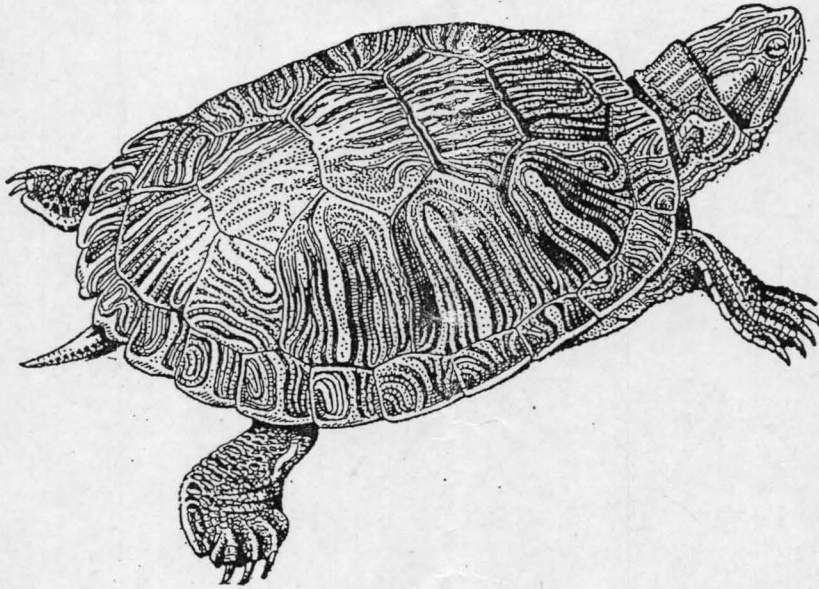


**KANSAS
HERPETOLOGICAL
SOCIETY**



20TH ANNUAL MEETING

NOVEMBER 6-7, 1993

EMPORIA STATE UNIVERSITY

EMPORIA, KANSAS

Saturday November 6, 1993

8:00 REGISTRATION

9:00 WELCOME
Carl Prophet, Chair
Division of Biological Sciences
Emporia State University

9:15 AMPHIBIANS AND REPTILES OF MONTGOMERY COUNTY, KANSAS
Daren Riedle
Division of Biological Sciences
Emporia State University, Emporia, KS 66801

Fifty-three species of amphibians and reptiles are known to occur in Montgomery County, Kansas. In August 1993, a specimen of Timber Rattlesnake (Crotalus horridus) was captured west of Independence, bringing the count to 54. Based on observations I have made in Montgomery County over the last 16 years, I will discuss where to find what species, and which species are rare or common there. I will also briefly document the addition of the Timber Rattlesnake to the county's herp list.

9:30 SNAKE BITE
Brad Lichtenhan
705 Baptiste Drive, Paola, KS 66071

Snake bite is not a common problem among the general public, however in herpetology circles it becomes much more prominent. Unfortunately, the medical profession is sometimes little educated in the treatment of snake bite, and there are many inappropriate treatments available. This talk is designed to give the herpetologist the beginning basics of snake bite treatment so that if and when an accident ever should occur he/she will be prepared to participate in his/her own treatment.

9:45 AN AMPHIBIAN ASSEMBLAGE IN A CHANGING AGRICULTURAL ECOSYSTEM IN RURAL ORISSA, INDIA
Dwight Platt
Bethel College, North Newton, KS 67117

From February 1955 to October 1957, Platt studied the frog and toad populations near the village of Barpali in Sambalpur District (now Bargarh District), Orissa, India. Twelve species in the families Bufonidae, Microhylidae, Rhachophoridae and Ranidae were observed, including one undescribed ranid species and one bufonid not otherwise known from the state of Orissa. In addition to a collection of 170 specimens, data on abundance, periodicity of activity, reproduction, behavior, growth and food were recorded. The land around Barpali had been deforested for

more than 100 years and was mostly under cultivation or heavily grazed. The climate is seasonal monsoon with an average 148 cm (58 inches) of annual rainfall. Most of the rain occurred from mid-June to October, the season in which rice fields were flooded and the annual crop of rice grown.

In July 1993 Platt returned to Orissa to plan with Dash and to make arrangements for a new study to be implemented in 1994. Many changes have occurred in Barpali since 1957, including changes in agricultural practice. Of great significance is the supply of irrigation water from Hirakud Reservoir which makes possible the growing of two rice crops a year. During two weeks in Barpali, Platt observed 11 of the 12 anurans previously studied. The anuran populations will be restudied in 1994 to determine if the ecology of this assemblage of species has changed in this changing agricultural environment. Study sites comparable to those used earlier were selected around barpali village. In the 1994 study, sites will also be studied near the village of Barangpali (which does not receive irrigation water) and in the Ushakoti Wildlife Preserve (forested area less modified by agriculture) for comparison with the Barpali study sites.

10:00 TIMBER RATTLESNAKES OF THE UPPER MISSISSIPPI
RIVER VALLEY

Barney Oldfield¹ and Dan Keyler²

¹PO Box 273, Goodhue, MN 55027

²16601 Blenheim Way, Minnetonka, MN 55345

From 1982 until present, field surveys of the Timber Rattlesnake (Crotalus horridus) have been conducted along the Upper Mississippi River valley in western Wisconsin and southeastern Minnesota. In excess of 300 Crotalus horridus were observed and various phenological and biological data were collected. Emergence begins in late April or early May, and return to dens occurs in mid-September. Adult males range in length from 106 to 135 cm SBR (snout to base of rattle), while females are 90 to 112 cm SBR. Females become reproductive at 6 to 8 years of age, and they generally give birth every three years to a litter of 7 to 10 in late August or early September. Historical accounts from this region reported dens with populations in excess of 100. Present field work failed to verify the existence of large dens, but showed average size to be 5 to 15 snakes. Persistent human predation along with habitat encroachment have substantially reduced and fragmented populations. Several states have enacted protective legislation for this declining species. Protection should be considered in Wisconsin and Minnesota. The Timber Rattlesnake is a unique wilderness species of the UMRS and should be provided the opportunity for sustained survival.

10:15 DISTRIBUTION AND ABUNDANCE OF SNAKES IN KANSAS
Henry S. Fitch
2060 East 1600 Road, Lawrence, KS 66044-9460

Surveys by KHS and local studies by Ball (1992), Irwin and Collins (1987), Platt, and Fitch (ms), have accumulated 44 regional samples of the Kansas herpetofauna with more than 33,000 records of 34 species of snakes. Nine physiographic subdivisions of Kansas are compared as to kinds and numbers of snakes; in 5 of these Diadophis punctatus is the most prevalent, outnumbering all others combined. Coluber constrictor, Thamnophis sirtalis, Pituophis catenifer and Nerodia sipedon also widespread and numerous. Thamnophis radix, Elaphe emoryi, Heterodon nasicus, Agkistrodon contortrix, Nerodia rhombifera, Crotalus viridis and Lampropeltis triangulum are less prevalent but also well represented. Elaphe obsoleta, Arizona, Masticophis, Lampropeltis calligaster, L. getulus, Nerodia erythrogaster, Crotalus horridus and Sistrurus are uncommon or limited in distribution. Rhinocheilus, Thamnophis proximus, T. marcianus, Hypsiglena, Virginia valeriae and Opheodrys are generally rare. Diminutive fossorial and/or secretive species, including (besides Diadophis) Carphophis vermis, Sonora semiannulata, Storeria dekayi, Tantilla gracilis, T. nigriceps, and Tropidoclonion lineatum, all predators on invertebrates, attain much higher densities than do the larger snakes.

10:30 BREAK

11:00 KEYNOTE ADDRESS

CHASING LIZARDS IN THE DOMINICAN REPUBLIC
Robert Powell
Department of Natural and Allied Health Sciences and
Mathematics
Avila College, 11901 Wornall Road, Kansas City, MO
64145-1698

The Dominican Republic occupies the eastern two-thirds of the island of Hispaniola, the second largest of the Greater Antilles (next to Cuba). Numerous relief features result in a complex of varied biomes, from deserts to cloud forests, and support the greatest herpetological diversity of any island bordering the Caribbean. Since 1986 I have been investigating community structure and niche partitioning among Hispaniolan lizards. After an introduction to reptiles and amphibians from throughout the island, I will discuss the range expansion by an anoline species introduced from Cuba in the early 1950's, examine the distribution of the lizards on an archipelago of small satellite islands of the north coast, and provide insights into the structure of three lizard communities from habitats altered to varying degrees by human activities.

12:00 LUNCH (On your own)

1:00 KHS BUSINESS MEETING

2:00 HERPS OF SAN SALVADOR, BAHAMAS
Robert F. Clarke
2331 Arrowhead Drive, Emporia, KS 66801

San Salvador is the eastern-most of the Bahamian islands; it is the site of the first landfall of Columbus in the New World. This presentation describes the reptiles and amphibians of this tiny, tropical island, infrequently visited by herpetologists. The habits and habitats of the 8 known species are briefly described, as well as a look at the island itself, it's history, and some of it's interesting physical, floral, and faunal characteristics. Also, an explanation of how you can join a group going to San Salvador in December.

2:30 RAMBLINGS OF A MADMAN
Marty Capron
RR #1, Box 59 Oxford, KS 67119

A look back at 20 years of KHS, including what it has and hasn't been. Plus, a look ahead at what the society could and couldn't, should and shouldn't be.

2:45 MY MEMORIES OF THE KANSAS HERPETOLOGICAL SOCIETY or
TURTLE DIVING
David Grow
Department of Herpetology, Oklahoma City Zoo
Oklahoma City, OK

The author will reveal some to the lesser known facets of the personalities of early important contributors to the formation of the Kansas Herpetological Society. Dates will be approximate and names will not be changed to protect the guilty.

3:00 A 20-YEAR RETROSPECTIVE OF THE KANSAS HERPETOLOGICAL
SOCIETY: PAST, PRESENT, AND FUTURE
Eric M. Rundquist
1705 Haskell
Lawrence, KS 66044

A not-so-brief account of the origins and formation of the Kansas Herpetological Society will be given, along with comments on the current status of the society and some considerations on the potential future of the group.

3:15 BREAK

3:30 TWENTY YEARS (More or Less) OF KANSAS HERPETOLOGY
(circa 1974-1993)
Larry Miller¹ and Suzanne Collins²
¹3635 S.W. Devon Ave., Topeka, KS 66611-2361
³1502 Medinah Circle, Lawrence, KS 66047

A slide program featuring the people, events, accomplishments, and the animals that have been a part of the Kansas Herpetological Society since its beginning 20 years ago. The more than 300 slides were edited from over 1000 color and black & white photographs taken during the past 20 years by more than a dozen photographers. Over 200 different people appear in the presentation. Over 95% or all KHS field trips, annual meetings, and other events the Society has been involved with during the past two decades are represented.

Credits: Visual programming and editing by Larry Miller, Suzanne Wineland, Joseph T. Collins, and Suzanne Collins. Audio programming courtesy of Barking Frog Productions. Thanks to Musica del Mundo Sound Archive. Special thanks to Andrea Fleener for "Joy to the World", to those who provided photographs, and most of all to each and every herper featured in the program.

4:15 ADJOURN

5:00 RECONVENE AT ROSS NATURAL HISTORY RESERVATION FOR
SOCIAL, FREE-FOR-ALL SLIDE SHOW, AND OPTIONAL DINNER

7:30 ANNUAL BENEFIT AUCTION
(Featuring Joseph T. Collins, Auctioneer)

Sunday November 7, 1993

8:30 COFFEE

9:00 IMPORTANT NEW DISTRIBUTIONAL RECORDS OF AMPHIBIANS AND REPTILES IN SOUTHEAST NEBRASKA, AND THEIR IMPORTANCE TO NORTHEAST KANSAS
John Lokke
P.O. Box 76, U. N. O.
Omaha, NE 68182

In recent years, a few members of the Nebraska Herpetological Society have been obtaining important distributional records for amphibians and reptiles from the southeast corner of Nebraska. In several cases, no records for these species are known from across the border in adjacent northeast Kansas. Brown, Doniphan, and Nemaha counties are lacking many records, several of which include species new or recently extended in range for southeast Nebraska. Some exciting examples include the Plains Spadefoot Toad (Spea bombifrons); Northern Prairie Skink (Eumeces septentrionalis); Timber Rattlesnake (Crotalus horridus); Fox Snake (Elaphe vulpina), and several others. In the case of the Fox Snake, finding this reptile in northeast Kansas would be a state record, not just a fill in. My presentation will highlight these records, stressing their relevance to northeast Kansas, while providing KHS members with the requisite motivation to arrange a field trip to the aforementioned counties in the "Nebulous Northeast" of Kansas. To put it another way, you can wallow in the relative comfort of the Flint Hills, secrete yourself safely away in the Smoky Hill River Valley or you can take a little risk on something different and make serious contributions to our knowledge of Kansas herpetofauna.

9:15 HERPING IN WESTERN NEBRASKA
Judy Schnell and Warren Voorhees
Western Nebraska Community College
1601 East 27th Street
Scottsbluff, NE 69361

The herpetological fauna in western Nebraska is quite similar to fauna found in Kansas. During this presentation we will introduce this fauna and expand on the type distinct to our region. Additionally, a discussion of the research we have completed and what research we are hoping to get funded for the summer of 1994 will be presented. Description of the areas we have worked in and the areas planned for work in the summer of 1994 will be presented. Slides for all species we have incurred plus some we hope to acquire will also be introduced. We will also submit a list of county records we have achieved during this study along with a list of county records we hope to achieve. An introduction to some of the best herping sites for western

Nebraska will be shown and the species of herps we have come in contact with during our outings. These areas include Scottsbluff Monument, Buffalo Creek and wildcat Hills. We will include some unusual photographs which we have taken at Buffalo Creek, including a pair of bullsnakes mating.

9:30 COMPARISON OF RATTLING FREQUENCY AT VARYING
TEMPERATURES AMONG DIFFERENT SPECIES OF RATTLESNAKES
Daren Riedle, James Sumner, Kurt Grimm and David K.
Saunders
Division of Biological Sciences
Emporia State University, Emporia, KS 66801

We have obtained preliminary data on the rattling frequencies of four species of rattlesnakes, the Massasauga (Sistrurus catenatus), Western Diamondback Rattlesnake (Crotalus atrox), Timber Rattlesnake (Crotalus horridus), and Prairie Rattlesnake (Crotalus viridis). Rattling frequencies were found to be proportional to temperature in all of the species except for the Timber Rattlesnake. Further, frequencies of rattling at a given temperature appear to vary in relation to species' distribution, as the Western Diamondback Rattlesnake had a slower rattling frequency at lower temperatures compared to more northerly species.

9:45 COMPARISON OF SNAKE MUSCLE FIBER TYPES BETWEEN
CONSTRUCTORS AND NON-CONSTRICTING SPECIES OF SNAKES
L. Page Fredericks and David K. Saunders
Division of Biological Sciences
Emporia State University, Emporia, KS 66801

Muscles in vertebrates are composed primarily of slow-twitch oxidative (SO), fast-twitch oxidative (FO) and fast-twitch glycolytic (FG) fiber types. SO fibers contract slowly, use aerobic respiration and can maintain prolonged muscular contractions. FO fibers contract quickly, but like SO fibers use aerobic respiration and maintain prolonged contractions. FG fibers contract quickly, use anaerobic respiration, and thus fatigue rapidly. It has been shown in birds and mammals that muscle activity and muscle fiber type percentages are positively correlated, with animals using endurance-type activity having a greater percentage of FO fibers and animals using sprint-type activity having a higher percentage of FG fibers. It has been suggested, however, that reptilian muscles are composed of the same percentage of each fiber type, and as a result these muscles can perform both endurance and sprint type activities. The purpose of this study was to test these conclusions using reptiles which display greater differences in endurance speed and of muscular activity. We hypothesized that differences in muscle fiber type percentages existed between constricting and non-constricting species of snakes, and that in non-constricting species, differences existed in muscle fiber type percentage along the snake's length. Preliminary data support these

hypotheses. Muscles from constricting species had approximately a 50:50 mixture of SO and FO fibers along the entire length of the body, while non-constricting species had all three fiber types. The majority of fibers in the proximal two-thirds of the body of non-constrictors were FG fibers, while only SO and FO fiber types occurred in the distal one-third. Rattlesnake tail shaker muscle was unique in that unlike muscle from other positions in the body, it was a dark red and contained more mitochondria. Further, this muscle did not stain for any of the three fiber types occurring in other portions of the body. Future studies are planned to explore the properties of this unique muscle.

10:00 SEASONAL DIFFERENCES IN THE HERPETOFAUNA AT
FORT RILEY, KANSAS
Christine M. Dwyer^{1,2}, William H. Busby², Errol D.
Hooper, Jr.², Jeffrey R. Parmelee² and Kelly J. Irwin²
¹Museum of Natural History
²Kansas Biological Survey
The University of Kansas, Lawrence, KS 66045

A herpetofaunal survey at Fort Riley Military Reservation was conducted between April and September 1993. This study area is located in the northern Flint Hills of Kansas and includes several types of habitat, from native prairie and brush to forested areas. This year was particularly unique because of the abundant rainfall, with localized flooding, that the Midwest received. Despite the relatively wet conditions, much of Fort Riley was surveyed. Western Chorus Frog (Pseudacris triseriata) and Woodhouse's Toad (Bufo woodhousii) were relatively common in the early part of the survey (April and early May) when weather conditions were usually cool and mild. Much of the precipitation occurred during mid-May to June. However, these and other frogs could be found in different habitats throughout much of the survey period. By later in the season, weather conditions were relatively hot and humid, and turned cool in September. In the later part of the season several species were difficult to find, such as Six-lined Racerunner (Cnemidophorus sexlineatus), and Collared Lizard (Crotaphytus collaris). The late season is better characterized by which animals tended not to be found. In some cases there was a tendency to find certain species later in the season, such as the Rat Snake (Elaphe obsoleta). Additionally, Ringneck Snake (Diadophis punctatus) and Great Plains Skink (Eumeces obsoletus) were relatively ubiquitous throughout Fort Riley. As one expects, activity of the herpetofauna in Kansas decreases later in the summer and fall.

10:15 AN EVALUATION OF HERPETOFAUNAL SAMPLING TECHNIQUES
Jeffrey R. Parmelee, William H. Busby and Christine M.
Dwyer
Kansas Biological Survey, and Department of Systematics
and Ecology
The University of Kansas, Lawrence, KS 66045

Developing complete species lists (or quantifying the abundances) of populations whose members are often cryptic, secretive, nocturnal and at low densities is challenging. Standardized methods of censusing herps are now being developed as we document the worldwide loss of biodiversity and an apparent decline in amphibian populations. The appropriateness of a sampling technique depends on the objective of the project. The primary objective of the herpetological survey of the Fort Riley Military Reservation in northeast Kansas was to compile a species list. Secondary objectives included gathering information on habitat distribution, relative abundances of species, seasonal activity and geographic distributions. Sampling methods in this study included: drift fences with funnel traps, artificial cover objects, timed searches, night cruising and turtle traps. The results of each method in capturing particular species in the nearly year-long study will be presented. Artificial cover objects were largely ineffective, whereas funnel traps yielded a great number and variety of vertebrates. The applicability and biases of each sampling method to censusing herps in general, and specifically to the Fort Riley project, will be discussed.

10:30 BREAK

10:45 COMPUTER-GENERATED ANIMATION AND BEHAVIORAL ECOLOGY OF
SNAKES
Paul A. Shipman and Stanley F. Fox
Department of Zoology
Oklahoma State University, Stillwater, OK 74078-0459

We assessed the use of computer-generated animation as a tool for studying snake anti-predator behavior. Snakes were exposed to animated threat gradients of an innocuous object and a raptor silhouette displayed on an overhead monitor. Snake behavior was videotaped during each experiment and then later scored. Subjects included snakes of the genera Agkistrodon, Crotalus, Diadophis, Elaphe, Lampropeltis, Opheodrys, Thamnophis, Tropidoclonion and Virginia.

11:00 HERPETOFAUNAL RESPONSES TO EVEN-AGED MANAGEMENT AND
SELECTIVE HARVESTING IN THE OUACHITA MOUNTAINS,
ARKANSAS
D.L. Crosswhite and S.F. Fox
Department of Zoology
Oklahoma State University, Stillwater, OK 74078-0459

This study plan summarizes the herpetological research activities that have been initiated through the joint efforts of the Southern Forest Experiment Station, the Department of Zoology at Oklahoma State University and the Oklahoma Cooperative Fish and Wildlife Research Unit. These research activities are in support of the Ouachita National Forest New Perspectives Initiative. This study involves 2 replications of 3 treatments: (1) early seral even-aged plantations, (2) late rotation even-aged stands, and (3) recent, selectively harvested uneven-aged stands. Objectives are to compare (1) relative abundance and diversity of herpetofaunal communities, and (2) to develop herpetofaunal habitat relationships for these treatments. Reptile and amphibian populations will be monitored for 15 days each during May, June and July using a combination of funnel traps and drift fence arrays equipped with pitfall and funnel traps. These data will be supplemented with time-constrained searches during May, June, July, December and March. Even-aged treatments are located on the Fourche District of the Ouachita National Forest; uneven-aged stands are located on nearby Deltic Farm and Timber Company holdings. While the duration of the cooperative agreement is two years, additional sampling is planned to characterize other seral stages of both silvicultural systems.

11:15 REPRODUCTIVE BIOLOGY OF CHAMELEONS
Robert L. Ball
Jewell High School, Jewell, KS 66949

During the past year, data on the reproductive biology of three species of African Chamaeleo were interpreted from observations of captive specimens. Eggs obtained from C. johnstoni, C. fischeri and C. dilepis were similar in size. However, C. dilepis laid ca. four times as many as either C. fischeri or C. johnstoni. The female C. dilepis deposited a total of 53 fertile eggs, which is believed to be a record clutch size for this species. The animal was gravid for at least 31 days. The eggs hatched following 123 to 129 days of incubation at temperatures ranging from 27 to 32 C, with the largest number hatching on day 124. Only one egg failed to hatch, and it was found to contain a dead chameleon. When the clutch data were analyzed, it was discovered that there were 53 neonates, of which two were much smaller (0.2 g and 0.3 g) than the mean mass of 0.5 g. The twins were again notably smaller when masses were measured on 28 September (0.6 g opposed to a mean of 1.0 g). A notable difference still exists. However, there is now a trend toward two distinct size classes. Perhaps this is an example of sexual dimorphism. There are no external differences between the

two sexes at hatching for C. dilepis. No hatchlings were obtained from two clutches of C. fischeri eggs. The female C. fischeri was engaged in copulation by two males as often as four times per day for periods of up to seven days. Following a gravid period of 44 to 51 days, two clutches were laid. The eggs showed every sign of being fertile externally. However, they slowly spoiled, one or two at a time, following a period of 180 to 190 days. No signs of fertility were observed upon internal examination of the eggs. This was a major setback to plans for establishing a reproducing colony for additional research. A female C. johnstoni (advertised as an immature female) was discovered dead during her second day in our facilities. Nine eggs were surgically removed and placed on moistened vermiculite. All spoiled within a week. All contained embryos.

11:30 CHAMELEONS: LITTLE LIONS OF THE BRANCHES
Rachael I. Ball
Randall Middle School, Randall, KS 66963

Seven chameleons were observed to determine if they would select smaller diameter branches over larger diameter branches. It was assumed that for them to show a size preference, they would have to possess behavioral adaptations which would enable them to select branch/limb size. Chameleons were offered eight dowel rod sizes to choose from. The data collected supported the hypothesis and were highly statistically significant. Chameleons used in these experiments chose the smaller dowel rods. Further studies need to be done to determine if chameleons will select and use even larger diameter branches and limbs when given options.

11:45 MEANINGFUL HERP SURVEYS/CONTROLLED ANNUAL HERP COUNTS
Allan Volkmann
1650 Melrose, Wichita, KS 67212

As the state's herp distributions become more clearly defined, another function of some of our surveys should be to monitor herp population shifts and fluctuations in the state. This presentation will outline some suggestions for developing annual herp surveys that may be used to detect population changes, or relationships between populations. These suggestions will be illustrated through the use of survey data collected from a single site in Cowley County. The survey began in 1989, and has always been conducted on the third or fourth Saturday of April. The same time of day, route, and method of survey have been used each survey year, in an effort to give year to year population data some comparative significance. Factors such as drought conditions, recent range fires, and weather conditions at the time of the survey have been noted.

12:00 ADJOURNMENT -- HAVE A SAFE TRIP HOME!!

