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Front Cover: An adult male Eastern Collared Lizard (*Crotaphytus collaris*) from Harper County, Kansas.
Photograph by MacKenzie K. Wiley

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KHS BUSINESS

Kansas Herpetological Society
33rd Annual Meeting
3-5 November 2006

Albertson Hall
Fort Hays State University
Hays, Kansas

The 2006 KHS Annual Meeting will be held in Hays, Kansas on 4-5 November at the Sternberg Museum of Natural History and Fort Hays State University (FHSU). More detailed information is currently available on the KHS website (www.cnah.org/khs)

All paper sessions for the KHS 33rd Annual Meeting will be held in Albertson Hall on the Fort Hays State University campus, Hays, Kansas, on 4-5 November 2006. There are many motels in Hays. KHS members are encouraged to patronize the Holiday Inn (KHS has 50 rooms reserved), Hampton Inn (KHS has 25 rooms reserved), or Motel 6 (KHS has 20 rooms reserved), all of which offer a special reduced rate for those attending the meeting; be sure to mention that you are attending the KHS meeting at FHSU if you want the special rate and be sure to register by the deadline of 15 October. All of these hotels are just off of I-70 Exit 159. Lodging arrangements will not be made by the KHS.

Register in Albertson Hall with the KHS Treasurer on Saturday and Sunday: Students (9th Grade through 12th Grade) \$5.00 per person; all others \$10.00 per person. K through 8th Grade are admitted free.

KHS SOCIAL. A KHS social will be held on Friday for those arriving early.

KHS BANQUET. A KHS banquet will be held on Saturday night (4 November) at the Sternberg Museum of Natural History. The Banquet will cost \$7.00 per person. The KHS auction will follow the banquet, so stay in your seats.

ART EXHIBIT. A retrospective exhibit of herpetological artwork by well-known artist and former KHS president Marty Capron, will be on display in Room 248 of Albertson Hall (next to the live exhibit). Come and view the artistic achievements of one of our own.



A Kansas *Mosasaur*, on exhibit at the Sternberg Museum.

KHS AUCTION. The annual KHS auction will be held on Saturday night (4 November) at the Sternberg Museum of Natural History. All proceeds from the auction go to the KHS. BEER, SOFT DRINKS, AND SNACKS WILL BE FREE.

ZOO BOOK SALES. The well-known and highly esteemed bookseller, Eric Thiss, will display his tremendous diversity of herpetological titles in Room 248 of Albertson Hall (next to the live exhibit). Buy your favorite books, new and old. Eric is a generous contributor to the KHS auction.

SPECIAL OFFER. The first 100 registrants for the KHS 33rd Annual Meeting will receive a free copy of:

- *The Amphibians, Turtles, and Reptiles of Cheyenne Bottoms* (Second Edition) by Joseph T. Collins and Suzanne L. Collins
- *The Snakes, Lizards, Turtles, and Amphibians of Fort Riley and Vicinity* (Second Edition) by William H. Busby, Joseph T. Collins, and Gibran Suleiman
- *Snakes of Kentucky*, a poster
- *A Pocket Guide to Kansas Snakes*, by Joseph T. and Suzanne L. Collins

Nominations for the Howard Kay Gloyd-Edward Harrison Taylor Scholarship for 2006 will be accepted until 15 September 2006. Submit your nominees to the KHS Awards Committee Chairperson (see the inside front cover of the latest *Journal of Kansas Herpetology*).

Applications for the Alan H. Kamb Endowed Grant for Research on Kansas Snakes for 2006 will be accepted until 15 September 2006. Submit your application to the KHS Awards Committee Chairperson (see the inside front cover of the latest *Journal of Kansas Herpetology*).

Presentation Slots are Still Available

Participants wishing to present a talk at the Annual Meeting should mail or e-mail (see inside front cover) the following to KHS President Curtis Schmidt and Joe Collins by 1 October 2006:

- Title of presentation
- Author(s) of presentation
- Affiliation and/or address of each author

Tentative Schedule of Events

Friday, 3 November 2006

KHS Social - 7:00 pm to midnight: Stadium Club in the Holiday Inn, 3603 Vine Street (=US 183), Hays, Kansas. Bring your ten (10) best images (slides or PowerPoint) of herpetofauna and/or herpetologists. Humor is appreciated.

Saturday, 4 November 2006

Registration - All Day

Live Exhibit - All Day

Paper Session 1 - 9:00 to 10:15 AM

James L. Knight - Keynote Address,
South Carolina State Museum, Columbia.

Paper Session 2 - 10:30 to 11:45 AM

Lunch - 11:45 to 1:00 PM

Paper Session 3 - 1:00 to 2:15 PM

Paper Session 4 - 2:30 to 4:00 PM

General Business Meeting - 4:00 to 4:30 PM

Banquet - 5:30 pm,

Sternberg Museum of Natural History

Awards Ceremony - 6:30 PM

Keynote Address - 7:00 PM, by Jerry D. Johnson,
University of Texas, El Paso

Auction - 7:40 PM

Sunday, 5 November 2006

Scientific Paper Session 5 - 9:00 to 10:40 AM

Scientific Paper Session 6 - 11:00 to 11:45 am

Lunch - noon to 1:15 PM

Paper Session 7 - 1:15 to 2:35 PM

Paper Session 8 - 3:15 to 4:30 PM

33rd Annual Meeting Committee:

Curtis J. Schmidt, Jerry Choate, Joseph T. Collins,
William Stark, David Bender, Michael Rochford, Chad
Whitney and Travis W. Taggart.

The KHS Nominating Committee (Joseph T. Collins [Kansas Biological Survey], David Oldham [Pittsburg State University], and Eva Horne [Kansas State University], offers the following slate of candidates to be voted on during the business meeting:

For President:

Ginny Weatherman, Lawrence
Serving as president-elect during 2006,
and automatically assumes the KHS
presidency on 1 January 2007.

For President-Elect:

Dan Carpenter, Derby
Dan Johnson, Overland Park

For Treasurer:

Eric Kessler, Overland Park (unopposed)

For Secretary:

Mary Kate Baldwin, Topeka (unopposed)

About the Sternberg Museum

The Sternberg Museum of Natural History has one of the most significant Cretaceous fossil collections in North America. This museum has been a part of Hays since 1914 when the first curator was appointed.

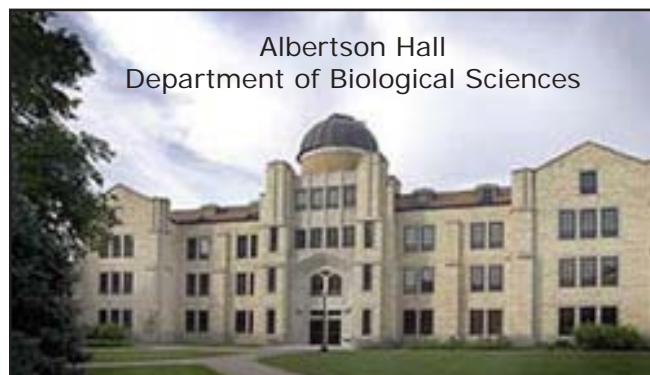
The museum is housed in an "eye catching" four-story dome-shaped facility with a large array of the fossils on display, including the famous "fish-within-a-fish." This fossil is likely the most photographed exhibit on display and was found by George F. Sternberg in 1952 in Gove County.

Visitors step back in time 70-80 million years ago when Colorado was ocean front property and Kansas was an inland sea. See up-close the fossilized remains of plants and animals that lived in or alongside an ancient inland sea and learn about the natural history of the Great Plains. The main museum exhibit features a recreated full scale diorama approximately 88 million years ago when mighty *Tyrannosaurus rex* roamed the land and Kansas was covered by water and patrolled by the *Mosasauro* (a very large lizard). Semi-automated life-sized dinosaurs in a fully restored environment enhance the experience as visitors walk through the diorama. In the lower level of the museum there are numerous other displays showcasing the natural history of the Great Plains and fossils that were found in western Kansas.

The Discovery Room was created for children and students to enable them to learn through a hands-on experience. Preserved specimens, models, and live creatures of the Great Plains and a weather station are featured in this special room. The extensive KHS live-exhibit will feature animals from the Discovery Room. The museum staff has worked hard this year to secure a variety of seldom seen Kansas herps.

Driving Directions to FHSU

- Coming from 183 South, turn left at 8th Street and go straight (west) to the FHSU campus
- Coming from 183 North, (option 1) turn right at 27th Street, take 27th St. to Hall St., turn south (left) and go to the FHSU campus
- Coming from 183 North, (option 2) Take Vine St. south to 8th St., turn right and go straight (west) to the FHSU campus.
- Coming from Interstate 70 East or West, turn south at US 183 Bypass (exit 157) and go straight to the FHSU campus.



Annual Fall Field Trip to Pottawatomie County

7-8 October 2006

The 2006 Annual Fall KHS Field Trip will be held in Pottawatomie County, Kansas. KHS members will gather as early as Friday evening, 6 October 2006, at River Pond State Park below Tuttle Creek Dam. Look for the large KHS sign at the park. Herpetofaunal counts begin at 9:00 am at the campsite on Saturday and Sunday, 7-8 October 2006. The field trip adjourns at noon on Sunday, 8 October 2006.

Both primitive camping and non-primitive camping are available. Contact Joyce Dixon (785-539-7941) at Tuttle Creek for more information on costs. Maps and other information will be available at the campsite each day at 9:00 am.

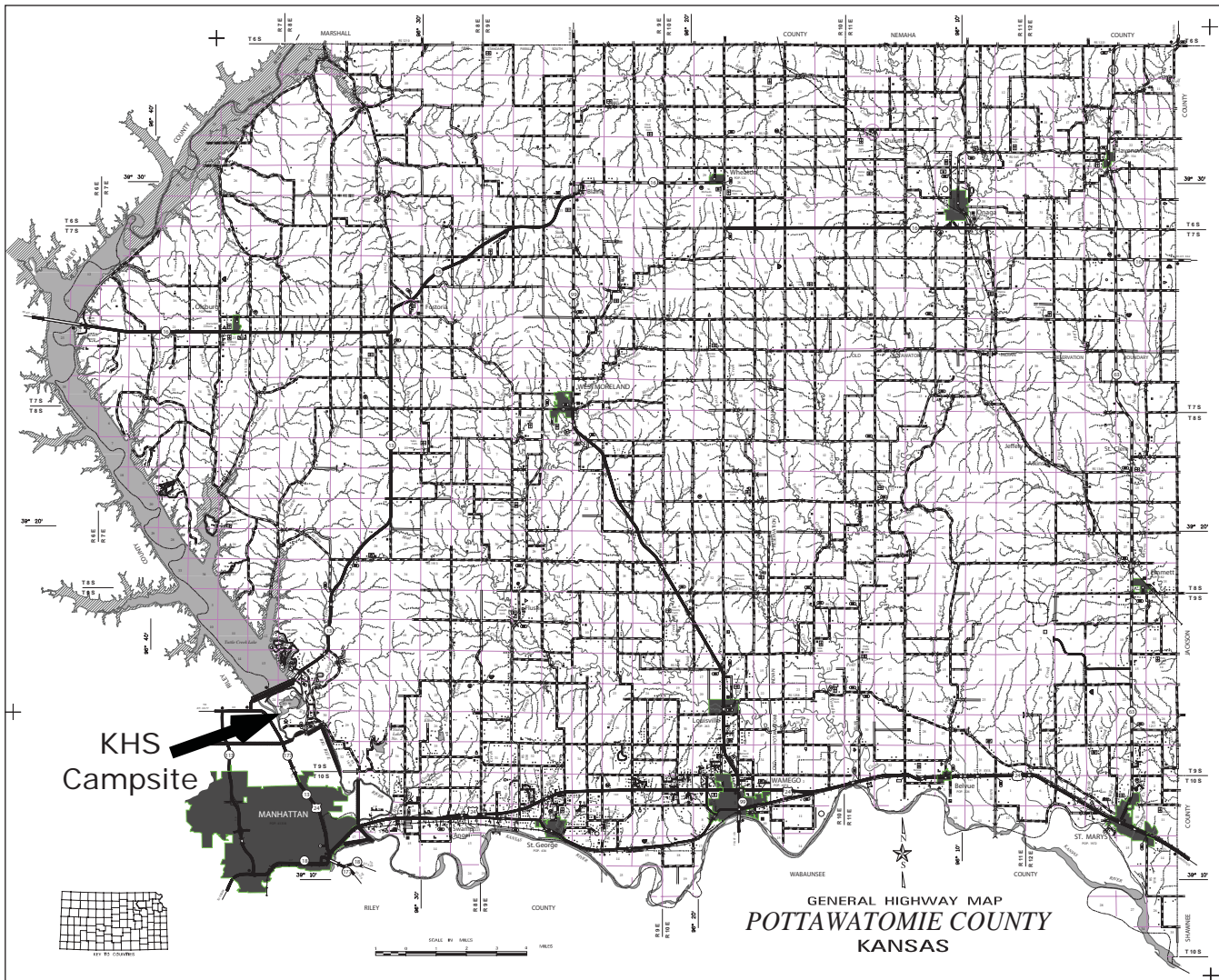
For those less adventurous, the closest motels are available in Manhattan as follows:

Regency Inn - 785.537.0630
Econo Lodge - 785.539.5391 x 1501
Motel 6 - 785.537.1022
Super 8 Motel - 785.537.8468

While most specimens observed and counted during the KHS field trip will be released, selected specimens also will be collected by individuals with current Kansas Scientific Collecting Permits and kept for deposition in research collections at accredited institutions, where they (and their tissues) will be available for research use by any qualified investigators. Field trip participants wishing to assist in this research effort are encouraged to contribute specimens to those individuals qualified to receive them.

Any questions about this KHS field trip should be directed to Derek Schmidt or Dan Murrow, KHS Field Trip Co-Chairpersons. Enquiries may be in the form of e-mail, a telephone call, or U.S. mail.

Derek Schmidt	Dan Murrow
111 SW Quinton Avenue	3311 North 44th Terrace
Topeka, Kansas 66606	Kansas City, Kansas 66104
785.234.9007	913.652.6971
elguapo@bottom40.com	dan@iturnrocks.com



A modified Pottawatomie County KDOT map. Note locations of the KHS Campsite.

HERPETOLOGICAL HAPPENINGS

KHS Website has Moved

Due to limitations with its previous host, the KHS website has a new home. The Center for North American Herpetology has agreed to host the site for free. Update your bookmarks to www.cnah.org/khs. For a short time the previous URL will redirect you to the new site. Joe Collins (CNAH) will continue to maintain the site's content.



A Plains Spadefoot (top) and Spotted Chorus Frog taking advantage of a flooded ditch in Pratt County. Image by Travis W. Taggart.

Upcoming Events of Interest

ASIH/SSAR/HL/AES
2007 Joint Meeting
11-16 July 2007; St. Louis, Missouri

Kansas Ornithological Society
Fall Meeting
6-8 October 2006; Fort Hays State University, Hays

Central Plains Society of Mammalogists
14 October 2006; Edmund, Oklahoma



Larry L. Miller examines two Ornate Box Turtles collected on the Sumner County herpetofaunal count. See Page 6 for all of the 2006 counts received thus far. Image by Suzanne Miller, Kansas Heritage Photography.



An adult Gopher Snake searches for a meal near one of the nature trails in Horsethief Canyon, Kanopolis State Park, Ellsworth County, Kansas. Image by Larry L. Miller, Kansas Heritage Photography.

Missouri Herp Meeting Scheduled

The 19th Annual Meeting of the Missouri Herpetological Association (MHA) will be held on September 30-October 1, 2006 at the Reis Biological Station.

Reis Biological Station, is located 11 miles east of Steelville on Hwy 8 in Crawford County. Dormitory, sleeping cabins (3 or 4 persons per cabin) and tent camping sites are available. Bring a pillow, sleeping bag or other bedding.

There will be a potluck for the Saturday evening dinner. Please bring a hot dish, salad, chips, dessert, hot rolls, chicken wings, etc. Supply your own drinks and tableware for dinner.

The paper session starts at 1:00 p.m., Saturday, September 30. Members planning to present a paper should contact Jeff Briggler (see below) no later than September 8, 2006.

Carl Gerhardt will present an after dinner slide show of the herps from his travels through the SW U.S. and Australia. Fellowship, musical entertainment (bring your instruments), and telling tall tales will follow Carl's presentation.

On Sunday a morning field trip is planned for near-by Woodson K. Woods Conservation Area (Phelps/Crawford Counties) from 9:00 - noon.

Registration is free.

A PDF map is available on the MHA website at: www.moherp.org/mha/org/mtg2006/reismap.pdf

For more information, please contact:

Jeff Briggler
Missouri Department of Conservation
P.O. Box 180
Jefferson City, MO 65102-0180
573/522-4115 ext. 3201
Jeff.Briggler@mdc.mo.gov

FIELD NOTES

KHS 2006 Herpetofaunal Counts

The Kansas Herpetological Society encourages those persons interested to sally forth across our state each year to conduct herpetofaunal counts. The results of these forays are reported in the September issue of the Journal of Kansas Herpetology. Compiled below are the counts for 2006.

Barber County Herpetofaunal Count

On 23 April 2006, Suzanne L. Collins and Joseph T. Collins conducted a herpetofaunal count from 11:00 am to 3:00 pm in Barber County, observing with binoculars and road-cruising. The following species were observed:

Slider	±25
Eastern Collared Lizard	2
Texas Horned Lizard	4
Total	
3 species.....	±31 specimens

- *Suzanne L. Collins*, The Center for North American Herpetology, 1502 Medinah Circle, Lawrence, Kansas 66047.

Central Kansas Herpetofaunal Count

The following is a list of observations made in Marion, McPherson, and Morris counties on 21–22 April 2006. Observer was Keith Coleman.

Northern Cricket Frog	±15
Plains Leopard Frog	3
Bullfrog.....	6
Northern Painted Turtle	1
Common Garter Snake.....	1
Total	
5 species.....	±26 specimens

- *Keith Coleman*, 1727 West 24th Street, Apt. 1, Lawrence, Kansas 66046

Cowley County Herpetofaunal Count

The 2006 Cowley County herpetofaunal survey took place between 10:00 am and 2:00 pm on 22 April in the Flint Hills east of Winfield, and primarily consisted of rock turning. The survey area had not been burned this year. The day was sunny, winds from 20 to 25 mph from the southwest. The mid survey temperature was 30° C. The water temperature was 23° C. The survey area had received very little precipitation since the fall of 2005. The intermittent streams in the survey were dry and the pond was two feet below its normal springtime level. Participants were Mat Harris, Russ Relph, Al Volkmann, Glynda Volkmann, Stan Wiechman and Dustin Wilgers. Species verified by Al Volkman, Stan Wiechman and Dustin Wilgers were:

Northern Cricket Frog	27
Plains Leopard Frog	4
Bullfrog.....	7
Great Plains Narrowmouth Toad	1
Common Snapping Turtle	1
Northern Painted Turtle	1

Ornate Box Turtle	1
Slider	2
Eastern Collared Lizard	4
Great Plains Skink	12
Western Slender Glass Lizard	3
Eastern Racer	4
Common Kingsnake	1
Milk Snake	1
Flathead Snake	15
Ringneck Snake	5
Common Garter Snake.....	1
Total	
17 species.....	96 specimens

- *Al Volkmann*, 1650 Melrose Lane, Wichita, Kansas 67212.

Longton Area Herp Count

We conducted a herpetofaunal survey in Elk County, Kansas, at the Old Rimrock Ranch near Longton on 5 May 2006. Participants were Ed Markel, Mike Pearce, Suzanne L. Collins, Joseph T. Collins, Travis W. Taggart, Kurt Grimm, Ed Miller and Ken Brunson.

Northern Cricket Frog	3
American Toad	2
Gray Treefrog	1
Bullfrog.....	1
Southern Leopard Frog	5
Great Plains Narrowmouth Toad	34
Eastern Box Turtle	2
Ornate Box Turtle.....	3
Six-lined Racerunner	27
Western Slender Glass Lizard	1
Five-lined Skink	1
Great Plains Skink	10
Ground Skink	2
Eastern Racer	1
Common Kingsnake.....	2
Coachwhip	3
Great Plains Rat Snake.....	1
Western Rat Snake	1
Flathead Snake	18
Western Worm Snake	1
Ringneck Snake	34
Northern Water Snake	1
Western Ribbon Snake	1
Common Garter Snake.....	2
Copperhead.....	13

Total	
25 species.....	170 specimens

- *Suzanne L. Collins*, The Center for North American Herpetology, 1502 Medinah Circle, Lawrence, Kan-

sas 66047, *Joseph T. Collins*, Kansas Biological Survey, University of Kansas, Lawrence, Kansas 66047, and *Travis W. Taggart*, Sternberg Museum of Natural History, Fort Hays State University, Hays, Kansas 67601.

Ellsworth County Herpetofaunal Count

The following survey of reptiles, turtles, and amphibians covers the area of Ellsworth County, Kansas, bordered on the east by highway 141 and on the west by the town of Ellsworth. The southern border was highway 4 and the northern border was highway 140. It covers a time span from Friday evening the 26th until Monday morning the 29th of May 2006. During that time several trails were hiked and about 200 miles were driven over several of the gravel roads in the area. Searching started as early as 6:00 AM one morning and ended as late as 11:00 PM one evening. Weather conditions were dry and quite windy. Temperatures ranged from the upper 60's F. to the middle 90's F.

Northern Cricket Frog (chorusing)	10
Bullfrog.....	19
Common Snapping Turtle	1
Northern Painted Turtle	11
Ornate Box Turtle	5
Slider	1
Eastern Collared Lizard	4
Lesser Earless Lizard	1
Texas Horned Lizard	36
Prairie Lizard	2
Six-lined Racerunner	5
Eastern Racer	3
Prairie Kingsnake	1
Western Rat Snake	3
Gopher Snake.....	7
Prairie Rattlesnake	1
Massasauga.....	7
Total	

17 species..... 117 specimens

- *Larry L. Miller* and *Suzanne L. Miller*, Kansas Heritage Photography, 840 SW 97th Street, Wakarusa, Kansas 66546.

Fort Riley Herpetofaunal Count

On 4 May 2006, a herpetofaunal count was conducted at Fort Riley over a search span of 48.5 hours. Participants were Kevin Blecha, Tom Duckworth, Rocky Fahey, Phil Gipson, Jason Harrold, Adam Hastert, Eva Horne, Mike Houck, Carla Hurlbert, Alan Hynek, Ryan Jones, Max LeValley, Michelle McNulty, Ben Mulhern, Dan Mulhern, Stanley Rasmussen, Gibran Suleiman, Vernon Tabor, Paula Urban and Steven Wahle. The following species were observed:

Woodhouse's Toad	2
Northern Cricket Frog	48
Boreal Chorus Frog	12
Plains Leopard Frog	7
Bullfrog.....	9
Great Plains Narrowmouth Toad	82
Eastern Collared Lizard	22

Great Plains Skink	30
Ground Skink	2
Six-lined Racerunner	10
Eastern Racer	2
Prairie Kingsnake	1
Milk Snake	17
Great Plains Rat Snake.....	5
Flathead Snake	1
Western Worm Snake	2
Ringneck Snake	463
Common Garter Snake.....	1
Lined Snake	4
Copperhead.....	8

Total

20 species..... 728 specimens

- *Gibran Suleiman*, DPW Conservation Division, Building 407, Pershing Court, Fort Riley, Kansas 66442.

East Central Kansas Herpetofaunal Count

On 18 April 2006, Suzanne L. Collins and Joseph T. Collins conducted a herpetofaunal count from 10:00 am to 3:45 pm in eastern Franklin County and adjacent western Miami County, Kansas. The following species were observed:

Bullfrog.....	1
Common Snapping Turtle	1
Northern Painted Turtle	6
Five-lined Skink	2
Eastern Racer	1
Milk Snake	1
Ringneck Snake	±55
Plainbelly Water Snake.....	1
Common Garter Snake.....	2
Copperhead.....	1

Total

10 species..... 71 specimens

- *Suzanne L. Collins*, The Center for North American Herpetology, 1502 Medinah Circle, Lawrence, Kansas 66047.

KHS Spring Field Trip Herp Count

The KHS Spring Field Trip for 2006, led by Derek Schmidt and Mark Ellis, was to Kiowa County, Kansas. From 21 to 23 April, eighty-three participants conducted the count. Participants were: Ted Abel, Laura Acuff, Rob Acuff, Mary Kate Baldwin, Katie Bergman, Grace Bernhardt, Rachel Best, Gerard Brungardt, Luke Brungardt, Petra Brungardt Tom Brungardt, Ken Brunson, LeeAnn Brunson, Morgan Butrick, Dan Carpenter, Nathan Carpenter, Shelbi Carpenter, Joseph T. Collins, Suzanne L. Collins, Nate Davis, Chris Day, Mike Dee, Andy Durbin, Mark Ellis, Amy Gaston, Nick Gomez, Jackson Gubanyi, James Gubanyi, Julian Gubanyi, Marla Gubanyi, Molly Heil, Emily Hooser, David Humenczk, Erin Hylton, Chris Jensen, Dan Johnson, Graceanne Johnson, Eric Kessler, Owen Kessler, Eden Kirk, Jay Kirk, Jamie Kirk, Kaleb Kirk, Sandy Kirk, Emmy Lieser, Brandon Low, Judy Low, Joshua Marshall, Nathan Marshall, Steve Marshall, Ian McCloud, Chris Messier, Larry L. Miller, Suzanne Miller, Bill

Munholland, William Munholland, Dan Murrow, David Oldham, Jackson Oldham, Robin Oldham, Tag Oldham, Erica Peterson, Ron Pine, Mike Rochford, Jim Scharosch, Brett Schmidt, Curtis Schmidt, Derek Schmidt, Chris Schuler, Zach Simson, Brandon Slife, Gayen Stanley, Max Stieben, Charlie Stieben, Travis W. Taggart, Jeremy Washburne, Mike Washburne, Ginny Weatherman, Eric Wenzl, Roy Wenzl, Chad Whitney, Garrett Wilkinson and Victor Wilkinson. They observed the following species:

Woodhouse's Toad	2
Northern Cricket Frog	37
Boreal Chorus Frog	1
Plains Leopard Frog	14
Bullfrog.....	11
Common Snapping Turtle	5
Northern Painted Turtle	6
Ornate Box Turtle	1
Slider	29
Eastern Collared Lizard	46
Texas Horned Lizard	21
Prairie Lizard	3
Great Plains Skink	29
Southern Prairie Skink	15
Ground Skink	3
Six-lined Racerunner	10
New Mexico Blind Snake.....	4
Eastern Racer	8
Prairie Kingsnake	4
Common Kingsnake.....	2
Milk Snake	2
Coachwhip	2
Great Plains Rat Snake.....	5
Gopher Snake (Bullsnake)	9
Ground Snake.....	30
Plains Blackhead Snake.....	11
Ringneck Snake	47
Plainbelly Water Snake.....	13
Brown Snake	5
Western Ribbon Snake	7
Plains Garter Snake	3
Common Garter Snake.....	11
Lined Snake	1
Prairie Rattlesnake	4
Massasauga.....	4
Total	
35 species.....	405 specimens
- <i>Joseph T. Collins</i> , Kansas Biological Survey, University of Kansas, Lawrence, Kansas 66047.	

Shawnee County Herp Count

On 29 April 2006, Marla Gubanyi and James Gubanyi conducted a herpetofaunal count from 4:00 pm to 8:00 pm in Topeka, Shawnee County, Kansas, from the junction of 45th Street and Auburn Road to a site 3 miles W on 45th Street and thence 2 miles north. Temperature was 74° F. The following species were observed:

Northern Cricket Frog	4
Boreal Chorus Frog	20
Plains Leopard Frog	4
Bullfrog.....	3

Great Plains Skink	4
Northern Prairie Skink.....	1
Common Garter Snake.....	6
Lined Snake	1
Total	
8 species.....	43 specimens
- <i>James Gubanyi</i> , 2501 Burnett Avenue, Topeka, Kansas 66614.	

Trego County Herp Count

May 21, 2006 Trego County, Cedar Bluff Reservoir Duck Flats area. T14S R23W, ¼ SW of the ¼ NW of Section 35. Participants were Neil, Debbie, Maggie, and Tori Bass. The search started at 1445 and ended at 1530. The temperature was in the 90's F. Observations included:

Six-lined Racerunner	5
Prairie Lizard	3
Gopher Snake.....	1
Total	
3 species.....	9 specimens
- <i>Neil Bass</i> , 208 Lakota Lane, Lee's Summit, MO 64086	

Sumner County Herp Count

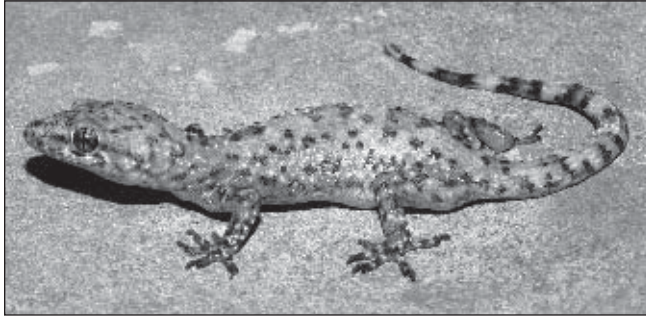
From 11–13 May 2006, the 30th annual herpetological survey of Sumner County was conducted, led by Larry L. Miller.

Great Plains Toad	1
Northern Cricket Frog	17
Spotted Chorus Frog.....	4
Plains Leopard Frog	4
Bullfrog.....	3
Great Plains Narrowmouth Toad	9
Common Snapping Turtle	1
Northern Painted Turtle	5
Ornate Box Turtle	3
Slider	1
Spiny Softshell.....	2
Lesser Earless Lizard	34
Texas Horned Lizard	4
Prairie Lizard	11
Five-lined Skink	1
Southern Prairie Skink	27
Six-lined Racerunner	73
Eastern Racer	1
Prairie Kingsnake	1
Common Kingsnake.....	1
Coachwhip	1
Ground Snake.....	25
Plains Blackhead Snake.....	2
Ringneck Snake	61
Plainbelly Water Snake.....	2
Diamondback Water Snake	1
Northern Water Snake	6
Common Garter Snake.....	1
Lined Snake	2
Total	
29 species.....	304 specimens
- <i>Larry L. Miller</i> , Northern Hills Junior High School, Topeka, Kansas 66606.	

Exotic Lizard Discovered in Kansas

HEMIDACTYLUS TURCICUS (Mediterranean Gecko). KANSAS: JOHNSON Co: within city limits of Lenexa at Unisource Document Products near 87th Street and Quivira Road, on 26 May 2006. Andrew Hare and Brad Hare. Sternberg Museum of Natural History, Fort Hays State University (MHP 12369; image below). Verified by Walter E. Meshaka, Jr. First record for this alien species in Kansas. This lizard was discovered by Brad Hare at the same site on 15 September 2005, when four examples (3 neonates, 1 juvenile) were observed; two more specimens (both juveniles) were seen on 21 September 2005.

- Andrew Hare, 11607 West 69th Terrace, Shawnee, Kansas 66203.



An adult specimen (MHP 12369) from Johnson County, Kansas. Image by Suzanne L. Collins, The Center for North American Herpetology.

Predation on a Northern Curlytail Lizard by a Loggerhead Shrike.

Leiocephalus carinatus armouri is a well established, introduced, exotic species in Florida (Meshaka et al. 2004. The Exotic Amphibians and Reptiles of Florida, Krieger Publishing Co., Malabar, FL. 155 pp.; Smith and Engeman 2004a. Florida Field Nat. 32:107-113; Meshaka et al. 2005. Southeastern Nat. 4:521-526); however, very few vertebrate predators of this species have been documented within its introduced range (Smith and Engeman 2003. Herpetol. Rev. 34:245-246; Smith and Engeman 2004a. op cit.; Smith and Engeman 2004b. Herpetol. Rev. 35:169-170; Dean et al. 2005. Herpetol. Rev. 36:451). Only two avian species in Florida have so far been recorded, the Little Blue Heron (*Egretta caerulea*) (Smith and Engeman 2004b. op. cit.), and the Northern Mockingbird (*Mimus polyglottos*) (Smith et al., In press. Herpetol. Rev. 37). Here we report predation of a juvenile *L. c. armouri* by a third avian predator in Florida, the Loggerhead Shrike (*Lanius ludovicianus*).

At 1130 h on 19 April 2006, a sunny day with some clouds, temperature ca. 27° C, HTS observed an adult Loggerhead Shrike swoop down, capture, and with greatly labored flight carry off a juvenile *L. c. armouri* (SVL ca. 4-5 cm) which was sitting atop a cement parking lot stop at the Woolbright Road colony of *L. c. armouri* located in Boynton Beach, Florida (see previous colony site descriptions in Smith and Engeman 2003, 2004a op. cit.). Whether the lizard was successfully killed and consumed is unknown to us as the

observation was made from a third floor window with limited viewing radius and the shrike was disturbed by site workers and immediately flew out of view with its prey.

Loggerhead Shrikes are generalist carnivores and a wide variety of invertebrate and vertebrate prey is consumed across the bird's North American range (Yosef, R. 1996. In A. Poole and F. Gill [eds.], The Birds of North America, Species Account No. 231, Loggerhead Shrike, American Ornithologists' Union, Washington, D.C. and the Academy of Natural Sciences, Philadelphia, Pennsylvania). Other lizards consumed by Loggerhead Shrikes in Florida include Green Anoles (*Anolis carolinensis*), Ground Skinks (*Scincella lateralis*), Southeastern Five-lined Skinks (*Plestiodon inexpectatus*) (Yosef and Grubb 1993. The Condor 95:127-131; see also literature review in Yosef, R. 1996. op. cit.), and the exotic Brown Anole (HTS pers. observ.).

- Henry T. Smith, Florida Department of Environmental Protection, Florida Park Service, 13798 S.E. Federal Highway, Hobe Sound, Florida 33455, USA, Walter E. Meshaka, Jr. (corresponding author), The State Museum of Pennsylvania, 300 North Street, Harrisburg, Pennsylvania, 17120-0024, USA, and Richard M. Engeman, National Wildlife Research Center, 4101 LaPorte Ave., Fort Collins, Colorado 80521-2154, USA.

A Remarkable Record of Prey Ingestion by a Common Kingsnake.

I came across a Common Kingsnake (*Lampropeltis getula*) on the Fall River Wildlife Area, Greenwood County, Kansas, during July 2006. When I first came up to it, I noticed nearly the entire length of the snake was bulging with a recent meal. As I started messing with it, it started regurgitating its meal and the tail of an Eastern Racer (*Coluber constrictor*) started to come out. It didn't take the kingsnake long to get the entire racer up. The racer was the same size or just a bit bigger than the kingsnake (see image below).

- Luke Westerman, District Conservationist, Natural Resources Conservation Service, 1819 East River Street, Eureka, Kansas 67045



An adult Common Kingsnake regurgitating an adult Eastern Racer in Greenwood County. Image by Luke Westerman.

A Surprising Observation of Spiny Softshell Climbing Ability

A large, wild-caught (33 cm x 23 cm carapace) Spiny Softshell (*Apalone spinifer*) demonstrated surprising climbing ability for the species. The turtle was rescued from a Denver bike trail adjacent to a drained pond in which it probably resided. It was being held

indoors in a cardboard box for later release when it escaped from its container. The turtle's route followed the periphery of 3 rooms on the main floor of a two story house, and was easily identified by displaced objects and overturned plants. This route passed by the base of the stairs to the upper floor of the house. At this point, the turtle could have continued following the perimeter of the floor, but instead it climbed 14 stairs 18–19 cm each in height. Reports are rare in the literature on the climbing ability of this species. Cox (1894. The climbing habits of the soft shell turtle (*Aspionectes spinifer*). Science. 23: 50.) observed that climbing was extremely difficult for this species, with a 10 cm step proving too great of an obstacle. Thus, a series of 14 steps nearly twice as tall would seem insurmountable and it is difficult to understand why the turtle would deviate from its path along the perimeter of the floor to climb a series of stairs.

The turtle was found in an upstairs room (of four available) that contained an aerated aquarium holding a bluegill (*Lepomis macrochirus*) and a crayfish (*Orconectes virilis*). That the turtle was able to identify the stairs as a pathway was also surprising, given its route along the floor perimeter and the geometry of its line of vision. This presents the possibility that the turtle's choice of the much more difficult route up the stairs may have been a response (perhaps olfactory) to locating water (aquarium) or locating the crayfish and the fish in the aquarium, as they constitute major food items in the species' diet (Hammerson, 1999. Amphibians and Reptiles in Colorado. Second Edition. University Press of Colorado, Niwot, Colorado. 484 pp.).

- Richard M. Engelman, National Wildlife Research Center, 4101 LaPorte Avenue, Fort Collins, Colorado 80521-2154

Where Have the *Holbrookia* gone?

Once abundantly (albeit spottily) distributed throughout the western two-thirds of Kansas (Collins, 1993, Univ. Press of Kansas; Taggart, 2006, Ks. Herp. Atlas, webcat.fhsu.edu/ksfauna/herps/). The Lesser Earless Lizard (*Holbrookia maculata*) has all but disappeared in Kansas within the past 10 years.

Collections have been made as far east as the Flint Hills, although the majority of these specimens were taken prior to 1940. The last specimen taken from this region was in Chase County in 1963.

Platt (1985, Ks Fish and Game Rep. Contr. 80; 1998, KDWP Report) noted the decline of this taxon over the 40+ years he monitored reptile populations in Harvey County. Lesser Earless Lizards were regularly observed and caught in traps between 1959 and 1974, however during trapping efforts in 1984, 1985, 1997, and 1998, no specimens were collected, and only one was observed (in 1984). Platt (1998 *op. cit.*) went on to recommend that more information be collected about the present distribution of this species in Kansas.

Taggart (2005, KDWP Report, SWG T-7) and colleagues were not able to collect any additional specimens of *H. maculata* in Kansas, however they did make a putative observation of this taxon in Hamilton County near Coolidge. Additionally, a recent survey

reported by Larry Miller (Miller, 2006. J. Ks. Herp., this issue, p. 8), noted a stable population southwest of Caldwell in Sumner County.

I have not observed a Lesser Earless Lizard in Ellis or Trego counties since 1994. And several surveys over the past eight years at localities where I could previously (pre-1994) observe several dozen in a few hours, yielded no additional observations.

Schmidt (2004, Master's Thesis, FHSU; pers. comm.) marked 300+ *H. maculata* at a quarry on the Smoky Valley Ranch in Logan County, however a recent survey of this locality yielded no additional observations.

Royal (1982, Master's Thesis, FHSU) found *H. maculata* to be the most abundant reptile of the Sand Sage Prairie south of Holcomb (with 500+ observations). Despite extensive surveys from May through August 2006 (400+ hours), no *H. maculata* has been observed at this site since.

- Travis W. Taggart, Sternberg Museum of Natural History, Fort Hays State University, Hays, Kansas 67601.



An adult Lesser Earless Lizard from Sumner County Kansas. Image by Larry L. Miller, Kansas Heritage Photography.

Observation on Native and Alien *Podarcis*

During the summer of 2006, I accompanied a group of students on a trip to Europe, including a visit to Italy. While in Italy, we visited the ruins of Pompeii and it was there that I observed Italian Wall Lizards in their native range. I managed to identify three examples of this small reptile. My companion, Belai Mills, obtained a close-up photograph of one of the lizards. I noted a difference between the lizards observed in Italy and those found in Topeka, Kansas—at least one of the lizards from Italy had more blotches than the lizards in Topeka. The difference could be just individual variation, given my small sample size, but it might prove profitable to examine this variation in greater detail. After observing and catching these lizards in Topeka, it was fascinating to observe them in their native haunt. I anticipate being able to return and study these reptiles more thoroughly in the future.

- Erin Dugan, Fort Hays State University, Hays, Kansas 67601.

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The Timber Rattlesnake in Northeastern Kansas

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Introduction

The geographic range of the Timber Rattlesnake (*Crotalus horridus*) corresponds approximately with the Deciduous Forest Biome in the eastern half of the United States (Shelford, 1963). Because its range encompasses metropolitan centers, interactions with humans have been frequent, usually resulting in the killing of rattlesnakes and/or destruction (intentionally or otherwise) of den sites. Consequently, over most of its range its numbers are diminishing, and in many areas it exists as disjunct populations. While public prejudice persists to some degree, and many people will kill a rattlesnake whenever and wherever they see one, change is underway. Public education campaigns, nature centers at public recreation areas, and a heightened awareness of natural fauna and resources have begun to shift public perception to admiration of this species as a symbol of our wild heritage and an appreciation of its role as a predator of rodents. A definite societal trend now favors preserving these animals, and many states have enacted laws (enforced to varying degree) protecting Timber Rattlesnakes from wanton collecting or killing (Brown 1983).

In recent decades, many field studies of Timber Rattlesnakes have been initiated in different parts of its range, especially in eastern states. The growing body of knowledge about the species has gradually clarified that its habits and seasonal habitats vary across the great expanse of its range, and this has added incentive to conduct studies in new localities with investigators pooling findings on a regular basis.

In 1948, when herpetological studies began on the University of Kansas Natural History Reservation, Timber Rattlesnakes were moderately common on the property and were given top priority as a species to be studied (Fitch 1999). An important finding was that these snakes require extensive open areas for basking. The University's management plan for the Reservation allowed unchecked succession, with the result that arborescent vegetation spread and the snakes dwindled correspondingly. In 1964, after 103 had been captured and marked, the last putative resident was captured. During the 1950s and early 60s the records were indicative of a resident population on the Reservation, but it was gradually dwindling—apparently due to the extension of forest and concomitant shading of the sunny places that the snakes seemed to require. The decrease was gradual. Although wandering snakes from relatively remote

dens could not be distinguished with certainty from the remaining population, it seemed that the resident population had disappeared after 1964. During the late 60s and the decades of the 70s and 80s, thirty more snakes were captured and marked. These were mainly wanderers from various adjacent properties, and most often were encountered on county roads.

In the 1990s it became evident that there was a colony on University of Kansas land near the newly constructed (completed June 1991; Pittman, pers. comm.) Frank B. Cross Reservoir (FBCR). The locality is ca 1 mile N of the northeastern corner of the Natural History Reservation. This and other tracts referenced herein are managed by the Kansas Biological Survey and Ecological Reserves (KBS/KSR). From then on, GRP was an active participant in the capture and processing of rattlesnakes, especially from 2003 onward; as a consequence, our sample size has greatly increased. During the construction of FBCR, several rattlesnakes were killed by workers in the area, but the population survived. Habitat consisted of much more open terrain than the Reservation had provided. It was mainly grassland except along the hillside rock outcrops. Trees up to a foot in diameter were limited to a 50-ft wide band along the ledge outcrops, and smaller woody plants—mainly Rough-leaved Dogwood (*Cornus drummondii*), Smooth Sumac (*Rhus glabra*), Coralberry (*Symphoricarpos orbiculatus*) and Blackberry (*Rubus ostryiaefolius*)—grew between the trees. Debris from bulldozing (boulders, logs, etc.) was scattered along the FBCR shoreline, interspersed with tall grasses and forbs. Woodrats (*Neotoma floridana*) were numerous, and their dome-shaped nest mounds were a prominent feature of the landscape along the ledge outcrop. The nearly 15m depth of the impoundment required close to 2 years to completely fill, and the surface presently is ca 4m below the hibernacula, which are at the top of an outcrop of the Toronto Limestone member of the Oread Limestone (generally on the 1010-1020ft elevation contours on the N shore of FBCR). The area lies in a zone characterized by Whittemore (1991) as “although lying in the glaciated region of Kansas is essentially characterized as Osage Cuestas affected by glaciation and glacial deposits of loess and till.”

Movements and Demography

In the 2003 season (discussed in greater detail by Fitch et al., 2004), six Timber Rattlesnakes (one adult male, three adult females, two first-year

young—both females) were captured on April 18th as they emerged from their hibernacula. These six snakes were equipped with Holohil radiotelemetry transmitters on April 24, 2003 and were monitored daily through the 2003 season. An additional 15 rattlesnakes were captured, processed and released as they emerged from these same hibernacula through the last 2 weeks of April 2003.

Compared with *Crotalus horridus* from other parts of the species' range, the telemetered snakes were notable for their sedentary behavior and lack of any long movements, always within 1 km of the den ledge. In the following few weeks, the four adults moved independently generally eastward along the ledge, and then SE, downslope through a field of mixed pasture grasses and Yellow Sweetclover (*Melilotus officinalis*) to (on private land) a degraded, grazed, rocky pasture along a generally NW-facing slope that is crossed by two limestone ledges, one at its upper border with a field of mowed brome grass (*Bromus*) and the other ca. 50 m downslope. The upper ledge is lightly wooded, predominantly with Osage Orange (*Maclura pomifera*) and Honey Locust (*Gleditsia triacanthos*). The lower ledge is more sparsely wooded with the same prevailing species. Many Honey Locust saplings occur through the pasture. The entire pasture area is within 1 km of the den ledge. Summer of 2003 was exceptionally hot and dry, with many July-August days close to or above 38° C; no measurable precipitation fell through June, July and August. Telemetered adults during July and August daylight hours frequently were within woodrat (*Neotoma floridana*) nest mounds.

The two telemetered immature females, both of similar size, departed the den ledge by moving to the top of the ledge and then generally in a NW direction along the wooded den ledge's border with an open brome field N of it. Both immatures travelled ca 0.8 km NW to two neighboring tracts. Female-52 (numbers correspond to transmitter frequencies) moved about through an old-field tract overgrown with forbs and several species of trees, mainly Red Cedar (*Juniperus virginiana*) and Rough-leaved Dogwood (*Cornus drummondii*). Female-81 primarily utilized habitat along a fenceline between that area and a more open brome field to the north. Female-81 displayed distinct climbing tendencies, and readily ascended trees (mainly Honey Locust or species harboring ascending vines like Poison Ivy). It is likely the locust thorns and ascending vines provided access to the upper branches of these trees. On several occasions she climbed 6 m or more above ground level as judged from angle of signal reception to a highly directional accessory antenna. The thermoregulatory potential of this behavior was discussed by Fitch and Pisani 2004. Female-52 never climbed. These two snakes on occasion used the same Dogwood clones along the fence-line, though they never were recorded in a clone together. When farthest from the den ledge, they were less than 10 m apart; it is not known whether they associated with each other.

With the onset of cool weather in mid-September, all four of the adults and one of the immature females independently began to move toward the den ledge. Female-52, the adult male, and one of the adult fe-

males re-entered the same den openings from which they were captured in April. The remaining adults had already emerged from the ledge when captured, making it impossible to ascertain if they also returned to the same crevice from which they had emerged in April. The adults essentially backtracked their dispersal routes, whereas Female-52 at first moved S to the edge of the tract she had utilized all summer, then turned E moving towards FBCR, and finally NE where she crossed a nearly dry creek and moved to the N margin of the ledge; from there she moved ca 300 yds east to her den crevice. The other immature female began to return to the ledge as well, essentially backtracking her dispersal route. However, her signal was lost overnight ca 0.2 km from the den ledge. It is unknown whether she entered hibernation there, was killed and removed by a predator, or whether her transmitter failed.

The telemetered adult male utilized a somewhat larger home range (Fitch et al. 2004) than the adult females, a pattern that also was evident during the 2004 field season. Adult males in general have been shown to follow this pattern in other parts of the species' extensive range (see Brown 1993, Martin 2002). Miscellaneous captures of other snakes through May-August 2003-2006 would seem to corroborate this behavior in this population. At various times, we have been called to remove rattlesnakes from the yards of residents up to 0.5 mile from the den ledge; all these snakes were adult males, nearly all found in the vicinity of buildings. We also have responded to contacts from residents of neighboring counties regarding Timber Rattlesnake sightings near buildings, and again, nearly all snakes were adult males.

On 11 June 2006, two gravid females were recaptured. One (910 mm SVL, 8 embryos) had moved 200 yds E along the den ledge since 22 April; the other 900 mm SVL, 6 embryos) had since 31 March moved a total of 300 yds (100 yds E, and 200 yds S across the FBCR dam). Both were captured in late afternoon as they basked in partial shade. The latter female appeared to contain a partly-digested meal. It had gained 36 g since 31 March, whereas the other snake had lost 44 g.

Other than the 6 telemetered snakes, recaptures from the 2003 sample and from snakes marked at this location from 1990-2002 have been very few. Noteworthy among these is the 27 April 2003 recapture at a location ca 0.6 mile S of the den ledge of an adult male marked on 14 September 1995 (SVL gain 116 mm; weight gain 380 g). In 2003, in large part due to monitoring telemetered snakes, there were 52 captures (35 recaptures—largely of telemetered snakes for weighing) of snakes from this population. Numbers for subsequent years are:

Table 1. Captures and recaptures of *Crotalus horridus*.

Year	Total Captures	Recaptures	% recaptures
2004.....	18.0	4.0	22.2 %
2005.....	22.0	5.0	22.7 %
2006 (Spr)	29.0	17.0	58.6 %
MEAN.....	23.0	8.7	37.7 %

Table 2. Age cohort and sex by year (1990-2006) of *Crotalus horridus* captured and recaptured in vicinity of FBCR.

Year	Adult male	Adult female	Neonate	Immatures	Recaptures
1990.....	-	2	1	1	-
1991.....	3	1	-	5	-
1992.....	-	-	-	-	-
1993.....	3	1	1	-	-
1994.....	4	2	-	-	-
1995.....	6	2	-	-	-
1996.....	1	2	1	1	-
1997.....	8	3	1	-	-
1998.....	1	2	-	-	-
1999.....	3	2	1	3	-
2000.....	1	1	-	-	-
2001.....	3	2	-	4	2
2002.....	2	1	-	-	-
2003.....	7	2	-	-	-
2004.....	3	1	-	6	4
2005.....	2	7	2	7	10
2006.....	2	4	2	7	16

In 2005 and 2006, substantial samples were obtained. From the mean numbers of captures vs. recaptures, we can begin to estimate the total number of snakes in this local population. Using the simple arithmetic ratio: (Mean Total Capture ÷ Mean Number Recaptured) X Mean Total Capture = N (Total Population) yields an estimate of 61 snakes. That number seems plausible, but it assumes that all snakes taken within a half-mile radius were members of this local population, and that catchability was the same for all of them (an assumption to which we shall return below). Sundry other ways of estimating the population can of course be used, but the reality is that censuses based upon these relatively small samples have a fairly wide margin of error. Performing a similar calculation on the Spring 2006 data and arbitrarily dividing the capture period in two (March 31–April 16 vs. April 17–June 11) provides an estimate of 34.5 (rounded to 35) snakes—also within the realm of possibility.

With regard to catchability, we suspect, but cannot yet prove, that there is an “investigator effect,” with snakes altering their seasonal and daily movements to avoid capture, either by people or anthropogenic devices such as traps and drift fences. Adult snakes which have experienced trapping, handling and human interference with their normal activities may be more wary and elusive than snakes lacking these ex-

periences. The single telemetered adult male (Male-99) of 2003, after being located and disturbed for observation on several occasions that year, became highly elusive in 2004. In Summer 2004, a drift fence was installed perpendicular to the long axis of the den ledge to intercept snakes returning to their hibernacula in September and October. Funnel traps installed in openings in the fence captured 6 rattlesnakes in September 2004. In the entire field season of 2005, with funnel traps installed to intercept snakes moving east in Spring and west in Fall, just two snakes were caught. Two were trapped in Spring 2006 (one recapture from 2005; one new), and both were caught (14 April, 16 May) in the trap at the north end of the drift fence. It is possible that some snakes, perhaps ones that emerged in early April, modified their dispersal route to avoid the fence, with others scent-trailing them later in the emergence and dispersal of 2006.

Table 2 shows numbers of snakes caught each year from 1990-2006 near FBCR, and their sex plus estimated age categories. Young are born in September with only the natal “button.” Some young shed (gaining a new rattle segment) before hibernation, but most do not and young with only the button may be found as late as June. By the time they are a year old, most have gained four rattle segments in addition to the button. Two-year olds have mostly passed 600 mm SVL and have at least six rattle segments.

Table 3. Rattle segments and SVL in mm for male and female *Crotalus horridus*. Numbers are: mean (range; s.e., N).

Rattle segments	SVL(mm) Males	SVL(mm) Females
Button only.....	384.1 (298-482; 14.29; 18)	381.3 (311-470; 8.04; 21)
Button + 1	492.3 (464-531; 20.01; 3)	405.7 (348-495; 45.29; 3)
Button + 2	592.3 (525-678; 12.02; 12)	562.1 (540-580; 5.26; 7)
Button + 3	675.2 (628-720; 17.98; 5)	609.8 (582-652; 14.9; 4)
Button + 4	781.9 (682-915; 38.34; 7)	720.6 (504-807; 54.99; 5)
Button + 5	748.3 (658-814; 46.69; 3)	No Data
Button + 6	799.0 (716-870; 36.57; 5)	778.2 (644-900; 27.48; 9)
Button + 7	994.5 (994-995; 0.5; 2)	920.8 (883-960; 21.80; 4)
Button + 8	923.0 (893-955; 17.93; 3)	830.5 (700-961; 130.5; 2)
Incomplete, 4-5 segments	979.9 (825-1270; 45.98; 9)	989.3 (930-1038; 31.63; 3)
Incomplete, 6-12 segments	1055.7 (816-1196; 37.27; 10)	982.8 (950-1031; 19.94; 4)

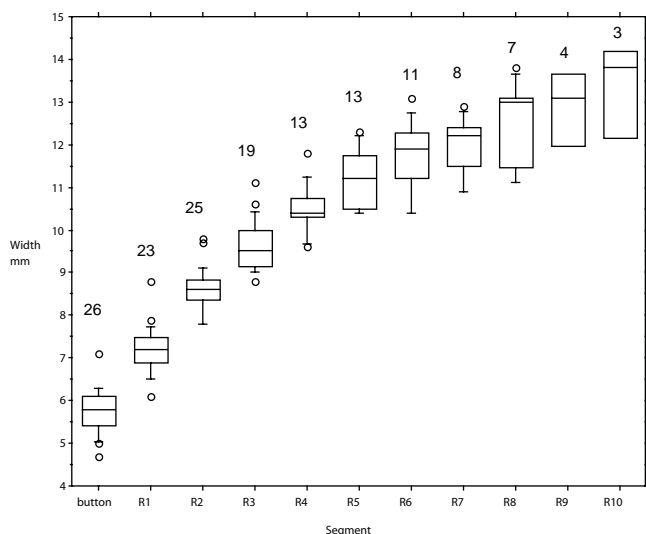


Figure 1. Boxplots of *Crotalus horridus* rattle segments, FBCR sample, 2004-2006.

Some may breed in their third year.

Table 3 shows size (SVL) plus number of rattle segments for males and females over the 17 years 1990-2006. It shows that growth is erratic, and is correlated only in a general way with number of rattle segments. Young of the year, still having only the natal button, are most evident in October. Some gain an additional segment in that month but most enter hibernation without shedding. Some still have only the button the following May or even June. It is remarkable that snakes with one rattle segment plus the button are rarely seen. Those with only a button plus two segments were seen nearly 3 times as often. A possible explanation is that young snakes grow very rapidly and spend less time in the button-plus-one stage.

Figure 1 lends support to this possibility. In 1993, summarizing their work with *Crotalus atrox* in Oklahoma, Fitch and Pisani examined the correlation of SVL with base rattle segment width (BSW) in 1,418 snakes and found it to be very high at all sizes ($r = 0.94$). This, coupled with the fact that every seg-

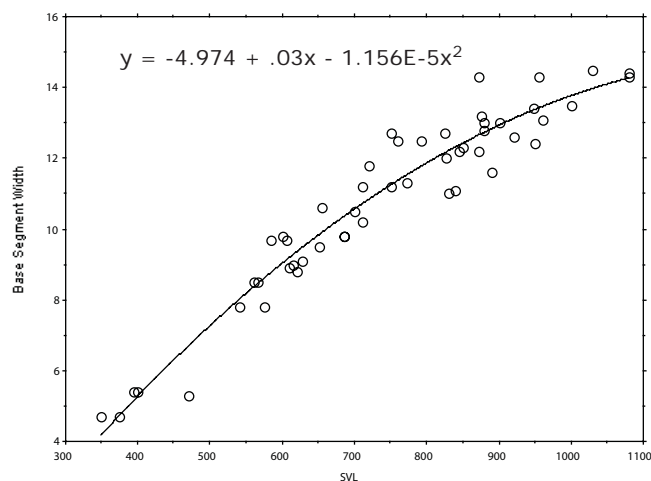


Figure-2. Second-order polynomial regression of BSW on SVL of *Crotalus horridus*.

ment was once a base segment, means that each rattle with distinct taper reflects growth of that animal. To apply this information to our study of *C. horridus*, we first derived mean segment-size classes from complete strings (those with button present), and then incorporated less complete ones by statistically matching the terminal several segments to existing classes (rather like looking at forest growth by matching patterns in tree rings). Klauber (1956:313) introduced the "tree ring" approach and briefly described the relationship between BSW and SVL for *C. lucasensis*.

In this study, of 127 snakes 18 (14.2%) had lost the button, and usually other segments as well; 76 (60%) were first-year young having 1-4 rattles including the button, 36 (27.4%) were second-year young. Those that had lost rattles were the oldest and their ages could not be accurately estimated.

Young *C. horridus* from the FBCR population (2004-2006 data) make significant ($p=0.95$) gains in SVL through their 4th shed, after which increases are steady but of lesser magnitude (Figure 1). Log-transformed data for SVL (X) and BSW (Y) were compared (linear regression) for sexes separately; no significant ($p=0.95$) differences were noted in slope or Y-intercept. Data for sexes were therefore pooled; a 2nd-order polynomial regression of SVL vs. BSW yields an approximation of the growth of snakes in this population (Figure 2).

Timber Rattlesnakes are long-lived, and our recapture (Fitch and Pisani, 2002) of an adult male nearly 24 years after marking—at an apparent age of 28 years—gives some perspective. While large snakes with incomplete strings of uniformly-sized rattle segments cannot be aged accurately, they can be estimated to be at least 10 years old (5 years to grow the tapered string that was lost, and perhaps 5 years more to produce their incomplete string of uniform-width segments).

Feeding

Over a 58-year period, 17 instances of predation by Timber Rattlesnakes were obtained (Table 4).

As a result of their larger size, males took (at the upper limit of size) larger prey than did females, including both Eastern Cottontails and the Gray Squirrel. Males took two of the 5 Prairie Voles, the Southern Bog Lemming, and 3 of the 4 White-footed Mice. The Least Shrew was eaten by a neonate. A larger sample might have shown neonates to take small lizards and snakes as they are known to do elsewhere in the range (Reinert et al., 1984).

Table 4. Prey obtained from *Crotalus horridus*.

Species	Number of instances
Prairie Vole (<i>Microtus ochrogaster</i>)	6
White-footed Mouse (<i>Peromyscus leucopus</i>)	4
Eastern Cottontail (<i>Sylvilagus floridanus</i>)	2
Hispid Cottonrat (<i>Sigmodon hispidus</i>)	2
Gray Squirrel (<i>Sciurus carolinensis</i>) adult	1
Southern Bog Lemming (<i>Synaptomys cooperi</i>)	1
Least Shrew (<i>Cryptotis parva</i>)	1

Table 5. Enlarged follicles from female *Crotalus horridus*.

Number of Enlarged Follicles	Number of snakes
4.....	1
5.....	1
6.....	6
7.....	3
8.....	4
9.....	3
10, 13, 14.....	1 each

Reproduction

Reproductive habits are known to vary geographically under the influence of climate. Reproductive females that emerge from hibernation already have enlarging follicles that can be detected and counted by palpation of the abdomen. Twenty-one females that we examined were reproductive; see Table 5 for numbers of enlarged follicles palpated.

Twenty-seven females were not noticeably gravid; however, nine of them were captured in late August, September or October, and might have already given birth. Excluding these 9 leaves 18 non-reproductive adult females, a number closely approximating the 21 that were reproductive. We conclude tentatively that our female snakes are on a 2 year cycle, breeding in alternate years. Twenty-one gravid females averaged 898.4mm SVL (range 803-1038mm). Table 6 shows data from four litters born in captivity between 1994-2002.

Discussion

Crotalus horridus occurs across one of the largest and most ecologically diverse geographic areas of the species in this genus; the species shows considerable plasticity in habitat use and life history parameters. Eastern Kansas, at the extreme west limit of this range, provides opportunity to contrast and compare parameters with populations elsewhere in the country. Given this species' longevity, and also the increasing probability of a social structure within local populations (see Greene et al., 2002), our work is best categorized as in its early stages, with much yet to learn. Females in Kansas mature and become reproductive far earlier than in eastern U.S. populations; neonates of both sexes increase in mass and SVL faster than in eastern U.S. populations (Martin, pers. comm.); home ranges of adult females and subadults of both sexes are not only smaller than in many other areas of the species' occurrence, but also involve open fields of mixed forbs and grasses rather than woodland or woodland edge habitat typical elsewhere. This habitat usage may reflect an abundant food source of voles (*Microtus*) in these habitats, per-

haps greater abundance than prey utilized elsewhere, especially by smaller snakes. It is our goal to more closely examine the questions raised by these and other observations over coming years.

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Table 6. SVL and weight of captive born *Crotalus horridus*.

Number in litter	SVL range	Weight range (g)
7.....	318-403	19-28
4.....	302-336	13-25
6.....	303-323	30-39
6.....	283-310	23-34

An Update on the List of Florida's Exotic Amphibian and Reptile Species

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The herpetofauna of Florida is rich and faces many pressing conservation challenges, one of which is exotic species (Meshaka and Babbitt, 2005). The most recent comprehensive treatment of Florida's exotic herpetofauna listed 40 species as established (Meshaka et al., 2004). Of these, most of the species were lizards ($N = 32$), especially anoles and geckos, followed by anurans ($N = 4$), snakes ($N = 2$), turtles ($N = 1$), and crocodilians ($N = 1$). Since publication of that volume, five more exotic lizard species have been reported in Florida. Herein, I summarize these publications in chronological order and relate them to the taxonomic and life history patterns associated with the previous 40 species.

Phelsuma madagascarens grandis—This small to medium-sized Old World gekkonid lizard was recently reported from Little Torch Key, Grassy Key, Big Pine Key, Plantation Key, Monroe Counties (Krysko et al., 2003). Individuals were found on trees and buildings (Krysko et al., 2003), with no evidence of invasion of natural areas. The authors note a pet trade connection with this species, and it is a popular pet. This species is an omnivore. In captivity, it is sexually mature at one year or slightly over one year of age and reproduces continuously (R.D. Bartlett, pers. comm.). Meshaka and colleagues (2004) noted a Florida Museum of Natural History record for Monroe County and reported it seen but not collected on trees in the vicinity of a pet dealership in Ft. Myers, Lee County as well as on one in Broward County. Bartlett and Bartlett (1999) hatched out eggs of this species found in palm fronds in Miami-Dade County and photographs were taken of a hatchling (R.D. Bartlett, pers. comm.). The age of the Monroe County colony is not mentioned, but individuals of various size-classes were recorded during August 2001–September 2002 on the Florida Keys (Krysko et al., 2003).

Calotes versicolor—This medium-sized Old World agamid lizard was recently reported from a site west of Port St. Lucie, St. Lucie County Florida (Enge and Krysko, 2004). Individuals were found in disturbed habitat, but the authors mention the presence of patches of mesic flatwoods. The integrity as natural and the size of these patches as they relate to invasibility is not clear. This species is found in the pet trade. Imported individuals for the pet trade are primarily adults, and wild caught mortality is high (R.D. Bartlett, pers. comm.). It is primarily insectivorous (Bartlett, pers. comm.). This species was not known to Meshaka and colleagues (2004). Its introduction dates back to 1978 (Enge and Krysko, 2004).

Chameleo calyptratus—This small to medium-sized Old World chamaeleonid lizard was recently reported from Ft. Myers, Lee County (Krysko et al., 2004). The authors also report that the species is in Lehigh Acres and Alva in the same county and report that an indi-

vidual was photographed crossing a street in Naples, Collier County. Individuals were found in vegetation of a vacant lot. The Ft. Myers colony appeared to be pet trade-related in derivation (Krysko et al., 2004). This species is common in the pet trade. It is omnivorous, eating insects, small vertebrates as well as vegetation. In captivity, females are sexually mature within three months of age and produce 20 to 50 eggs several times each year (R.D. Bartlett, pers. comm.). This species was unknown to Meshaka and colleagues (2004). Its introduction dates back to 2001 (Krysko et al., 2004).

Varanus niloticus—This large-bodied Old World varanid lizard was recently reported in Cape Coral, Lee County (Enge et al., 2004). Most individuals were found in residential areas, but a few were seen going into the woods (Enge et al., 2004). The degree to which it can colonize natural systems is at present uncertain. This species is common in the pet trade. It is carnivorous. In captivity individuals are sexually mature within about three years; eggs are laid in burrows of the females' making, and take six to 10 months to hatch (R.D. Bartlett, pers. comm.). Up to 60 eggs have been reported from the wild (Branch, 1998). Meshaka and colleagues (2004) reported it seen but not collected in central Florida. Its introduction dates back to c.a. 1990 (Enge et al., 2004).

Leiolepis belliana—This small to medium-sized Old World agamid lizard was recently reported from Miami, Miami-Dade County (Krysko and Enge, 2005). Individuals were found in open grassy lawns (Krysko and Enge, 2005). This colony was associated with a fish farm (Krysko and Enge, 2005). This species is known in the pet trade. Wild caught adults are imported in large numbers for the pet trade and suffer high initial mortality (R.D. Bartlett, pers. comm.). It is an omnivore but prefers insects (R.D. Bartlett, pers. comm.). A large dead female contained five developing but not mature ova (R.D. Bartlett, pers. comm.). This species was unknown to Meshaka and colleagues (2004). Its introduction dates back to at least 1992 (Krysko and Enge, 2005).

As per the criteria used by Meshaka and colleagues (2001), these five exotic species appear to be established in Florida and adhere to the general patterns associated with the previous 40 species (Meshaka et al., 2004). First, all but one species are small-medium in body size. *Varanus niloticus* is, exceptionally, a large-bodied animal. Second, like most of the other 40 species, all five of these species are lizards. Interestingly, none is an anole and only one is a gecko. Third, like that of most of the other 40 species, the center of distribution for all five new species is southern Florida. Fourth, all five species are associated with disturbed habitat. The extent to which they are capable of invading natural systems remains unknown. In particular, for two

of them (*C. versicolor* and *V. niloticus*), presently, the possibility of natural areas invasion can not be ruled out and the topic warrants immediate investigation. Notwithstanding potential predation by the American Alligator (*Alligator mississippiensis*), *V. niloticus* has the highest likelihood of invading natural wetland/upland interfaces of the five new species, where its predatory habits would impact vertebrates. Fifth, like the 40 species all of these five species have some connection to the pet trade. I note that the appearance of the Brahminy Blind Snake (*Ramphotyphlops braminus*) in the pet trade is uncommon and generally as a food source of ophiophagous snakes.

Sixth, all five species include invertebrate prey and can eat small vertebrates. One species, *V. niloticus*, shifts distinctly towards vertebrates as it matures (reviewed in Krysko et al., 2004) and is capable of eating a much wider range of vertebrate body size and taxa than the other four. This point is of special concern because *V. niloticus* joins the Burmese Python (*Python molurus bivittatus*), a potentially large-bodied species (Bartlett and Wagner, 1997), as a species that is capable of eating a wide range of vertebrate prey and the latter of these species can negatively impact listed vertebrate species. Furthermore, concerns have been raised about potential negative impacts by *V. niloticus* on other listed vertebrate species (Enge et al, 2004), and concerns in this regard have also been raised for the Green Iguana (*Iguana iguana*) (McKie et al., 2005) and the Black Spinytail Iguana (*Ctenosaura similis*) (Krysko et al., 2003). In this connection, remains of a juvenile Gopherus Tortoise (*Gopherus polyphemus*) were removed from a Savannah Monitor (*V. exanthematicus*) captured in Pinellas County (Owens et al., 2005; It's Alien Versus Predator in Glades Creature Clash. 5 October 2005, The Miami Herald). Interestingly, *P. m. bivittatus* and *I. iguana*, can be, in turn, negatively impacted by listed vertebrates (McKie et al., 2005; Snow et al., 2005). Indeed, *V. niloticus* joins the list of species that can quickly outgrow many potential predators, and may in turn negatively impact species that are legally recognized as biologically at risk. The extent to which *V. niloticus* is susceptible to predation in southern Florida, however, remains unknown.

Seventh, although age at sexual maturity appears to be unknown in two species (*C. versicolor* and *L. belliana*), it is potentially rapid in captives of two species (*P. m. grandis* and *C. calyptratus*) as in most of the exotic herpetofauna and, exceptionally, it is protracted in one species (*V. niloticus*). Finally, although clutch characteristics are not well known for two species (*C. versicolor* and *L. belliana*), the remaining three species can be highly fecund in captivity. How closely these last two characteristics as known in captive individuals match with those of free-ranging individuals in southern Florida remains to be seen.

Interestingly, only two of the five new species (*P. m. grandis* and *V. niloticus*) had been noticed by Meshaka and colleagues (2004). Also, despite recent reporting to the scientific literature during 2003-2005, one of the species was introduced in 1978, two of the species were established during the early 1990s, if not earlier, one species since 2001, and for one species colony

age is not mentioned. Because three of the five species were unknown in the literature and because of the wide range in colony ages of four species, it is logical to conclude that more species remain to be detected both as new and old residents of the state.

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A Re-classification of Snakes Native to Canada and the United States

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The purpose of biological classifications is to hold information content in a hierarchal manner, relating to the hypothesized organization of the species (= taxa) being classified and to facilitate communication among scientists and more increasingly to the general public. Traditional biological classifications have largely followed the initial recommendations of Linnaeus. The Linnaean system arranges taxa in a hierarchal manner within seven primary categories (Kingdom, Phylum, Class, Order, Family, Genus, species) (e.g. the classification of humans could be: Animalia, Chordata, Mammalia, Primates, Hominidae, Homo, sapiens). Additionally, the Linnaean system allows for the further storage of information content through the use of a myriad of lesser-used categories delineated by prefixes (e.g. subfamily, infrafamily, superorder, parvorder etc.), and through the introduction of additional, albeit lesser used, terms (e.g. domains above Kingdoms, series and sections between genus and species, and tribes between family and genus).

The Linnaean system is exceptionally useful in the amount of information content that it contains, but becomes cumbersome to retrieve via memorization, and it is rare that biologists and the layperson alike memorize more than the seven key categories in daily life.

Following Linnaeus, the next great advance in biological classification was the proposal and growing acceptance that hypothesized phylogenetic relationships could be stored in this same hierarchal manner resulting in a phylogenetic or 'natural' classification. The only 'rule' to constructing a phylogenetic classification is that it be consistent with a reconstruction of phylogeny. That said, category names of higher taxa (above the species level) are largely arbitrary. For instance, one reviewer may place the Plains Spadefoot (*Spea bombifrons*) into

the Order Anura, suborder Archaeobatrachia, and Family Scaphiropodidae; while another researcher will consider them in the Order Anura, Family Archaeobatrachidae, and subfamily Scaphiropodinae. So long as the information content stored in each hierarchical classification is consistent with the hypothesized relationships of Anura, both are correct.

Lawson et al. (2005) discovered a phylogenetic hypothesis for the Colubroidea, a group of snakes that contains approximately 85% of all extant species. Using a phylogenetic Linnaean classification, they chose to recognize seven colubroidian subfamilies (= clades) in North America (north of Mexico).

It is my contention that because the lesser categories (like subfamily) are so seldom retained, these changes are better placed at the family level than at the subfamily level. Doing so will promote their wider use among herpetologists, and better convey the relationships within this large group of snakes. Thus, to provide a traditional classification for use by herpetologists, I herein recognize them as the Families Colubridae, Crotalidae, Dipsadidae, Elapidae, Hydrophiidae, Natricidae, and Xenodontidae. Lawson et al. (2005) placed the genus *Trimorphodon* in the Family Colubridae (as here restricted); only the North American genera *Farancia* and *Heterodon* were retained by them in the Family Xenodontidae. Based on Lawson et al. (2005), the Family Dipsadidae in North America north of Mexico is now comprised of the genera *Carphophis*, *Contia*, *Coniophanes*, *Diadophis*, *Hypsiglena*, *Leptodeira*, and *Rhadinaea*.

The following classifications cover all native snake genera in North America north of Mexico, and are shown here for comparison (the Families are listed in alphabetical order in both classifications):

CLASSIFICATION A

Class Reptilia (Amphisbaenians, Lizards and Snakes)
Order Squamata (Lizards and Snakes)

Family Boidae (Boas)

Charina Rosy and Rubber Boas

Family Colubridae (Harmless Egg-Laying Snakes)

Arizona Glossy Snakes
Bogertophis Desert Rat Snakes
Cemophora Scarlet Snakes
Chilomeniscus Sand Snakes
Chionactis Shovelnose Snakes
Coluber Racers
Drymarchon Indigo Snakes
Drymobius Speckled Racers
Ficimia Mexican Hooknose Snakes
Gyalopion Plateau Hooknose Snakes
Lampropeltis Kingsnakes and Milk Snakes
Liophorophis Smooth Green Snakes
Masticophis Coachwhips, Striped Racers and Whipsnakes
Opheodrys Rough Green Snakes

<i>Oxybelis</i>	Neotropical Vine Snakes
<i>Pantherophis</i>	Corn Snakes, Fox Snakes and Rat Snakes
<i>Phyllorhynchus</i>	Leafnose Snakes
<i>Pituophis</i>	Bullsnakes, Gopher Snakes and Pine Snakes
<i>Rhinocheilus</i>	Longnose Snakes
<i>Salvadora</i>	Patchnose Snakes
<i>Senticolis</i>	Mountain Rat Snakes
<i>Sonora</i>	Ground Snakes
<i>Stilosoma</i>	Short-tailed Snakes
<i>Tantilla</i>	Blackhead, Crowned and Flathead Snakes
<i>Trimorphodon</i>	Lyre Snakes

Family Crotalidae (Pitvipers)

<i>Agkistrodon</i>	Copperheads and Cottonmouths
<i>Crotalus</i>	Rattlesnakes
<i>Sistrurus</i>	Massasaugas and Pigmy Rattlesnakes

Family Dipsadidae (Slender Rear-Fanged Snakes)

<i>Carphophis</i>	Worm Snakes
<i>Contia</i>	Sharptail Snakes
<i>Coniophanes</i>	Black-striped Snakes
<i>Diadophis</i>	Ringneck Snakes
<i>Hypsiglena</i>	Night Snakes
<i>Leptodeira</i>	Cat-eyed Snakes
<i>Rhadinaea</i>	Pine Woods Snakes

Family Elapidae (Coral Snakes, Kraits and Cobras)

<i>Micruroides</i>	Western Coral Snakes
<i>Micrurus</i>	Eastern Coral Snakes

Family Hydrophiidae (Sea Snakes)

<i>Pelamis</i>	Pelagic Sea Snakes
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Family Leptotyphlopidae (Slender Blind Snakes)

<i>Leptotyphlops</i>	Blind Snakes
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Family Natricidae (Harmless Live-Bearing Snakes)

<i>Clonophis</i>	Kirtland's Snakes
<i>Nerodia</i>	Salt Marsh and Water Snakes
<i>Regina</i>	Crayfish Snakes
<i>Seminatrix</i>	Swamp Snakes
<i>Storeria</i>	Brown and Redbelly Snakes
<i>Thamnophis</i>	Garter and Ribbon Snakes
<i>Tropidoclonion</i>	Lined Snakes
<i>Virginia</i>	Earth Snakes

Family Xenodontidae (Robust Rear-Fanged Snakes)

<i>Farancia</i>	Mud and Rainbow Snakes
<i>Heterodon</i>	Hognose Snakes

The following hierarchy also covers all native snake genera in North America north of Mexico:

CLASSIFICATION B

Class Reptilia (Amphisbaenians, Lizards and Snakes)
Order Squamata (Lizards and Snakes)

Family Boidae (Boas)

<i>Charina</i>	Rosy and Rubber Boas
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Family Colubridae (Harmless Snakes)

<i>Arizona</i>	Glossy Snakes
<i>Bogertophis</i>	Desert Rat Snakes
<i>Carphophis</i>	Worm Snakes
<i>Cemophora</i>	Scarlet Snakes
<i>Chilomeniscus</i>	Sand Snakes
<i>Chionactis</i>	Shovelnose Snakes
<i>Clonophis</i>	Kirtland's Snakes

<i>Coluber</i>	Racers
<i>Coniophanes</i>	Black-striped Snakes
<i>Contia</i>	Sharptail Snakes
<i>Diadophis</i>	Ringneck Snakes
<i>Drymarcon</i>	Indigo Snakes
<i>Drymobius</i>	Speckled Racers
<i>Farancia</i>	Mud and Rainbow Snakes
<i>Ficimia</i>	Mexican Hooknose Snakes
<i>Gyalopion</i>	Plateau Hooknose Snakes
<i>Heterodon</i>	Hognose Snakes
<i>Hypsiglena</i>	Night Snakes
<i>Lampropeltis</i>	Kingsnakes and Milk Snakes
<i>Leptodeira</i>	Cat-eyed Snakes
<i>Liochlorophis</i>	Smooth Green Snakes
<i>Masticophis</i>	Coachwhips, Striped Racers and Whipsnakes
<i>Nerodia</i>	Salt Marsh and Water Snakes
<i>Opheodrys</i>	Rough Green Snakes
<i>Oxybelis</i>	Neotropical Vine Snakes
<i>Pantherophis</i>	Corn Snakes, Fox Snakes and Rat Snakes
<i>Phyllorhynchus</i>	Leafnose Snakes
<i>Pituophis</i>	Bullsnakes, Gopher Snakes and Pine Snakes
<i>Regina</i>	Crayfish Snakes
<i>Rhadinaea</i>	Pine Woods Snakes
<i>Rhinocheilus</i>	Longnose Snakes
<i>Salvadora</i>	Patchnose Snakes
<i>Seminatrix</i>	Swamp Snakes
<i>Senticolis</i>	Mountain Rat Snakes
<i>Sonora</i>	Ground Snakes
<i>Stilosoma</i>	Short-tailed Snakes
<i>Storeria</i>	Brown and Redbelly Snakes
<i>Tantilla</i>	Blackhead, Crowned and Flathead Snakes
<i>Thamnophis</i>	Garter and Ribbon Snakes
<i>Trimorphodon</i>	Lyre Snakes
<i>Tropidoclonion</i>	Lined Snakes
<i>Virginia</i>	Earth Snakes

Family Elapidae (Coral Snakes and Sea Snakes)

<i>Micruroides</i>	Western Coral Snakes
<i>Micrurus</i>	Eastern Coral Snakes
<i>Pelamis</i>	Pelagic Sea Snakes

Family Leptotyphlopidae (Slender Blind Snakes)

<i>Leptotyphlops</i>	Blind Snakes
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Family Viperidae (Vipers and Pitvipers)

<i>Agkistrodon</i>	Copperheads and Cottonmouths
<i>Crotalus</i>	Rattlesnakes
<i>Sistrurus</i>	Massasaugas and Pigmy Rattlesnakes

For those preferring to use a classification of the root categories only (i.e., Kingdom, Phylum, Class, Order, Family, Genus, species), both A and B are fully supported by the topology presented in Lawson et al. (2005) and either can be used with confidence. I assert that Classification A is the most informative; recognizing all North American harmless snake genera (except *Charina* and *Leptotyphlops*) under a single Family Colubridae (Classification B) is uninformative within a traditional classification (i.e., it is more important to know that *Diadophis* is more closely related to other members of the Family Dipsadidae than it is to members of the Family Natricidae). When the Families Leptotyphlopidae and Boidae are included under Classification A, native North American snakes north of Mexico are divided into nine Families (instead of five as in Classification B), all of which are mutually exclusive evolutionary lineages as shown in Lawson et al. (2005). Classification A

provides for writing and verbal communication using convenient, logical, categories that are fully-supported by data, and is probably intellectually sufficient for most academic herpetologists, particularly those that do not specialize in systematics.

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Literature Cited

Lawson, Robin, Joseph B. Slowinski, Brian I. Crother and Frank T. Burbrink. 2005. Phylogeny of the Colubroidea (Serpentes): New evidence from mitochondrial and nuclear genes. *Molecular Phylogenetics and Evolution*. 37: 581–601.

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 KHS hosts two or more field trips each year, one in the spring and one in the fall. Field trips are an enjoyable educational experience for everyone, and also serve to broaden our collective understanding of the distribution and abundance the amphibians, reptiles, and turtles in Kansas. All interested persons are invited to attend.

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The Journal of Kansas Herpetology, issued quarterly (March, June, September, and December), publishes all society business.

Submission of Manuscripts

As space allows, *JKH* publishes all manner of news, notes, and articles. Priority of publishing is given to submissions of Kansas herpetological subjects and by KHS members, however all submissions are welcome. The ultimate decision concerning the publication of a manuscript is at the discretion of the Editor. Manuscripts should be submitted to the Editor in an electronic format whenever possible. Those manuscripts submitted in hard copy may be delayed in date of publication. 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. In the interest of consistency and clarity the common names used in *JKH* will follow the latest edition of standardized common names as organized by CNAH (www.cnah.org), which are also used in the prior, current and subsequent editions of *Amphibians and Reptiles in Kansas* (currently Collins and Collins, 1993).

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Pen and ink illustrations and photographs are also welcomed. Illustrations and photographs will be returned to the author only upon request.

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The Award is established in recognition of the scientific and photographic achievements of Suzanne L. Collins and Joseph T. Collins, whose life-long study and conservation of the native amphibians, reptiles, and turtles of Kansas is amply demonstrated in their extensive and excellent writings and photography, both academic and popular, about these animals. The Collins Award shall be presented no more than once each year. In even-numbered years, the Award is bestowed upon an individual who, in the preceding two calendar years, had published a paper of academic excellence on the native species of Kansas amphibian, reptile, and/or turtle and in odd-numbered years, the Award is bestowed upon an individual who was chosen the best in a juried competition featuring the art of photography in portraying amphibians, reptiles, and/or turtles. The Collins Award is minimally \$1,000.00, and is neither a grant nor a scholarship. No nominations or applications can be made for it.

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