



**22nd Annual Meeting**

**November 4-5** (1995)

**University of Kansas**

**Lawrence, KS**

Saturday, November 4, 1995  
Woodruff Auditorium, Kansas Union  
University of Kansas, Lawrence

8:30 AM Registration, Coffee

9:30 AM Welcome/Announcements

9:45 AM LAND USE AND THE BIODIVERSITY OF FROGS IN SELECTED BREEDING SITES IN SOUTHEAST KANSAS.

Lewis Anderson and Joseph A. Arruda, Ph.D.

Dept. of Biology, Pittsburg State University, Pittsburg, KS 66762

Amphibian populations are thought to be declining on a global scale. The causes for the declines are probably numerous and their effects may be synergistic. Water quality is of concern since anurans spend at least one phase of their lives in the water. Land use can influence the quality of water in anuran breeding pools. The objective of this project is to examine the biodiversity of frogs and toads in selected breeding sites from different land use areas in southeast Kansas. Eight sites were selected; two relatively un-impacted sites (control), two mined area sites, and four agricultural sites. Sampling started on 13 March 1995 with visual and aural counts of adult anurans. Tadpole density was estimated quantitatively and tadpoles were scanned for malformations. When found, eggs of non- threatened and non-endangered species were collected, brought back to the laboratory and incubated in water collected from the site. After hatching, the tadpoles were fixed and scanned for malformations. Each site was sampled approximately twice per month for a total of seven samples per site ending on 30 June 1995. Tadpoles were sampled at each site twice during July 1995. Initial data analysis indicates that overall, the control sites have greater species richness, more individuals, higher tadpole density, lower percentage of tadpoles with malformations in the field, lower percentage of tadpoles with malformations from eggs incubated in the laboratory, and the highest percentage of tadpoles hatching successfully in the laboratory. The agricultural sites ranked second in all the aforementioned areas and the mined sites ranked third in all of these areas.

10:00 AM THE AMPHIBIANS AND REPTILES OF READING WOODS NATURAL AREA.

Daren Riedle and Kurt Grimm

Division of Biological Sciences, Emporia State University, Emporia, KS 66801

Reading Woods Natural Area is a 16 hectare tract owned by Emporia State University, located in north-east Lyon County and represents the western edge of the eastern deciduous forest in east-central Kansas. The focus of this project was to determine what species of amphibians and reptiles occur in the natural area. The authors along with numerous volunteers conducted 10 searches between the spring of 1993 and 1994 resulting in 32 person-hours of effort. A search consisted of walking through the area and rock flipping. Each search had a time limit of one hour. Fifteen species and 258 individuals were observed.

10:15 AM A SUMMARY OF THE 1995 KHS FIELD TRIPS  
Larry Miller, Chair, KHS Field Trips.

10:30 AM BREAK

10:45 AM A REPORT ON A SAMPLE OF PRAIRIE RATTLESNAKES (CROTALUS VIRIDIS) TAKEN AT THE WALLACE COUNTY RATTLESNAKE ROUNDUP.  
Dr. Henry S. Fitch, Professor Emeritus  
University of Kansas, Lawrence, KS 66044

At the Sharon Springs roundup, 12-14 May our team examined 200 prairie rattlers and the sample contained 131 males and 69 females. Of the latter 59 were adults and 51 were gravid with a mean clutch size of 10.67+/-0.51. Of adult snakes about 40% were third year first breeders, and less than 10% were extra large adults that might have been ten years old or older. To prevent elimination or depletion of prairie rattlers by the roundups, release of all gravid females from the roundup harvest is recommended.

11:00 AM COOPERATIVE EFFORTS IN MEETING CONSERVATION GOALS.  
Karen S. Graham  
Sedgwick County Zoo, Wichita, KS 67212

The Sedgwick County Zoo and the Kansas Herpetological Society share common mission statements which encompass conservation, education, and research of organisms. These goals are noble but complex, and in a world experiencing increasing environmental damage, the need to prioritize, implement, and complete projects is urgent. Greater interaction between SCZ's herpetology department and KHS could enhance the efforts of both institutions. An update of SCZ's projects will be given and a call for input will be made.

11:15 AM BREAK FOR GROUP PHOTO/LIVE EXHIBIT OPEN, RM 320 DYCHE

LUNCH (ON YOUR OWN)

1:00 PM AMPHIBIANS AND REPTILES OF BAKER UNIVERSITY WETLANDS,  
DOUGLAS COUNTY, KANSAS.  
Calvin Cink  
Baker University, Baldwin, KS 66006

1:15 PM BUSINESS MEETING/ELECTION OF OFFICERS

1:45 PM BREAK

2:00 PM

### KEYNOTE ADDRESS

#### DECLINE OF THE TIMBER RATTLESNAKE IN NEBRASKA

John Lokke

University of Nebraska at Omaha, Omaha, NE 68182

The timber rattlesnake, Crotalus horridus, is the largest species of rattlesnake found over most of eastern North America, and it is the only rattlesnake occurring in many of these areas. Timber rattlesnakes are found in the midwest, inhabiting the narrow fingers of deciduous forests that follow major rivers onto the prairies. The timber rattlesnake is a long lived reptile with a low reproductive effort and occurs in small populations of low numbers of individual animals. These factors, plus a high fidelity to specific den sites, make the timber rattlesnake especially vulnerable to human predation. In Nebraska, the timber rattlesnake was known historically from wooded habitats south of the Platte River, and in a few rough, remote areas along the southern border of the state. John Lokke is a working artist, a full time student in the College of Fine Arts, and an avid amateur herpetologist. His herpetological interests have focused on the Midwestern species, and in particular, rarer snakes known to Nebraska. John has been searching for timber rattlesnakes in southeastern Nebraska since 1981. These searches indicate that the timber rattlesnake is now very rare and/or extirpated over most of the Nebraska range outlined above. In the course of carrying out these searches, the artist gathered several recollections and memories of timber rattlesnakes told to him by older residents of southeastern Nebraska, many of whom have since passed away. These recollections, along with known, documented records, and several of the artist's discoveries have been brought together in a ten part illustrated narrative, executed in a Regionalist style, to tell the dark, intriguing story of the decline of the timber rattlesnake.

3:00 PM

#### HERPETOLOGICAL MICROBIOGEOGRAPHY OF KANSAS

Kirk Reichard\*, Todd Duncan\*\*, Dr. Hobart M. Smith\*, and Dr. David Chiszar\*\*\*  
Departments of EPO Biology\*, Geography\*\* and Psychology\*\*\*  
University of Colorado, Boulder, CO 80309

We have constructed lists for each county in Kansas of the herp species definitely known to occur there and of the herp species not yet known but probably present. The latter lists admittedly involve some educated guesswork, and our conservative judgments are based on habitat and climatological factors and proximity between the known ranges of each species and the counties under analysis. Hence, our lists can be used to guide field workers who are interested in the discovery of range extensions (i.e., county records). How many of these remain to be found in Kansas? Our estimate is 1,121, a number that might shock some Kansas herpetologists. Our presentation will explain this number, and we will show that certain mathematical regularities exist within current knowledge of the herpetological microbiogeography of Kansas.

3:15 PM

#### FREE-FOR-ALL SLIDE SHOW

Show us your ten best.

4:00 PM

#### HERP PHOTOGRAPHY WORKSHOP - LIVE HERP EXHIBIT, RM 320, DYCHE HALL NATURAL HISTORY MUSEUM.

Joe and Suzanne Collins

University of Kansas, Lawrence.

7:30 PM

#### BENEFIT AUCTION AND SOCIAL BIG EIGHT ROOM, KANSAS UNION

Joe Collins, auctioneer

Sunday, November 5, 1995  
Woodruff Auditorium, Kansas Union  
University of Kansas, Lawrence

8:30 AM COFFEE/DONUTS

9:30 AM AN EXPERIMENT WITH ARTIFICIAL SHELTERS FOR SNAKES

Jeffrey R. Parmelee and Dr. Henry S. Fitch

Natural History Museum and Department of Systematics and Ecology

University of Kansas, Lawrence, KS 66045

Reptiles and amphibians frequently take shelter beneath cover objects. Adding artificial cover objects to the environment, especially where natural cover is scarce, can provide a useful method for determining species composition and abundance. Artificial shelters have proved to be productive for surveying snakes in northeastern Kansas. Other studies also report success using this technique, but lack of success is rarely published, and some studies have expended considerable effort for a small return using artificial shelters. We placed a battery of 156 artificial shelters, wooden and metal in pairs, in grassland and checked them 55 times (8580 shelter checks) from 13 April to 24 October 1994. A total of 108 reptiles and five amphibians, including eight species of snakes, two species of lizards, one species of turtle, and three species of frogs were recorded. Shelters that had been in place seven years yielded numbers of snakes similar to those of newly placed shelters. Old shelters produced 12.4 percent more records than new shelters on prepared substrates (vegetation removed). Shelters of corrugated sheet metal yielded 12.4 percent more records than wooden shelters of the same size and shape. Trends differed significantly between the five relatively large rodent-eating snakes and the three diminutive species that feed on invertebrates. In the former group, old shelters were favored (where we also encountered more small mammals), whereas the diminutive species preferred the new shelters.

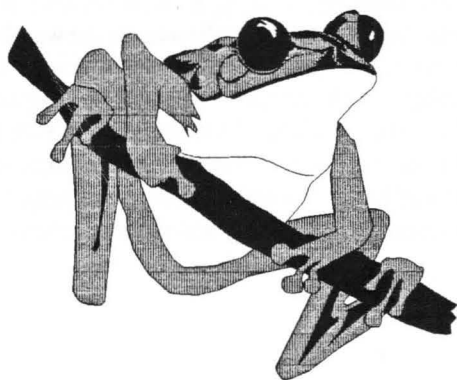
9:45 AM ESTROGEN EFFECTS ON THE REPRODUCTIVE PHYSIOLOGY AND REPRODUCTIVE ENDOCRINOLOGY OF THE PLAINS LEOPARD FROG (RANA BLAIRI) AND THE NORTHERN LEOPARD FROG (RANA PIPIENS).

Kembra L. Howdeshell

Division of Biological Sciences, Emporia State University, Emporia, KS 66801

Amphibian populations are experiencing a worldwide decline. Researchers are exploring the possibility that environmental estrogens, such as pesticides and industrial detergents, released into amphibians' habitat are interfering with the endocrine system and thus compromising the reproductive capabilities of amphibians. This study focuses on the effects of long-term, low dosages of estrogen upon the reproductive physiology and endocrinology of the leopard frog. Thirty plains leopard frogs (Rana blairi) and thirty northern leopard frogs (Rana pipiens) were injected with low doses of estrogen for 6 weeks. Upon completion of treatments, data was collected on the weight of the liver, fat bodies, and reproductive organs of each animal. Sperm motility was assessed in fresh specimens and one testis was fixed for histological study. Sex hormones levels will be analyzed from blood samples. Blood samples will also be tested for the presence of vitellogenin, a yolk-protein normally only produced by females upon stimulus of estrogen. Preliminary findings indicate statistically significant decreases in the testes weight and fat body weight of the plains leopard frogs, although sperm motility appears unaffected. This research is ongoing and current results will be shared during the presentation.

- 10:00 AM BREAK
- 10:15 AM MORPHOLOGY AND FEEDING ECOLOGY OF THE RED-BACKED SALAMANDER.  
Anne M. Maglia  
Natural History Museum and Department of Systematics and Ecology, University of Kansas, Lawrence, KS 66045
- Many studies have shown that morphological variation among populations or species is related to differences in ecology or behavior, but few of these studies have actually compared morphological variation with resource use (Losos, 1990). To determine if variation in diet relates to variation in body size, and if growth is associated with dietary changes, I conducted a study of three populations of the red-backed salamander (Plethodon cinereus). My results show that there was little difference in the diets of juvenile, subadult, and adult Plethodon cinereus. Also, there was no apparent relationship between head size and prey size in larger salamanders. The presence of a relationship between head size and prey size in juveniles suggests that the prey used by small individuals is limited by their body size. However, juvenile red-backed salamanders have relatively broad heads compared to adults, indicating an ontogenetic change in head shape. I hypothesize that this head shape is attained by a developmental shift that results in post-embryonic salamanders having broader heads. This enables hatchlings to utilize a wide range of prey - broad head shape in juveniles is a mechanism for generalized feeding. I also propose a model in which terrestrial salamanders may exhibit a combination of changes in the proportions of head width to head length and changes in prey use.
- 10:30 AM KANSAS DEPARTMENT OF WILDLIFE & PARKS - THE CONSERVATION NETWORK.  
Chris Mammoliti  
Kansas Department of Wildlife & Parks, Pratt KS
- 10:45 AM HERPETOFAUNAL HABITAT RELATIONS ON CLEARCUT AND SELECTIVELY HARVESTED FOREST STANDS IN THE OUACHITA MOUNTAINS IN ARKANSAS.  
Doyle Crosswhite, Stanley Fox, and Ronald Thill  
University of Oklahoma, Stillwater, OK
- 11:00 AM OPEN FORUM - KHS CONSERVATION AND EDUCATION INITIATIVES
- 11:30 AM CLOSING ANNOUNCEMENTS, ADJOURNMENT



Have a  
Safe Trip Home!