

KANSAS HERPETOLOGICAL SOCIETY NEWSLETTER NO. 94

NOVEMBER 1993

ANNOUNCEMENTS

SCADS OF NEW BOOKS AVAILABLE

The most significant new tome for Kansas herpers is the revised third edition of KHS charter member Joe Collins' *Amphibians and Reptiles in Kansas*. At 397 pages and containing 103 black-and-white photos, one of the more important changes to this volume is full-color photographs (by KHS member Suzanne Collins) of 96 of the 97 species of herps found in the state. All species accounts and maps have been updated and, following the logic of the Evolutionary Species Concept, Collins has elevated five subspecies to species. This is the first state herpetofaunal book to adopt the Evolutionary Species Concept as a method to define taxa. Soft-bound copies list for \$19.95 and hard-bound versions are available for \$29.95. Order from the University Press of Kansas, 2501 West 15th Street, Lawrence, Kansas 66049-3904, or call (913) 864-4155. Kansas residents add 4.5 % sales tax.

The Australian Museum announces publication of an important new taxonomic work on pythons by Arnold Kluge. Based on cladistic evaluations, Kluge recognizes 24 species and eight genera of pythons (including a new genus) in *Aspidites and the Phylogeny of Pythonine Snakes*. Those working with pythons will surely want to have a copy of this work at hand. The book lists for \$A30 plus \$A6 postage and may be purchased by international money order, bank check, or VISA or MasterCard (include number and expiration date when ordering). Make checks payable to "Scientific Publications of the Australian Museum" and order from Australian Museum, 6 College Street, Sydney NSW 2000, Australia.

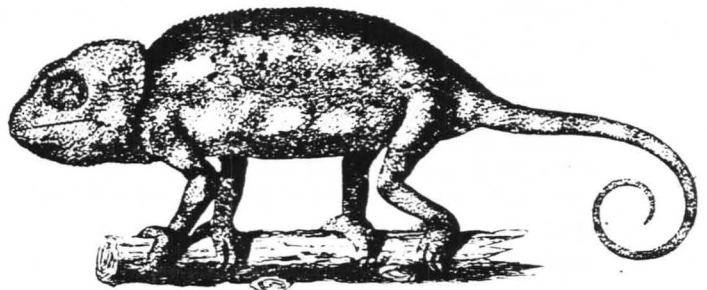
The Society for the Study of Amphibians and Reptiles announces publication of two new volumes, *Herpetology of China* by Er-mi Zhao and Kraig Adler and *Alligators in China* by A.-A. Fauvel. Covering 34 families, 164 genera, and 661 species, the first book (500 pages) summarizes current taxonomic status and distribution of China's herpetofauna, including mainland China, Macao, Hong Kong, Hainan, and Taiwan. The second volume is a facsimile reprint of the original description of the Chinese Alligator that was published privately in Shanghai in 1879 and covers 42 pages with three plates. *Herpetology of China* lists for \$60 + \$2 postage and *alligators in China* is available for \$6 postpaid. Send check or money order, payable to "SSAR" to Robert D. Aldridge, SSAR Publications Secretary, Department of Biology, St. Louis University, St. Louis, Missouri 63103. MasterCard and VISA will

also be accepted (include account number and expiration date) but a 6.1% bank charge will be added.

T.F.H. Publications, Inc. has just issued *Venomous Snakes of the World* by William P. Mara. This handsome 224-page volume is profusely illustrated with color photos enhanced by a new laminating process by T.F.H. called *Foto-finish*. Intended for a general audience, this book is worthwhile addition to your library. It may be ordered from T.F.H. Publications, Inc., 1 T.F.H. Plaza, Neptune City, New Jersey 07753 or through a local pet shop.

STATE AMPHIBIAN PROPOSED

Led by their teacher, Alice Potts, the second grade class of OK Elementary School in Wichita is mounting a campaign to have the Barred Tiger Salamander (*Ambystoma tigrinum mavortium*) recognized as the official State Amphibian (see resolution in KHS Business section of this Newsletter). They are modeling their efforts after the successful crusade of past KHS president Larry Miller and his students at Caldwell that led to the Ornate Box Turtle being recognized as the State Reptile. To finance their effort, the students are selling T-shirts and sweatshirts with the beautiful front cover illustration from the latest edition of *Amphibians and Reptiles in Kansas*. For more information on how to purchase these shirts, contact Alice Potts at 316 Laura, Wichita, Kansas 66211 or call (316)265-2223.



KHS BUSINESS

RESULTS OF THE TWENTIETH ANNIVERSARY MEETING OF THE KANSAS HERPETOLOGICAL SOCIETY

As expected, the 20th anniversary meeting of KHS was a resounding success. With 89 attendees present and held at Breukelman Hall on the beautiful Emporia State University campus on 6-7 November, a record 22 presentations were given on topics ranging from Indian amphibians to the early history of KHS. Keynote speaker Bob Powell from Avila College in Kansas City gave an enlightening talk on his research on lizard assemblages in the Dominican Republic. Other featured speakers were KHS Honorary Lifetime members Henry Fitch and Robert Clarke. The best received performance was a slide show with music prepared by Larry Miller, Suzanne Collins, and John Simmons. The show featured over 300 slides from the files of Larry, Suzanne, and Joe Collins and documented over 95% of all KHS field trips, annual meetings, and other events with which the Society has been involved during the past 20 years. It was a marvelous presentation.

The Annual Business Meeting of the Society addressed a significant number of issues. Proposed changes to the KHS Constitution (see KHS Newsletter 93) were unanimously approved by the membership. Please update your copies of the Constitution appropriately. In addition, the membership unanimously approved the following resolutions proposed by the KHS Executive Council:

KHS Resolution In Support of a State Amphibian

Be it hereby resolved that the Kansas Herpetological Society, a 200-member organization dedicated to conservation and education concerning amphibians and reptiles, on the occasion of the twentieth annual meeting in Emporia, Kansas, November 6, 1993 endorses the establishment of the Barred Tiger Salamander, *Ambystoma tigrinum mavortium*, as the State Amphibian of Kansas. The Barred Tiger Salamander, with its state-wide distribution, is an excellent representative of the state's amphibians.

We support the efforts of students of the OK Elementary School, 1607 North West Street, Wichita, Kansas, and particularly Alice Potts' second grade class, who have organized the statewide effort to designate the Barred Tiger Salamander as the State Amphibian. We congratulate them for running a constructive campaign, and hope they will soon carry this proposal to the State Legislature. We encourage the Legislature to grant the Barred Tiger Salamander status as the Official State Amphibian of Kansas.

KHS Resolution Opposing Rattlesnake Roundups in Kansas

Be it hereby resolved that the Kansas Herpetological Society, a 200-member organization dedicated to conservation and education concerning amphibians and reptiles, on the occasion of its twentieth annual meeting in Emporia, Kansas, November 6, 1993 reaffirms its opposition to "rattlesnake roundups". The KHS has been on record since 1974 as opposing events of this type because they are environmentally destructive, because of their cruel and inhumane treatment of snakes, because of the danger to participants and spectators from careless snake handling, and because they present attitudes toward wildlife that encourage its over-exploitation and destruction.

We also oppose the Kansas commercialization of Prairie Rattlesnakes (*Crotalus viridis*) enacted by Senate Bill 137 in 1993. Life history information suggests that commercial harvest cannot be sustained and generally indicate the opposite effect. Indeed, studies of the effects of the "roundups" on Western Diamond-back Rattlesnakes (*Crotalus atrox*) in Texas indicate significant long-term consequences for those populations. Thus, we recommend that the State of Kansas make funds available for continuous research to address what effects additional mortality will have on Kansas populations of Prairie Rattlesnakes, and to further investigate the biology of the species.

If "rattlesnake roundups" must occur, we encourage the Kansas Department of Wildlife and Parks to adopt conservative regulations regarding bag and possession limits, humane treatment of snakes, length and timing of season, minimum and maximum size limits, and area and extent of any such hunts. The KHS supports protection against commercialization of reptiles and other wildlife in Kansas, including KSA 32-1002, which makes it unlawful to take wildlife, including reptiles, for sale, exchange, or other commercial purposes, and KAR 115-20-2, which establishes a possession limit of five for reptile species.

Following the adoption of these resolutions, election of officers was held and David Reber was chosen as President-Elect and Karen Toepfer remained as Secretary/Treasurer.

Keeping with the special nature of this meeting, three outstanding KHS members were then recognized by the KHS Executive Council. Daren Riedle of Emporia State University was chosen as the first KHS Howard K. Gloyd/Edward H. Taylor Scholar and was presented with a certifi-

cate and a check for \$150. KHS members are encouraged to contribute to this scholarship fund and should so note on any monies or checks sent to Secretary/Treasurer Toepfer. Dr. Robert F. Clarke, emeritus professor of biology at Emporia State University, was then presented with an Honorary Lifetime Membership in recognition of his contributions to the herpetological profession and Kansas herpetology over a period of five decades. You're right, Bob; this means that you don't have pay dues anymore. The Society's highest honor, The Bronze Salamander, was then given to Martin B. Capron of Oxford. Marty was recognized for continuing and unselfish contributions to KHS over a period of nearly twenty years, in particular his artwork that has enhanced and improved the Newsletter and the donation of original works that have enlarged the KHS treasury at the annual auctions. The KHS Executive Council extends their sincerest appreciation and that of the Society to these three individuals.

The highlight of the meeting was the annual social and auction held on the evening of 6 November at Emporia State's Ross Natural History Reservation. For the first time, attendees were provided with a meal at a nominal cost. Following the food and suitable lubrication, auctioneer nonpareil Joe Collins kicked off the festivities at 7:30 p.m. Bidding was spirited (including a record \$205 bid for an original print by Marty Capron) and by the time the dust cleared and the kegs emptied at approximately 10:30, nearly \$1,400 had been added to the KHS coffers. This is the second highest amount ever raised at a KHS auction and all those who generously contributed are heartily thanked.

Following the Sunday morning paper session, President David Edds turned over the reins of the Society to President-Elect Al Volkmann and the meeting was adjourned at 12:30 p.m. Secretary/Treasurer Toepfer reported total income for the meeting from registrations, book sales, special 20th anniversary meeting T-shirts, membership renewals, and auction proceeds at nearly \$3,200, making the 20th Annual Meeting of the Kansas Herpetological Society the most financially successful in the Society's history. The quality of presentations and participants ensured that the meeting itself was the most enjoyable and successful in the Society's history. Here's to 20 more years!

KHS SPRING FIELD TRIP RESULTS

In a change from the norm, two KHS field trips were held this Spring. The first trip was held 24-25 April in the Cross Timbers region of Chautauqua County. Thirty-one trippers headquartered at Elgin, Kansas and covered the southern 1/5 of the county over the weekend and managed to observe 31 species and 212 individual amphibians and

reptiles. The highlight of the trip was the discovery of a large Timber Rattlesnake (*Crotalus horridus*) den. See J. T. Collins' annual report in this Newsletter for attendees and the species count.

The second KHS field trip was held on 5-6 June. On Saturday, KHS members participated with Bill Busby and the Kansas State Biological Survey on a herp survey of Fort Riley in the Macomb Hill area and Timber Creek area of the military reservation and conducted a short survey of Milford Lake on Sunday. The 37 participants observed 19 species and 414 individual amphibians and reptiles, demonstrating the typical abundance of Flint Hills herps. Again, Collins' annual report for participants and species counts (this time with the editor as co-author because of his close involvement with this year's endeavors plus the fact that he will assume responsibility for future reports). A particularly disturbing event was the discovery of large area of destroyed herp habitat in an area of Milford Lake on Sunday. This observation jibes with reports of illegal commercial herp collection in this area from last year. This destruction of habitat and probable illegal collecting activity has been forwarded to appropriate authorities with the Kansas Department of Wildlife and Parks and we hope they will keep a close watch on the area in years to come. To report events such as this call Outdoor Alert at 1(800)228-4263.

— EMR

WHIPPLE LEAVES FOR NEW HORIZONS

Longtime KHS Newsletter Associate Editor Jeff Stamplicker Whipple left the comfy environs of the University of Kansas in September to pursue new career possibilities at Portland, Oregon. Jeff willingly and capably handled some of the more odious tasks of the actual production and mailing of the Newsletter for many years and I personally will miss his assistance. I and the rest of the KHS Executive Council extend our heartfelt thanks to Jeff for his many years of service to KHS and wish him and his wife all the best in their new pursuits. KHS President-Elect Dave Reber has graciously agreed to serve as our new Associate Editor.

— EMR

TOEPFER CHOSEN FOR SSAR POST

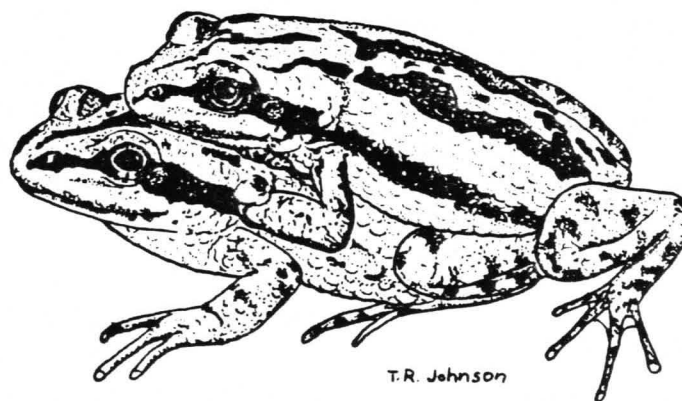
At the annual meeting of Society for the Study of Amphibians and Reptiles, KHS Secretary/Treasurer Karen Toepfer was chosen as the new Assistant Treasurer for SSAR. She will assume the Treasurer's position at the beginning of 1994. KHS congratulates Karen on this new professional achievement and wishes her godspeed and lots of Maalox for her new duties.

THE TRIPLE-H FOR 1993

An annual feature of the November issue of the KHS *Newsletter* for many years was an award presented by the Newsletter Editor. Originated by former Editor Jan Perry, this feature has been discontinued due to (fortunately) a dearth of suitable recipients. Events of this year necessitate its return.

It is with considerable displeasure and loud and explosive hisses that I hereby present the **Hopping Hemipenis of Horror** to all those empty-headed, anti-conservation legislators for the state of Kansas who voted for Senate Bill 137, infamously known as the Rattlesnake Roundup Law. For the first time in the history of Kansas, this unprecedented bill allowed the commercialization of a non-game species, the Prairie Rattlesnake, and circumvented the duly appointed wildlife authorities of this state. SB 137 is easily the most anti-conservation law ever passed in Kansas. As next year is an election year, it behooves all of us of voting age to remind these crypto-biologists of their transgression at the voting booth. So, with the intent of an angry *Nerodia* emptying the contents of its gastrointestinal tract on a tormenter and a loud cloacal pop, I send the 1993 Triple-H Award in the general direction of the state Legislature in Topeka. Come November, I hope you all get what you deserve.

— EMR



KHS BRINGS YOU GREAT NEWS OF THE WORLD

GUIDES HELP READERS GET TO KNOW KANSAS WILDLIFE

Zoos aren't the only places in Kansas to find bobcats, antelope, bald eagles, Painted Turtles, Horned Lizards or thousands of other animal species.

But when it comes to finding animals out in the wild, nature doesn't provide the maps, signs, and easy access that make observing animals in man-made habitats so convenient.

That's where recent works by local wildlife experts come in. Two new books promise to help people looking for wildlife in all the natural places.

[KHS members] Bob Gress and George Potts, both of Wichita, have written a guide of the 101 best sites for spotting Kansas animals. The book, entitled *Watching Kansas Wildlife*, features a "dynamic dozen" list of can't miss wildlife-observing spots, including Clinton Lake Reservoir. The book recently was published for the Kansas Department of Wildlife and Parks by the University Press of Kansas.

Potts said the reservoir made the list because it is home to a variety of wildflowers, songbirds, water birds, small mammals, amphibians, and reptiles. In addition, during certain times of the year, lucky visitors can catch a glimpse of the two bald eagles that have been nesting at the reservoir since 1989.

Wildlife watchers with an itch to travel can be assured the other 11 sites scattered across the state host a similar array of wildlife, Potts said.

"Between Bob and I (sic), those were our personal preferences," said Potts, a Friends University professor of biology. "We debated back and forth a bit, but basically those choices were based on variety of species, different viewing seasons of the year, and things like that."

The book has about a dozen people who helped provide information on sites across the state, one of whom is Lawrence High School biology teacher [and KHS charter member] Stan Roth.

Roth has been a contact person for various wildlife projects across the state for 20 years. Although he is a Lawrence resident, most of Roth's contributions to Potts' book were areas in western Kansas.

The reason for that, Roth said, is because he spends a lot of his time going to other regions for field study.

"Over the years as I've traveled around the state with students on these studies, I've reported to what I've described as experts about things I've seen or uncovered. Because I've done this, and sometimes even turned in specimens, my name has gotten around."

Although he prefers going west for his nature studies, Roth also sometimes takes his students to nearby areas for what he calls "swamp stomps." For example, he'll take a class out to Baker Wetlands [in southeast Lawrence] to look for things like crayfish, leeches, and aquatic plants.

"We'll search for all kinds of things, especially items that I might like to have for teaching class," he explained.

Another project Roth contributed to was Kansas University herpetologist [and another KHS charter member] Joe Collins' book, *Amphibians and Reptiles in Kansas*, published by the KU Museum of Natural History.

Although there have been two previous editions of the Collins' work, the latest version features a 12-page section of color photos shot by the author's wife [and KHS member], Suzanne Collins, to help readers better identify various species of amphibians and reptiles in Kansas.

When it comes to the types of animals being examined, Collins' book is narrower than the general scope of *Watching Kansas Wildlife*. However, Collins said Kansas was a great area for finding the kinds of wildlife featured [in his book].

"The best season is from mid-March to mid-June, with the peak coming in late April," he said. "If you can't find a reptile or amphibian in Kansas in late April, you're hurting."

Nation-wide, "herping" is growing in popularity, Collins said. Herping is the sport of finding, handling, and collecting information on amphibians and reptiles.

"The reason is because they're hands-on animals," he explained. "Birds are not, because you can't catch them. Mammals aren't, because they'll bite you. Fish aren't, because if you pull them out the water, they'll die."

"People are getting over that turn-of-the-century idea that reptiles are dangerous. If you want a dangerous animal, try picking up a squirrel."

— Lawrence Journal-World, 30 September 1993
(submitted by Richard M. Rundquist, Lawrence)

SNAKES CAN BE POTENT SYMBOLS

Do you hate snakes?

Many people find them abhorrent, but in the voodoo mythos that permeates the blues, they are symbols of power and potency.

The creatures turn up in many blues songs, from the creaky old "Crawlin' Kingsnake Blues" to Zachary Richard's recent offering, "Snake-Bite Love."

John Lee Hooker is credited with writing "Crawlin' Kingsnake Blues" several decades ago, although the song

probably is even older, dating perhaps to the earliest days of the blues.

"That symbol has been around for a long time," says Lindsay Shannon, host of the "Kansas City Blues Show" on radio station KCFX-FM. "And it has a double meaning, with both voodoo and sexual associations."

In Hooker's song, which has been performed by many other artists as well, the singer assumes the identity of a slithery creature who takes exactly what he wants:

*You know I'm a crawlin' kingsnake.
I rule my den.
I'm gonna crawl up to your window.
I'm gonna crawl up to your door.
If you got anything I want,
Gonna crawl up on your floor,
'Cause I'm a crawlin' kingsnake
And I rule my den.*

The phallic symbolism is obvious but underneath it is the implication of the male being endowed with magical powers that enable him to dominate his prey, the female.

Sexist? sure, Repulsive? Perhaps. But undeniably powerful

—Kansas City Star, 31 October 1993
(submitted by E. Halloween, Batesville, Kansas)

STUDENTS, TEACHER RATTLED BY SNAKE NEST AT SCHOOL

Calling off school because of heavy snow is common in rural Haakon County [South Dakota]. But canceling classes because of heavy snakes?

It started when a girl reaching for her shoes in the school's cloakroom came face to face with a full-grown rattlesnake. Some older boys at the school beat the snake to death with baseball bats, a shovel, and a broom.

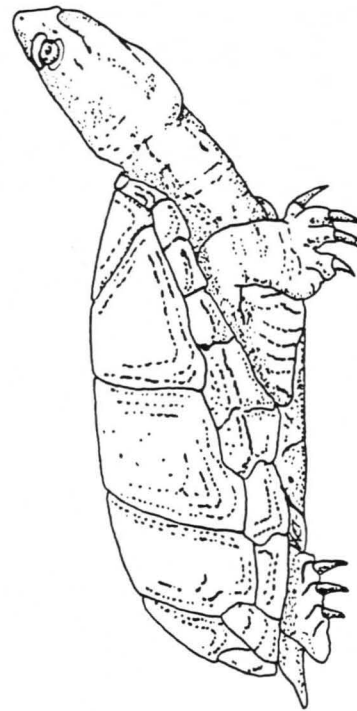
"They are really brave little guys, they really are," said Janis Mathis, in her first year teaching at the remote prairie school.

Forgetting a science test for the time being, the boys went to the schoolyard and killed four more rattlers. No snakebites were reported.

The experience Monday left Mathis and parents rattled. They called off classes Tuesday and dug up a sidewalk in front of the school with a backhoe to find more than 30 Bullsnares, rattlesnakes, and snake eggs.

An experienced snake hunter is scouring the school grounds this weekend, a school official said.

—Topeka Capital-Journal, 25 September 1993
(submitted by Jim Gubanyi, Topeka)



FEATURE ARTICLES

RESULTS OF THE FIFTH KANSAS HERP COUNT HELD DURING APRIL-JUNE 1993

JOSEPH T. COLLINS AND ERIC M. RUNDQUIST
Museum of Natural History—Dyche Hall
University of Kansas
Lawrence, Kansas 66045-2454

The fifth series of KHS-sponsored Kansas Herp Counts, a controlled census of amphibians and reptiles held annually by many Kansas herpetologists, normally during the months of April and May, took place in 1993. A total of 17 counts were conducted this year and are reported herein, demonstrating various approaches to censusing amphibians and reptiles. Two counts that were sponsored by the Society and held in early June are included, but such late counts are discouraged and will not be listed in the future. Common names are those standardized by Collins (1990).

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 Ellis County, 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 as 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.

Barber County Herp Count

Ann Bradley and Eric Rundquist conducted a herp count on the Alexander Ranch, Sun City on 1 May 1993 from 11:50 am to 1:00 pm. The count method consisted of turning flat limestone rock along canyon ridges. The weather conditions were overcast skies with intermittent showers and a high temperature of 61°F. The verifier was Eric Rundquist.

Collared Lizard	1
Great Plains Skink	1
Lined Snake	3
Night Snake	2

Total

4 species 7 specimens

Harper County Herp Count

On 1 May 1993 from 3:00 P.M.–4:30 pm., Eric Rundquist and Ann Bradley conducted a road count in Harper County on St. rt. 42. The count method consisted of observed specimens on the road and stopping to listen for amphibians. Weather conditions were as for the Barber County herp count of the same day.

Western Chorus Frog	8
Spotted Chorus Frog	1
Bullsnake	1

Total

3 species 10 specimens

Verifier was Eric Rundquist.

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
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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, and Matt Monda. Verifier was Ken Brunson.

Cherokee County Herp Count

On 17 May from 7:50 am to 12:45 pm., Eric Rundquist and Alan Volkmann conducted a herp count at the junction of the Spring River and U.S. rt. 9 and at Schermerhorn Cave and Park. The count method consisted of turning available cover and visual sightings.

Longtail Salamander	6
Cave Salamander	8
Grotto Salamander	4
American Toad	300 larvae
Southern Leopard Frog	3
Bullfrog	3
Common Snapping Turtle	1
Five-lined Skink	2
Worm Snake	1

Total

9 species 329 specimens

The verifier was Alan Volkmann.

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
Ground Skink	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

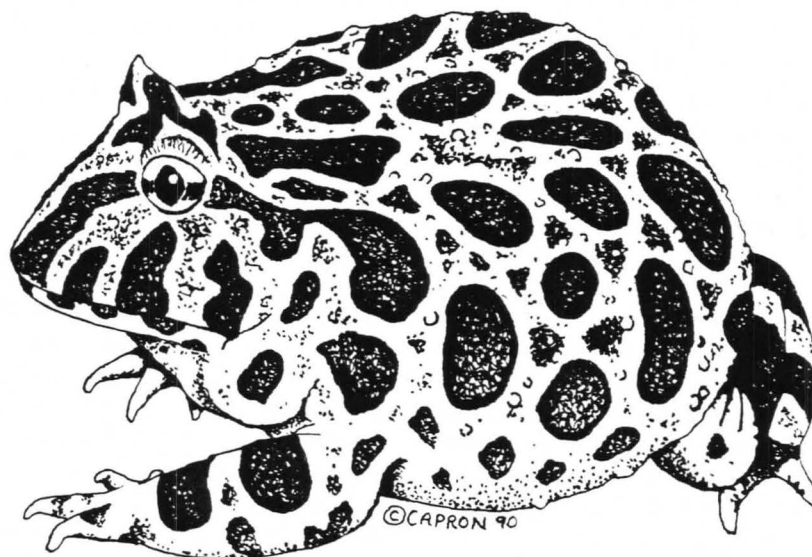
Participants were Randall S. Reiserer and Troy D. Smith.
Verifier was Randall S. Reiserer.

GRAND TOTAL OF 17 COUNTS HELD STATEWIDE IN 1992

51 species 1,730 specimens.

Literature Cited

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PRESENTATION AT THE 20TH ANNIVERSARY MEETING

A 20-YEAR RETROSPECTIVE OF THE KANSAS HERPETOLOGICAL SOCIETY: PAST, PRESENT, AND FUTURE

Eric M Rundquist
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To paraphrase Garrison Keillor of *A Prairie Home Companion*, it has not been a quiet year in the Rundquist household. In August, I "retired" from the zoo business. Shortly after that, Ann and I moved to Lawrence. In September, we were married. And now, here we are for the twentieth anniversary meeting of the Kansas Herpetological Society. If someone had told me ten years ago that all these events would happen within the period of a little over two months at some point in my life, I would have probably told them they were crazy or started looking for a nice secluded island somewhere in the South Pacific.

At any rate, all these singular events have caused me to consider the significant happenings in my life and today I would like to share with you my thoughts and observations on the one I of which I am the most proud professionally, the formation of and continuing existence of the Kansas Herpetological Society.

Although KHS officially came into existence in May of 1974, its genesis actually started quite a number of years before then. The face of Kansas herpetology began to change significantly in 1968 with the arrival at the Division of Herpetology of the Museum of Natural History at the University of Kansas of a young man from Cincinnati, Ohio. He was a rather unique looking character, with a Lincoln chin beard, a longish flap of hair that attempted to cover a balding pate, heavy black-framed glasses, and intense, determined blue eyes behind those frames. I speak of none other than Joe Collins, who was then called Tom.

At approximately the same time, two other young herpetologists from back East also arrived on the KU campus. One was Ray Ashton, who shared a common Cincinnati background and friendship with Joe. The other was George Pisani, with Bronx, New York roots and an association and friendship with both Joe and Ray via their work with the Ohio Herpetological Society, which had just become the international Society for the Study of Amphibians and Reptiles (SSAR). The arrival of these three men signalled the revival of active field herpetology in the state of Kansas. Although Henry Fitch and Dwight Platt had been conducting localized studies of the state's herpetofauna, with the exception of Bob Clarke's studies at Kansas State Teachers College in Emporia little work had been done on the rest of the state's amphibians and reptiles

for over ten years and no meaningful studies had been conducted on the distribution of the state's herpetofauna since the publication of Hobart Smith's second edition of *The Amphibians and Reptiles of Kansas* in 1956. Perhaps another exception to this situation was the efforts of Stan Roth and his students at Lawrence High School. Stan had a considerable interest in herps and actively promoted their study both in the classroom and in the field. Stan conducted numerous field trips throughout the state during the '60s and those students with an interest in herpetology were encouraged to explore that interest to as large an extent as possible. I was one of those students.

It was through my association with Stan Roth that I met Joe Collins in 1968. Joe had come to Stan looking for advice as to good areas to herp in the state and Stan suggested that I, along with some friends that I had conned into accompanying me on forays in search of creepy crawlies, show Joe promising herping spots that we had discovered in the area. These friends included Chet Schmitendorf, Gale Willey, Mike Niemoeller, and Bert Fisher. Although none of these friends are currently active in herpetology, they played a part in what was to become KHS by their discovery of certain choice collecting sites that piqued Joe's interest.

At this time, besides the beginning field studies of Joe Collins and my association with him, George Pisani and Ray Ashton began their field work in the state. A young woman from Oklahoma, Jan Caldwell, arrived at KU in the early 1970s to study amphibians under the guidance of Bill Duellman. She soon also took an interest in the state's herpetofauna and began field work of her own. After so many years of neglect, it was exciting for me to see these people take an active interest in our herpetofauna, which I knew to be unique and challenging and with considerable gaps of knowledge to be filled.

In the fall of 1969, I began college at Kansas State Teacher's College, which is now Emporia State University, where we are gathered today. I there met Dr. Robert F. Clarke and another odd fellow with red hair and a beard, Wally Boles, son of Robert Boles, another KSTC biology faculty member. Although Wally's particular interest was birds and mine was herps, we both shared a deep love for biological field work and soon became fast friends. We

spent many a happy day together pillaging and plundering all that was turnable in the Flint Hills and other areas of the state.

In the early 1970s, the field work of Collins, Ashton, Pisani, Caldwell, Roth and his students, and that of Boles and myself showed that Kansas was an exciting place to do herpetology and that a considerable amount of work remained to be done. The environmental movement was just beginning then and we suspected that a great amount of damage had been done to Kansas' natural resources, especially amphibians and reptiles. The Kansas Academy of Science formed a committee of biologists to attempt to determine which species in the state were threatened or endangered. Dwight Platt was chosen to head the committee and asked Joe Collins and Ray Ashton to serve with him on the subcommittee for amphibians and reptiles. A number of environmental action groups were formed at high schools and on college campuses throughout the state. I was elected president of Environmental Alert at Emporia, and although I have to admit that I was a lousy president, it did give me some insights on the formation of and running of such organizations.

It was around this time, perhaps as early as 1972, that Joe Collins and I began to discuss forming a herpetological society for Kansas. We believed that, with the revival of interest in the state's herpetofauna and the burgeoning environmental movement, that the time was right to form a group to address these interests and needs. The first issues we discussed were how, when, and where to form the group. As to how, it was evident that a base of potential supporters be identified and enlisted. In addition, we had to have a formal framework for the group's organization. In regards to the former, we attempted to identify those people in the state with past and current interests and work on the state's amphibians and reptiles. These people included Dr. Clarke, Dr. Fitch, Stan Roth, the core group at KU previously mentioned, and others who evinced knowledge of and interest in Kansas herpetology. We began to informally approach and contact these people to discern their interest in forming a state herpetological group. As to the framework, specifically a potential constitution, Joe solved that problem when he told me that the constitution for SSAR had never been copyrighted and was therefore available as a base legal document that could be used in the formation of other herpetological societies. He gave me a copy of that document for future reference.

Where and when to form the society were problematical. We both felt that Lawrence and the University of Kansas were the logical sites to establish the group, given the rich tradition of supporting herpetological studies at KU, in particular the work of Edward Taylor, Hobart Smith, Henry Fitch, and of late, the efforts of Bill Duellman that had established the herpetological collection at KU as one of the world's most preeminent. We both believed that

the support of an institution such as KU's Museum of Natural History would be critical to the success of our proposed group, in that our beginning capital would be minimal and such expenses as copying and mailing for a society newsletter could be crippling without some outside support. It was decided that Joe would make overtures to Philip Humphrey, director of the museum, to enlist his support, both verbal and physical, in the formation and operation of a state herpetological society. At this point, we could do little until Dr. Humphrey indicated that he was willing to extend the museum's support to such a group.

In the fall of 1973, Joe told me that Dr. Humphrey was willing and able to assist a tadpole society such as the one we proposed to form. Although I felt that Joe was the logical person to form an ad hoc constitution committee, he declined that offer, as he preferred to act in an advisory role initially. In short, he would take care of the critical background affairs while I put together a group to hammer out a constitution.

The following people agreed to serve on the Ad Hoc Constitution Committee for the proposed Kansas Herpetological Society: Mary Dawson, Al Kamb, Richard Plumlee, Robert Sprackland, Stan Roth, with myself presiding. Although all of these people were residents of Lawrence, their backgrounds were somewhat varied. Mary was originally from Hutchinson and was employed at the Topeka Zoo. Al worked at the Invertebrate Paleontology Museum at KU. Dick was an avid herper from Shawnee. Bob, a student at KU, came from New Jersey. Stan's record speaks for itself. This variety was intentional as Joe and I both believed that diversity would be key to the organization's establishment and survival.

Over the next several months, this committee met sporadically and worked out the details of our proposed constitution, using the SSAR Constitution as our base and model. By the spring of 1974, we had a document that we agreed was viable and let Joe know that we were ready to hold an organizational meeting. Dr. Humphrey agreed to let us use the Museum's main auditorium for such a meeting. We decided to hold the meeting on 18 May 1974 and anyone we could think of with an interest in Kansas herpetology was notified of the date and time of the meeting. The KHS egg was about to be hatched.

The formative meeting was held at 1:30 P.M. at the Museum with 30 people attending from the following cities: Kansas City, Topeka, Lawrence, and Emporia. Distinguished guests included the late Drs. Edward Taylor and Theodore Eaton, Dr. Henry and Mrs. Virginia Fitch, and Dr. Philip Humphrey. The proposed constitution was presented to those assembled and was unanimously approved. Joe Collins then presented a slate of officers for the society and they were also unanimously elected. I was elected president, George Pisani was chosen as president-elect, Mary Dawson was named treasurer, and Richard Lattis

became the new secretary. The egg had hatched and the neonate had emerged.

After appointing a program committee of Marc Thiry, Jan Perry, and Kris Sperry and giving the committee a charge to arrange future meetings and to find out what our membership wanted from their new group, the meeting was adjourned at approximately 3:30 p.m. The Kansas Herpetological Society was a real, by-God organization.

One of the first orders of business for the new KHS was to begin publishing a newsletter. Joe Collins agreed to be and was appointed newsletter editor forthwith. A bi-monthly schedule of publication was agreed on. The first KHS Newsletter was published in June, 1974. In that issue was a survey form for members to complete and return to the Executive Council. The survey asked what the members wanted from us and what they wanted the Society to be initially. We were delighted to see that their responses followed our own thoughts on what the Society should be and stand for. In short, these responses showed that the membership wanted a field-active group involved with conservation and education efforts to conserve and protect the state's herpetological resources. Within a few months of the formation of the new society, Collins' book, *Amphibians and Reptiles in Kansas* (1974), appeared and provided a baseline for many future KHS activities and projects. Using the survey responses as our guide and mandate, the Executive Council set out to address these goals and accomplish them in an orderly fashion. I am happy to say that virtually every single one of these initial goals has been met and most were accomplished within the first few years of the Society's life.

That, friends, is a look at the very beginnings of the Kansas Herpetological Society. At this point, I want to take a look at what the Society has accomplished, where we are now, and where we might be headed in the future.

Tracing back to the invasion of the Great Plains by the earliest Americans, those who occupy the territory now called Kansas have had a reputation for being innovative in surviving the rigors that these sometimes harsh prairies inflict upon its occupants and for showing others the right paths to follow. The Kansas Herpetological Society has continued this rich tradition.

KHS was the first regional society to co-sponsor a publication with the professional Society for the Study of Amphibians and Reptiles, an event which happened within the first year of our group's existence. Many other regional herpetological groups have subsequently followed suit. We were the first to demonstrate that a beneficial relationship between professional and so-called amateur herpetologists could be established and maintained.

In 1977, we were hosts for and participants in the first Regional Herpetological Society Conference held in conjunction with the annual meetings of the Herpetologist's League and SSAR.

Mainly as result of KHS field activities and those of its members, Kansas now has the best known distribution of its herps than any other state in the nation. Although a few distributional problems remain to be solved, no other state can place with as much certainty as Kansas where its amphibians and reptiles live. This information is critical to the effective conservation of these creatures in that one has to know *where* they live before one can discover *how* they live and *what* they do. Because of this wealth of distributional data, Kansas has had and continues to have a significant leg up on other states in past and future battles to protect our herpetological resources. All of you can take great pride in that accomplishment and in leading the way for other state herpetologies.

Another singular event in which KHS was a significant participant was the successful effort in 1985 and 1986 of past KHS president Larry Miller and his students at Caldwell to have the ornate box turtle (*Terrapene ornata*) designated the official state reptile for Kansas. The KHS Executive Council heartily endorsed this action, granted funds to Larry and students to help their effort, and urged all KHS members to support them in their attempt. Although Larry provided the seed of the idea and his students did the actual work with the state legislature, it is my belief that the official KHS support and the support of its members helped persuade the legislature to make this state designation.

In 1989, KHS established statewide Herp Counts, population censuses for amphibians and reptiles. We were the first regional society to do so. Ironically, this was one of the first goals set for the society as a result of our initial survey and one of the last to be accomplished. This was so because, as stated, we really had to know where our species occurred before we could effectively discover their population characteristics. It is interesting to note that these herp counts preceded by nearly two years the recent alarm over declining amphibian populations and the subsequent establishment of international monitoring efforts for those creatures. Once again, KHS has been at the forefront of herpetological conservation.

In 1991, KHS became the first regional herpetological society to participate in a statewide amphibian population census. The data gathered by participants in this survey are forwarded to a central, international database for continuing monitoring. I am happy to say that Kansas amphibians, for the most part, appear to be in good shape at this time. However, should that scenario change, we have a mechanism in place to discern those changes and in which to transmit that information to the appropriate agencies and field workers. Although four other regional societies are now participating in this effort, KHS was the first and continues to set the pace.

This year, KHS established another milestone for regional groups with the publication of Ed Taylor's Mas-

ters thesis, *The Lizards of Kansas* (of which, by the way, I hope all of you buy at least two copies of this rare volume). With this publication, KHS once again led the way by proving that regional societies can be important sources for rare historical or regional herpetological works that may be beyond the purview of larger professional organizations but which nonetheless contain valuable information for all herpetologists. These publications can also be significant fundraisers for smaller groups, an important consideration these days in the intense competition for dollars to protect our natural resources.

Also this year, KHS established the Howard K. Gloyd/Edward H. Taylor student scholarship for a deserving KHS member or student herpetologist in Kansas. Although I am aware of other regional societies that award grants for herpetological research, as far as I know we are the only regional organization to award a student scholarship. To award grants, one must have scholars and KHS has a significant interest in developing and promoting our own scholars in the traditions of those two great Kansan herpetologists.

Although KHS has had many other firsts in its past, I believe that the previous examples are the most significant in the development of this group and its high standing in the realm of regional herpetological societies. It is because of such initiatives and accomplishments that one of the herpetological community's most respected members remarked to me last year that it was his assessment that the Kansas Herpetological Society is one of the top five regional groups in the country. I had to disagree with him. I believe we are the best group in the country but I am obviously biased. At any rate, with 96 currently active regional herpetological organizations in this country that represent some 48,000 people, the fact remains that KHS occupies the highest echelons of that elite group.

So, where are we now? I believe the previous observations should give you a good idea of where KHS stands at this time. The only significant event that I would add has been the advent of a rattlesnake roundup in the state within the last year. Although some in the KHS hierarchy had always considered that there was a possibility that such an event could happen here, we considered that possibility remote. Obviously it was not as remote as thought and is now a reality with which we must deal. And deal with it we have.

Unlike other groups in states with established roundups, we have been somewhat fortunate in that we have had the opportunity to try to negate the effects of this event from nearly its inception. I believe that we have made some headway and especially because of the efforts of individual KHS members and the KHS Executive Council.

Some of the initiatives that have been taken have included notifying the organizers of this event prior to its actual happening of the official KHS stance on rattlesnake

roundups and an offer to work with them if the event could be structured in a non-destructive, educational manner (as those of you who have read the *Newsletter* in the past year know, this offer was rejected emphatically). Consequently, contacts were made with the Kansas Department of Wildlife and Parks to advise them that they had a responsibility to protect all of Kansas' wildlife under then existing law and regulation. KDWP responded admirably and much to the discomfort of the roundup organizers.

At this juncture, the roundup organizers raised the stakes considerably. They enlisted the aid of a very powerful member of the Kansas legislature who successfully pushed through a bill that circumvented the vested wildlife authorities of this state and allowed the organizers to proceed with whatever kind of roundup they wished to conduct. This bill is unprecedented in the history of wildlife conservation in Kansas. Politics have superceded wildlife once again.

KHS actively campaigned against the bill's passage but, as you know, our initial efforts were for naught. The matter now rests with the Department of Wildlife and Parks and more specifically with the Wildlife and Parks Commission, which decides how laws such as this will be regulated.

Since May, KHS members have attended every Commission meeting to recommend that the Commission base their regulation of this event on sound wildlife management and biological principles. President David Edds deserves particular commendation as he has attended the lion's share of these meetings at considerable personal expense and time. He has effectively represented the Society's concerns and has been instrumental in blocking the efforts of certain unscrupulous individuals to pass anti-rattlesnake regulations. He, along with a number of other KHS members, have succeeded in getting the Commission to view our position favorably and I believe that the Commission will eventually adopt our recommendations. At this time, this is the best we can get out of a bad situation.

This rattlesnake roundup mess has proven to me that KHS is an effective and important member of the wildlife conservation community of this state. We have and are fulfilling our constitutional charter "to encourage conservation of wildlife in general and of amphibians and reptiles in Kansas in particular."

Where do we go from here? Having no particular sway with the metaphysical forces of this life, that is impossible for me to say. I can say this, though. It is my firm belief that the Kansas Herpetological Society will continue to be an innovative leader for other regional herpetological societies. We will continue to establish a standard of excellence approached but unsurpassed by any. We will continue to be an effective force to conserve those creatures we most love. We will grow and we will prosper. In short, our future is as bright as the stars in the heavens on a May prairie night.

I have a few last remarks on a personal note. When we

first founded KHS, I had no idea whether or not we would survive for two years, much less twenty. My association with this group over those years has been the source of some of my deepest satisfaction and greatest happiness. Many of my closest friends have come from that association. KHS has given me the opportunity to discover and rediscover the incredible beauty and diversity that can be found in this state. It has given me the opportunity to confirm and reconfirm my belief in the great personal character of the people of Kansas. If I do nothing else in my life, the accomplishment of which I will always be the most proud is that I was a member of the Kansas Herpetological Society. I thank all of you for all the past memories and the adventures to come.

ACKNOWLEDGEMENTS

I would like to thank Joe Collins and Larry Miller for their help and guidance in providing certain key details that had escaped my memory. Their advice added significantly to the content of this presentation. Any other errors of omission and commission are strictly my own.

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RATTLESNAKE ROUNDUPS IN GEORGIA: AN ENVIRONMENTAL TRAVESTY

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The Eastern Diamondback Rattlesnake (*Crotalus adamanteus*) is the largest and arguably the most dynamic venomous serpent inhabiting the North American continent. For nearly three decades, there have been organized efforts to drive this species to extinction, ostensibly for the public welfare. The money made in the process has increased participation and ruthlessness to the point of serious concern. Were it done with some rational management and humane restraint, the it would perhaps be less reprehensible than the present activities and events called "rattlesnake roundups."

For nearly two decades, these activities have drawn widespread public concern regarding their environmental impact and possible consequences to populations of the Eastern Diamondback and other wildlife species associated with the sand ridge ecological community of the southeastern U.S. As more is learned about the popular methods of capture, the total annual catch, encroachment and degradation of habitat, and the potential value of venom for biomedical applications and research, this concern can be expected to increase.

Animal venoms have not yet and may never be synthesized. The only source for these complex proteins will probably always be the living animal. Appropriate management of wild populations of venomous animals combined with captive management and propagation offer the best long-term retention of this valuable natural resource.

Rattlesnake roundups take place annually in Georgia. They have centered around the communities of Whigham, Albany, Claxton, Fitzgerald, and Lumber City, and are responsible for the removal of up to 1,000 sexually mature Eastern Diamondbacks from the wild per year (Lawler 1976). The events take place from late January to March.

Few snakes are actually collected on the weekends of the events. Snake hunters begin their activities as early as September and continue into March. Due to the encouragement of sponsoring organizations and the cash incentives offered, the number of participants in this dubious sport has steadily increased. Collection of snakes occurs throughout the region. While most of the snakes sold to the roundups are of Georgia origin, increasing numbers are brought from Florida, Alabama, and South Carolina.

The standard collecting technique was originally devised as a rattlesnake control measure in Florida (Allen 1961). It involves the use of a long section of flexible

plastic hose which is worked into burrows constructed by the Gopher Tortoise (*Gopherus polyphemus*). The hose is then used as a listening device to detect the presence of animals in the burrow. Nearly 100 animal species, about half of them vertebrates, have been recorded to use these burrows as a temporary or permanent refuge. They include such herpetozoans as the Gopher Frog (*Rana areolata*, *R. capito*), Southern Pine Snake (*Pituophis melanoleucus mugitus*), Eastern Coachwhip (*Masticophis f. flagellum*), Ratsnakes (*Elaphe guttata*, *E. obsoleta*), the threatened Indigo Snake (*Drymarchon corais couperi*), Cottonmouth (*Agkistrodon piscivorus*), Timber Rattlesnake (*Crotalus horridus*), and the Eastern Diamondback Rattlesnake (*Crotalus adamanteus*) (Lawler 1977). While some hunters can distinguish the sounds of some of the burrow commensals, most can only determine if the burrow is occupied. If a rattlesnake is detected, and often if any sound is heard, a quantity of gasoline is poured into the hose and blown into the burrow. The amount varies from as little as a teaspoon to much more. The activities have no rules and any judgement exercised is left to the individual participant. The noxious fumes sometimes force the burrow occupant to the surface. Many experienced hunters claim to fumigate only those burrows in which a rattlesnake is detected. However, novice hunters readily acknowledge gassing every burrow they find in order to conduct a thorough search. Until the late 1970s, this technique was clearly illegal by Georgia Fish and Game Law 45-207, which stated that it shall be unlawful "to disturb, mutilate, or destroy the den, holes, or homes of any wild animals; to blind with lights, or the use of explosives, chemicals, or mechanical devices or smokers of any kind in order to drive such wildlife out of said habitats." Public denouncement of this method of collecting resulted in defensive maneuvers by roundup spokesmen, who stated that they were "trying to get away from using gasoline." Their alternatives included ammonia and cigar smoke, also illegal under the stated law. The promoters finally dealt with this legal question through their state legislators who revised the statute (Georgia Game and Fish Law 27-1-30), exempting activities involving poisonous snakes (Pisani 1987). It should be noted that, while this law was in effect, out-of-state commercial intrepeneurs purchasing roundup snakes and transporting them to Florida, South Carolina, and other destinations were presumably in violation of the U.S.

Lacey Act. This act prohibits interstate transport of wildlife taken in violation of the laws of the state or country of origin.

The percentage of rattlesnakes exiting gassed burrows is unknown. Many do not. Those remaining must be dug out in order to be collected. Digging a tortoise burrow is hard work. While experienced snake hunters may do so, most find it easier to move on [to] the next burrow hoping that another snake will be more cooperative.

Because the tortoise burrows provide regular or occasional refuge for a variety of vertebrates, this fumigation method undoubtedly affects other animals. No one knows the frequency with which other animals are gassed along with the Eastern Diamondback, but arthropods, amphibians, other reptiles, and mammals often coexist with a rattlesnake in the same burrow. Speake and Mount (1973) conducted experiments to determine the effects of gassing on several reptiles associated with tortoise burrows. Forty-one tortoises were gassed in their burrows and recovered by excavation after exposure from six hours to 42 days. None died or showed adverse effects from the gas fumes during the test period. Colubrid snakes did not fare as well. Three Eastern Indigo Snakes and two Southern Pine Snakes were confined overnight in separate tortoise burrows and gassed with two ounces of gasoline. All came to the screen-covered burrow entrances within 35 minutes. Two of the snakes died within 24 days. Twelve of 14 Eastern Diamondbacks subjected to experimental gassing with amounts ranging from 0.25 to 5 ounces or less of gasoline appeared to be unaffected, but failed to exit their burrows. There is evidence that some of the snakes gassed and left behind remain in the burrows to die (Dan Speake pers. comm.). These data, while preliminary, support the contention that use of gasoline as a fumigant is not only harmful to nontarget species, but [is] also of limited effectiveness for the designated purpose. The complete wildlife assemblage present in any given burrow cannot be determined short of excavation. Therefore, proof should be shown that fumigation is not harmful to the complex of wildlife associated with these subterranean refuges.

Not all rattlesnake hunters use chemicals or smoke. An increasing number claim to hunt their snakes on warm days when the animals emerge to bask in winter sun at temperatures above 7-10°C. Several hunters have demonstrated considerable proficiency using this method, and one took first prize for the most snakes caught at the 1976 Claxton roundup. Another individual who disclaimed chemical methods sold 37 *C. adamanteus* at the 1977 Claxton gala. Some hunters claim to have discarded gassing due to its relative inefficiency. Since a high percentage of gassed burrows must be excavated or bypassed, and since snakes can be found outside under the right conditions, inhumane and environmentally destructive methods are simply not necessary.

For years, herpetologists and naturalists have located *C. adamanteus* by studying the animals' habits, activity periods, and preferred habitats. If collection is appropriate, the animal can be carefully lifted into a container, or backed into a bag, using its defensive behavior to capture it in a gentle manner. Pinning for capture purposes is not only dangerous, but also potentially harmful to the snake.

Modification of collecting techniques is most urgent roundup issue from an environmental standpoint since abolishment is presently unrealistic.

The snakes are housed in lard buckets, garbage cans, specially constructed boxes, and other containers prior to the roundups. Water is rarely provided and desiccated specimens are always evident. Traumatic conditions of capture and frequent harassment by hunters and onlookers preclude acceptance of food by the snake, even if it were offered.

The roundup events are gala affairs, complete with parades, rattlesnake queens, country music, politicians, and regional crafts. Early morning snake hunts are staged for the visitors and led by local "sportsmen," usually to a nearby tortoise colony where a burrow has been stocked with a diamondback.

Snake hunters register their catch as they arrive. Promoters weight the snakes and dump them into temporary screen pens. All snakes are bought and sold by the pound. Additional cash prizes are awarded for the largest and most snakes brought in.

Operatives from commercial tourist enterprises, mainly in Florida, are contracted to stage milking demonstrations, pit shows, and lectures of dubious educational value. They subsequently purchase the snakes for venom production, skins, and other tourist artifacts.

Unmitigated cruelty is common at Georgia roundups. The snakes are regularly thrown, dumped, jabbed, or dropped. Ignorant cruelty is difficult to tolerate, but deliberate viciousness is not a hallmark of a civilized people. At the Fitzgerald roundup in 1977, a rigged snake hook was filmed. The device incorporated a sharpened barb pointing outward and welded in the crook of a standard snake hook. The only possible purpose of this nefarious implement was to deliberately puncture and injure snakes handled with it.

Some participants seem to view the roundups as a sort of insidious revenge on the rattlesnake. I have talked with numerous individuals who became agitated and hostile at the suggestion of some consideration for the snakes. Even the tortoise has occasionally been victimized by this insensitivity. Promoters at Whigham in 1976 expressed surprise at our concern for an "old gopher" whose shell had been crushed by careless excavation.

Negative education is a serious side effect of these spectacles. Many roundup visitors have never seen a rattlesnake except under such demeaning conditions. They may assume that the countryside is crawling with rattlesnakes,

since so many are seen accumulated at one time. Exaggeration of the temperament and dangerous nature of rattlesnakes is commonly overheard in conversations and impromptu lectures by local "experts."

Most participants honestly believe their activities are altruistic. The sponsors are mainly concerned with the revenue and publicity. The worthiness of the projects funded by the events is not questioned. However, other Georgia communities have economically successful festivals focusing on agricultural commodities, history, or regional culture. Rattlesnake hunters are motivated primarily by a misguided sense of adventure.

The "country fair" atmosphere seems more interesting than the snake to many of the visitors. Some possess a deep-rooted hatred for the Diamondback, sometimes based on the loss of a dog, or in rare instances, a human bite [sic]. An uncompromising extermination attitude prevails over much of the region. This goal may have been achieved to some degree. Many snake hunters acknowledge the increasing scarcity of *C. adamanteus* in some areas, despite the numbers present at roundups. Long, region-wide collecting seasons apparently account for the annual yield. In spite of this pressure, *C. adamanteus* does not appear to be threatened as a species at this time.

This notwithstanding, exception must be taken to any practice encouraging the extermination of a wildlife species, particularly one as ecologically important as the rattlesnake.

There is no indication that roundups affected the incidence of human snakebite one way or the other. Georgia has averaged fewer than two snakebite deaths per year since 1960.

The common argument that venom collected from roundups is used in the production of antivenin and for medical research is tenuous at best. William Haast, former director of the Miami Serpentarium, which supplied Wyeth Laboratories with all the venom used in the preparation of Wyeth Crotalidae-Polyvalent antivenin stated that he never bought any snakes from any roundup in Georgia (pers. comm.). He did acknowledge one past purchase of forty *C. adamanteus* from the Opp, Alabama roundup, specifically citing the poor condition of those snakes. He further stated that he has never purchased venom or *C. adamanteus* from commercial tourist attractions. Therefore, the claim that Georgia roundup venom is used in the preparation of antivenin can be disputed.

Georgia roundup venom has found its way into some biomedical research projects around the country. Dr. Carlos Bonilla at Colorado State University, who conducted such a project, was contacted. He responded with a condemnation of roundups as a source of venom for research. He further indicated a desire to seek an alternative source of venom for his work, if it were available.

Crotalus adamanteus is potentially a valuable natural

resource. That value may increase substantially as biomedical applications emerge from current venom research. Therefore, commercial exploitation of this and other venomous animal species should take place under sound management principles. Alternatives to the wasteful and unregulated exploitation now occurring in Georgia are feasible and should be initiated.

Contrary to popular belief, most *C. adamanteus* collected in a non-chemical manner and maintained under conditions which minimize stress, will feed voluntarily and live for years in captivity. Long-term, sustained venom collection is possible from an established colony. This approach reduces the need to regularly collect large numbers of snakes for venom production. The United States Army Venom Research Laboratory at Fort Knox, Kentucky was successful for many years in using this approach. Venom was collected bi-weekly and the snakes were kept on a voluntary feeding schedule. They were induced to bite into a diaphragm covering the collection glass, and venom was delivered without the necessity of gland-stripping, or "milking" (Pat Burchfield pers. comm.). Elimination of this stress factor alone undoubtedly contributed to the longevity of specimens. Milking is routinely demonstrated at the Georgia roundups by both entrepreneurs and local "experts." Rough handling is common among those who ultimately purchase the snakes from promoters. The devaluing capture and maintenance methods employed by most hunters encourage a "disposable" attitude toward the snakes by all involved.

Another possible alternative lies in the "rotation" of rattlesnakes used for venom extraction. Personnel from Biotoxins, Inc. in St. Cloud, Florida collect *C. adamanteus* for this purpose. Specimens languishing in captivity are released in remote habitats where they may later be recaptured for extended use (Louis Porras pers. comm.). This practice bears the risk of introducing diseases from captivity into wild populations.

What can be done to bring about abolishment or modification of rattlesnake roundups in Georgia and other states? "Politics" preclude abolishment in Georgia. Therefore, recommendations for appropriate modification offer the best approach for progress. In 1977, the Atlanta Zoological Park and the Georgia Conservancy, Inc. urged that appropriate state agencies and sponsoring communities take the following steps:

1. IMMEDIATE VOLUNTARY AND ENFORCED COMPLIANCE WITH STATE LAW AND SPORTSMAN'S ETHICS WITH REGARD TO RATTLESNAKE COLLECTING METHODS

If rattlesnake hunting is deemed sport, then it should incorporate the same ethics of sportsmanship and fair play recognized in hunting of other wildlife species. Such compliance would relieve roundup pressures on

non-target wildlife, and would interject true skill into popularized rattlesnake hunting.

2. ESTABLISHMENT OF GAME STATUS FOR THE EASTERN DIAMONDBACK RATTLESNAKE

Any wildlife exploited to this extent should receive practical and rational management by the Georgia Department of Natural Resources. Such management would recognize the present and future economic and biomedical value of this natural resource.

3. INSTRUCTION OF ROUNDUP SPONSORS AND PARTICIPANTS IN PROPER METHODS OF CATCHING, MAINTAINING, AND HANDLING RATTLESNAKES

It is apparent that most of them are not so informed. Such education would increase the commercial value of the animals. Ungassed and less traumatized snakes have increased longevity potential and therefore increased venom yield. Better capture, maintenance, and handling techniques would improve the quality and quantity of fresh venom for research.

4. FRESH DRINKING WATER SHOULD BE AVAILABLE TO ALL SNAKES PRIOR TO AND DURING ROUNDUPS.

5. EDUCATIONAL LECTURES AND OTHER PRESENTATIONS AT ROUNDUPS SHOULD ACKNOWLEDGE THE VALUABLE ROLE WHICH RATTLESNAKES PLAY AS A PREDATOR IN THE FOOD CHAIN OF THEIR ECOSYSTEMS.

6. AWARDS FOR "MOST SNAKES" AND "LARGEST SNAKE" SHOULD BE ELIMINATED.

Such cash incentives encourage enterprising collectors to seek more remote habitats where collection for public safety reasons is not justified. These habitats, and those on public lands, should be valued as natural reservoirs for this and other wildlife species.

7. EXCESSIVE HANDLING AND MANIPULATION OF DIAMONDBACKS FOR DEMONSTRATION IS UNNECESSARY AND DANGEROUS.

Such abuse reduces the value of the animal, and encourages a "slaughterhouse" mentality. These activities are more often perpetrated by persons seeking personal attention than for legitimate educational purposes. One mounted rattlesnake head with fangs erect would serve the same illustrative purpose that dozens of exhibitionists attempt with living snakes.

These recommendations are still valid and should be reiterated.

More recently, the Society for the Study of Amphibians and Reptiles approved a resolution at the 1987 Annual Meeting petitioning the Georgia Department of Natural

Resources to remove the exemption allowing Gopher Tortoise burrows to be gassed during rattlesnake hunts (Pisani 1987). This petition deserves the support of every enlightened citizen.

The phenomenon of rattlesnake roundups distresses those who understand the importance of the affected organisms to the ecosystems in which they occur. Those sensitive to overt cruelty practiced upon living creatures are similarly alarmed and outraged. We can only hope that, with time, such reactionary overkill will yield to rational perception, increased appreciation, and sound management of these magnificent creatures.

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