeping "hot" snakes. It is often said that venomous snakes do poorly in captivity and should be avoided, words of discouragement no doubt intended to steer herpers away from dangerous charges. Yet certain venomous varieties do amazingly well in captivity, better, in fact, than many harmless species. Cottonmouth water mocassins, Agkistrodon piscivorus, are among the hardiest of snakes, feeding and breeding very well in a cage. The same is true for African puff adders, Bitis arietens. Remember though, a mistake with either would cost you dearly.

Against my own personal rules, I once fed a pair of Gaboon vipers, Bitis gabonica, when no one else was in the building. When both snakes began to eat the same mouse, things got touchy. When misting with water and prodding with hooks failed to disengage the diners, it was necessary to get personally involved. Fortunately all three of us survived the meal but I shudder to think of the danger I put myself in. I have since rid myself of hungry Gaboons, but if my readers keep them, never try to work them in any way without another person around...for all the good he might do if you're bitten!

If you want to keep herps, and most of us do, keep only hardy ones if you're just getting into it or if the critters are to be maintained under stress situations such as in a classroom. Tiger salamanders, Tokay geckos, boa constrictors, bull snakes (Pituophis melanogaster), rat snakes (Elaphe), box turtles (Terrapene) and so on are your best bets. Don't start off trying to hand raise a hatchling scarlet king snake or anything.

And to the experienced herper: share your knowledge with others and ask questions of them. Surprising results may be gleaned from little bits and pieces of information.

Set up a program for managing your charges and stick to it. Never work poisonous reptiles or large constrictors alone. Try to simulate natural prey items for hard-to-feed species. Baby snakes may not take baby mice right off the bat...try them on a small lizard first, then pinks scented with lizards. If you keep hognose snakes (Heterodon), keep a supply of toads either alive or frozen for use throughout the year. Try scenting mice with a toad to expand their diet, too.

Provide hiding boxes or hollow logs for nervous or high strung species. In fact, all herps do better if given a place to feel secure and safe in.

Stay away from notoriously difficult species. Green iguanas, Iguana iguana, are beautiful and readily available, but these lizards require much room, a balanced diet and direct, natural sunlight or an artificial substitute (ultra violet radiation, not found in conventional light bulbs). Racers (Coluber) and coachwhips (Masticophis) do poorly. Small, delicate creatures such as cave salamanders, poison dart frogs (family Dendrobatidae), small snakes and many lizards should be avoided by the novice.

And remember, while it is nice to have animals you can handle, all

herps do better if handled as little as possible. If they bite, then so much the better. My boas, box turtles, Tokay geckos and even the tiger salamanders have all munched down on me from time to time. Among captives, tenacity is a virtue!

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\*EDITOR'S NOTE: I do not agree with the philosophy expressed in this article concerning keeping "hot" snakes in captivity. Based on my own professional experience with venomous snakes in zoos, in research labs, and in the field, I find absolutely no justification for private individuals maintaining dangerous animals. If you are bitten, that is your problem, but if one of your venomous snakes escapes and bites a neighbor, that is an entirely different matter. You have big trouble. Anyone with reasonable experience keeping snakes knows that sooner or later, every captive snake will escape, from any cage. A zoo or research lab will have an experienced staff trained to deal with this crisis, plus a building designed to contain the escapee. A private individual in a residential situation has neither. Keeping venomous snakes in a private home is, in my opinion, the height of folly, and stupid.

#### BOOK REVIEW

Dale, Floyd D. Forty Queensland Lizards. 1973. Publications of the Queensland Museum No. 8, 64 pages, illustrated.

For American readers used to all-encompassing regional field guides, this book may be a bit unusual. Notice its title, Forty Queensland Lizards, not Lizards of Queensland. Rather than confuse a general readership with the morphological intricacies (and leaden terminology) of subspecies and similar species, Dale chose to set forth simple accounts of about one-quarter of that state's saurians for introduction. Considering a lay audience, I find the approach refreshing.

Each lizard covered is described in simple language, with details of color, range and general biology. Each species account is accompanied by one or more pen-and-ink illustrations, usually a body view and head close-up. The illustrations are excellent, and may themselves justify the purchase of the book by any armchair naturalist. Drawn by Susan Hiley and Margaret Oakden, they are very life-like, especially the geckos. There is also a color portrait of a golden-tailed gecko, Diplodactylus taenicauda, on the cover.

As an introductory book, it is of course best suited to residents of Queensland. However, any herpetologist interested in the beasties of Down Under will enjoy it, both for its pleasant writing style and the drawings. Sadly, only the cover is in color.

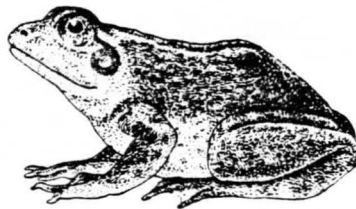
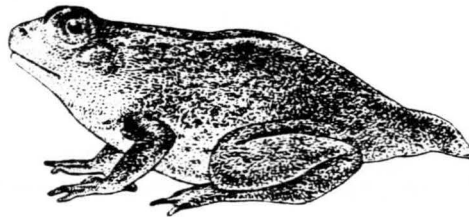
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A FINAL WORD FROM YOUR EDITOR...

As a few of you may have noticed, the last issue of KHS Newsletter was a tad late. My apologies. Part of the delay was on purpose, to make the shift from bulk rate to first class mail. Then I discovered at the last minute we were out of covers, the printer was very busy that week, one thing led to another, and it became a typical editor's headache. However, with first class mailing and a NEW IMPROVED computer production system in operation, the newsletter will (hopefully) arrive more promptly in the future.

My most humble apologies go to KHS President-Elect, long-term KHS Member, and Very Frequent Contributor of Artwork and Article, the inestimable Martin "Marty" Capron. Marty was the author of Cottonmouths in Kansas (KHS Newsletter No. 58, pages 9-11) in the last newsletter, and I inadvertently left his name off the article. Very sorry Marty!!! I won't let it happen again, honest.

Thanks for assistance with the last newsletter to Thomas Moore and Tim Noble, and especially Joe Collins for taking care of the many details involved in getting the covers printed.



"Though boys throw stones at frogs in sport, the frogs do not die in sport, but in earnest."

--Plutarch, 95 AD