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NUMBER 1 March 2002

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Kansas Herpetological Society

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Front Cover: A digital illustration of an adult Copperhead *(Agkistrodon contortrix)* by Travis W. Taggart (Sternberg Museum of Natural History, Fort Hays State University, Hays, Kansas 67601), based on an image by Suzanne L. Collins (The Center for North American Herpetology, 1502 Medinah Circle, Lawrence, Kansas 66047).

The Journal of Kansas Herpetology

NUMBER 1

MARCH 2002

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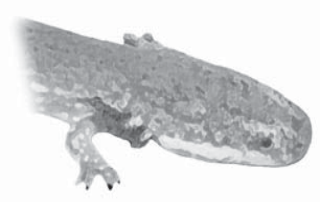


THE JOURNAL OF KANSAS HERPETOLOGY

With this issue we initiate a new step in the evolution of the primary publication of the *Kansas Herpetological Society.* Much more than a name change, from the *Kansas Herpetological Society Newsletter* to the *Journal of Kansas Herpetology,* is the content that we will now begin accepting and evaluating for publication. Submission of more scholarly works will be encouraged, and those articles so designated will undergo the professional peer review process typical of other scientific periodicals. Upon successful review, manuscripts will be published in a specific section of the *Journal of Kansas Herpetology* entitled *Articles.*

The need to make this change was threefold.

First, and especially under the editorship of Eric M. Rundquist, the *Kansas Herpetological Society Newsletter* had become much more than a simple newsletter. The more sophisticated content alone necessitated changing the name to something that more accurately fit what the publication had become.

Second, a *Journal of Kansas Herpetology* is needed to serve as an outlet for the wealth of scholarly work, both fossil and recent, that is conducted annually, on the herpetofauna of Kansas as well as neighboring states. Articles that pass peer review and are published will not be relegated to the status of *gray literature,* as such works have been considered in the past.

Finally, by publishing reviewed content in the *Journal of Kansas Herpetology,* we have the possibility of expanding our readership, of increasing our service to the herpetological community, and most importantly, of encouraging the publication of more research on the amphibians, turtle, and reptiles of the Sunflower State and surrounding areas.

Reprints of *Articles* published in the *Journal of Kansas Herpetology* will be provided to the author in digital Portable Document Format (pdf) by Adobe.

The past editors of the *Kansas Herpetological Society Newsletter* put forth an extraordinary effort in producing 126 issues from 1974 to 2001. They were Joseph T. Collins (1974), Janice J. Perry (1975–1979), Hank Guarisco (1980–1982), John E. Simmons (1983–1989), Eric M. Rundquist (1990–1999), and Travis W. Taggart (2000-2001). The *Kansas Herpetological Society Newsletter* contains a wealth of information about the herpetofauna of our state, and will remain a source of important data for infinity. We urge those of you that have complete sets of the *KHS Newsletter* to get them bound for eventual deposition in an institutional library, where they will provide knowledge for future generations of biologists.

Travis W. Taggart
Editor
Journal of Kansas Herpetology

Joseph T. Collins
Associate Editor
Journal of Kansas Herpetology

Suzanne L. Collins
President
Kansas Herpetological Society

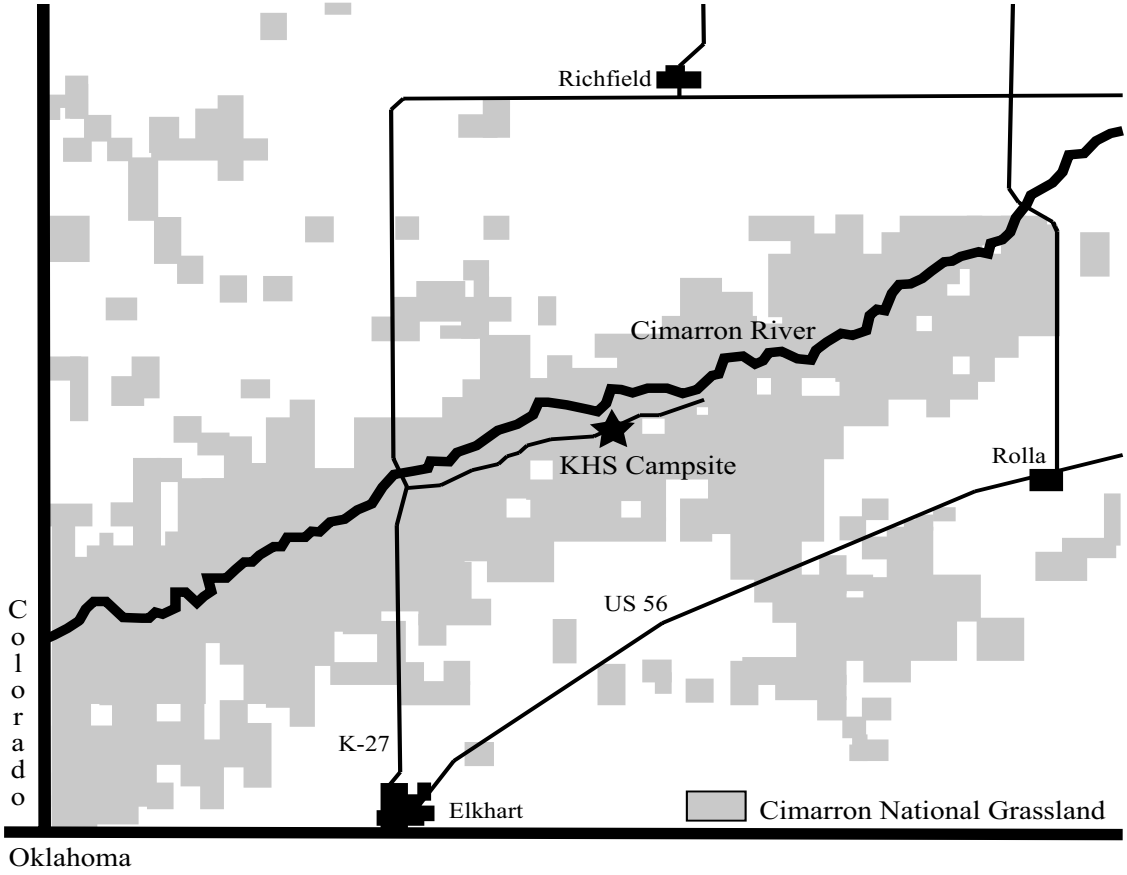
An adult Green Toad *(Bufo debilis)* © Suzanne L. Collins, The Center for North American Herpetology.

SPRING 2002 KHS FIELD TRIP
TO CIMARRON NATIONAL GRASSLANDS

The spring 2002 KHS field trip will be to the Cimarron National Grasslands located in Morton County, Kansas. The dates of the field trip will be 31 May to 2 June 2002. The first session of the field trip will begin at 9:00 am on Saturday, 1 June 2002. The second session will begin at 9:00 pm on Sunday, 2 June 2002. The meeting place for both sessions will be the Cimarron Recreation Area which is located four miles east of Route 27 along gravel road FS 700 on the south side of the river (see the map below). Camping at the recreation area is $7.00 per night. Restrooms are available. Open campfires are not allowed. There are also at least two motels in Elkhart. The El Rancho is located at 604 Hwy 56 and its phone number is 620-697-2117. The other motel is the Elkhart Motel which is located at 329 Morton Street. The phone number is 620-697-2168.

As with all KHS field trips, FRS channel 4 will be monitored. The Cimarron National Grasslands field trip to Morton County will be the only spring KHS field trip scheduled for 2002. Start making plans now for this exciting adventure!

For more information, contact Larry L. Miller, KHS Field Trip Chairperson 840 SW 97th Street Wakarusa, Kansas 66546. Telephone: 785-836-2119 (email: kansasphoto@metacrawler.com).



LAST CALL FOR 2002 DUES

A reminder. It would be a shame if this, the inaugural issue of the *Journal of Kansas Herpetology* were your last — all because you forgot to pay your dues. So hurry, and correct this oversight. Send your dues ($15.00 regular, $20.00 contributing) to:

Mary Kate Baldwin
KHS Secretary
5438 SW 12th Terrace Apt. 4
Topeka, Kansas 66604

Your attention to this matter will ensure that the delivery of your *Journal* will be uninterrupted, and will support the KHS and its many fine programs. Also, you will be eligible for KHS awards, grants, and scholarships.

*

Donors

Few tributes are so lasting or honor individuals so well as donations. The *Kansas Herpetological Society* is privileged to carry on the aims and goals of the Society through its awards, grants, and scholarships. This list recognizes donations received through 1 March 2002.

The Alan H. Kamb Grant
for Research on Kansas Snakes

Calvin Cink
Suzanne L. & Joseph T. Collins
Franklyn F. Finks
David & Jacquie Stineman
Jacob Winter

The Howard K. Gloyd/Edward H. Taylor Scholarship

Suzanne L. & Joseph T. Collins
Franklyn F. Finks
David & Jacquie Stineman
Jacob Winter

Kansas Herpetological Society
Treasurer's Report
Calendar 2001

Balance on hand 1 January 2001 ..... $1170.47

Income

Membership Dues
Regular $2175.00
Contributing $830.00
Total $3005.00

Annual Meeting
Registration $780.00
Auction $1702.00
Sale of KHS T-shirts $1224.00
Total $3706.00

Donations $1230.25
Bank Interest $4.98

Total Income $7946.23

Expenses

KHS Newsletter 122 ..... $600.24
KHS Newsletter 123 ..... $624.41
KHS Newsletter 124 ..... $551.41
KHS Newsletter 125 ..... $570.52
Office of the Editor $425.00
Annual Meeting $646.02
T-shirts $724.36
The Collins Award $1000.00
The Kamb Grant $100.00
The Gloyd/Taylor Scholarship $100.00
Office of the Secretary $109.63
Bank Charges $24.61

Total Expense $5476.20

Balance on hand 31 December 2001 ..... $3640.50

Endowed Funds

Alan H. Kamb Grant $3108.85
Gloyd/Taylor Scholarship $539.96

Total Endowed Funds $3648.81

TOTAL ASSETS $7289.31

Respectfully submitted,

Mary Kate Baldwin
KHS Secretary
Eric Kessler
KHS Treasurer
18 February 2002

2002 ANNUAL MEETING & CALL FOR PAPERS

The 29th Annual Meeting of the *Kansas Herpetological Society* is scheduled for 1–3 November 2002 in Lawrence, Kansas. All scientific paper sessions for the meeting will be held in Nichols Hall on the *University of Kansas* Campus West, on Saturday and Sunday, 2–3 November 2002, compliments of the *Kansas Biological Survey.* The meeting will open with a social at the *Lawrence Prairie Park Nature Center* on Friday evening, 1 November. The Center boasts a large live collection of amphibians, turtles, and reptiles (as well as birds, mammals and fishes), and will also serve as the KHS live exhibit for this meeting. Scientific papers sessions will be conducted from approximately 8:00 am to 5:00 pm on Saturday, and 8:00 am to noon on Sunday. On Saturday night, the KHS auction and social will be held at the *Union Pacific Depot* in North Lawrence. Participants on Saturday night can eat dinner prior to the auction at the famous *Johnny's Tavern* (across the street from the *Depot*). All KHS members and friends and colleagues are encouraged to attend the meeting.

Individuals wishing to present a talk at the KHS meeting should mail their title and a brief abstract to:

Suzanne L. Collins
KHS President &
Meeting Chairperson
1502 Medinah Circle
Lawrence, Kansas 66047

or email it to:

scollins@ku.edu

Those wishing to ensure that their presentation is eligible for *The Suzanne L. & Joseph T. Collins Award for Excellence in Kansas Herpetology* should be certain they are KHS members in good standing. In addition, please remember to submit your nominations for the *Howard K. Gloyd/Edward H. Taylor Scholarship* and the *Alan H. Kamb Grant for Research on Kansas Snakes.* See the inside back cover for details.

Smoky-Hills

Snake Bags

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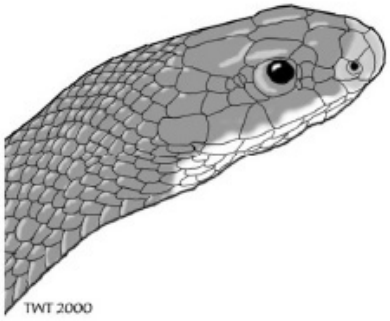

THE LOST WORLD: JURRASIC PARK

Not your ordinary walk in the park!

February 2 - May 5, 2002

Sternberg Museum of Natural History
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KANSAS HERPETOLOGICAL SOCIETY
APRIL-MAY AMPHIBIAN, TURTLE & REPTILE COUNT

Locality:_____

_____

Date: _____

Time: From _____ To _____

Please carefully record the total number of each species observed or heard.

Salamanders

__ Smallmouth Salamander, *Ambystoma texanum*
__ Barred Tiger Salamander, *Ambystoma mavortium*
__ Eastern Tiger Salamander, *Ambystoma tigrinum*
__ Eastern Newt, *Notophthalmus viridescens*
__ Longtail Salamander, *Eurycea longicauda*
__ Cave Salamander, *Eurycea lucifuga*
__ Many-ribbed Salamander, *Eurycea multiplicata*
__ Grotto Salamander, *Typhlotriton spelaeus*
__ Red River Mudpuppy, *Necturus louisianensis*
__ Common Mudpuppy, *Necturus maculosus*

Frogs and Toads

__ Plains Spadefoot, *Spea bombifrons*
__ American Toad, *Bufo americanus*
__ 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*
__ Spring Peeper, *Pseudacris crucifer*
__ Strecker's Chorus Frog, *Pseudacris streckeri*
__ Boreal Chorus Frog, *Pseudacris maculata*
__ Western Chorus Frog, *Pseudacris triseriata*
__ Eastern Gray Treefrog, *Hyla versicolor*
__ Cope's Gray Treefrog, *Hyla chrysoscelis*
__ Crawfish Frog, *Rana areolata*
__ Plains Leopard Frog, *Rana blairi*
__ Bullfrog, *Rana catesbeiana*
__ Green Frog, *Rana clamitans*
__ Pickerel Frog, *Rana palustris*
__ Southern Leopard Frog, *Rana sphenocephala*
__ Eastern Narrowmouth Toad, *Gastrophryne carolinensis*
__ Great Plains Narrowmouth Toad, *Gastrophryne olivacea*

Turtles

__ Common Snapping Turtle, *Chelydra serpentina*
__ Alligator Snapping Turtle, *Macrochelys temminckii*
__ Common Musk Turtle, *Sternotherus odoratus*
__ Yellow Mud Turtle, *Kinosternon flavescens*
__ Eastern Box Turtle, *Terrapene carolina*
__ Ornate Box Turtle, *Terrapene ornata*
__ Common Map Turtle, *Graptemys geographica*
__ Ouachita Map Turtle, *Graptemys ouachitensis*
__ False Map Turtle, *Graptemys pseudogeographica*
__ River Cooter, *Pseudemys concinna*
__ Painted Turtle, *Chrysemys picta*
__ Slider, *Trachemys scripta*
__ Smooth Softshell, *Apalone mutica*
__ Spiny Softshell, *Apalone spinifera*

Lizards

__ Eastern Collared Lizard, *Crotaphytus collaris*
__ Lesser Earless lizard, *Holbrookia maculata*
__ Prairie Lizard, *Sceloporus undulatus*
__ Texas Horned Lizard, *Phrynosoma cornutum*
__ Ground Skink, *Scincella lateralis*
__ Coal Skink, *Eumeces anthracinus*
__ Five-lined Skink, *Eumeces fasciatus*
__ Broadhead Skink, *Eumeces laticeps*
__ Great Plains Skink, *Eumeces obsoletus*
__ Southern Prairie Skink, *Eumeces obtusirostris*
__ Northern Prairie Skink, *Eumeces septentrionalis*
__ Six-lined Racerunner, *Cnemidophorus sexlineatus*
__ Western Slender Glass Lizard, *Ophisaurus attenuatus*

Snakes

__ Texas Blind Snake, *Leptotyphlops dulcis*
__ Western Hognose Snake, *Heterodon nasicus*
__ Eastern Hognose Snake, *Heterodon platirhinos*
__ Western Worm Snake, *Carphophis vermis*
__ Ringneck Snake, *Diadophis punctatus*
__ Flathead Snake, *Tantilla gracilis*
__ Plains Blackhead Snake, *Tantilla nigriceps*
__ Night Snake, *Hypsiglena torquata*
__ Rough Green Snake ,*Opheodrys aestivus*
__ Eastern Racer ,*Coluber constrictor*
__ Coachwhip, *Masticophis flagellum*
__ Great Plains Rat Snake, *Elaphe emoryi*
__ Eastern Rat Snake, *Elaphe obsoleta*
__ Glossy Snake, *Arizona elegans*
__ Gopher Snake (Bullsnake), *Pituophis catenifer*
__ Prairie Kingsnake, *Lampropeltis calligaster*
__ Common Kingsnake, *Lampropeltis getula*
__ Milk Snake, *Lampropeltis triangulum*
__ Longnose Snake, *Rhinocheilus lecontei*
__ Ground Snake, *Sonora semiannulata*
__ Checkered Garter Snake, *Thamnophis marcianus*
__ Western Ribbon Snake, *Thamnophis proximus*
__ Plains Garter Snake, *Thamnophis radix*
__ Common Garter Snake, *Thamnophis sirtalis*
__ Lined Snake, *Tropidoclonion lineatum*
__ Rough Earth Snake, *Virginia striatula*
__ Smooth Earth Snake, *Virginia valeriae*
__ Brown Snake, *Storeria dekayi*
__ Redbelly Snake, *Storeria occipitomaculata*
__ Graham's Crayfish Snake, *Regina grahamii*
__ Plainbelly Water Snake, *Nerodia erythrogaster*
__ Diamondback Water Snake, *Nerodia rhombifer*
__ Northern Water Snake, *Nerodia sipedon*
__ Copperhead, *Agkistrodon contortrix*
__ Cottonmouth, *Agkistrodon piscivorus*
__ Massasauga, *Sistrurus catenatus*
__ Timber Rattlesnake, *Crotalus horridus*
__ Western Rattlesnake, *Crotalus viridis*

This list is based on the common and scientific names that appear in the fourth edition of *Amphibians and Reptiles in Kansas* (Collins 1997), with modifications from information published since that date. Compiled for the Kansas Herpetological Society by Joseph T. Collins. November 2000.

RETURN TO

KANSAS BIOLOGICAL SURVEY
UNIVERSITY OF KANSAS
2021 CONSTANT AVENUE
LAWRENCE, KANSAS 66047

Verified by: _____
Signature

Observers:

_____
_____
_____
_____
_____
_____

OF INTEREST

CONSERVATION AND REINVESTMENT ACT (CARA) STATUS REPORT

A National Coalition of over 3000 conservation and recreation groups and businesses are championing an effort to prevent declines of fish and wildlife, to ensure high quality outdoor recreation, and to meet the rising demand for conservation education.

The 11 September terrorist attacks preempted potential House action this year on the Conservation and Reinvestment Act (H.R. 701). More pressing legislation such as an anti-terrorism bill and an economic stimulus package have temporarily delayed consideration of CARA. Given the air of uncertainty surrounding all current congressional action, CARA supporters are continuing to solicit cosponsors of the bill.

The last CARA action took place in the House on 25 July 2001, when the House Resources Committee approved the legislation by a vote of 29-12 reporting it to the full House for consideration. The bill currently has 242 cosponsors, which is enough to pass it if brought to a floor vote. Advocates of the bill continue to solicit cosponsors, especially Republicans, to strengthen its appeal to the House Republican leadership to ensure a vote as soon as possible. Floor action on the House bill is expected early next year.

The Senate appears to be awaiting passage of CARA in the House before scheduling hearings. In the meantime, two Senate CARA bills have been introduced. Senator Frank Murkowski (R-AK) introduced S. 1318 and Senator Mary Landrieu (D-LA) introduced S. 1328. In addition, Senator Bob Smith (R-NH) has introduced S. 990, which would authorize, but not guarantee, $350 million annually for state wildlife programs.

In the meantime, President Bush has signed into law another CARA-lite state wildlife grants program for $80 Million in FY 2002 Interior Appropriations. This is not a substitute for full CARA permanent funding, but it helps states, especially NJ, support their wildlife conservation and research programs until Congress addresses the full CARA package.

At present our congressional delegation is not fully in support of CARA, but with your help we can achieve 100% cosponsorship of HR701 in the House.

KANSAS ACADEMY OF SCIENCE TO MEET IN HAYS

The 134th Annual Meeting of the *Kansas Academy of Science* will be held on 12–13 April 2002 at *Fort Hays State University.* The local host for the meeting is Karen Hickman, who can be contacted at

khickman@fhsu.edu

At 7:15 pm, *KHS Distinguished Life Member* Joseph T. Collins will deliver the *Kansas Academy of Science* keynote address at the banquet on Friday evening, 12 April. Collins, who is Adjunct Curator of Herpetology at the *Sternberg Museum of Natural History,* also will give a public lecture at 1:15 pm after the KAS luncheon on Saturday, 13 April. Those interested in attending can register on-line at

https://secure.fhsu.edu/KAS/index.htm

The *Kansas Academy of Science* is the oldest such academy west of the Mississippi River. It has a long history of publishing papers on herpetology in the *Transactions of the Kansas Academy of Science.*

NOTES

A RANGE EXTENSION OF THE TEXAS LONGNOSE SNAKE IN WESTERN KANSAS

On 10 July 2001, a small adult Texas Longnose Snake (*Rhinocheilus lecontei*) was collected by one of us (CS) in a drift fence/funnel trap array on the Smoky Valley Ranch, Logan County, Kansas. The specimen was accessioned into the Sternberg Museum of Natural History (MHP) with the following information:

Rhinocheilus lecontei
MHP 6864. Logan County: 4 miles south and 8.5 miles east of Russell Springs, 14S UTM 326374, 4302602, Sec. 8, T14S, R33W. 10 July 2001. Curtis Schmidt.

The trap was set in an area of sandsage prairie approximately 100 yards from the Smoky Hill River. Also, collected in the trap at the same time were an adult Western Hognose Snake (*Heterodon nasicus*) and a Plains Pocket Gopher (*Geomys bursarius*).

Other animals that were recorded from the same traps at different times included: additional Western Hognose Snakes, Bullsnakes (*Pituophis catenifer*), Eastern Racers (*Coluber constrictor*), Prairie Lizards (*Sceloporus undulatus*), Six-lined Racerunners (*Cnemidophorus sexlineatus*), Hispid Pocket Mice (*Chaetodipus hispidus*), Deer Mice (*Peromyscus maniculatus*), Eastern Woodrats (*Neotoma floridana*), Grasshopper Mice (*Onychomys leucogaster*), Ord's Kangaroo Rat (*Dipodomys ordii*), and Western Harvest Mice (*Rheithrodontomys megalotis*).

This record of the Texas Longnose Snake is separated from the nearest specimen in Finney County by approximately 65 miles. More importantly, this specimen is the first reported for its taxon from the Smoky Hill drainage. All other records in the state are confined to the Arkansas and Cimarron basins of southwest Kansas (see map below).

We believe this specimen represents a sample from a relict population that still exists along the Smoky Hill River drainage. Other herpetofaunal elements are also known to share a similar distribution, with widespread ranges in the south, and isolated, relictual populations confined to areas of suitable habitat to the north. These include the Glossy Snake (*Arizona elegans*), Ground Snake (*Sonora semiannulata*), and the Green Toad (*Bufo debilis*).

—Travis W. Taggart *(Adjunct Curator of Herpetology)*, Curtis Schmidt *(Curatorial Assistant)*, and Joseph T. Collins *(Adjunct Curator of Herpetology)*, Sternberg Museum of Natural History, Fort Hays State University, Hays, Kansas 67601

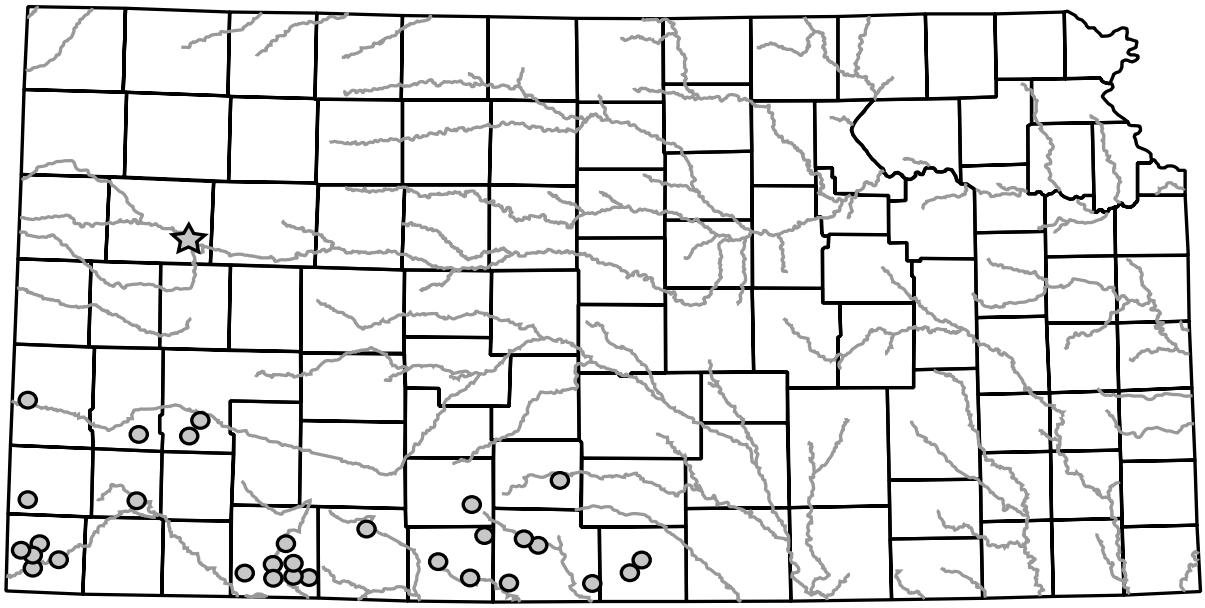

Figure 1. Locality dot distribution of the Texas Longnose Snake in Kansas. County lines are in black and prominent rivers and streams are in gray. Previously recorded specimens from the Sternberg Museum of Natural History, Fort Hays State University, and the University of Kansas Natural History Museum are illustrated by circles; the specimen from Logan County reported herein is shown by a star.

ORGANIZATION AND BACKGROUND OF THE 2000 AND 2001 SHARON SPRINGS, KANSAS, RATTLESNAKE ROUNDUPS

This a brief summary of the events that took place during the 2000 and 2001 Sharon Spring Rattlesnake Roundup. With the cooperation of the Kansas Department of Wildlife and Parks and Fort Hays State University, I directed a team of researchers to collect data on the Prairie Rattlesnakes that were brought to the roundup. Our goal was to continue the previous work of Henry S. Fitch of the University of Kansas in studying demographics of this species.

The event consisted of two main areas, a midway and the snake pit. The midway was free to the public and consisted mostly of food and craft vendors. The midway also had a variety of entertainment attractions as well, particularly while snake shows were not being performed in the pit. The 2000 roundup boasted a professional chainsaw artist who carved animals out of stumps At the end of the day, the carvings were auctioned off to the public, and this usually attracted large crowds. The 2001 roundup had a local country band that performed for the majority of the weekend. Along with the band, a disc jockey for the nationally syndicated country radio program, "The Conman," out of Denver, Colorado, was in attendance to sign autographs. He also acted as commentator for some of the snake shows.

An admission fee of four dollars was charged to enter the area that contained the snake pits. The major attraction was the large snake pit, a wooden and plexiglass enclosure, open on the top with many rattlesnakes on display, primarily Prairie Rattlesnakes (*Crotalus viridis*). According to the roundup chairperson, Judy Withers, most of the snakes were captured well in advance of the event. Teams were hired by the roundup committee to capture snakes, primarily in Osborne County, Kansas (Judy Withers, pers. comm.). Over 300 snakes were on hand in both 2000 and again in 2001. The pit was also open for any registered hunters to add their snakes. Many Western Diamondback Rattlesnakes *(Crotalus atrox)* were also present in the pit, suggesting that collecting was done outside of the state, especially in 2001 (which boasted a higher percentage of *C. atrox*). All of the snakes from the pit were sold to a commercial rattlesnake company from Colorado, whose owner was present both years.

There were bleachers surrounding the enclosure where spectators gathered to watch the daredevil feats of the "Fangs and Rattles" team from Granbury, Texas. This team performed such feats as "the pyramid," where an individual holds one rattlesnake in each hand and one on his head. The team also demonstrated how one could safely walk through the middle of a rattlesnake den without getting bitten. The team had added back into its repertoire the sleeping bag stunt, where a performer crawls into a sleeping bag containing several live rattlers. This stunt had been dropped from previous roundups for safety reasons. During the show, a commentator entertained the crowd by talking about various aspects of the snakes from biology to behavior and ecology. The commentators were generally roundup organizers, with the exception of "The Conman" at the 2001 roundup. Snake shows were usually performed once each hour.

There were also other small enclosures under the tent near the snake pit, one of which housed several large Western Diamondback Rattlesnakes for public viewing. The other enclosure provided our team with an area to collect data on the Prairie Rattlesnakes. Our data collection also provided entertainment and educational opportunities, with large groups gathering around throughout the day. The pit performing group "Fangs and Rattlers" would periodically provide us with snakes to measure from the pit. In 2000, the announcers mentioned our group at every show, which greatly increased the number of people interested in seeing our procedure. This was probably the most educational aspect of the roundup. People asked numerous questions ranging from the type of research we were conducting, to how to sex a snake. Unfortunately, in 2001 we were rarely mentioned and the crowds that gathered around were noticeably smaller. We still provided an excellent opportunity to learn about rattlesnakes, with an emphasis on natural history and conservation; two points that were not addressed by the pit announcers.

In a far corner of the tent area, several species of Kansas snakes were on display. These included both venomous and nonvenomous species. This presented an opportunity to educate the public about native Kansas species; however, the quality of education was not as good compared to past roundups. At no time did I notice any attendant available to answer questions or speak about the snakes. Many of these snakes were in extremely poor shape, looking starved and emaciated from dehydration. Also, the video, "Snakes. . . From the Ground Up," which had been on display in previous years, was not available in 2000 or 2001.

The final point of attraction was the butcher shop. From time to time, small lots of rattlesnakes were skinned, prepared, and sold for meat. Only the largest snakes were butchered, mainly Western Diamondback Rattlesnakes. We collected the viscera from butchered Prairie Rattlesnakes, making it possible to examine ovarian follicles and alimentary tracts for food residues.

The demographic analyses of the snakes we were allowed to measure are presented elsewhere in this issue (Schmidt, 2002, Journal of Kansas Herpetology Number 1: 12–18).

—Curtis Schmidt, Hays, Kansas 67601

NEW RECORDS OF AMPHIBIANS, TURTLES, AND REPTILES IN KANSAS FOR 2001

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The six new county records listed below are those accumulated or brought to my attention since the publication of records for 2000 (Collins, 2001). Publication of these new records permits me to give credit and express my appreciation to the many individuals who collected or obtained specimens and donated them to me for deposition in an institutional collection. Further, recipients of this list are permitted an opportunity to update the range maps and size maxima sections in *Amphibians and Reptiles in Kansas Third Edition* (Collins, 1993). Finally, these new records represent information that greatly increases our knowledge of the distribution and physical proportions of these creatures in Kansas, and thus gives us a better understanding of their biology. This report is my 27th in a series that has appeared annually since 1976, and the data contained herein eventually will be incorporated into the fourth (revised) edition of my book.

The Kansas specimens listed below represent the first records for the given county based on a preserved, cataloged voucher specimen in an institutional collection, or represent size maxima larger than those listed in Collins (1993). Any information of this nature not backed by a voucher specimen is an unverifiable observation. All new records listed here are presented in the following standardized format: standard common and current scientific name, county, specific locality, date of collection, collector(s), and place of deposition and catalog number. New size maxima are presented with the size limits expressed in both metric and English units. Common names are those now standardized for North America, as compiled by Collins (1997), and are given at the species level only.

The records listed below are deposited in the herpetological collections of the Natural History Museum, The University of Kansas, Lawrence, Kansas (KU) and the Sternberg Museum of Natural History, Fort Hays State University, Hays, Kansas (MHP). I am most grateful to the members of the Kansas Herpetological Society, and to the staff of the Kansas Department of Wildlife and Parks and the Kansas Biological Survey, who spent many hours in search of some of the specimens reported herein. Some of the records contained herein resulted from field studies sponsored by funds from the Kansas Department of Wildlife and Parks' Chickadee Checkoff Program. John E. Simmons, Collection Manager for the Division of Herpetology, Natural History Museum, The University of Kansas, and Travis W. Taggart, Adjunct Curator of Herpetology, Sternberg Museum of Natural History, Fort Hays State University, diligently assigned catalog numbers to the specimens listed below, and to them I am most indebted.

NEW COUNTY RECORDS

GREAT PLAINS TOAD (*Bufo cognatus*)
ELK CO: Elk Falls area. 21 October 2001. Michael Washburne. KU Color Slides 11860-11861.

SOUTHERN LEOPARD FROG (*Rana sphenocephala*)
FRANKLIN CO: Blue Creek drainage, NW 1/4 Sec. 1, T17S, R18E. 21 May 2001. Keith Coleman. KU 291129.

PAINTED TURTLE (*Chrysemys picta*)
WASHINGTON CO: Sec. 10, T3S, R3E. 8 September 2001. James Gubanyi. KU Color Slides 11837-11838.

GROUND SKINK (*Scincella lateralis*)
COMANCHE CO: Merrill Ranch, Sec. 34, T33S, R16W. 1 June 2001. Scott Sharp. KU 290766.

GREAT PLAINS RAT SNAKE (*Elaphe emoryi*)
WASHINGTON CO: Sec. 8, T3S, R1E. 8 September 2001. James Gubanyi. KU 291130.

GROUND SNAKE (*Sonora semiannulata*)
ELK CO: N37.45146, W96.22228. 6 October 2001. Chad Whitney & Brandon DeCavele. MHP 6891.

NEW MAXIMUM SIZE RECORDS

No new maximum size records for Kansas amphibians, turtles, or reptiles were reported to me during 2001.

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ARTICLES

A DEMOGRAPHIC ANALYSIS OF THE PRAIRIE RATTLESNAKES COLLECTED FOR THE 2000 AND 2001 SHARON SPRINGS, KANSAS, RATTLESNAKE ROUNDUPS

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Introduction

The annual Sharon Springs rattlesnake roundups for the years 2000 and 2001 were structured similarly to those held previously. Fitch (1994, 1995) and Schmidt (elsewhere in this issue) detailed the background and organization of these two most recent roundups. He reported that the majority of the 300 snakes brought to the roundups for 2000 and 2001 were from Osborne County, Kansas. Fitch (1995) reported this to be one of the main areas of collection in past years as well, suggesting that collecting may occur at the same localities (possibly den sites) year after year.

The goal of this study was to reinitiate data collection efforts on the Prairie Rattlesnakes brought to the roundups, and compare these data with those collected previously. This was undertaken with the hope of providing additional baseline data that may be used in subsequent management decisions about these reptiles.

Materials and Methods

My field team consisted primarily of graduate and undergraduate students from Fort Hays State University in Hays, Kansas. In 2000, we were accompanied by Travis Taggart, adjunct curator of herpetology at the Sternberg Museum of Natural History in Hays. He had assisted Fitch in previous years and was extremely helpful in guiding us through the data collection process. Other members of the 2000 crew included Jamie Timson, Matt Bain, Mark Van Scoyoc, Mark Omura, and Ty Schmidt. The 2001 crew included Jim Schmidt, Travis Trendel, Aaron Baugh, Jon Storm, and Mark Omura.

Our operation was set up like an assembly line, with two groups processing snakes at the same time. Groups of five to ten Prairie Rattlesnakes were brought from the snake pit to our table. The snakes were first immersed in ice water to render them sluggish. They were then weighed with balances (0–1kg), measured to the nearest 0.5 mm (snout-vent length, tail length, rattle string length, diameter of each rattle segment), and sexed (by probing or physically everting the hemipenes). Female snakes were palpated to detect and count yolked ovarian follicles. We did not collect data on the fang cycle, as Fitch had done in the past (Fitch, 1994, 1995). A numbered tag was tied to the base of the rattle of each snake that was processed. The snakes were then returned to the pit as part of the show. The tags allowed us to eliminate the possibility of measuring any snake more than once. One member of our team accompanied the butcher in the butcher shop, so that the viscera from butchered snakes could be saved and matched with the appropriate data.

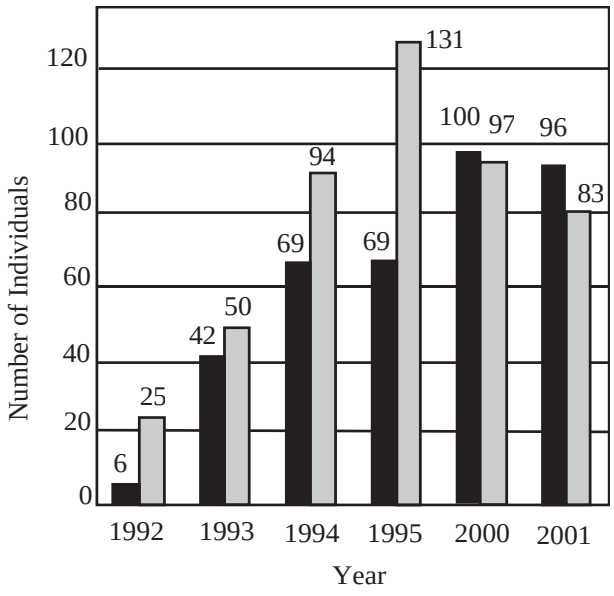

Figure 1. Comparison between numbers of females and numbers of males from six samples of *Crotalus viridis* sampled at the Sharon Springs, Kansas, rattlesnake roundups. Females are shown in black, males in gray.

Results

Sex ratios and age classes. Our 2000 sample of 197 Prairie Rattlesnakes consisted of 100 females and 97 males. In 2001, we processed 180 specimens, with 83 males, 96 females, and one individual that lacked a tail entirely and was consequently unable to be sexed. According to information gathered from previous reports, these were the only two years that females outnumbered males (Figure 1). In each of Fitch's four previous samples from the roundup, males outnumbered the females, comprising 62% of the composite sample (Fitch, 1998). Our sex ratios were much closer to the 1:1 birth ratio described by Klauber (1997).

The rattle string provides information on each snake's growth rate, as well as allowing a good estimate of the snake's age. Published studies of large samples of *Crotalus viridis* (Klauber,1997), as well as data from previous roundups (Fitch, 1994, 1995) provide a basis for extrapolating the approximate age in years of each snake by looking at the number of rattle segments together with the snout-vent length. Table 1 shows the numbers of rattle segments and the correlation with snout-vent length and weight for all snakes from the 2000 sample. Table 2 gives these numbers for 2001. Fitch (1995) provided the age class specifications based on the previous data, which were used for the 2000 and 2001 samples. The following are the size ranges and number of rattle segments that correspond to each age class, according to Fitch (1995):

297–348 mm with one segment (button) = first year
510–750 mm with 4–6 segments = second year
720–950 mm with 7–8 segments = third year
830–1025 mm (less for females) with 9 segments = fourth year
845–1050 mm with 10–12 segments = fifth or sixth year (males)
815–965 mm with 10–12 segments = fifth or sixth year (females)
965–1138 mm with 13–16 segments = six to ten

Out of the 197 Prairie Rattlesnakes in our 2000 sample, 93 had complete rattle strings. The other 104 snakes lacked the natal button and often other rattle segments. Similarly, in 2001 there were only 75 snakes with complete rattles and 122 with segments missing. The number of rattle segments that these snakes were missing can be determined by the width of the terminal segment. The mean width of each rattle segment is calculated from complete rattle strings. Then a 95% confidence interval is calculated using the following equation:

$$\text{Mean} \pm (SD/\sqrt{N}) \cdot t$$

The width of the terminal segment can then be compared to the 95% confidence limits to see which segment it corresponds to. It can then be estimated with a fair amount of certainty how many segments are missing. For example, if the width of the terminal segment fell within the range of the fourth segment, we can be 95% certain that it is missing the natal button and two segments. This method was used to project the number of rattle segments

Table 1. Correlation of number of rattle segments (complete or projected) with length and weight in *Crotalus viridis* from the 2000 rattlesnake roundup held at Sharon Springs, Kansas. SVL = snout-vent length; RS = number of rattle segments.

	FEMALES			MALES		
RS	*n*	SVL (mm)	weight (g)	*n*	SVL (mm)	weight (g)
4	2	537 +/- 04.0 (533–541)	120 +/- 04.0 (116–124)	1	770	331
5	20	628 +/- 12.2 (515–736)	192 +/- 12.3 (102–318)	13	627 +/- 11.8 (585–742)	208 +/- 22.4 (140–452)
6	19	728 +/- 16.5 (635–867)	300 +/- 26.9 (152–474)	12	670 +/- 06.8 (629–702)	229 +/- 07.9 (192–290)
7	18	826 +/- 13.6 (750–965)	442 +/- 24.0 (232–678)	19	792 +/- 13.4 (675–880)	363 +/- 18.7 (212–490)
8	10	828 +/- 16.8 (741–895)	440 +/- 33.5 (290–636)	13	822 +/- 13.1 (740–891)	393 +/- 17.7 (286–492)
9	10	846 +/- 13.0 (756–889)	445 +/- 46.3 (250–614)	5	872 +/- 15.9 (833–923)	453 +/- 16.5 (420–511)
10	8	858 +/- 15.8 (776–914)	459 +/- 40.5 (326–698)	12	884 +/- 15.8 (810–1010)	500 +/- 24.8 (340–612)
11	4	794 +/- 23.0 (757–832)	341 +/- 23.3 (291–400)	7	889 +/- 27.0 (789–975)	527 +/- 39.8 (360–690)
12	6	864 +/- 09.4 (834–896)	454 +/- 28.0 (334–504)	5	923 +/- 24.3 (845–967)	575 +/- 29.8 (483–630)
13+	3	882 +/- 20.7 (858–923)	549 +/- 69.2 (462–686)	10	950 +/- 23.2 (844–1076)	631 +/- 40.6 (440–862)

Table 2. Correlation of number of rattle segments (complete or projected) with length and weight in *Crotalus viridis* from the 2001 rattlesnake roundup held at Sharon Springs, Kansas. SVL = snout-vent length; RS = number of rattle segments.

	FEMALES			MALES		
RS	*n*	SVL (mm)	weight (g)	*n*	SVL (mm)	weight (g)
4	1	523	90	2	569 +/- 80.0 (489–649)	146 +/- 56.0 (90–202)
5	9	655 +/- 18.4 (590–730)	209 +/- 21.8 (140–300)	13	636 +/- 10.1 (585–689)	204 +/- 08.5 (146–240)
6	18	697 +/- 10.2 (582–769)	252 +/- 13.1 (125–344)	13	704 +/- 15.4 (610–774)	250 +/- 13.0 (170–320)
7	25	774 +/- 12.8 (590–867)	380 +/- 14.9 (244–490)	6	791 +/- 14.4 (735–827)	373 +/- 29.1 (290–480)
8	23	794 +/- 11.6 (672–903)	402 +/- 24.8 (190–735)	14	831 +/- 13.0 (742–916)	442 +/- 17.5 (330–560)
9	7	801 +/- 12.1 (760–837)	414 +/- 28.7 (350–524)	17	843 +/- 12.2 (760–922)	431 +/- 17.6 (310–545)
10	4	843 +/- 04.1 (834–850)	468 +/- 40.0 (352–530)	9	924 +/- 14.2 (867–1010)	569 +/- 44.1 (430–860)
11	0	—	—	5	913 +/- 16.4 (861–941)	574 +/- 67.9 (310–680)
12	5	918 +/- 14.5 (880–967)	576 +/- 74.2 (350–782)	2	955 +/- 21.0 (934–976)	618 +/- 07.5 (610–625)
13+	1	885	500	2	1002 +/- 11.5 (990–1013)	659 +/- 49.0 (610–708)

from snakes with incomplete strings, so that we could estimate the ages of all snakes in the sample. This is difficult for large snakes with untapered, incomplete strings, making it more difficult to estimate the ages of these individuals. Thus, the larger and older the snake, the less confidence we have in estimating the age. Also, some segment widths were between categories of the confidence intervals. In these cases, the closest interval was used. Tables 3, 4, 5, and 6 give the widths of the rattle segments and 95% confidence intervals of males and females from both years that possessed complete rattles.

The 2000 sample of Prairie Rattlesnakes consisted of no first year young, 62 second year snakes, 66 third year snakes, 20 fourth year snakes, 37 snakes in their fifth or sixth years, and 12 snakes that are estimated to be older than six years of age. Three of these older snakes were relatively large and possessed untapered rattles, suggesting that they may be older than ten (Fitch, 1995). The age classes represented in the 2001 sample were rather similar, with no first year young, 53 second year snakes, 81 third year snakes, 15 fourth year snakes, 23 fifth or sixth year snakes, and 5 snakes older than six. Two of these snakes may have been over ten years old as well. Figures 2 and 3 show the distributions of males and females within these age classes for 2000 and 2001, respectively. Immature snakes are not represented in their natural ratios because state law, as well as roundup regulation, prohibits the collection of snakes under fifteen inches (382 mm) in length.

Growth rates. The rattle segments also provide an excellent record of Prairie Rattlesnake growth. Tables 3, 4, 5, and 6 are based on measurements of complete rattles. Looking at the differences between the mean widths of each segment, we can estimate the growth of the snakes between sheds. Fitch (1995) combined the records for the sexes, thus, I have done the same for the 2000 and 2001 samples. According to Fitch (1995), growth rates are not statistically different between males and females during growth of the first five rattle segments. After the fifth segment, males continue to grow at a more rapid pace and grow to a larger size. My data suggested this as well (see Tables 3–6).

In 2000 and 2001 respectively, it was shown that, on average, Prairie Rattlesnake neonates gained 15.9% and 25.9% by the time they acquired a second rattle segment, 30.4% and 25.3% between the second and third rattle segments, 19.5% and 21.2% between third and fourth, 13.6% and 15.1% between fourth and fifth, 7.6% and 9.8% between fifth and sixth, 7.8% and 10.4% between sixth and seventh, and 1.6% and 0.5% between seventh and eighth. Subsequent growth is expected to be minimal.

The reproductive cycle. It has been confirmed numerous times that Kansas populations of *Crotalus viridis* reproduce on an annual basis (Fitch, 1994, 1995). The extended warm season, compared to that of more northern latitudes, allows for faster lipid replenishment, and, therefore, annual production. This is not the case in northern populations that can only produce on a biennial or triennial

Table 3. Sizes of successive rattle segments of male *Crotalus viridis* from the 2000 rattlesnake roundup held at Sharon Springs, Kansas. CL = confidence limits.

Segment	*n*	Mean Width	Range	95% CL
First (button)	56	05.31 +/- 0.05	04.37 – 06.50	05.20 – 05.42
Second	56	06.59 +/- 0.09	05.24 – 08.78	06.40 – 06.78
Third	56	07.97 +/- 0.13	06.08 – 10.80	07.72 – 08.22
Fourth	56	09.51 +/- 0.12	07.38 – 11.57	09.28 – 09.74
Fifth	54	10.75 +/- 0.11	09.02 – 12.46	10.52 – 10.98
Sixth	36	11.59 +/- 0.35	10.10 – 14.40	10.88 – 12.30
Seventh	20	12.40 +/- 0.19	11.02 – 14.26	12.00 – 12.80
Eighth	8	12.47 +/- 0.20	11.30 – 13.20	12.00 – 12.94

Table 4. Sizes of successive rattle segments of female *Crotalus viridis* from the 2000 rattlesnake roundup held at Sharon Springs, Kansas. CL = confidence limits.

Segment	*n*	Mean Width	Range	95% CL
First (button)	56	05.31 +/- 0.05	04.37 – 06.50	05.20 – 05.42
Second	56	06.59 +/- 0.09	05.24 – 08.78	06.40 – 06.78
Third	56	07.97 +/- 0.13	06.08 – 10.80	07.72 – 08.22
Fourth	56	09.51 +/- 0.12	07.38 – 11.57	09.28 – 09.74
Fifth	54	10.75 +/- 0.11	09.02 – 12.46	10.52 – 10.98
Sixth	36	11.59 +/- 0.35	10.10 – 14.40	10.88 – 12.30
Seventh	20	12.40 +/- 0.19	11.02 – 14.26	12.00 – 12.80
Eighth	8	12.47 +/- 0.20	11.30 – 13.20	12.00 – 12.94

Table 5. Sizes of successive rattle segments of male *Crotalus viridis* from the 2001 rattlesnake roundup held at Sharon Springs, Kansas. CL = confidence limits.

Segment	*n*	Mean Width	Range	95% CL
First (button)	27	04.86 +/- 0.15	03.1 – 06.1	04.56 – 05.16
Second	27	06.03 +/- 0.16	03.2 – 07.2	05.73 – 06.33
Third	27	07.61 +/- 0.19	05.3 – 09.8	07.21 – 08.01
Fourth	27	09.18 +/- 0.19	06.3 – 10.7	08.78 – 09.58
Fifth	26	10.65 +/- 0.19	08.3 – 12.4	10.25 – 11.05
Sixth	16	11.71 +/- 0.24	10.0 – 12.9	11.21 – 12.21
Seventh	6	13.42 +/- 0.42	11.4 – 14.3	12.32 – 14.52
Eighth	5	13.40 +/- 0.41	12.2 – 14.5	12.30 – 14.50

Table 6. Sizes of successive rattle segments of female *Crotalus viridis* from the 2001 rattlesnake roundup held at Sharon Springs, Kansas. CL = confidence limits.

Segment	*n*	Mean Width	Range	95% CL
First (button)	48	04.63 +/- 0.12	03.0 – 06.0	04.43 – 04.83
Second	48	05.93 +/- 0.12	03.7 – 08.8	05.73 – 06.13
Third	48	07.36 +/- 0.16	03.7 – 09.9	07.06 – 07.66
Fourth	48	08.98 +/- 0.13	07.3 – 10.5	08.68 – 09.28
Fifth	47	10.24 +/- 0.14	08.0 – 12.5	09.94 – 10.54
Sixth	39	11.22 +/- 0.14	09.4 – 13.2	10.92 – 11.52
Seventh	24	11.90 +/- 0.21	09.9 – 14.2	11.50 – 12.30
Eighth	8	12.03 +/- 0.30	10.9 – 13.2	11.33 – 12.73

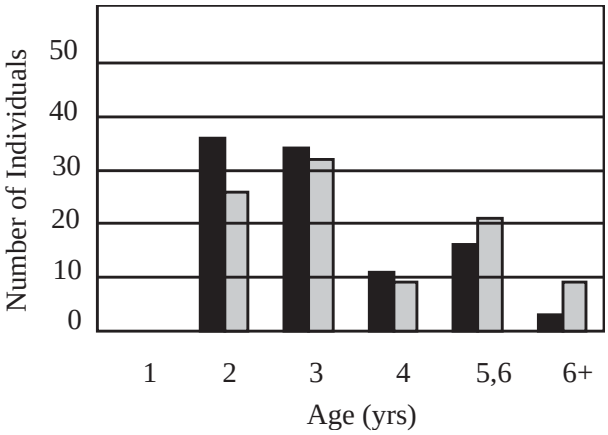

Figure 2. Age distributions of male and female *Crotalus viridis* from the 2000 rattlesnake roundup held at Sharon Springs, Kansas.

cycle (Macartney and Gregory, 1988). Our findings confirm that Kansas populations (or those further south) reproduce annually, with mating occurring in the Spring, immediately after emergence from hibernation.

At this time, it is possible to detect yolked ovarian follicles of various sizes in reproductive female Prairie Rattlesnakes. These follicles are detected by palpating the abdomen of the snakes for soft lumps. This technique undoubtedly produces inaccuracies in follicle count, especially with inexperienced data collectors. It is important to remember that the numbers reported are only estimates. In 2000, for example, we compared our estimates to the actual number contained in our visceral sample. We underestimated the follicle count five times out of seven, were correct once, and overestimated one time. This latter snake actually contained no follicles, where we estimated it to contain five. According to Fitch (1995), the smallest follicles are estimated at 15 x 20 mm, whereas the largest are about 35 x 23 mm in size. In 2000, we examined 100 females, of which 57 contained follicles (57.0%). Table 7 shows the correlation of age, snout-vent length, and number of follicles per clutch for this sample. Table 8 gives similar statistics for the 2001 sample. This sample contained 60 gravid females out of 96 total females (62.5%). These data do not conform to the pattern shown by Fitch (1995), where the mean number of follicles correlates positively to SVL. These deviations from the expected correlation could be caused by inaccurate estimates. Also, in the two years we found several estimated second year snakes to contain follicles (n = 27). This contradicts previous work, which states that *Crotalus viridis* in this area becomes reproductively active in its third year (Fitch, 1998; Klauber 1995). This is probably also because of inaccurate estimates by my field crew. In the two years of this study, the killing of all snakes that appeared gravid eliminated 920 possible young (474 and 446 respectively).

Food habits. I examined the alimentary tracks of 21 Prairie Rattlesnakes from the 2000 sample and found no evidence of prey. Most snakes were extremely thin, probably from being kept for several weeks prior to the roundup. No valuable information about diet was obtained from this sample. The 2001 roundup proved a little more informative. Although no visceral samples were collected (no *C.viridis* were butchered for meat), three large snakes had large boli in their digestive tracts. It was later reported to me that one of these snakes had regurgitated an adult Thirteen-lined Ground Squirrel (*Spermophilus tridecemlineatus*). This was also the primary prey item found at previous roundups (Fitch, 1992, 1993).

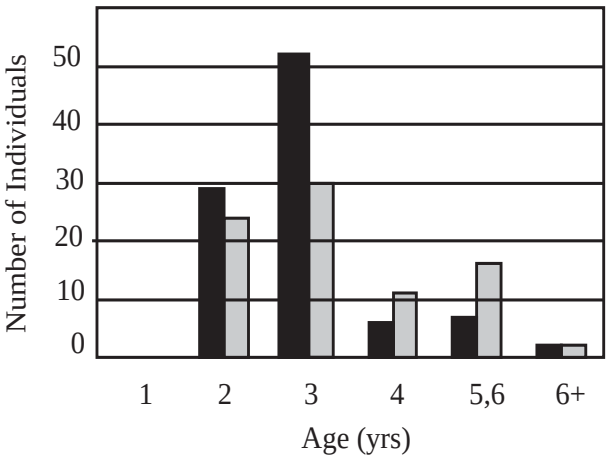

Figure 3. Age distributions of male and female *Crotalus viridis* from the 2001 rattlesnake roundup held in Sharon Springs, Kansas.

Discussion and Recommendations

Over the years, the Prairie Rattlesnake has suffered a great amount of habitat loss, from the cultivation of native prairie to the elimination of prairie dog colonies. However, many advocates of the commercialization of these snakes believe that this species exists in high population densities throughout the High Plains. If this was the case, then the maximum 300 or so snakes harvested annually for the Sharon Springs roundup would amount to a miniscule percentage of the total. However, this remains to be seen. To quote Fitch (1995), "Information is acutely needed about their presence or absence in various habitat types, actual population densities, and the extent of their dependence on relict colonies of prairie dogs. Enlightened management cannot be practiced until such information is available."

In the summer of 2000, I began a project in Logan County, Kansas, in attempt to gather baseline data and learn more about where these Prairie Rattlesnakes live. My study site was the Smoky Valley Ranch, a short grass

prairie preserve owned by The Nature Conservancy. The ranch consisted of several habitat types, including short grass prairie, sandsage prairie, prairie dog towns, and rock outcrops. Two field seasons were spent attempting to collect data on the snakes, using a variety of collecting methods in all habitats, and using radiotelemetry to monitor some of the snakes. Data are yet to be analyzed and will be the subject of another manuscript, but some observations are worthy of mention at this time.

Fitch (1995) mentioned that populations of *Crotalus viridis* in western Kansas are highly localized and mostly associated with prairie dog colonies. Many farmers and ranchers of the region claim this to be true as well. I have heard many reports of people removing hundreds of snakes from prairie dog towns in a single day. However, this association was not observed during my research. I spent many hours at many prairie dog towns and only captured a few snakes within the towns themselves. Most snakes were captured in short grass prairie, or crossing roads between short grass prairie and CRP. Only two snakes were captured in prairie dog towns, one male and one gravid female. Only the female remained in the prairie dog town the entire season, eventually giving birth to 12 young inside one of the prairie dog holes. The male left the prairie dog town within a few weeks and was found in a nearby, disturbed pasture of tall sunflowers, moving away from the town. Based on my data, *C. viridis* shows little habitat preference in western Kansas, being found in any habitat that contains rodent burrows big enough to seek shelter in. However, large numbers may be found in habitats such as prairie dog towns, where the habitats are extremely patchy and surrounded by cultivation. Hunting these sites poses the largest threat to eradicating snake populations in specific areas.

Another threat to area populations is hunting at hibernacula where large aggregations of snakes overwinter. Since the majority of the snakes come from a few groups of hunters and tend to come from the same localities year after year, I suspect this to be the case. Hunting like this could have a dramatic effect on local populations. However, I found that *C. viridis* does not typically overwinter in aggregations or use common rookeries in extreme western Kansas, as it does in other areas (Fitch, 1994; Macartney and Gregory, 1988; Graves and Duvall, 1993). Again, these snakes utilize rodent burrows that are large enough and deep enough to provide protection from freezing. There are not many large rock outcrops that provide hibernacula for aggregating snakes in western Kansas. In areas where rock outcrops do occur, aggregations are more likely to be found.

The evidence against aggregation denning is supported by the numbers of Prairie Rattlesnakes brought in by local registered hunters. Most registered hunters contributed only one or two snakes to the roundup, and many couldn't find any snakes. This also supports the idea that this roundup has a miniscule effect on *local* populations. However, since only around 40% of the snakes come from Wallace County, attempts must be made to determine where the rest of the snakes are coming from and what effects the harvests are having in these areas.

One of the most important recommendations I would make deals with the educational aspect of the roundup. Fitzgerald and Painter (2000) studied the value of the educational opportunities at several rattlesnake roundups. They found that 20% of spectators attended rattlesnake roundups for no other reason than to learn more about snakes. Unfortunately, tests showed that spectators generally left the roundups with the same knowledge that they came with, whether or not they attended any educational shows. I observed that in recent years, the quality of education at the Sharon Springs rattlesnake roundup was extremely poor. The commentators were uneducated, relayed false information, and instilled a false sense of security in the crowd. I feel that an educational program of some sort, staffed by herpetologists with an academic background, should be available at all times for interested participants; inexplicably, the educational show has been discontinued at Sharon Springs. Also, a good representation of venomous and nonvenomous Kansas snakes, should be on display. I am sure that the Kansas Department of Wildlife and Parks or some other institution would cooperate in making such an educational opportunity available.

Table 7. Reproduction in female *Crotalus viridis* from the 2000 Sharon Springs rattlesnake roundup: Correlation of age (in years), snout-vent length, and clutch size. SVL = snout-vent length; MF = mean number of follicles.

Age	*n*	SVL (mm)	MF	Range
2	15	679 (611–767)	5.5 +/- 0.6	2–9
3	25	827 (750–965)	8.2 +/- 0.9	3–21
4	7	860 (836–889)	12.4 +/- 2.1	3–21
5–6	8	865 (824–914)	9.4 +/- 2.5	2–22
6+	2	890 (858–923)	5.5 +/- 3.5	2–9

Table 8. Reproduction in female *Crotalus viridis* from the 2001 Sharon Springs rattlesnake roundup: Correlation of age (in years), snout-vent length, and clutch size. SVL = snout-vent length; MF = mean number of follicles.

Age	*n*	SVL (mm)	MF	Range
2	12	715 (684–750)	5.8 +/- 0.6	3–10
3	39	790 (685–903)	8.4 +/- 0.5	4–13
4	2	832 (826–837)	7.5 +/- 2.5	5–10
5–6	6	877 (834–922)	9.8 +/- 1.5	6–15
6+	1	885	4.0	4

Finally, I agree with Fitch's ideas regarding the killing of gravid female Prairie Rattlesnakes (Fitch, 1995). Exploiting gravid females does not "conform with established principles of game management, and can only result in depletion of the population." Removing gravid females after the weekend's events and returning them to areas of capture would serve dual purposes. First, it would prevent the ecological disaster of decimating snake populations. It would also potentially increase the number of snakes available for future roundups. The primary focus of the Sharon Springs Rattlesnake Roundup is no longer to rid the area of pest rattlesnakes, but to benefit from the economic gain of the event. In order to assure future economic gain from the event, rattlesnake numbers must be sufficient to attract visitors. Therefore, roundup sponsors should consider the release of gravid females as beneficial to the event.

Acknowledgments

I thank the *Rattlesnake Roundup Committee*, particularly Judy Withers, for their cooperation and for making available working space and facilities. I would also like to thank members of the *Fangs and Rattles* team for their cooperation and help in getting snakes to and from our data collection booth. Special thanks go to the Kansas Department of Wildlife and Parks (especially Ken Brunson) for their financial support of this project. I thank Bill Stark, Fort Hays State University, for his guidance and assistance throughout the project. I owe a very special thanks to the field crews from Fort Hays State University for their patience and persistence in making this project a success. Finally, this project was supported by an *Alan H. Kamb Grant for Research on Kansas Snakes*, awarded to the author by the Kansas Herpetological Society in 2001.

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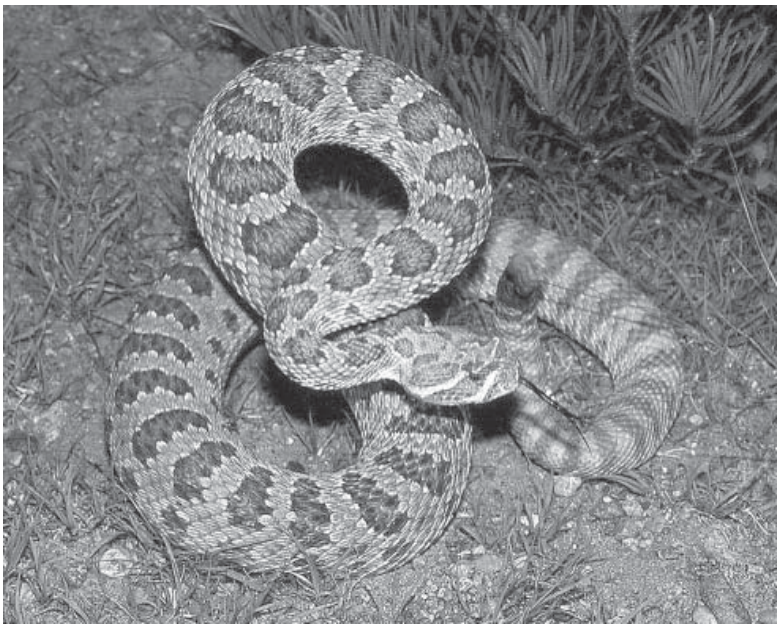

An adult Prairie Rattlesnake. © 2002 Suzanne L. Collins, The Center for North American Herpetology.

The Kansas Herpetological Society

The *Kansas Herpetological Society* is a non-profit organization established in 1974 and designed to encourage education and dissemination of scientific information through the facilities of the Society; to encourage conservation of wildlife in general and of amphibians, turtles and reptiles in Kansas in particular; and to achieve closer cooperation and understanding between herpetologists, so that they may work together in common cause.

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The *Journal of Kansas Herpetology*, issued quarterly, publishes peer-reviewed manuscripts and notes dealing with the biology of amphibians, turtles and reptiles. Manuscripts should be submitted to the Editor no later than the 10th of the month prior to the month of issuance. All manuscripts become the sole possession of the Society, and will not be returned unless arrangements are made with the Editor. Pen and ink illustrations and photographs are also welcomed. Illustrations and photographs will be returned to the author only upon request. The *Journal of Kansas Herpetology* uses the common names standardized nationwide by Collins & Taggart (2002).

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The Gloyd-Taylor Scholarship is presented annually by the Kansas Herpetological Society to an outstanding herpetology student. Nominations for this award are open to any KHS member enrolled in an accredited educational institution in Kansas or any KHS member enrolled in any accredited educational institution outside of Kansas. The scholarship is $100.00 and is awarded on the basis of potential for contributing to the science of herpetology. Students from grade school through university are eligible.

Nominations should include typewritten details of the nominee's qualifications, plus name and address of the nominee and nominator. Self-nomination is encouraged. If self-nominated, a letter of reference from an academician is required.

Nominations should include, but are not limited to, academic record, herpetological activities, and future plans in herpetology. Academic record should address schools attended and an indication of academic performance in each (e.g., grade point average, teacher evaluations, courses completed). Herpetological activities should include a brief narrative that details experiences and activities that demonstrate a long-term interest in herpetology, and documents accomplishments in herpetological study. Future plans in herpetology should include a statement, not to exceed one-page, written by the student about his/her future interests and plans.

Applicants may include an optional appendix with photographs, awards, newspaper articles, reports written by the student, or other documents relevant to herpetological activities.

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Proposals should be sent to the KHS Awards Committee Chair, and must be postmarked by 15 September. The grant recipient will be announced at the annual meeting in November. New applications will be accepted after 1 January of the following year.

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Recipients of *The Collins Award* are chosen by the *Kansas Herpetological Society Awards Committee.*

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