

# KANSAS HERPETOLOGICAL SOCIETY



## NEWSLETTER No. 109



SEPTEMBER 1997

### ANNOUNCEMENTS

#### KHS ANNUAL MEETING

The KHS Annual Meeting will be held on 8-9 November at the Sedgwick County Zoo in Wichita. The zoo is located just north of the junction of Zoo Boulevard and I-235. Get off at the Zoo Boulevard exit, turn left, and go north approximately 1/2 mile and you will come to the zoo entrance on your left. The meeting will be held at the zoo's Education Building. This year's keynote speaker is Rick Hudson, curator at the Fort Worth Zoo, who will be speaking on West Indian Rock Iguana conservation.

Registration will begin at 0830 hrs and the opening session will begin by 0930. Paper sessions will be conducted throughout the day Saturday and on Sunday morning. The annual slide free-for-all will be held Saturday afternoon, so remember to bring your 10 favorite slides. The annual social and auction, led by the raconteurial Joe Collins, will be held at Education Building beginning at 1900 hrs. Remember to bring all those valuable herpetological (or not-so-herpetological, we'll sell anything) items to auction. Oh, and don't forget your wallets. Cash, checks, VISA, and MasterCard will be accepted.

There are still some slots open for those desiring to make presentations at the meeting. Those interested should contact KHS President Karen Graham, Department of Herpetology, Sedgwick County Zoo, 5555 Zoo Boulevard, Wichita, KS or call 316-942-2213. We look forward to seeing you in November!

#### FALL FIELD TRIP

This year's KHS Fall Field Trip will be held at the Marais des Cygnes Wildlife Area. Those attending should plan to meet at La Cygne Lake at 9:00 a.m. on Saturday, 27 September. La Cygne Lake is just east of U. S. Hwy. 69, east of La Cygne and a few miles north of Trading Post. As always, CB channel 4 will be monitored. Those wanting more information should contact KHS Field Trip Chairman Larry Miller at the addresses and phone number listed on the inside front cover of this Newsletter.

#### GLOYD-TAYLOR SCHOLARSHIP

Nominations are still being accepted for the annual KHS Howard K. Gloyd-Edward H. Taylor Scholarship in Herpetology. Nominations for this award are open to any student enrolled in an accredited educational institution in Kansas or any KHS member enrolled in any accredited educational institution outside of Kansas. Students from primary school through university are eligible. Nominations should include typewritten details, not to exceed two pages, of the nominee's qualifications, plus name and address of the nominee and nominator. Self-nomination is excluded.

All nominations should be sent to KHS President Karen Graham, Sedgwick County Zoo, 5555 Zoo Boulevard, Wichita, Kansas 67212. The KHS Executive Council will make the final decision and announce the scholarship winner at the KHS annual meeting.

Those wishing to contribute to the scholarship fund should send contributions to KHS Secretary/Treasurer Karen Toepfer and note that the contribution is specifically for the Gloyd-Taylor scholarship fund. All contributions are tax-deductible.

#### TOPEKA COLLEGIATE STUDENTS TO WORK TOWARD A BAN ON KANSAS RATTLESNAKE ROUNDUPS DURING 1997-98 SCHOOLYEAR

A group of Topeka Collegiate School middle school students, with the assistance of their science teacher, Larry L. Miller, will meet weekly with the prime objective of getting legislation passed to ban rattlesnake roundups in Kansas. The class, one of several electives taught at the independent school in Topeka, will focus on contacting Kansas legislatures, environmental and wildlife groups of all types, the news media, and other schools and will provide these groups with information about roundups in an effort to keep the issue of rattlesnake roundups in the news.

The class feels much ground work has already been

put into place by organizations such as the Sedgwick County Zoo, the Kansas Herpetological Society, and a number of concerned individuals from around the country. However, even with all of the past hard work and facts that have been presented, the fact remains that the barbaric Sharon Springs roundup has continued in Kansas.

The TCS class encourages KHS members to contact their elected officials this fall. Let them know your feelings, and encourage them to either introduce or support legislation to ban Kansas' rattlesnake roundup during the 1998 session. It will be important to be persistent. Get friends involved. Get science and environmental classes at your local schools involved. Write letters to the editors of Kansas newspapers. Help get the media involved and get the facts to the people of Kansas. Even people who have little use for snakes will support legislation to ban rattlesnake roundups, if they know the facts in regard to the mistreatment of the animals and if they know the negative impact the roundup is having on Kansas' image. The roundup will not go away on its own.

Everyone with access to the Internet can e-mail letters directly to most Kansas lawmakers and agencies. An environmental concerns page has been created with links to the e-mail addresses as well as the mailing addresses of key people. The page also has links to the KHS Position Paper on Rattlesnake Roundups and the KHS home page. It can be accessed at <<http://www.geocities.com/RainForest/Vines/1532>> at this time. More pages may be created as the year progresses. Search for such topics as

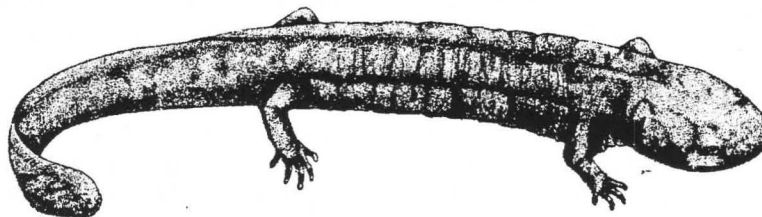
"rattlesnake roundups in Kansas", "Sharon Springs, Kansas", and "Topeka Collegiate School" using multiple search engines for more pages.

The TCS students ask everyone sending e-mail to send a copy to them for their files. Their e-mail address is: [llmiller@iname.com](mailto:llmiller@iname.com).

#### **NEW PROJECT COORDINATORS**

Two KHS officers have recently agreed to coordinate some new amphibian census projects for Kansas and the Kansas Department of Wildlife and Parks. Joe Collins will now be heading up the Kansas Amphibian Atlas project for KDWP. This project will attempt to establish calling amphibian surveys on specific routes in a variety of places in the state in an attempt to monitor certain amphibian populations in the state. Those interested in participating in this census should contact Joe at the address on the inside back cover of this Newsletter.

Eric Rundquist will ramrod a Deformed Frog Survey for Kansas. Isolated reports of deformed frogs in Kansas and concern about deformed frogs in many areas of the United States have shown the necessity of forming a database for this phenomenon in Kansas. Rundquist requests that those persons with knowledge or in possession of deformed frogs (any species) in Kansas contact him at the address on the inside front cover of this Newsletter. Results of this activity will be forwarded both to KDWP and the National Biological Survey.



# KHS BUSINESS

## KHS NOMINEES

The nominees KHS elective office at this year's annual meeting are as follows: President-elect—Eric Kessler and Chris Mammoliti, Secretary — Daren Riedle (unopposed), Treasurer— Karen Toepfer (unopposed).

Eric Kessler is beginning his sixth year of teaching biology at Blue Valley North High School in Kansas City, Kansas. He is currently working on a Master's Degree in Biology at Emporia State University, where his thesis work will focus on habitat selection of snakes in Miami County. He also has been quite active in the KHS Herp Count project.

Chris Mammoliti is employed by the Kansas Department of Wildlife and Parks in the Environmental Services Section in Pratt and has been a very active member for a number of years. He has been involved in a number of non-game species issues, particularly those involving public/private cooperation concerns.

Daren Riedle has been one of KHS' most active members and is a KHS Gloyd/Taylor Scholar. He has studied under KHS Past President David Edds at Emporia State and is contemplating graduate studies at Oklahoma State University.

## ADDRESS CHANGES

Please note the following changes for address and area code for KHS officers. The address for Karen Toepfer is now 113 E. 17th, Hays, Kansas 67601. Her phone number is 785-623-4258. Also, all other KHS officers in the old 913 area code have had a new area code assigned. This area code is 785. Please make these changes in your address books, databases, etc.

## COLLINS RETIRES

By the time you receive this Newsletter, KHS co-founder Joseph T. Collins will have retired. After 30 years at Natural History Museum at the University of Kansas, Joe officially retired on 5 September 1997 with the title "Herpetologist Emeritus", the only person ever granted such status by KU.

Although only 58, Collins felt the time had come to explore other ventures. He leaves behind a remarkable legacy: KHS co-founder, past president, and first editor; co-founder of the Ohio Herpetological Society, co-founder of the Society for the Study of Amphibians and Reptiles (the world's largest professional herpetological society), and past president of the Kansas Academy of Science.

Other signal honors to Collins include recognition as Conservationist of the Year by the Kansas chapter of the Wildlife Federation, Classified Employee of the Year at KU, and designation by Kansas Governor Bill Graves as The Wildlife Author Laureate of Kansas, in recognition of the more than 20 volumes about Kansas wildlife that Collins has written or to which he has contributed. In addition, KHS has established the Collins Award, the largest cash prize by any conservation organization in Kansas, in honor of Joe's contributions and that of his wife, Suzanne.

Collins will concentrate on activities with KHS and the Center for North American Amphibians and Reptiles which he founded. The KHS Executive Council takes this opportunity to thank Joe for his immense contribution to the success of KHS and to wish him all success in his future activities.

## HERP COUNTS

I would like to request that those people participating in the Annual KHS Herp Counts make an effort to get them to me in a timely fashion. Although the majority of participants do get their count results to me in time, I have noticed a few problems in the past couple of years. One problem is that the counts are not being sent to me, but rather to other persons or entities. Please do not send counts to Joe Collins or in care of KHS at the Natural History Museum at KU. Although I do see Joe on a regular basis at KU, now that he is retiring (see previous article) there is no guarantee that I will receive such material from him on time. Material sent in care of KHS may not get to me for weeks because it is routed differently at KU. So, to reiterate, send them to me directly.

I also get counts weeks, and sometimes months, after the official count is published. Note that KHS Herp Counts will always be published in the June issue of the KHS Newsletter. I request that folks send me their counts as they make them. This may require a few mailings for some participants but it guarantees that these counts will arrive on time and be included in the official published account. Any counts received after 15 June will not be published. Thanks for your cooperation.

— EMR

## KHS BRINGS YOU GREAT NEWS OF THE WORLD

### 'HERPING' SLOWLY GROWING IN POPULARITY

It was quite common to see people enjoying the southern Kansas outdoors last weekend. Lakes were crowded with pleasure boaters and anglers. Most parks were alive with picnickers and ball players.

Yet we were all but alone as we went about Saturday's activities. Roughly a dozen individuals - a mixed group of men, women, boys and girls - moved over a broken landscape of canyons and ridges, lifting rocks and probing beneath cutbanks as we looked for what most were trying to avoid - snakes and lizards.

We were part of the Kansas Herpetological Society's recent field trip in the Red Hills, participating in a fast-growing pastime known as "herping." Searching for reptiles and amphibians has long been popular in parts of Europe, but it's just beginning to catch on in the United States.

Joseph T. Collins, an herpetologist with the Kansas University Natural History Museum, says some of the growing interest can be attributed to the fact that people are finally realizing this segment of nature can be interesting.

"If you stop and think about it, and spend some time looking at them, you can't help but agree that these are some pretty neat little animals with an awful lot to offer," said Collins, one of America's premiere herpetological experts. "In some ways herping is like birding in that it offers whatever challenge an individual is looking for"

Collins said most herpers are simply out and about to see what they can find. Others want to log as many species or individual specimens in a day. Others try to specialize in finding what's locally uncommon. And unlike with most types of wildlife these days, it's still possible to make discoveries in the world of reptiles and amphibians.

"Compared to other things, there's a lot still to learn," said Collins. "While there hasn't been a significant breakthrough in mammals or birds for decades, there's not a year that goes by that we don't find a species where it hasn't been found before right here in Kansas."

Last weekend's field study yielded a pair of special discoveries. Jami Wyatt and Liz Stein found a Western Slender Glass Lizard in Comanche County, the first such recorded find. Amazingly, Kendall Shaw found another just a few minutes later.

"We ended up finding a lot of those down in those counties," said Collins. "It was something. It seemed we couldn't find any for 25 years down there and in 1997 it seemed like we were having an invasion."

The most significant find was a 71<sup>3</sup>/<sub>4</sub>-inch Coachwhip

found by Jim Gubanyi and Keith Coleman. The snake's length beat a state record that had stood since 1975.

Collins and other long-time herpers say that most wildlife lovers would be amazed at the looks of many finds. Nearly all who go on their first trip are taken back by the beauty of some animals. It would be hard to argue that the brilliant red, yellow and black bands of a Milk Snake rival the colors of a rooster pheasant. The vibrant yellow specks against a black body of a Common Kingsnake could compete with a drake wood duck's.

During that first afternoon in Clark County, Collins and crew came across a Collared Lizard that was colored in a shade of neon turquoise.

"That made the whole day worthwhile," said Collins as he leaned down to admire the lizard.

"That's the prettiest one I've ever seen ... and I've seen thousands. You can find a tremendous amount of variance within one species."

Such beauty and difference has spurred many to take cameras afield to photograph special finds. Collins' wife, Suzanne, is regarded as a world-class herpetological photographer.

But one of the unique aspects of the sport is that it provides participants a rare, hands-on experience with wildlife.

"I like to joke that the only hands-on experience birders get is at the dinner table when they're having chicken or turkey," Collins said. "But seriously, you can't just go out and handle a bird or most mammals. First of all, they won't let you close enough. If you do, you may end up bloody."

Most reptiles and amphibians, on the other hand, are surprisingly docile animals.

"A lot will let you handle them with no problem," Collins said. "Unless they're venomous, they really can't hurt you anyway. Occasionally they'll strike, but most don't have teeth that are big enough to hurt you."

True to Collins' word, most of the snakes found last weekend could easily be picked up and handled with no problems.

Again, unlike other wildlife-viewing past times, herping is a sport where participants can have as well as hold their discoveries. Under Kansas law, it's legal to catch and possess up to five individuals of any species that's not listed as threatened, endangered or on the state's Species In Need of Conservation lists.

"We encourage kids to find a reptile in the spring and then keep it throughout the summer and early fall before releasing it so it can hibernate," Collins said. "A lot of

species adapt quite well to living in a covered aquarium and getting free meals. There's no doubt it's an incredible educational tool."

Should they want, people may be able to keep a find for years on end. Collins said some specimens have lived for 20 years in captivity. It's been four years since my son, Jerrod, brought home an adult Great Plains Rat Snake. The snake is doing well, has yet to strike at a person and goes through pet shop mice like a kid through candy. Along the way it's also educated dozens of grade school children on such things as habitat, species evolution and the importance of predation for controlling wildlife.

No matter why someone herps, there's probably no better place than right here in Kansas.

"I went to the Amazon once for a month and only found five snakes," said Collins. "I could do that in 15 minutes in Kansas if the conditions are right."

A few years ago, KHS held a two-day count on Fort Riley. The final tally was more than 400 reptiles and amphibians from more than three dozen different species. Last weekend's trip to the Red Hills of Barber, Comanche and Clark counties yielded 36 species and 207 individual specimens, with 25 people participating off and on. Collins reported that most finds came by driving desolate backroads in the evening hours.

The most common reptile was Six-lined Racerunner lizard, with 23 individuals found. Bull Snakes were the most common snake, with 10 finds. Collins and crew also located seven Prairie Rattlesnakes and five Massasauga Rattlesnakes. All of the poisonous snakes were found on roads and simply watched from a safe distance.

Even after reading so much pro-herp text, there are no doubt hundreds of readers who can't conceive they would ever have an interest in such an unusual pastime, especially if they're phobic about snakes. As one popular new saying goes, I've "been there, done that."

I come from the kind of longtime, phobic family that would gladly crash a new truck to run over a hapless Garter Snake. Yet it was greed (the Wall Street Journal wanted a herping story) and love (5-year-old Jerrod said, "They can't hurt us, let's go find some.") that brought me to herping with Collins a half-decade ago.

Trust me, once you get into the fun of the search and start learning about the animals, those fears quickly begin to fade and fascination begins to build.

No, herping will never replace my beloved hunting and fishing, but it can add to the experience. I'll never give up a turkey hunt to look for Milk Snakes, but don't be surprised if I lift a few rocks when the birds aren't gobbling.

As an old saying goes, "Try it, you'll like it!"

— Hutchinson Daily News, June 1997  
(submitted by Joe Collins, Lawrence)

## POACHERS CAPTURED IN STING

A statewide undercover operation has resulted in the arrests of poachers who have captured and sold wild animals, including the state reptile, and exported them as far away as Japan, the Journal-World has learned.

State and federal wildlife agencies plan to announce today details of the 2 1/2 year operation during which some poached animals regularly died from lack of water and food.

Animals captured and illegally sold and taken out of Kansas included Ornate Box Turtles, Great Plains Rat Snakes, Milk Snakes, King Snakes, Collared Lizards, and some baby raccoons and bobcats.

"It involved several individuals from across the state," said Rob Ladner, a law enforcement officer for the Kansas Department of Wildlife and Parks [KDWP] in Topeka.

Officials declined to release many details about the investigation, but Ladner confirmed several arrests were made earlier this week.

He declined to outline details of where the arrests were made, the charges involved, or where the suspects were being held.

Joe Collins, herpetologist emeritus at the Kansas University Natural History Museum, has been identifying the snakes and turtles during the last 18 months.

An undercover agent with [KDWP] either confiscated or bought reptiles and amphibians from people collecting them, Collins said. The agent visited Lawrence between 10 and 15 times seeking Collins' assistance in identifying species.

The Ornate Box Turtle is the state reptile. Many of those captured animals were shipped to Japan, Collins said.

"These are people who have no idea how to feed these animals," he said. "It's inhumane because they just put them into the box. It's a terrible thing."

"This is just a search for the almighty dollar"

Collins, who recently retired from KU, has written field guides on reptiles and amphibians and is considered an expert.

The operation involved [KDWP] and the U. S. Fish and Wildlife Service, official said.

Animals were sent to wholesalers in Louisiana, Florida, and Texas and distributed around the United States and overseas.

The removal of King, Milk, and Rat Snakes, in particular, can lead to increased rat and mice populations, which in turn can damage wheat and corn crops, [Collins] said.

"You're going to upset the entire balance with what's keeping the other creatures in check," he said. "It's just not good in so many different directions."

Collins said the poaching may have been a factor in falling populations of some Kansas reptiles and amphib-

ians.

"We've noticed a decline in the number of Box Turtles, King Snakes, Milk Snakes, and Great Plains Rat Snakes," he said.

"A lot of habitat has been destroyed in the search for the animals.

— Lawrence Journal-World, 22 August 1997  
(submitted by B. A. D. Guys, Protection)

## REPTILE EXPERT CHANGES HIS SKIN

Joseph Collins, Kansas University Natural History Museum herpetologist, is leaving his position to become ... an herpetologist.

Collins, who has been on the job at KU for almost 30 years, is ready to get out of an institutional setting and into the field.

"I can't be on a schedule that keeps me in the office when it rains and the frogs are calling," he said.

Collins, and his wife, photographer Suzanne, will spend as much time as possible in the field, studying amphibians and reptiles.

Collins will also direct The Center for North American Amphibians and Reptiles and teach classes at the Regents Center in Overland Park and Washburn University in Topeka.

And he will still visit his old haunts at the Museum.

"I'll always hang out there," he said.

Collins said the decision to retire from KU was difficult since his job involved a topic he's always been interested in.

"It was a fun position because you never knew when you opened the door what someone would be holding," he said.

Collins is the author or co-author of 20 books about wildlife and is best know for co-writing the third edition of the Peterson field Guide to Reptiles and Amphibians of Eastern and Central North America.

In 1996, Gov. Bill Graves named Collins as The Wildlife Author Laureate of Kansas, the first laureate ever designated in the state.

Philip Humphrey was the Museum's director when Collins started his job in 1968.

"When he arrived he was quite young and enthusiastic," Humphrey said. "As time went on, he became very proficient at writing and he really has become, during his career, an enormously important naturalist for the state of Kansas."

Humphrey said he's not at all surprised that Collins will spend his "retirement" working.

"He's going to do more of what he's always loved to do," he said. "That's not work. Doing what you love to do as a career isn't work in the traditional sense."

Collins' retirement takes effect September 6.

— Lawrence Journal-World, 7 August 1997  
(submitted by R. Black, Lawrence)

## FEATURE ARTICLES

### Status of *Bufo debilis* (Anura: Bufonidae) in Kansas

by

**Travis W. Taggart**  
**Department of Biological Sciences**  
**Southeastern Louisiana University**  
**Hammond, Louisiana 70402**  
**email: ttaggart@selu.edu**

Cragin (1894) first reported the Green Toad, *Bufo debilis* Girard, from Kansas, based on specimens he allegedly observed in September 1886 in Morton, Barber, and southern Hamilton counties. Voucher specimens do not exist from that report and Rundquist (1979) has discredited the specimen from Barber County.

Taylor (1929) noted an unspecified number of Morton County specimens he observed and collected from 1926-1928. Hill (1931) and Kellogg (1932) reported on Taylor's Morton County specimens in their respective accounts. Additionally, Kellogg (1932) documented the only known specimen from Grant County (KU 5642, no specific locality), collected in 1911.

Smith (1932) compiled all known literature records and voucher specimens of *B. debilis* in Kansas. He added one Greeley County specimen from the University of Kansas Natural History Museum and six Logan County specimens from the Kansas State College (now Kansas State University) vertebrate collection.

Rundquist (1979) discredited Smith's (1932) records for Greeley and Logan counties, as well as Cragin's (1894) Hamilton County observation, because voucher specimens could not be located. Rundquist (1979) confirmed that a single specimen from Logan County (no other data) did exist in the University of Michigan Museum of Zoology (UMMZ 67442).

Platt et al. (1974), listed *B. debilis* as rare in Kansas and subsequently this anuran received formal protection, as a threatened species, under the Kansas Nongame and Endangered Species Conservation Act of 1975 (K.S.A. 32-501 to 32-510) and Kansas Department of Wildlife and Parks regulations K.A.R. 23-17-1 and 23-17-2). As defined by Kansas Administrative Regulation 23-17-2, southwest Logan and southeast Wallace counties became designated

critical habitat for *B. debilis* populations in Kansas.

Roth and Collins (1979) reported a single female (KU 182086) at a new locality in Wallace County, (see Appendix). Burkhart (1984) contributed information regarding the distribution and status of existing populations and identified areas of suitable habitat within the remainder of the state. He did not observe *B. debilis* in Wallace County, but collected new locality vouchers (KU 192337-38 and KU 193301-03) along the Twin Butte Creek drainage in Logan County (Figure 1, Site C).

The principal objectives of this project were to make observations on *B. debilis* populations and update their distribution in Kansas. Observations were made from 1991 to 1994. If enough specimens were collected to support a restocking effort, a repatriation of *B. debilis* into the Cimarron National Grassland was to be attempted.

The collection localities of *B. debilis* museum specimens and literature reports were examined and evaluated as to vegetation type, soil composition, geology, hydrology, and topography. Using these assessments as basic habitat requirements, potential localities were sought. When searching for possible sites, areas of relief were determined from USGS 1:100,000-scale metric topographical maps. These areas were then physically examined to assess their similarity to the historical localities.

Once suitable habitat was located, field trips were taken on rainy nights during the late spring and throughout the summer during the course of this study. Roads to pre-selected optimal sites through suitable habitat were driven at night after heavy thunderstorms. Frequent stops were made to listen for choruses in adjacent pasture lands.

Specimens of *B. debilis* were observed in Wallace, Logan, Wichita, Greeley, and Hamilton counties. Observations were made on the breeding, habitat, food, and predation

tors of this secretive amphibian. Voucher specimens and recorded observations (see Appendix) from this study have more accurately detailed the range of *B. debilis* in Kansas.

*Bufo debilis* seems to prefer areas of native prairie vegetation with considerable topographical relief and presence of an intermittent stream. Following thunderstorms, they congregate at pools of water formed within and below canyon breaks. All localities at which *B. debilis* were observed were grazed by cattle. *B. debilis* was abundant in geologic substrates of conglomerate (Tertiary: Miocene: Ogallala) as well as in association with large limestone and chalk outcrops (Cretaceous: Niobrara). Loamy soils, in particular those soils characterized by slow to moderate permeability, moderate to high water holding capacity and rapid surface runoff, supported the highest concentrations of *B. debilis*. The Colby-Kim-Midway soil association of Wallace and Logan counties is characterized by these properties and supports the greatest concentration of *B. debilis* in Kansas.

The high clay content in these soils permits greater moisture retention, permitting anuran larvae maximal developmental time. These soils also enhance fissure formation in the mud of drying pools, providing microhabitat for recently transformed toadlets. Creusere and Whitford (1976) noted similar affinities of arid-adapted anurans, including *B. debilis*, to mud fissures, and noted that of all refugia available to juvenile anurans, the least percentage of mortality was found among the individuals that used the fissures. At every *B. debilis* chorus site, juveniles were ultimately seen in association with the fissures of the dried pool bottom within a few weeks of metamorphosis.

The toadlets voluntarily emerged from mud cracks only at dusk. However, as I walked on the dried pool bottom during the day, toadlets did emerge just ahead of my footsteps. By the end of the summer, juvenile *B. debilis* were observed less frequently in association with the pools, but were more commonly found under rocks on the surrounding hillsides.

Breeding activity was observed from 12 June through 2 September after heavy precipitation and daytime air temperatures greater than 29° C. The breeding pools were dry and covered with dense vegetation prior to flooding. The size of the pool utilized varied from 2.9 m<sup>2</sup> to shallow impounded ponds of up to 3,000 m<sup>2</sup> and the depth of the pools varied from 33-76 cm. At a site in Logan County, *B. debilis* used the pooled runoff from a nearby stock tank for breeding. All the pools used by *B. debilis* had bottoms composed of a high clay content sediment, never limestone or conglomerate. The vegetation was emergent around the pool margin and inundated by water in the deeper sections of the pools.

Flooded vegetation was present at every site *B. debilis* were observed. Vegetation in the larger pools consisted primarily of *Xanthium strumarium* (Cocklebur), *Euphor-*

*bia marginata* (Snow-on-the-mountain), *Polygonum amphibium* (Swamp Smartweed), and *P. persicaria* (Lady's Thumb). The primary vegetation in the smaller pools was composed of flooded stands of small *X. strumarium*, *Bouteloua gracilis* (Blue Grama), and *Buchloe dactyloides* (Buffalo Grass). Breeding sites did not possess representatives of plant families characteristic of a permanent aquatic environment (e.g. sedges, duckweeds, cattails or the pond weeds). Small fish and blooms of filamentous algae were infrequently observed in the pools.

At the breeding pools, the number of adult male *B. debilis* observed varied from a single individual to choruses of approximately 80 specimens. Adult males called with their forelegs propped on the vegetation around the pool margin. When approached they never moved nor quit calling and were therefore easily collected by hand with the aid of a headlamp. Chorusing by individual adult males was witnessed up to five m from the water's edge on mud banks and rain-moistened grassy slopes.

Pairs in pectoral amplexus were found inside the ring of emergent vegetation around the inner margin of the pools. When pairs were approached, the female would often dive out of sight, still carrying the male. A single pair in amplexus was discovered on the shore in Wallace County, 1.7 m from the pool.

Other animals occupied these same pools as well. Among other amphibia, *Ambystoma mavortium* (Barred Tiger Salamander), *Spea bombifrons* (Plains Spadefoot), *Rana blairi* (Plains Leopard Frog), *Bufo woodhousii* (Woodhouse's Toad), *Pseudacris maculata/triseriata* complex (Chorus Frog), *Acris crepitans* (Northern Cricket Frog), and *Rana catesbeiana* (Bullfrog) were all observed at the pools in decreasing order of abundance. The most numerous macroscopic invertebrates observed in the pools included members of the Crustacea families Streptocephalidae, Leptestheriidae, and Lepiduridae (Eubranchiopoda) (Pennak 1953). Other Crustaceans identified from the pools were Daphnidae and Bosminidae (Cladocera) and Cyclopidae and Senecellidae (Copepoda).

On 6 July 1992 a pair in amplexus was collected in Logan County and temporarily maintained in a four-quart hard plastic container with cuttings of *Polygonum amphibium* and approximately five cm of water. A mass of 1,287 eggs was laid by the female shortly after being placed in the container. The eggs were laid singly and no strings were observed in the clutch. The eggs did not adhere to themselves, the container, or *P. amphibium*. The egg mass was deposited at a site at the Cimmaron National Grassland later the same night. Fertilization was not confirmed though it may have occurred.

Adult *B. debilis* were found by day at the pools, and on the surrounding hillsides under rocks and human refuse and once at the entrance to a *Cynomys ludovicianus* (Black-Tailed Prairie Dog) burrow in Logan County. The flora of



these hillsides is comprised primarily of *Agropyron smithii* (Western Wheatgrass), *Sporobolus giganteus* (Tall Dropseed), *Andropogon provincialis* (Big Bluestem), *A. scoparius* (Little Bluestem), *Bouteloua curtipendula* (Sideoats Grama), *B. gracilis*, and *B. dactyloides*. Soapweed (*Yucca glauca*) is liberally distributed across the upland landscape.

*B. debilis* was occasionally observed in the open on the steep slopes and grassy plains during the day. An adult male from Logan County was collected on a talus slope at an air temperature of 35° C at 1321 hours and a sub-adult individual was found along a cattle trail in Wallace County at 1516 hours and an ambient air temperature of 24° C. Seymour (1973) reported *B. debilis* active by day at 15° C. He observed them basking on wet mud banks in direct sunlight and increasing their body temperatures up to 30.9° C.

In the field, Green Toads were observed consuming various small insects, principally ants (Hymenoptera) and small Lepidopterans, Coleopterans, and Orthopterans. Harvester ants (*Pogonomyrmex occidentalis*), which were common in areas of suitable habitat, were typically ignored. Three times the same *B. debilis* toadlet was placed near a harvester ant mound in Wichita County. Three to seven ants attacked the toadlet each time, and within fifteen seconds the toadlet appeared wet and the ants immediately left it. The toadlet was recovered and maintained for two weeks in captivity with no apparent ill effects resulting from the confrontation.

*Thamnophis radix* (Plains Garter Snake) was the most commonly observed predator on the adults, toadlets, and tadpoles of *B. debilis*. A larval *A. mavortium* was observed consuming a young *B. debilis* near metamorphosis at night on 13 August 1993, in Wallace County. Creusere and Whitford (1976) observed predation on *B. debilis* by *Heterodon nasicus* (Western Hognose Snake), *Masticophis flagellum* (Coachwhip), and *Pituophis catenifer* (Gopher Snake) in the Chihuahuan Desert. All three of these serpents are common throughout western Kansas, (Collins, 1993).

Time to metamorphosis in *B. debilis* is uncertain. Zweifel (1968) studied the eggs from specimens collected in Cochise County, Arizona, and found that at an optimal water temperature of 33.1° C the embryos hatched within 24 hours. At 18.2° C, hatching required 140 hours. Strecker (1926) suggested that metamorphosis of *B. debilis* in Texas took less than three weeks. Burkhart (1984) estimated the larval life to exceed 25 days in Kansas.

Based on one observation at a pool in Wallace County, development from zygote to toadlet was placed at eight days. On 29 June 1991, the pool was seined and contained no amphibian larvae. The area received heavy rain that night and a few small choruses of *B. debilis*, 5-7 males each, were heard along the system of pools in the canyon,

along with smaller choruses of *Rana blairi*, *Spea bombifrons*, and *Bufo woodhousii*. On 7 July 1991, most of the water in the pool had evaporated, fissures had developed in the mud, and toadlets were abundant on the dried pool bottom. Near the center of the dried pool were approximately 500 dead anuran larvae. *S. bombifrons* tadpoles were the only species of larvae identified (Altig 1970). The precise time from zygote to metamorphosis is probably dependent on a number of environmental variables, e.g. soil permeability, evaporation rate, water temperature (Zweifel 1968), dissolved oxygen content, and competition between *B. debilis* larvae and that of sympatric anurans, as well as constraints of phylogeny.

Green Toads appear to avoid the large sandy alluvial floodplains of the major river valleys, as they were only found in more rugged habitat adjacent to smaller tributaries. However, during heavy rains, tadpoles or eggs are surely swept into the larger rivers. This mechanism may serve as a primary means of dispersal down the watershed and allow for gene exchange across otherwise isolated populations. The small individual size and currently disjunct populations of *B. debilis* make terrestrial dispersal far from these valleys virtually impossible. In northwestern Kansas localities, *B. debilis* is abundant and often conspicuous. Historic populations farther south are extirpated or scarce at best. The historic distribution may have once been continuous across these two areas until agricultural practices and simultaneous drought modified the habitat.

The largest populations of *B. debilis* were found in the Smoky Hill River drainage of southeast Wallace County, southwest Logan County, and areas immediately adjacent to the south, along Ladder Creek in Greeley and Wichita Counties (Fig. 1). Suitable habitat exists in vast contiguous tracts in this area. Habitat to the south, in the Arkansas River drainage, is isolated due to large-scale agricultural activity.

Hammerson (1991) reported a single specimen of *B. debilis* from Picture Canyon in Baca County, Colorado collected on 12 June 1988 (Sec. 7, T35S, R47W). This locality is 62.8 km west of Morton County, Kansas on the Colorado and New Mexico border at the western edge of what were the most extreme dust bowl conditions (Fig. 2). Picture Canyon is part of the deeply dissected and rugged Black Mesa system, and has not been cultivated within historical times.

Only seven juvenile *B. debilis* (KU 218838-844) were collected in Hamilton County in 1991. Since then no specimens have been observed there, despite repeated collecting trips the subsequent three summers. However, rainfall conditions in southwest Kansas appeared suboptimal during this study.

*B. debilis* has not been observed in Grant and Morton counties since 1911 and 1928 respectively. Collins and Collins (1991) thoroughly studied the herpetofauna of the

Cimarron National Grassland and indicated that the severe change in habitat conditions due to the drought of the 1930's, combined with the prevailing farming and ranching practices at that time, resulted in the extirpation of *B. debilis* from Morton County and adjacent areas. Morton County was one of the most devastated areas during the Dust Bowl (Figure 2). Today 43,777 ha of Morton County has been incorporated into the Cimarron National Grass-

land (Fig. 1) and reseeded to native grasses and forbs, thereby restoring suitable habitat and offering protection under the auspices of the United States Forest Service.

I toe-clipped and released 422 *B. debilis* (see Appendix) at five sites in the Cimarron National Grassland in 1992 and 1993. In addition, a mass of 1,287 eggs were placed in a windmill runoff pool in 1992 at the Grassland site considered the most suitable for *B. debilis* based on geological,

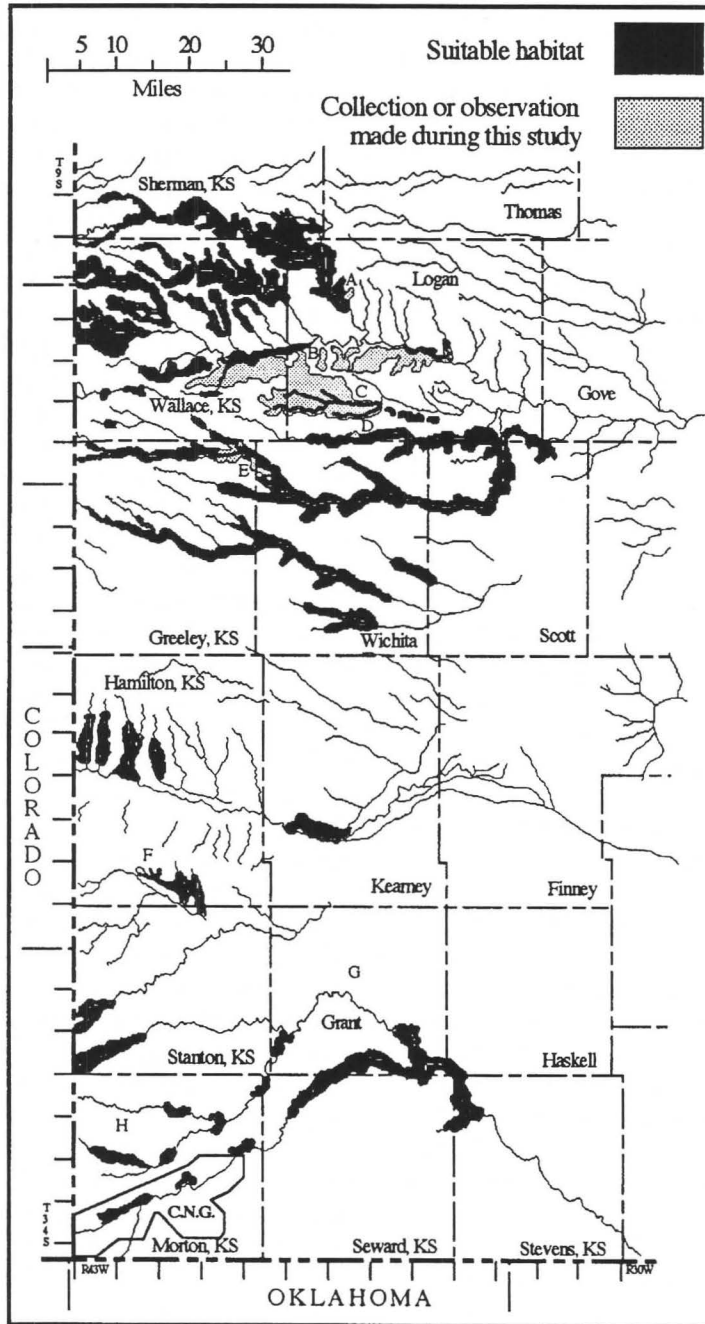


Fig. 1—General localities where Green Toads were observed or collected during this study and areas of their possible occurrence within Kansas. C.N.G.= Cimarron National Grassland, the site of an attempted repatriation. Letters A-H correspond to localities listed in the Appendix.

hydrological, and vegetative similarities to the northwestern Kansas sites with extant populations. No specimens have been observed on the Grassland since the repatriations and future work is needed to determine the present status of the reintroductions and the assess the feasibility for further reintroductions.

I recommend that future studies examine the genetic relationships of *Bufo debilis* throughout Kansas and adjacent states using a marker based on nuclear DNA (*i.e.* allozymes). How long the Smoky Hill River populations have existed in allopatry and the degree of divergence they have reached in isolation cannot be assessed without these data. This information is important from a biodiversity and conservation point of view; it will allow us to determine if this population is simply disjunct or a new taxon endemic

to Kansas. Determining genetic diversity in these populations will also be very useful in future repatriation attempts.

#### Acknowledgements

I wish to acknowledge the Kansas Department of Wildlife and Parks for funding assistance through the Kansas Nongame Chickadee Checkoff, and thank the United States Forest Service, University of Kansas Natural History Museum, Fort Hays State University and the Kansas Herpetological Society for their help. In particular, I want to thank Jerry Horak (KDWP), Ken Brunson (KDWP), Jerry Klein (USFS), and John Simmons (KU). Joseph T. Collins (KU) initiated this study by suggesting a repatriation of *B. debilis* back into the Cimarron National Grassland. Dr

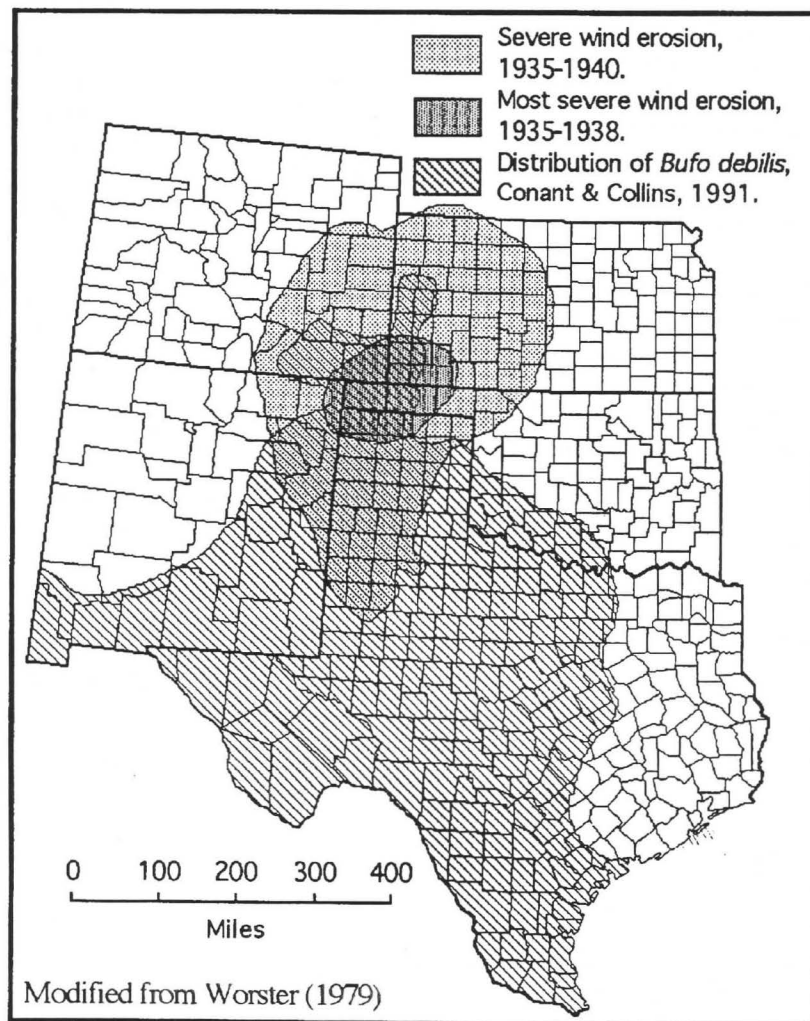


Fig. 2— The Dust Bowl of the 1930's. Extent of erosional damage attributed to the wind during the drought and subsequent Dust Bowl in the lower Great Plains from 1935 through 1940. Drought conditions extended far beyond the boundaries shown here, but this area was particularly hard hit by drought and wind erosion. The range of the Green Toad has been superimposed. Modified from Worster (1979).

Eugene D. Fleharty (FHSU), Kelly J. Irwin (Texas A&M University), Jay Taggart, R. Bruce Taggart, and Karen Toepfer also rendered assistance.

### Literature Cited

- Altig, R. 1970. A key to the tadpoles of the continental United States and Canada *Herpetologica* 26: 180-207.
- Burkhart, J. T. 1984. Status of the western green toad (*Bufo debilis insidiosus*) in Kansas. Kansas Fish and Game Comm. Contract 72 Final Report. 24 pp.
- Collins, J. T. 1993. Amphibians and Reptiles in Kansas. Third (revised) edition. University of Kansas Museum of Natural History. 397 pp.
- Collins, J. T. and S. L. Collins. 1991. The amphibians and reptiles of the Cimarron National Grasslands.
- Cragin, F.W. 1894. Herpetological notes from Kansas and Texas. Colorado Coll. Stud. 5th Ann. Publ: 37-39
- Creusere, F.M., and W. G. Crawford. 1976. Ecological relations of a desert Anuran community. *Herpetologica* 32: 7-18.
- Hammerson, G. A., L. Valentine, and L. J. Livo. 1991. Geographic distribution: *Bufo debilis*. *Herp. Review* 22(2).
- Hill, J.E. 1931. An addition to the herpetological fauna of Kansas. *Science* 74: 547-548.
- Kellogg, R. 1932. Mexican tailless amphibians in the U.S. National Museum. Bull. U.S. Nat. Mus. No. 160: 1-224.
- Pennak, R. W. 1953. Fresh-water invertebrates of the United States. The Ronald Press Co., New York. 769 pp.
- Platt, D. R., J. T. Collins, and R. E. Ashton. 1974. Rare, endangered and extirpated species in Kansas II: Amphibians and reptiles. *Trans. Kansas Acad. Sci.* 76(3): 185-192.
- Roth, S. D., and J. T. Collins. 1979. Geographic distribution: *Bufo febilis insidiosus*. *Herp Review* 10(4):118.
- Rundquist, E. M. 1979. The status of *Bufo debilis* and *Opheodrys vernalis* in Kansas. *Trans. Kansas Acad. Sci.* 82(1): 67-70
- Seymour, S. S. 1973. Behavioral thermoregulation by juvenile green toads *Bufo debilis*. *Copeia* 1972(3): 572-575.
- Smith, H. M. 1932. The amphibians of Kansas. *Amer. Midland Nat.* 15(4): 377-528.
- Strecker, J.K. 1926. Chapters from the life-histories of Texas reptiles and amphibians. Part I. *Contr. Baylor Univ. Mus.* 8:1-12.
- Taylor, E. H. 1929. List of reptiles and batrachians of Morton County, Kansas reporting species new to the state fauna. *Univ. Kansas Sci. Bull.* 19(6): 63-65.
- Worster, D. E. 1979. Dust bowl: the southern plains in the 1930's. Oxford Univ. Press. 277 pp.
- Zweifel, R. G. 1968. Reproductive biology of anurans of the arid southwest with emphasis on adaptation of em-

bryos to temperatures. *Bull. Amer. Mus. Nat. Hist.* 140: 1-64.

### Appendix

Sites where *Bufo debilis* was observed and/or specimens were or have been collected. Lettered headings correspond to the letters in Fig. 1.

A. North Fork Smoky Hill River. Logan Co., T13S, R36W, Sec.2. B. Smoky Hill River's Southern tributaries. Logan Co., T13S, R34W, N Sec.23 (KU 22075253); Sec.32,33: T13S, R35W, Sec. 29,32,35; NE Sec. 27 (KU 211368, KU 212582): T13S, R36W, Sec. 27,28: T13S, R37W, E Sec. 35; SE Sec. 26,32:T14S, R34W, Sec. 4,6,8; NW Sec. 7; NE Sec. 17: T14S, R35W, Sec.3, 6: T14S, R36W, SE Sec.5; Sec.6: T14S, R37W, W Sec.4. Wallace Co., T14S, R38W, N Sec.17; Sec.4,5,6,8,9,16; Sec.7 (KU 18673136, KU 153046); 6.4 km S. Wallace (KU 182086): T14S, R39W, Sec.9,12,13,14,15,16,21; S Sec.11; NE Sec.8,11; NW Sec.29; NE Sec.30; SW Sec.10; Sec.12 (KU 22075455). C. Twin Butte Creek drainage. Logan Co., T13S, R37W, Sec.35 (KU 193303): T14S, R37W, S Sec.29; NE Sec.20; SE Sec.28; N Sec.23; NW Sec.21: T15S, R37W, S Sec.4,5; 24 km S & 6.4 km W McAllaster (KU 19233738); 19.6 km S & 4.8 km W McAllaster (KU 19330102). D. Chalk Creek drainage. Logan Co., T15S, R36W, Sec.32,36. E. Ladder Creek Drainage. Greeley Co., T16S, R39W, Sec.8,11 (KU 21882327). Wallace County, T15S, R40W, Sec.35. Wichita Co., T16S, R38W, Sec.19 (KU 218845). F. Bear Creek drainage. Hamilton Co., T26S, R42W, SE Sec.12 (KU 218838844). G. Cimarron River drainage. Grant Co., No specific locality (KU 5642); No specific locality, (UMMZ 67442). H. North Fork Cimarron River drainage. Morton Co., no specific locality (KU 564345), 18 mi. N Elkhart, (KU 5646654).

Release Sites and Number Released (Males:Females:Juveniles:Embryos), T33S, R42W, SE/NE Sec.33, (57:25:81:1,287); E/SW Sec.32, (0:0:65:0); T34S, R43W, SE/SW4 Sec.2, (0:0:65:0); NE Sec.10, (0:0:65:0); W Sec.20, (0:0:65:0).

# TOPEKA COLLEGIATE SCHOOL SUMMER RESEARCH CLASS YIELDS SPECIMEN OF GREEN LACERTA

by

Larry L. Miller  
Topeka Collegiate School  
2200 S.W. Eveningside Drive  
Topeka, Kansas 66614

Encouraged by the rediscovery of the Green Lacerta (*Lacerta viridis*) in Topeka, Kansas (Gubanyi 1996), a group of Topeka Collegiate School teachers and students organized a week-long field research class to document other specimens. The class consisted of TCS teachers Larry L. Miller and Ken Park along with the assistance of 20 interested students, who ranged in age from 10-14 years. It was conducted the week of 16-20 June 1997.

Day one of the class involved organizing four groups of participants, writing and printing over 200 flyers telling a little about the lizard, and learning as much as possible about the history and habits of the Green Lacerta. A highlight of the day was a visit by Jim Gubanyi. Jim brought the live specimen that was collected in August of 1996 and talked to the group about the lizard. Jim provided much valuable information to the group.

Day two began with the distribution of flyers to people living within about 1/2 mile of the area where the original lizards escaped. Students interviewed dozens of homeowners during the day and left flyers posted in many locations.

The remaining three days involved searching for lizards, based on many tips received by the students. Several interviews were also conducted with local news media, and the group saw themselves on the evening and morning television news shows each day. The Green Lacertas, however, remained quite elusive. Although at least two were observed during the week, none were collected. Their speed, excellent camouflage, and climbing abilities quickly demonstrated to the group how the lizards had survived and multiplied over the years.

The group did, however, observe and collect several Italian Wall Lizards (*Podarcis sicula*) during the week. The Italian Wall Lizard is another species that escaped and established itself in the same general area as the Green Lacerta. It appears to thrive around buildings and piles of rock and other rubble.

Calls about Green Lacertas continued to come in after the class officially ended on 16 June 1997, and the first lizard was collected on 29 June 1997 by Calvin Bayless. Mr. Bayless collected the lizard in his yard located at 4709 S.W. 21st Street (just east of the intersection of 21st Street and Eveningside Drive). He called Topeka Collegiate School science teacher, Larry L. Miller, and Miller drove to his home and took possession a Green Lacerta that morning. A number of Wall Lizards and what appeared to be another Green Lacerta were observed by Miller while visiting with Mr. Bayless.

The lizard was photographed by a number of herpetologists and other interested persons. It was given to Joseph T. Collins of the Museum of Natural History at the University of Kansas on 19 July 1997.

Conversations with residents of the area of Topeka within about 1/2 mile of 21st and Gage, as well as several actual observations of this large green lizard, and the capture of two specimens since August 1996 indicate that this large green lizard has successfully established itself within the city of Topeka, Kansas. The reptile is probably *Lacerta viridis*.

## Literature Cited

- Collins, Joseph T. 1974. Amphibians and Reptiles in Kansas. First Edition. Univ. Kansas Mus. Nat. Hist. Pub. Ed. Ser. 1: 1-283.
- Collins, Joseph T. 1981. Amphibians and Reptiles in Kansas. Second Edition. Univ. Kansas Mus. Nat. Hist. Pub. Ed. Ser. 8: 1-356.
- Gubanyi, J. 1996. Green Lacerta rediscovered in Topeka, Kansas. Kansas Herpetol. Soc. Newsl. 106: 15.

# Addendum to 1997 KHS Herp Counts

by

**Eric M Rundquist  
Animal Care Unit  
B054 Malott  
University of Kansas  
Lawrence, Kansas 66045**

Additional herp counts have been received since publication of the official results of the KHS Herp Counts for 1997 (Rundquist 1997). These are as follows.

## SUMNER COUNTY HERP COUNT

The Topeka Collegiate School 8th grade life science class conducted a herp count south of Caldwell, Kansas near the Oklahoma line on 26 April 1997 between 1100-1300 hrs. The count was conducted on land owned by Carson and Nina Ward of Caldwell. Methods included walking and rock turning. The day was warm and sunny. Ground conditions were slightly damp. Participants were Laura Adams, Amanda Artzer, Ben Bammes, Jessica Cook, Evan Fisher, Katherine Garlinghouse, Stacie Kossoy, Jared Nance, Jocelyn Nichols, Alexis Rowe, John Schroer, Sarah Temple, Rohini Thukral, Sarah Twemlow (all TCS 8th grade students), Larry L. Miller, Mary Kate Baldwin (both TCS science teachers), and Nina Ward (land owner).

Great Plains Toad .....	1
Plains Leopard frog .....	2
Bullfrog.....	1
Spotted Chorus Frog.....	1
Six-lined Racerunner .....	11
Prairie Lizard .....	10
Ringneck Snake .....	85
Ground Snake .....	7

Total

8 species..... 118 specimens

Verifier was Larry Miller

## SHAWNEE COUNTY HERP COUNTY

The Topeka Collegiate School 7th grade life science class conducted a herp count in southeast Shawnee County, Kansas around the Camp Creek Wetlands area and the nearby Landon Trail (an abandoned railroad right-of-way)

on 7 May 1997 between 1000-1400 hrs. Methods included walking in and around the wetlands area, walking along the Landon Trail, and turning old railroad ties along the trail. The day was warm and sunny. Participants were Anne Marie Bireta, Alexandra Bixler, Natalie bonebrake, Jacqueline Castel, Kathleen Daughety, David Duniven, Schuyler Ellis, James Frager, Johathan Schmidt, Allison Viola, Wesley West, Blake Whitaker, Jonas Wilson-Leedy, Chris Yorke, Claire Adams, Alex Bleiberg, Adam Brown, Akhila Challa, Katie Farmer, John Freeman, Rachale Greene, Howard Johns, Kyle Keller, Esther Kennedy, Matt Leifer, Stephanie Meador, Derek Moeller, Mack Schroer (all TCS 7th grade students), Larry L. Miller (TCS science teacher), Kevin Freed (TCS administrator), and Kevin Brown (parent).

Gray Treefrog complex .....	6
Plains Leopard Frogs.....	3
Bullfrog.....	2
Racer .....	1
Ringneck Snake .....	16
Rat Snake.....	2
Common Garter Snake .....	14

Total

7 species..... 43 specimens

Verifier was Larry Miller.

## BELVIDERE AREA HERP COUNT

Ken Brunson held his annual herp count in the Belvidere area of Barber, Comanche, and Pratt Counties on 9-10 May. Participants were Brendan Jantz, Dalaina Jantz, Garrett Jantz, Marvin Jantz, Weston Jantz, Aubrey Kumberg, Cole Kumberg, Kirsten Kumberg, Stacy Kumberg, Mark Kumberg, Stan Roth, Eric Wickman, and Ken Brunson.

Woodhouse's Toad.....	1
-----------------------	---

Northern Cricket Frog .....	3
Bullfrog .....	1
Spiny Softshell .....	1
Collared Lizard .....	28
Prairie Lizard .....	2
Texas Horned Lizard .....	2
Great Plains Skink .....	9
Southern Prairie Skink .....	5
Six-lined Racerunner .....	10
Ringneck Snake .....	2
Plains Blackhead Snake .....	1
Coachwhip .....	1
Common Kingsnake .....	1
Milk Snake .....	2

Total

15 species..... 69 specimens

Verifier was Ken Brunson.

SHAWNEE COUNTY HERP COUNT

A herp count was conducted on 17 May 1997 on a 10-acre plot of land located at 840 S.W. 97th Street in Wakarusa, Kansas by Larry L. Miller and Suzanne L. Miller. The count was conducted during the daylight hours as the Miller's did yard work and walked some of the nature trails they have created on their 10 acres of land. A few rocks were turned and several large boards that have been placed along some of the nature trails were lifted and checked. The habitat ranged from native grass to a forested rocky hillside. Colby Creek flows through the corner of the property and some animals were observed either in or near the creek.

Northern Cricket Frog .....	2
American Toad .....	1
Gray Tree Frog complex .....	3
Western Chorus Frog .....	3
Plains Leopard Frog .....	9
Bullfrog .....	1
Common Snapping Turtle .....	1
Painted Turtle .....	1
Ornate Box Turtle .....	3
Great Plains Skink .....	1
Five-lined Skink .....	4
Racer .....	5
Ringneck Snake .....	34
Brown Snake .....	1
Common Garter Snake .....	4

Total

15 species..... 70 specimens

Verifier was Larry Miller.

4TH ANNUAL CHISHOLM CREEK PARK HERP COUNT

This survey was conducted within Chisholm Creek Park in Wichita, Sedgwick County on 30 May from 0930-1230 hrs. Skies were overcast early, changing to partly cloudy in the afternoon. Beginning air temperature was 64° F. Wetland water temperature was 68° F and pond water temperature was 71° F. Approximately two inches of rain had fallen in the previous 24 hours. Areas of the park included in the survey were grasslands bordering trails, a wetlands area, and a small pond. Primary survey activity consisted of walking shorelines and adjacent areas of water and trails. Participants were Jean Gengler, Eric Johnson, and Joyce Lent.

Unidentified Tadpoles .....	+150
Northern Cricket Frog .....	7
Bullfrog .....	13
Common Snapping Turtle .....	2
Painted Turtle .....	18
Slider .....	7
Diamondback Water Snake .....	3

Total

6 species.....+200 specimens

Verifier was Joyce Lent.

Final totals for the 1997 KHS Herp Counts are 72 species and 2883 specimens.

Literature Cited

Rundquist, E. M 1997. Results of the ninth annual KHS Herp Counts held 1 April-31 May 1997. Kansas Herpetol. Soc. Newsl. 108: 12-17.

## REVIEW

***Frog and Toad Calls of the Rocky Mountains: Vanishing Voices*** by Carlos Davidson. 1996. Library of Natural Sound, Cornell Laboratory of Ornithology, 159 Sapsucker Woods Road, Ithaca, New York 14850. Cassette Tapes \$12.95; Compact Disc \$15.95

The inspiration for this guide was to provide a training tool for members of the U.S. Forest Service, so that they could learn to identify frogs in the field by call. Although it will work admirably for this purpose, somewhere along the line, it turned into a much more useful product.

This audio part of this guide (total of 67:30 minutes) contains the calls of 38 of the 40 species of frogs and toads which inhabit the region of North America covered by this guide (Alberta, Arizona, Colorado, Idaho, Montana, New Mexico, Nevada, Northwest Territories, Saskatchewan, Alberta, Utah, Wyoming, and Yukon Territory). The only missing frogs are the Tailed Frog, *Ascaphus truei* (which has never been heard to call), and the Tarahumara Frog, *Rana tarahumarae* (which is no longer present in the area covered). One surprise inclusion is the African Clawed Frog, *Xenopus laevis*, which unfortunately has become established as a pest species in several areas of the American west.

The taxonomy used in the guide follows that of Stebbins (1985), except the Pacific Treefrog (*Hyla regilla*) is referred to as the Pacific Chorus Frog (*Pseudacris regilla*). The placement of this species is still controversial.

The 28-page booklet portion of the guide explains the kinds of calls made by frogs (advertisement calls, release calls, encounter calls, alarm calls, and rain calls). This is followed by a section on "Learning to Identify Calls," which provides several useful tips, and points out the effects that such things as geographic location, distance, temperature, and volume can have on a frog call. A chart is provided to show the earliest and latest dates each species is known to breed within the area of this guide with an indication of how loud the call of each species is. There is also a section describing the use of sound by biologists.

The first part of the audio recording (43:30 minutes) is the "Reference Section." In this section, each frog and toad call is presented individually. The corresponding material in the booklet includes a description of the call, the dates of the breeding season for the frog and a short description of the frogs breeding habits, with notes on the recording (e.g., location, date, temperature). Some of this information is summarized on the recording as a means of introducing each call (the narrator is the author of the guide, Carlos Davidson). The calls are arranged systematically by family, and "alternate" scientific names are provided for some species (e.g., *Scaphiopus intermontanus* and *Spea intermontana* are both provided for the Great Basin

Spadefoot). Unlike some audio guides, this one provides more than just advertisement calls for some species. In several instances, recordings are also presented of frog choruses, release calls, encounter calls, and rain calls in addition to individual advertisement calls. Most of the recordings are field recordings, although a few of them were made in the laboratory.

The booklet contains line drawings of four species, plus a beautiful color painting on the cover by Robert Stebbins of two Western Toads, *Bufo boreas*.

The second part of the recording (24 minutes) is a "Test Section." The test section is arranged so that you can test yourself over any of three geographic regions, or on all the calls if you so choose. Some of the recordings in the test section are the same as those in the reference section, but 12 of them are different.

The last part of the booklet is a bibliography of field guides, other recordings of western anurans, and references to the biology and status of western frogs and toads.

Although the geographic area covered by this guide does not include Kansas, calls of 11 anurans that are found in Kansas are included. These are: Plains Spadefoot (*Spea bombifrons*), Great Plains Toad (*Bufo cognatus*), Green Toad (*Bufo debilis*), Red-spotted Toad (*Bufo punctatus*), Woodhouse's Toad (*Bufo woodhousii*), Northern Cricket Frog (*Acris crepitans*), Spotted Chorus Frog (*Pseudacris clarkii*), Western Chorus Frog (*Pseudacris triseriata*), Bullfrog (*Rana catesbeiana*), Green Frog (*Rana clamitans*), and Great Plains Narrowmouth Toad (*Gastrophryne olivacea*)

There is a big advantage in the compact disc version of this guide, in that individual frog calls or the appropriate regional test section can be more easily selected than with the cassette tape version.

This audio guide sets a new standard in the field. The combination of the high quality of the recordings, the 28-page information-packed booklet, and the availability in compact disc format make this an indispensable tool for anyone interested in the herpetology of the Rocky Mountains. It will be useful both on those long winter nights as you learn the calls in anticipation of spring, and then in the field for help in identifying what anuran voices you are hearing.

## LITERATURE CITED

Stebbins, R.C. 1985. *A Field Guide to Western Reptiles and Amphibians*. Second revised edition. Peterson Field Guides, Houghton Mifflin Co., Boston. 336 pp.

John E. Simmons  
Division of Herpetology  
Natural History Museum  
University of Kansas  
Lawrence, Kansas 66045-2454