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KANSAS HERPETOLOGICAL SOCIETY OFFICERS FOR 2005

Front Cover: Max Stieben (left) and Charlie Stieben examine a Western Slender Glass Lizard *(Ophisaurus attenuatus)* from Ellis County, Kansas. Discoveries such as these at a young age often make a lasting impression and may contribute to an increasing environmental awareness as children grow to adulthood. Photograph by Travis W. Taggart, Hays, Kansas.

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Journal of Kansas Herpetology

Number 15 — September 2005

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KHS BUSINESS

Kansas Herpetological Society
32nd Annual Meeting

5–6 November 2005

Yates Hall
Pittsburg State University
Pittsburg, Kansas

If you wish to present a paper, email the title, abstract, and your address or institutional affiliation to KHS President David Oldham at oldham@oswego.net (or send same via US mail to his address; see inside front cover of the *Journal of Kansas Herpetology*). In addition, please email your title and institutional affiliation to Joe Collins (jcollins@ku.edu) for inclusion on the web site. The deadline is 1 October 2005. Generally, talks are restricted to twenty minutes or less. Detailed programs will be available at the registration table.

All scientific paper sessions for the KHS 32nd Annual Meeting will be held in Yates Hall on the Pittsburg State University campus, Pittsburg, Kansas, on 5–6 November 2005 (see map on page 4). Those planning to attend should check the KHS web site at

http://www.ku.edu/~khs/AnnualMeetingInfo.html

to obtain up-to-date information about the program and motel availability.

Registration is at the door with the KHS Treasurer on Saturday and Sunday: Students (9th through 12th Grade) $5.00 per person; adults $10.00 per person. K through 8th Grade are admitted free.

Registrants participating in the KHS Photography competition for *The Collins Award* should set up their images no later than 10:00 am on Saturday (5 November) in Room 218 in Heckert-Wells Hall.

The annual KHS auction will be held on Saturday night (5 November) at the Lincoln Center (maps will be provided at the meeting). All proceeds from the auction go to the KHS. Refreshments will be free.

Live Exhibit. A live exhibit of native Kansas herpetofauna will be assembled, and will be available for viewing and photographing on Saturday and Sunday in Rooms 319 and 329 in Heckert-Wells Hall.

Program

Saturday, 5 November 2005

8:00 am Registration for both days: Mary Kate Baldwin (KHS Secretary) and Eric Kessler (KHS Treasurer) in the main foyer of Yates Hall, Pittsburg State University, Pittsburg, Kansas. Free coffee, juice, and donuts will be available.

8:40 am Welcome by James Triplett, Chairperson, Division of Biology, Pittsburg State University

8:45 am Welcome by David Oldham (KHS President)

Scientific Paper Session 1 in Room 102, Yates Hall, Pittsburg State University

9:00 am KEYNOTE SPEAKER: *Stanley E. Trauth, Arkansas State University, State University, Arkansas*. Topic: *Ecoregions of Arkansas: A Herpetofaunal Approach*

9:45 am Paper presentations until 10:30 am

Scientific Paper Session 2 in Room 102, Yates Hall, Pittsburg State University

10:40 am Paper presentations until 11:40 am

11:40 am to noon KHS Group Photograph taken by Larry L. Miller (Kansas Heritage Photography, Wakarusa)

LUNCH: noon to 1:20 pm at the restaurant of your choice

Scientific Paper Session 3 in Room 102, Yates Hall, Pittsburg State University

1:20 pm Paper presentations until 4:00 pm

4:00 pm KHS General Business Meeting
KHS President David Oldham presiding in Room 102, Yates Hall, Pittsburg State University

Introduction of current KHS officers by David Oldham
KHS Treasurer's Report for 2005 by Eric Kessler
KHS Secretary's Report for 2005 by Mary Kate Baldwin
KHS Editor's Report for 2005 by Travis W. Taggart
The 32nd Annual KHS Meeting at Pittsburg State University in 2006 by President-Elect Curtis Schmidt

Election of KHS Officers for 2006. The KHS Nominating Committee offers the following slate of candidates:

For President
Curtis J. Schmidt, Fort Hays State University, Hays, Kansas; serving as president-elect during 2005, he automatically assumes the KHS presidency on 1 January 2006

For President-Elect
Kathy Ellis, Topeka, Kansas
Ginny Weatherman, Lawrence, Kansas

For Treasurer (unopposed)
Eric Kessler, Blue Valley North High School, Overland Park

For Secretary (unopposed)
Mary Kate Baldwin, Topeka Collegiate School

Announcement of the results of the KHS election by the Elector, Mary Kate Baldwin

Presentation of the Howard Kay Gloyd-Edward Harrison Taylor Scholarship for 2005 by Daniel D. Fogell (KHS Awards Committee Chairperson)
Presentation of the Alan H. Kamb Grant for Research on Kansas Snakes for 2005 by Daniel D. Fogell (KHS Awards Committee Chairperson)

DINNER: 5:00 pm to 6:30 pm at the restaurant of your choice

6:30 pm KHS Auction and Social at the Lincoln Center (710 West 9th Street, Pittsburg, Kansas). At approximately 6:45 pm, the presentation of *The Suzanne L. & Joseph T. Collins Award for Excellence in Kansas Herpetology* for 2005 by Kelly J. Irwin (Arkansas Game & Fish Commission, Benton) will be made. The recipient of *The Collins Award* receives a commemorative certificate and a check for $1000.00, for the best photograph of a native Kansas amphibian, turtle, or reptile.

At approximately 7:00 pm, the KHS Auction will be conducted at the Lincoln Center by Joe Collins, ably assisted by KHS Secretary Mary Kate Baldwin, KHS Treasurer Eric Kessler, and KHS Historian Suzanne Collins and featuring many excellent books and other items (of questionable value). The KHS takes cash, credit cards, and checks. Be sure and get a bidding number before the auction commences. Bid vigorously, and support the KHS.

Sunday, 6 November 2005

8:30 am Registration for participants that did not register on Saturday: Mary Kate Baldwin (KHS Secretary) and Eric Kessler (KHS Treasurer) in the main foyer of Yates Hall, Pittsburg State University, Pittsburg, Kansas. Free coffee and donuts will be available.

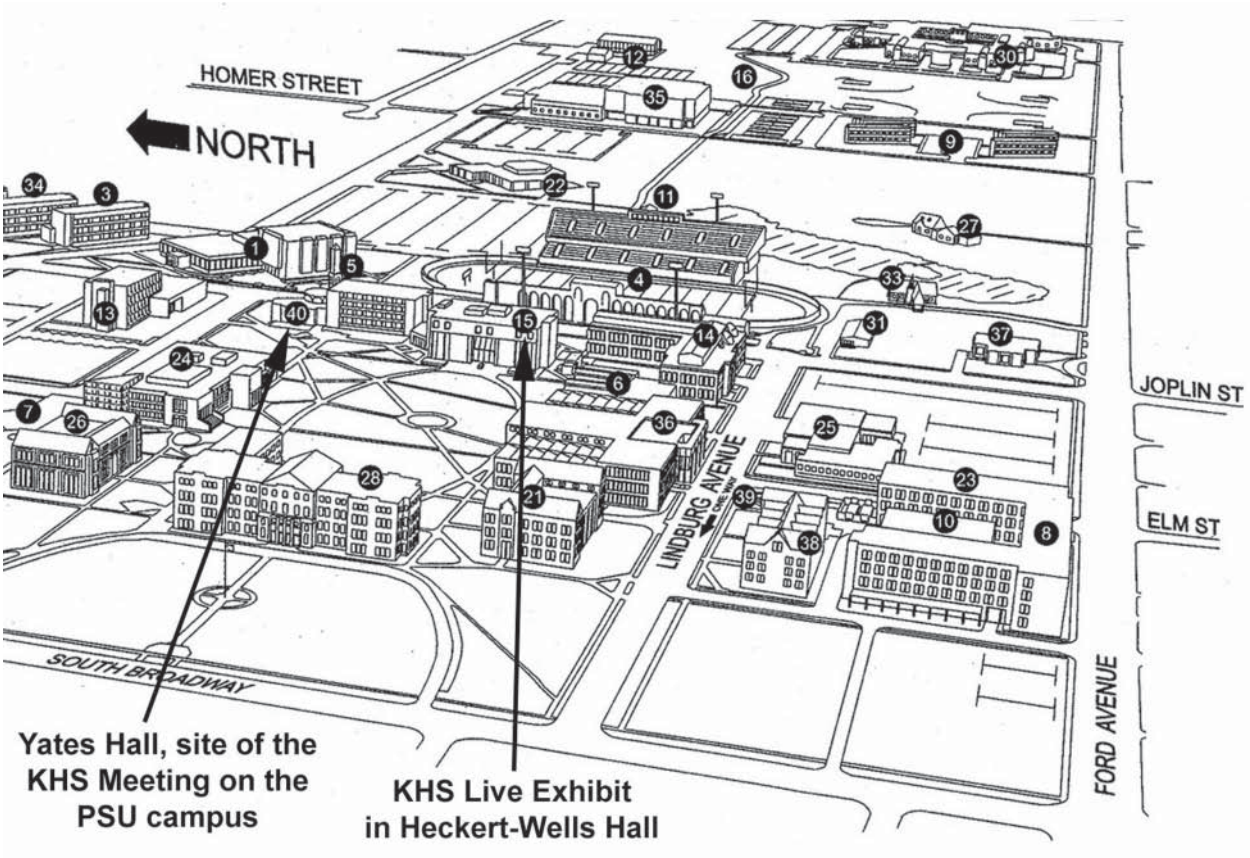
Scientific Paper Session 4 in Room 102, Yates Hall, Pittsburg State University

9:00 am Paper presentations until noon (or earlier)

Have a safe trip home. See you in November 2006 in Hays, Kansas, for the 33rd Annual KHS Meeting.

32nd Annual Meeting Committee
David Oldham, Chairperson

Note: *The Suzanne L. & Joseph T. Collins Award for Excellence in Kansas Herpetology* will be given at this KHS 32nd Annual Meeting in Pittsburg, Kansas, to the KHS member judged to have taken the best photograph of a species native to the Kansas herpetofauna. The KHS Awards Committee selects the recipient from photographs displayed the previous day at the KHS Photograph Competition. During odd-numbered years (photography competition), only KHS members are eligible. During even-numbered years (scientific presentations or publications), candidates are strongly encouraged to join the KHS, because preference will be given to KHS members.

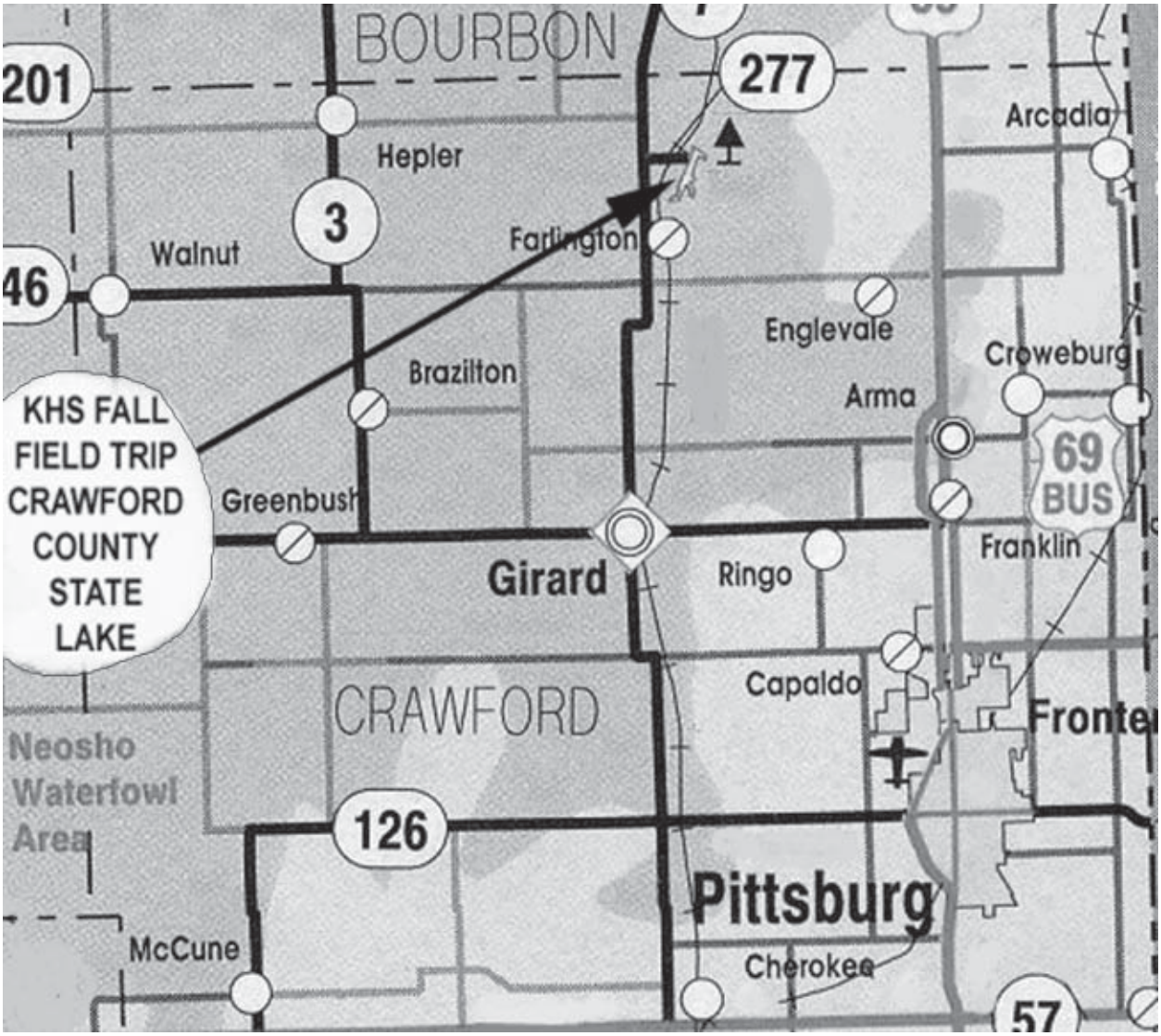


A map of the Pittsburg State University campus, showing the sites of the KHS meeting and live exhibit on 5–6 November 2005.

FALL 2005 KHS FIELD TRIP SCHEDULED FOR CRAWFORD COUNTY

The fall 2005 KHS field trip will be held at the 500-acre Crawford County State Lake in southeastern Kansas. The dates of the field trip will be 1–2 October 2005. Although many participants will arrive the afternoon and evening of Friday, 30 September (look for the big KHS sign at the lake), the first organized count will begin at 9:00 am on Saturday, 1 October. The second organized survey will take place at 9:00 am on Sunday, 2 October. The meeting place for the field trips will be Crawford County State Lake, which is located north of Girard near the small town of Farlington. Please contact Mark Ellis or Larry L. Miller, KHS Field Trip Co-Chairpersons (see inside front cover) for information about the availability of motels and restaurants in nearby Pittsburg; both parking and camping permits are required at Crawford county State Lake. More information will be posted on the KHS web site as it becomes available.

GMRS Radio Frequency 462.265 MHz will be monitored by Larry L. Miller. The Crawford County field trip will be the only official fall KHS field trip for 2005. Start making plans now to attend this exciting Society event.



A map of Crawford County, Kansas, showing the site of the KHS 2005 Fall Field Trip on 1–2 October.

KHS SCHOLARSHIP & GRANT DEADLINES

Individuals are reminded that the deadline is 15 September 2005 for submission of applications for the *Howard K. Gloyd-Edward H. Taylor Scholarship* and the *Alan H. Kamb Grant for Research on Kansas Snakes.* Self-nominations for the *Gloyd-Taylor Scholarship* are encouraged. Submissions for both the scholarship and grant should be sent to the Chairperson of the KHS Awards Committee (see inside front cover of this issue). For more details on the *Kamb Grant* and *Gloyd-Taylor Scholarship,* consult the inside back cover of this issue.

NEW MEMBERS WELCOME

If you know of someone interested in herpetology, urge that they join the KHS by sending their calendar 2006 membership dues ($15.00 regular, $20.00 contributing) to:

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

Membership in the KHS has many benefits, and supports the KHS and its many fine programs. Also, members are eligible for KHS grants and scholarships. If you have received this issue, you have already paid your dues for 2005; please encourage a friend or colleague to join. The KHS is the strongest state herpetological society in the nation; keep us that way by promoting membership growth.

KHS AUCTION

Individuals planning to donate items for the KHS auction should bring them to the Lincoln Center on Saturday evening and place them on the tables set up for display. Artwork (photography, drawings, and sculpture), books, field gear, aquaria are most desirable; please bring only items of a herpetological nature. This should *not* be an opportunity to clear out your cupboard (or library) of non-herpetological things. Also, no minimum bids will be set for any items. Be prepared to have your cherished contribution sold for anywhere from $1.00 up to a stunning sum.

One of the items already donated: *Snakes of Costa Rica* by Alejandro Solórzano (2004).

See you there. KHS takes cash, checks, and credit cards. Refreshments are free.

KHS OFFICER NOMINATIONS FOR 2006

The KHS Nominating Committee, composed of Eva Horne, Stanley D. Roth, and Joseph T. Collins, announces the following slate of candidates for 2006 KHS office:

FOR PRESIDENT-ELECT:

Kathy Ellis
Topeka, Kansas

Ginny Weatherman
Lawrence, Kansas

FOR SECRETARY:

Mary Kate Baldwin
Topeka, Kansas

FOR TREASURER:

Eric Kessler
Kansas City, Missouri

Curtis J. Schmidt served as KHS President-elect during 2005 and automatically becomes KHS President for 2006.

KHS AWARDS COMMITTEE

President David Oldham has appointed the *KHS Awards Committee* for 2005–2006 as follows: Daniel D. Fogell (chair, University of Nebraska, Omaha), Robert Powell (Avila University, Kansas City, Missouri), and Travis W. Taggart (Sternberg Museum of Natural History, Fort Hays State University).

HERPETOFAUNAL COUNTS

The Kansas Herpetologial Society encourages both its members and non-members to sally forth across our state each year during April and May to conduct herpetofaunal counts. The results of these forays are reported in the September issue of the *Journal of Kansas Herpetology.* This KHS program was initiated in 1989. Compiled below are the counts for 2005.

CHASE COUNTY HERP COUNT

I conducted an herpetofaunal count in Chase County at a site 0.5 miles NW Rt. 50 (ca. 2 miles S jct. Rts. 150 & 50) on 8 May 8 2005 from 10:30 am-11:00 am; my survey consisted of observing, listening, and rock lifting. The following species were discovered:

Bullfrog 3

Ringneck Snake 2
Milk Snake 1
Great Plains Rat Snake 3

Total

4 species ..... 9 specimens

Submitted by **NEIL BASS**, 208 Lakota Lane, Lee's Summit, Missouri 64086.

CHEROKEE COUNTY HERP COUNT

On 21 April 2005, Susan Blackford, Joseph T. Collins, Suzanne L. Collins, Michele McNulty, Dan Mulhern, and Vernon Tabor conducted herpetological field work in eastern Cherokee County, Kansas. From 9:00 am to 1:00 pm, the following species were observed:

Longtail Salamander 3
Northern Cricket Frog 1
Spring Peeper 1

Common Snapping Turtle 1
Slider 1
Eastern Box Turtle 5

Eastern Racer 1
Plainbelly Water Snake 2

Total

8 species ..... 15 specimens

Submitted by **DAN MULHERN,** U.S. Fish & Wildlife Service, 315 Houston, Suite E, Manhattan, Kansas 66502 & **JOSEPH T. COLLINS**, Kansas Biological Survey, University of Kansas, Lawrence, Kansas 66047.

CLINTON LAKE HERP COUNT

On 2 May 2005, Suzanne L. Collins, Joseph T. Collins, and John Lokke conducted an herpetofaunal count in the Clinton Lake area, Douglas County, Kansas, from 10:00 am to 1:00 pm. Temperature was 50–55°F and it was sunny. The following species were observed:

Five-lined Skink 1
Great Plains Skink 3
Western Worm Snake 1
Ringneck Snake 14
Eastern Racer 2
Common Kingsnake 3
Milk Snake 2
Common Garter Snake 1

Total

8 species ..... 27 specimens

Submitted by **JOHN LOKKE**, 835 Spaulding, Wichita, Kansas 67203.

17TH ANNUAL COWLEY COUNTY HERP COUNT

On 23 April 2005, Jenny Clark, Jack Greider, Ruth Greider, Matt Harris, Joyce Lent, Robert Previtera, Al Volkmann, Glynda Volkmann, Stan Wiechman, Autumn Wilgers and Dustin Wilgers conducted an herpetofaunal count in the Flint Hills east of Winfield, Cowley County, Kansas. Species were verified by Al Volkmann, Stan Wiechman and Dustin Wilgers. The survey occurred between 10:00 am and 2:00 pm, and primarily consisted of rock turning. The area had not been burned this year. The day was sunny, with winds from 15 to 25 mph from the North. The mid-survey temperature was 16°C. The water temperature was 17°C. No rain had fallen in the area for the past 30 days. Only a couple of the intermittent streams in the survey area were flowing. The pond was full.

Northern Cricket Frog 17
Plains Leopard Frog 7

Bullfrog 1

Unidentified aquatic turtles 5

Eastern Collard Lizard 7
Great Plains Skink 24
Ground Skink 1
Western Slender Glass Lizard 1
Ringneck Snake 15
Flathead Snake 27
Eastern Racer 5
Great Plains Rat Snake 2
Prairie Kingsnake 1
Common Kingsnake 1
Lined Snake 2
Common Garter Snake 2
Northern Water Snake 1

Total

16 species ..... 119 specimens

Submitted by **AL VOLKMANN**, 1650 Melrose Lane, Wichita, Kansas 67212.

FRANKLIN COUNTY HERP COUNT

On 17 April 2005, Joseph T. Collins, Suzanne L. Collins, Jill Lokke, John Lokke, S. Ross McNearney, Chad Whitney and Michael Zerwekh conducted herpetological field work in northeastern Franklin County, Kansas. They searched for reptiles, turtles, and amphibians from noon to 2:30 pm. The following species were observed:

American Toad 1
Northern Cricket Frog 6
Boreal Chorus Frog ..... ±10
Plains Leopard Frog 2
Bullfrog 1

Five-lined Skink 6
Great Plains Skink 3
Ground Skink 1
Western Slender Glass Lizard 2
Western Worm Snake 4
Ringeck Snake ..... ±80
Eastern Racer 7
Milk Snake 8
Brown Snake 1
Common Garter Snake 6
Timber Rattlesnake 6

Total

16 species ..... ±144 specimens

Submitted by **CHAD WHITNEY**, Fort Hays State University, Hays, Kansas 67601 & **JOSEPH T. COLLINS**, Kansas Biological Survey, University of Kansas, Lawrence, Kansas 66047.

JOHNSON COUNTY HERP COUNT

On 24 April 2005, Rob Acuff and Dan Murrow conducted an herpetofaunal count in Johnson County within the city limits of Olathe from 5:00 pm to 7:00 pm. Temperature was about 59°F and dropping. Search methods included rock and debris turning, and visual observation. They observed the following:

Northern Cricket Frog 2

Great Plains Skink 1
Eastern Racer 1
Milk Snake 1
Common Garter Snake 1
Ringneck Snake 19
Copperhead 2
Timber Rattlesnake 1

Total

8 species ..... 28 specimens

Submitted by **DANIEL G. MURROW**, 11625 South Shannan Street #2909, Olathe, Kansas 66062.

L–R: Mike Zerwekh, Ross McNearney, Chad Whitney, Joe Collins and John Lokke lift “The Rock” during the Franklin County herpetofaunal count. Without Chad, rock-lifting does not seem to go as well as it should. Photograph by Suzanne L. Collins.

LYON COUNTY HERP COUNT

On 4 May 2005, Joseph T. Collins, Suzanne L. Collins, Dan Murrow, Curtis J. Schmidt, Derek Schmidt, and Travis W. Taggart conducted herpetological field work in Lyon County, Kansas. They searched for reptiles, turtles, and amphibians by road-cruising and lifting rocks from 1:00 pm to 3:30 pm. The following species were observed:

Plains Leopard Frog 7
Bullfrog 2

Common Snapping Turtle 3
Northern Painted Turtle 11
Ornate Box Turtle 2

Eastern Collared Lizard 32
Texas Horned Lizard 1
Great Plains Skink 48
Northern Prairie Skink 2
Ringneck Snake 14
Common Kingsnake 5
Eastern Racer 5
Bullsnake 3
Plainbelly Water Snake 1
Northern Water Snake 1
Western Ribbon Snake 1
Common Garter Snake 1

Total

17 species ..... 139 specimens

Submitted by **TRAVIS W. TAGGART** & **CURTIS J. SCHMIDT**, Sternberg Museum of Natural History, Fort Hays State University, Hays, Kansas 67601.

L–R: Derek Schmidt, Dan Murrow, Travis Taggart, Joe Collins and Curtis Schmidt lift "The Rock II" during the Lyon County herpetofaunal count and found a Bullsnake. Even without Chad, rock-lifting was pretty easy for four of these guys. Photograph by Suzanne L. Collins.

MARAIS DES CYGNES NWR HERP COUNT

On 20 April 2005, Suzanne L. Collins, Dan Mulhern, Susan Blackford, Michele McNulty, Vernon Tabor and Joseph T. Collins conducted herpetological field work on the Marais des Cygnes National Wildlife Refuge in Linn County, Kansas. From 10:30 am to 1:00 pm, the following species were observed:

Slider 2
Ornate Box Turtle 2

Ringneck Snake 114
Eastern Racer 7
Western Rat Snake 9
Diamondback Water Snake 1

Total

6 species ..... 135 specimens

Submitted by **DAN MULHERN,** U.S. Fish & Wildlife Service, 315 Houston, Suite E, Manhattan, Kansas 66502 & **JOSEPH T. COLLINS**, Kansas Biological Survey, University of Kansas, Lawrence, Kansas 66047.

MARAIS DES CYGNES WMA HERP COUNT

On 20 April 2005, Suzanne L. Collins, Dan Mulhern, Susan Blackford, Michele McNulty, Vernon Tabor and Joseph T. Collins conducted herpetological field work on the Marais des Cygnes Wildlife Area in Linn County, Kansas. They searched for reptiles, turtles, and amphibians from 1:00 pm to 3:00 pm. The following species were observed:

Gray Treefrog 1

Eastern Racer 1
Diamondback Water Snake 1
Common Garter Snake 2

Total

4 species ..... 5 specimens

Submitted by **JOSEPH T. COLLINS**, Kansas Biological Survey, University of Kansas, Lawrence, Kansas 66047.

NORTHEAST KANSAS HERP COUNTS

On 10 April 2005, Dan Murrow and Derek Schmidt conducted a herpetofaunal count in Geary, Wabaunsee, and Pottawatomie counties. Search methods included rock and debris turning, visual observation, and road-cruising. They observed the following species:

Geary County 10:00 am to noon

Boreal Chorus Frog 2

Eastern Collared Lizard 4
Great Plains Skink 1
Ringneck Snake 2
Flathead Snake 2
Plains Blackhead Snake 2
Great Plains Rat Snake 2
Copperhead 1

Total

8 species ..... 16 specimens

Wabaunsee County 1:30 to 2:00 pm

Boreal Chorus Frog 2

Great Plains Skink 1
Western Worm Snake 2
Ringneck Snake 4
Milk Snake 3
Great Plains Rat Snake 1
Western Rat Snake 2
Northern Water Snake 1

Total

8 species ..... 16 specimens

Pottawatomie County 3:00 to 3:30 pm

Boreal Chorus Frog 2

Great Plains Skink 1
Ringneck Snake 4
Eastern Racer 1

Total

4 species ..... 8 specimens

Grand Total

13 species ..... 40 specimens

Submitted by **DANIEL G. MURROW**, 11625 South Shannan Street #2909, Olathe, Kansas 66062.

29TH ANNUAL SOUTHERN SUMNER COUNTY HERP COUNT

Sixty-eight enthusiastic herpetologists of all ages participated during the three day 29th Annual Southern Kansas Herp Count that was held near Caldwell, Kansas from 14-16 April 2005. They turned rocks and searched along canyons and streams for specimens of the sometimes very illusive critters. By noon on Saturday (16 April), they had documented 381 specimens representing 21 species. They also observed dozens of others that managed to escape capture or exact identification. The animals were verified by Larry L. Miller, biology instructor at Northern Hills Junior High School in Topeka, and members of biology classes at Northern Hills and Seaman High School. All animals collected were released except the Gray Treefrog, which was deposited in the collection at the Sternberg Museum of Natural History at Fort Hays State University. DNA from the frog will be available for analysis to determine the exact species. The treefrog was collected by Sara Matthias, a freshman biology student at NHJHS. One species noticeably missing from the count was the Ornate Box Turtle. No specimens of this turtle were collected or observed around Caldwell or in Sumner County; the

An adult specimen of a Gray Treefrog was collected from a forested area bordering Bluff Creek east of Caldwell by Northern Hills Junior High School biology student Sara Matthias during one of the 14 April 2005 collecting events in Sumner County, Kansas. This frog was the second documented specimen from the county. The first was in the form of a digital photograph of a frog collected by Quinci Ward. Both specimens were collected from the same area and the first one represented a range extension to the west for the species. Photograph by Larry L. Miller.

count begin on 14 April 2005, which is the anniversary of when this turtle became the official state reptile, thanks mainly to the 1985–86 Caldwell (Kansas) 6th grade class. During this year's count, Ornate Box Turtles were not active in and around the Ornate Box Turtle Capital of the World.

Caldwell 7th grade student Quinci Ward examines an adult Coachwhip collected by her uncle, Cory Ward. Quinci has participated in every Sumner County herpetofaunal count since the first grade. Her uncle collected the original county record for a Coachwhip from Sumner County when he was a 6th grade student in Caldwell, Kansas. Photograph by Larry L. Miller.

Participants were Erin Dugan, Nichole Rosencutter, Jussica Crowder, Heather Hendrix (Seaman High School), Tyler Lambrecht, Jordan Boyd, Amanda Shaffer, Breeanna Hansford, Bret Rickerson, Sara Matthias, Doug Johnson, Peyton Sloan (Northern Hills Junior High School), Larry L. Miller, Korri Drane (Northern Hills Junior High School), Stan Johnson (Topeka, Kansas), Doug Brewer, Cindy Brewer, Adam Wetzel, Derrick Kendrick, Dawna Whaley, Colton Whaley, Cole Dierkins, Andrew Lowe, Alec Webster, Tim Webster, Jennie Webster, Gail Feely, Grant Feely, Anne Dierking, Connor Dierking, Conor Dierking, Kyler Bruey, Staci Swift, Jordyn Swift, Corutney Banister, Tachel Arnold, Steven Hall, Christopher Gauntt, Garrison Gauntt, Jim Gauntt, Richard Sprinkle, Jeff Browning, Shae Lebeda, Carli Ward, Allan Thomas, Glenda Ryan, Dakota Davis, Ethan Davis, Quinci Ward, Brett Thomas, Bailey Minor, Ali Lee, Ashlynn Lebeda, Christian Ward, Vicki Ward, Quinn Ward, Kelsi Ward, Cory Ward, Colter Ward, Darin Ward, Tylyn Ward Nina Ward, Carson Ward, Mondy Burns, Richard Sprinkle, Hank Futhey, Jeff Browning (from southern Kansas and northern Oklahoma).

The following species were observed:

Northern Cricket Frog 4
Gray Treefrog 1
Spotted Chorus Frog 10
Plains Leopard Frog 2
Bullfrog 2
Great Plains Narrowmouth Toad 1

Northern Painted Turtle 2
Slider 1

Lesser Earless Lizard 18
Texas Horned Lizard 4
Prairie Lizard 43
Southern Prairie Skink 7
Six-lined Racerunner 8
Ringneck Snake 244
Eastern Racer 3
Prairie Kingsnake 1
Common Kingsnake 4
Coachwhip 3
Ground Snake 20
Brown Snake 1
Common Garter Snake 2

Total

21 species ..... 381 specimens

Submitted by LARRY L. MILLER, Northern Hills Junior High School, USD 345, Topeka, Kansas, & NICHOLE ROSENCUTTER & ERIN DUGAN, Seaman High School, USD 345, Topeka, Kansas.

A group of herpetologists pose for a quick photo before beginning the Friday morning count south of Caldwell, Kansas. The private land surveyed was divided into sections and each group collected in a different section with no overlap to insure an accurate count. Photograph by Glenda Ryan.

LIFE HISTORY NOTES

LAMPROPELTIS CALLIGASTER (Prairie Kingsnake). New Record Length for the Entire Range. The largest specimen previously recorded for *Lampropeltis calligaster* was found just east of Dallas in May 1982, and measured 56 inches (Tennant, 1984. The Snakes of Texas. Texas Monthly Press, Austin. 561 pp.; Conant and Collins 1998. Peterson Field Guide to Reptiles and Amphibians of Eastern and Central North America. Third Edition Expanded. Houghton Mifflin Co., Boston. xviii + 616 pp.). On 16 May 2005, a large example of this species was discovered by Phil Peak and William Bird in Edmonson County, Kentucky, under a large sheet of metal. The snake was taken to the Louisville Zoo on 19 May 2005 where the veterinarian staff administered isoflurane to it and it was measured. Caution was taken to ensure that the snake was not stretched in any way. A measurement of 143 centimeters (56.25 inches) was confirmed by taxonomic curator Bill MacMahon, lead reptile keeper Gary Johnson, reptile keeper William Bird, and veterinarian Dr. Roy Burns. This is a new maximum length for the species. The specimen weighed 673.6 grams and had a cranium that measured 2.25 cm across and 3.75 cm in length. The snake was released at the site of capture.

The authors wish to thank the kind and generous people of rural Kentucky for their permission to search for reptiles, amphibians, and turtles on their private properties. We are also indebted to the Louisville Zoo AHC staff for their expertise in immobilization. We would finally take pleasure in thanking our wives, whose patience allows us to continue our efforts.

Submitted by **WILLIAM BIRD**, 2035 Sherwood Avenue, Louisville Kentucky, 40205, **PHIL PEAK**, 11025 Neptune Place, Louisville Kentucky 40272, and **JOSEPH T. COLLINS**, The Center for North American Herpetology, 1502 Medinah Circle, Lawrence, Kansas 66047.

OF INTEREST

TREEFROG TAXONOMY TREATED

2005. Faivovich, Julián, Célio F. B. Haddad, Paulo C. A. Garcia, Darrel R. Frost, Jonathan A. Campbell & Ward C. Wheeler. Systematic review of the frog family Hylidae, with special reference to Hylinae: Phylogenetic analysis and taxonomic revision. Bulletin of the American Museum of Natural History 294: 1–240.

Abstract [in part]: Hylidae is a large family of American, Australopapuan, and temperate Eurasian treefrogs of approximately 870 known species, divided among four subfamilies. Although some groups of Hylidae have been addressed phylogenetically, a comprehensive phylogenetic analysis has never been presented. The first goal of this paper is to review the current state of hylid systematics. We focus on the very large subfamily Hylinae (590 species), evaluate the monophyly of named taxa, and examine the evidential basis of the existing taxonomy. The second objective is to perform a phylogenetic analysis using mostly DNA sequence data in order to (1) test the monophyly of the Hylidae; (2) determine its constituent taxa, with special attention to the genera and species groups which form the subfamily Hylinae, and c) propose a new, monophyletic taxonomy consistent with the hypothesized relationships. We present a phylogenetic analysis of hylid frogs based on 276 terminals, including 228 hylids and 48 outgroup taxa. Included are exemplars of all but 1 of the 41 genera of Hylidae (of all four nominal subfamilies) and 39 of the 41 currently recognized species groups of the species-rich genus *Hyla.* The included taxa allowed us to test the monophyly of 24 of the 35 nonmonotypic genera and 25 species groups of Hyla. The phylogenetic analysis includes approximately 5100 base pairs from four mitochondrial (12S, tRNA valine, 16S, and cytochrome b) and five nuclear genes (rhodopsin, tyrosinase, RAG-1, seventh in absentia, and 28S), and a small data set from foot musculature. Concurring with previous studies, the present analysis indicates that Hemiphractinae are not related to the other three hylid subfamilies. It is therefore removed from the family and tentatively considered a subfamily of the paraphyletic Leptodactylidae. Hylidae is now restricted to Hylinae, Pelodryadinae, and Phyllomedusinae.

Editors Note: The generic and specific taxonomy for frogs of the family Hylidae found in the United States and Canada (and Kansas) remains unchanged in this paper, and exactly matches that in the CNAH checklist (Collins & Taggart 2002).

NOTES

AMPHIBIAN AND REPTILE RESPONSES ON A KANSAS NATURAL AREA

Henry S. Fitch
Fitch Natural History Reservation
University of Kansas
2060 East 1600 Road
Lawrence, Kansas 66044

On 1 July 1948, I came to Kansas and was made superintendent of the University of Kansas Natural History Reservation (newly dedicated in 1947; Figure 1). This 590-acre tract is on the north edge of the Kansas River Valley and consists mainly of a southward extension of the Osage Cuesta formation of low flat-topped hills. Rock outcrops of the Plattsmouth member of the Oread Limestone are at the hilltop edges at about 1040 feet elevation, and the Toronto member is prominent on hill slopes about seven meters lower. In the northwestern and southeastern parts of the area are two small valleys, each with several hectares. Some parts of these were grazed and the rest cultivated. This tract was on a former Delaware Indian Reservation, and in the 1860s became the property of Charles W. Robinson, first governor of the state of Kansas. It was willed to the University of Kansas but not controlled by KU until 1910 after the death of Robinson's widow.

During the time lapse between Robinson's tenure and the property's dedication as a natural area, many local residents used the land to their advantage in various ways: 1) the two small valleys in the northwest and southeast parts were used by a neighboring farmer for growing corn and other crops, and an extensive hilltop acreage at the northern end was similarly used until server erosion made it difficult to use machines there, 2) livestock, mainly cattle and horses, were pastured on the area by neighboring farmers. Earlier, sheep had been pastured on parts of the area, and a holding pen for sheep was situated to the northeast of the residence. The flat hilltops and the parts of the bottomland that were not cultivated were fenced as pasture. The exotic plants, smooth brome *(Bromus inermis)* and Kentucky bluegrass *(Poa annua),* were the main pasture grasses, 3) the hill slopes, comprising more than half the total, were fenced and protected from livestock except for some smaller woodlands which served as corridors connecting hilltop and bottomland pastures, and 4) the tract served as a hunting ground for small game—Fox Squirrel, Gray Squirrel, Cottontail, and Bobwhite were hunted, sometimes illegally, out of season.

All these activities would seem to be deleterious for the native fauna, including amphibians and reptiles. It is therefore surprising that with protection from human activities after 1948, the main responses by the herpetofauna were reduction and disappearance. No species that had not been present appeared on the area between 1948 and present. Six species are believed to have maintained or increased their numbers from 1948 to present. They are *Acris crepitans* (Northern Cricket Frog), *Rana blairi* (Plains Leopard Frog), *Rana catesbeiana* (Bullfrog), *Chelydra serpentina* (Common Snapping Turtle), *Thamnophis sirtalis* (Common Garter Snake) and *Pantherophis obsoletus* (Western Rat Snake). It is noteworthy that the first five of these six have aquatic tendencies and would have been much benefited by the building of the pond. On an aerial photograph by the Soil Conservation Service, taken on 2 October 1938, the pond does not show, but another aerial photograph on 27 September 1941 shows the pond to be present, and doubtless the addition of this aquatic habitat caused a great surge in the numbers of the five species with aquatic tendencies.

Another five species survived from 1948 to present but were not known to increase in numbers. All of these have been captured or observed on the area since 1999. They are *Bufo americanus* (American Toad), *Hyla chrysoscelis* (Cope's Gray Treefrog), *Storeria dekayi* (Brown Snake), *Carphophis vermis* (Western Worm Snake), and *Nerodia sipedon* (Northern Water Snake). Again the list includes partly aquatic species, in particular the two anurans that require water for breeding. Construction of the pond adjoining their woodland habitat must have been a great boon leading to substantial increase in their numbers while the land was still privately owned.

In contrast, 22 species (two-thirds of the total known from the area) either have disappeared or have undergone drastic reduction in numbers and in extent of area occupied. An annotated list of those species that disappeared follows:

Bufo woodhousii. Heard calling at the pond from time to time in the early years of the Reservation, and after dark adult Woodhouse's Toads were seen in the road

and yard at headquarters but they dwindled and disappeared as forest invaded open areas.

Gastrophryne olivacea. The Great Plains Narrowmouth Toad formerly bred at the quarry in shallow, temporary pools and lived in more open types of woodland, including Skink Woods and Horse Woods, that had been grazed and browsed, but after a decade the woods had thickened and the species had disappeared.

Spea bombifrons. The Plains Spadefoot is normally confined locally to the floodplain of the Kansas River, but in the flood year of 1951 individuals were found to have moved to higher ground and were breeding at the Reservation pond outside the floodplain. They did not persist.

Terrapene ornata. The Ornate Box Turtle was moderately common before livestock were removed; the closely grazed pastures were preferred habitat. Cow dung and its insect fauna provided food. The removal of livestock and the invasion of trees caused habitat deterioration, with a gradual decline in Ornate Box Turtle numbers, and after two decades it was gone.

Crotaphytus collaris. The Eastern Collared Lizard was not native to the Reservation, but was introduced at the abandoned quarry site in 1949, thrived in that open rocky place for several years and bred successfully for several generations, but then dwindled as woody vegetation invaded and shaded its basking places. At the end of the first decade it was gone (Fitch, 1956).

Eumeces obsoletus. In the beginning, the Great Plains Skink was limited to small areas of the Reservation—chiefly the abandoned quarry site and Rat Ledge where grazing and browsing by live stock held back the invasion of arborescent vegetation. With the removal of cattle, this lizard rapidly dwindled and disappeared (Fitch, 1955).

Eumeces septentrionalis. A few Northern Prairie Skinks lived in the headquarters area and evidently were favored by mowing the lawn, as they persisted there for several decades.

Aspidoscelis sexlineata. The Six-line Racerunner was formerly widespread on the area wherever there were patches of bare, eroded ground. In 1949, when a study was begun, it was common where a 150 meter stretch of a diversion ditch from the pond outlet provided bare, eroding banks for them to run on. Over

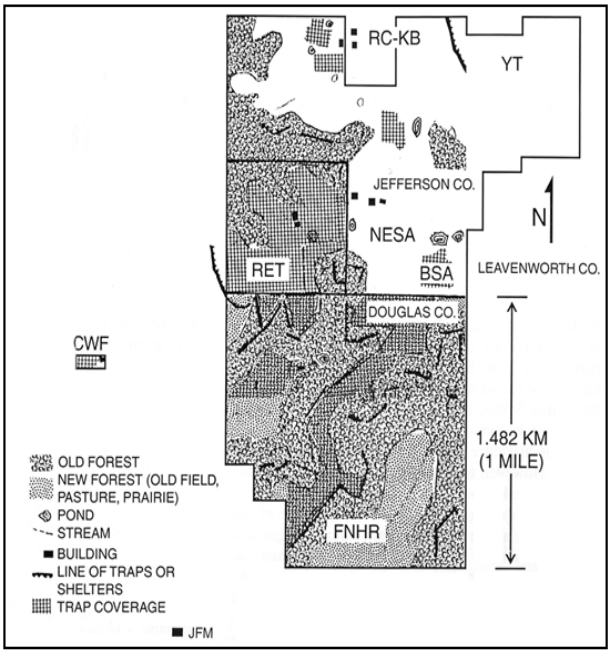


Figure 1. A map of the Fitch Natural History Reservation (FNHR) and other areas in northeastern Kansas administered by the University of Kansas.

a period of several years, this colony dwindled and disappeared as the bare soil acquired a covering of vegetation (Fitch, 1958).

Lampropeltis calligaster. The Prairie Kingsnake was uncommon on the area, but was surprisingly persistent through several decades before it disappeared (Fitch, 1999).

Pituophis catenifer. On the heavily grazed and almost barren pastures, the Bullsnake was at the start the most commonly observed snake species, but rapidly dwindled and disappeared after removal of livestock and the development of a tallgrass community (Fitch, 1952).

Tantilla gracilis. The tiny Flathead Snake at first occupied open rocky areas at the quarry, but soon dwindled and disappeared (Fitch, 1952).

Pantherophis emoryi. The Great Plains Rat Snake, preferring open grassy areas, may have been on the Reservation in early years; there are several records from nearby land, but none for the Reservation (Fitch, 1999).

Crotalus horridus. The Timber Rattlesnake was moderately common at first, but over several decades it was eliminated, evidently from lack of sunshine for basking (Fitch, 1999)

A subgroup of those 22 species, some formerly abundant, that have undergone drastic reduction on the area and seem to be headed toward elimination from the area include the following:

Pseudacris triseriata. A secretive burrowing species, the Western Chorus Frog is known mainly from its breeding choruses. One such chorus, recurring over many years, was in a pool in the diversion ditch northwest of the residence; the barren pasture south of the ditch was preferred habitat for adults. Invasion of this barren area by woody pasture was unfavorable, and over the years the chorus has dwindled to a few frogs.

Scincella lateralis. The Ground Skink, once common on the former pastures, has drastically decreased and perhaps is no longer present (Fitch, 1952).

Eumeces fasciatus. The Five-lined Skink, formerly common in open types of woodland, has disappeared from most of its former haunts as the forest thickened. A small colony survives in the headquarters area where they are often seen climbing on the walls of the laboratory building. Each year nests are dug beneath the concrete sidewalk between the residence and laboratory (Fitch, 1954).

Ophisaurus attenuatus. The Western Slender Glass Lizard, rare in the beginning, was favored by the development of a tall-grass community, and slowly increased to peak numbers in about 18 years. Since then it has dwindled and seems to be disappearing from the former pastures as they make the transition to woodland.

Virginia valeriae. The Smooth Earth Snake, at the western edge of its range on the Reservation, has been found on few occasions, and may be headed for elimination or already gone.

Diadophis punctatus. The Ringneck Snake, once phenomenally abundant in fields and open woodlands, has dwindled to a fraction of its former numbers (Fitch, 1975).

Coluber constrictor. The Eastern Racer seems to have retreated from habitats where it was formerly numerous. Now, only juveniles are found in such sites and they are perhaps dispersers from distant nests (Fitch, 1963).

Lampropeltis triangulum. The Milk Snake, never common, seems to prefer habitats on the forest-grassland interface, and none has been found in recent years on the Reservation (Fitch, 1999).

Agkistrodon contortrix. The Copperhead reached peak numbers during the first decade, and at that time it grew larger and produced more young per litter because its favorite prey species, the Prairie Vole *(Microtus ochrogaster)* had undergone a population explosion after the removal of livestock and the development of a tall-grass community. The Copperhead has since dwindled to scarcity (Fitch, 1999).

Conclusions

The University of Kansas Natural History Reservation was dedicated in 1947, after the area had undergone several decades of use mainly as a cow pasture by the original owner, and several more decades of neglect, with overgrazing, tree-cutting, cultivation, and hunting for small game. All these activities affected to some degree the kinds and numbers of amphibians and reptiles. In 1947, the tract was dedicated as a natural area, with protection from human activities. Surprisingly, the natural succession that was initiated, with encroachment of woody vegetation, seemed not to benefit any amphibian or reptile species, but instead brought about the virtual elimination of two-thirds of the herpetofauna.

Effects on other groups of vertebrates and on invertebrates has not been studied, but it is obvious that somewhat parallel changes have occurred in birds, mammals, insects and spiders with a massive loss of species. Kinds that prefer bare rock, bare soil, various types of grassland (shortgrass, tallgrass) or shrubs undergo reduction or disappear.

The process that we see occurring, with trees dominating and replacing other vegetation types, is far from complete and total elimination from the area will perhaps be the fate of many or all those species of amphibians and reptiles which have undergone drastic decline in numbers.

On the other hand it can be argued that fire is a natural occurrence in the region, that species of the tallgrass community are, to various degrees, fire resistant in their evolutionary adaptations, and that preventing fire has promoted the development of a unique and unnatural community. With this fact in mind, I advocate the continuation of a fire free policy for the Reservation and also advocate a series of experiments with controlled burning on a set of comparable areas.

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ARTICLES

AN HERPETOFAUNAL SURVEY OF CUSTER STATE PARK, CUSTER COUNTY, SOUTH DAKOTA

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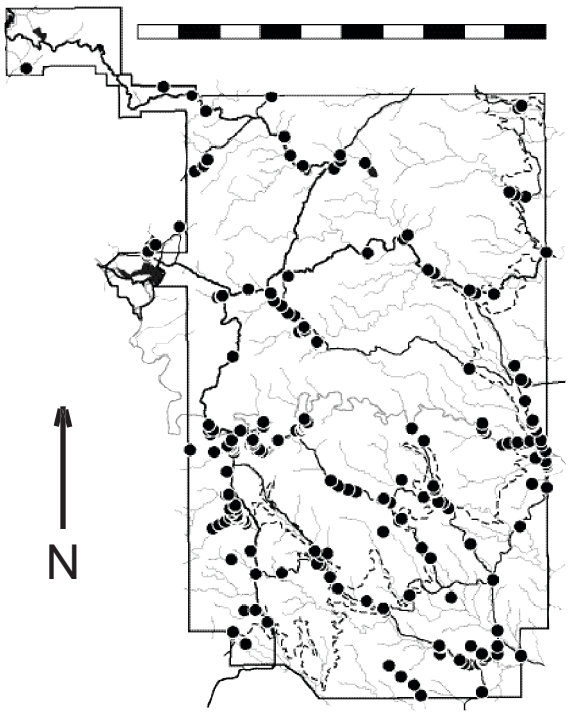
From 21 May 2004 to 23 June 2004, we surveyed the amphibians, turtles, and reptiles of Custer State Park (CSP) in Custer County, South Dakota. Our field team, which daily varied in size from three to eight individuals, searched the entire park for 34 days using traditional hunting techniques to locate, observe, and count all specimens of salamanders, frogs and toads, turtles, and snakes (Map 1). A GPS reading (i.e., latitude & longitude) was taken for nearly all specimens encountered; all species were documented with photographs and at least three examples of all taxa (except the Common Snapping Turtle) were preserved (after tissue was taken and stored for future DNA-based research) as scientific specimens and deposited at the Sternberg Museum of Natural History, Fort Hays State University.

Custer State Park is a 70,000+ acre tract located in the Black Hills region of Custer County in southwestern South Dakota. It contains four major reservoirs: Center Lake, Legion Lake, Stockade Lake, and Sylvan Lake. CSP contains two large distinct herpetofaunal habitats: the southeastern portion (the area southeast of the dash line shown on the distribution maps) is composed mostly of low elevation grassland ridges interspersed with valleys containing ephemeral creeks and streambeds; and the northwestern portion (the area northwest of the dash line on the maps) that



Map 1. A map of CSP. Black dots show all localities where specimens were found during the herpetofaunal survey. Bar at top banded in increments of one mile. See text for explanation of dashed line. Solid dark lines are roads; light

generally consists of high elevation meadows and canyons with flowing streams, surrounded by forested ridges and mountains. In the far northwestern corner of Custer State Park is Sylvan Lake, which represents a third small but distinct habitat: it is a cold high elevation lake surrounded by mountains and contains few herpetofaunal species (a single snake was observed there in 34 days). Our field team was unable to record any amphibians or turtles from the Sylvan Lake area; thus, our remarks about distributions (below) generally do not apply to this far northwestern corner of CSP. An explanation of the geology of CSP is in Peterson (1974).

The numerical results of our survey of Custer State Park are detailed in Tables 1–10. Below are accounts for each of the sixteen species documented from CSP, followed by a summary of the survey. The accounts are based on direct observations made by the field team (Table 2) and recorded by one of us (JTC), as well as our opinion as to the abundance and distribution of the species in CSP. It should be noted that this survey is but a snap shot of part of one season of herpetofaunal activity in Custer State Park; our conclusions should be read with that constraint in mind. In addition, it should be noted that this was the first intensive herpetofaunal survey ever attempted for Custer State Park; few baseline data on the herpetofauna of CSP existed prior to this field work. Two sources with broader coverage in South Dakota (Peterson 1974; Ballinger et al. 2000) provided us with information about the possible composition of the Custer State Park herpetofauna. As far as we are able to determine, our field team discovered all species previously recorded from CSP and added no new taxa to CSP species list.

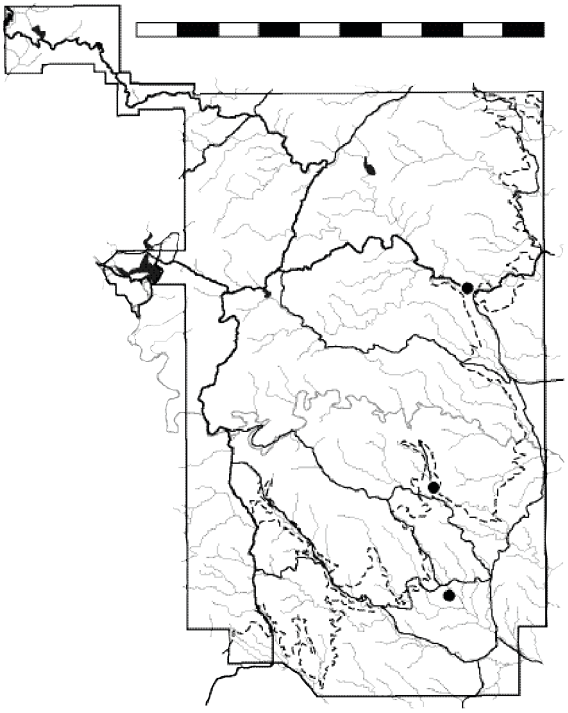
In the accounts below, AOR means specimen was found alive on road; DOR means specimen was found dead on road.

Barred Tiger Salamander
Ambystoma mavortium
(Figures 1 & 2)

On the night of 4 June 2004, during a very heavy thunderstorm, a single mature adult of this species was found crossing the highway near the Game Lodge. This adult exhibited all the characteristics of the nominate race, *Ambystoma m. mavortium,* and was the only such specimen found during the survey. All other specimens were subdued in pattern and color, exhibiting the characteristics of the subspecies *A. m. melanostictum,* the Blotched Tiger Salamander. The lack of intermediate examples in our sample of 368 specimens points out a need for further work on this salamander complex, based on our current understanding of their taxonomy. Either the populations in Custer State Park exhibited a wider range of variation in color and pattern than heretofore known (therefore precluding any need to recognize subspecies) or there is more than one species residing in CSP.

The remaining 367 Barred Tiger Salamanders were all seined from two stock ponds in CSP (numerous others ponds throughout CSP were seined without success).

The Barred Tiger Salamander was an abundant amphibian in southeastern portion of Custer State Park (Map 2; Table 4).



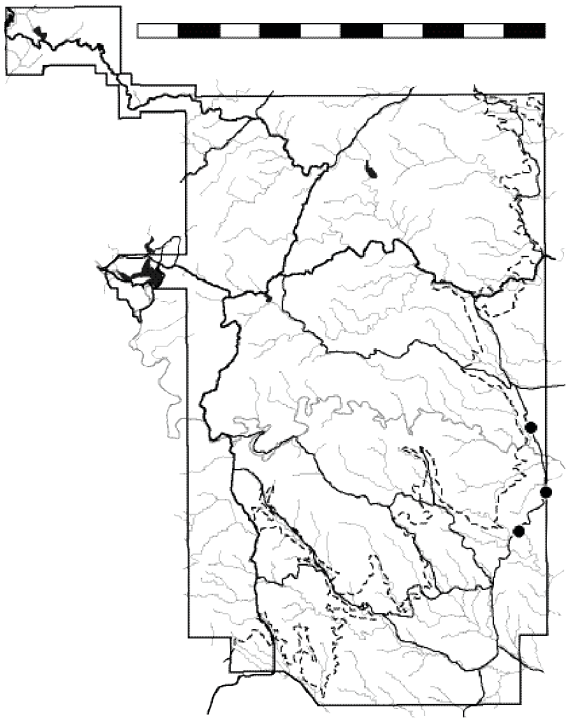
Map 2. Black dots show all localities where the Barred Tiger Salamander *(Ambystoma mavortium)* was observed in Custer State Park, Custer County, South Dakota.

Figure 1. An adult specimen of *Ambystoma m. mavortium* from CSP. Photograph by Suzanne L. Collins.

Figure 2. An adult specimen of *Ambystoma mavortium melanostictum* from CSP. Photograph by Suzanne L. Col-

Plains Spadefoot
Spea bombifrons
(Figure 3)

The Plains Spadefoot was found only in southeastern portion of Custer State Park (Map 3); all three specimens were observed AOR on 4 June and 10 June 2004 during or after rainstorms of varying intensity.

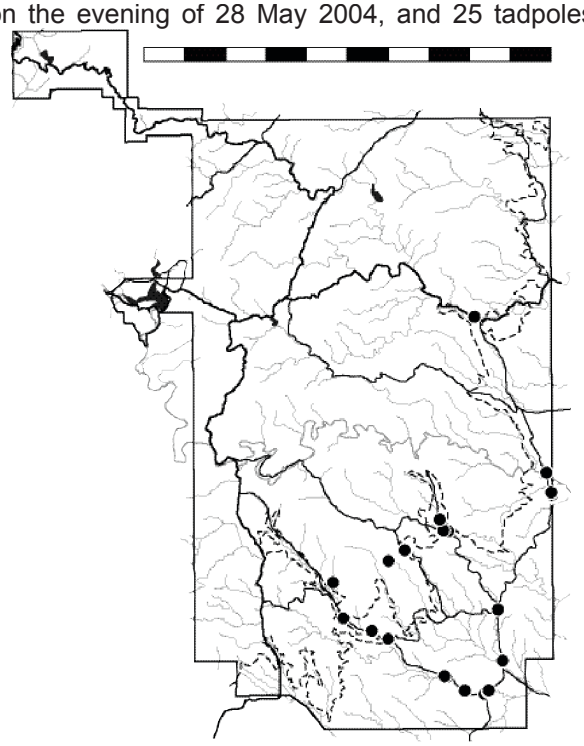


Map 3. Black dots show all localities where the Plains Spadefoot *(Spea bombifrons)* was observed in Custer State Park, Custer County, South Dakota.

Figure 3. An adult specimen of *Spea bombifrons* from CSP. Photograph by Suzanne L. Collins.

Woodhouse's Toad
Bufo woodhousii
(Figure 4)

Of the 67 Woodhouse's Toads observed during this survey, 31 were found AOR or DOR on roads, sometimes during warm rainstorms and sometimes on cold, rainless evenings. The remaining 36 examples consisted of eleven adults chorusing at a stock pond on the evening of 28 May 2004, and 25 tadpoles



Map 4. Black dots show all localities where the Woodhouse's Toad *(Bufo woodhousii)* was observed in Custer State Park, Custer County, South Dakota.

seined from a pond formed from Swint Creek along CSP 2 on 31 May 2004.

Woodhouse's Toads appeared to be a common herpetofaunal component of the southeastern portion of Custer State Park (Map 4; Table 4).

Boreal Chorus Frog

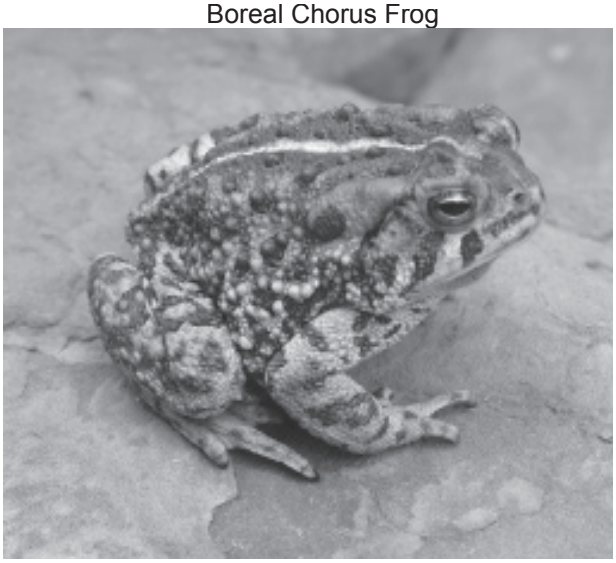


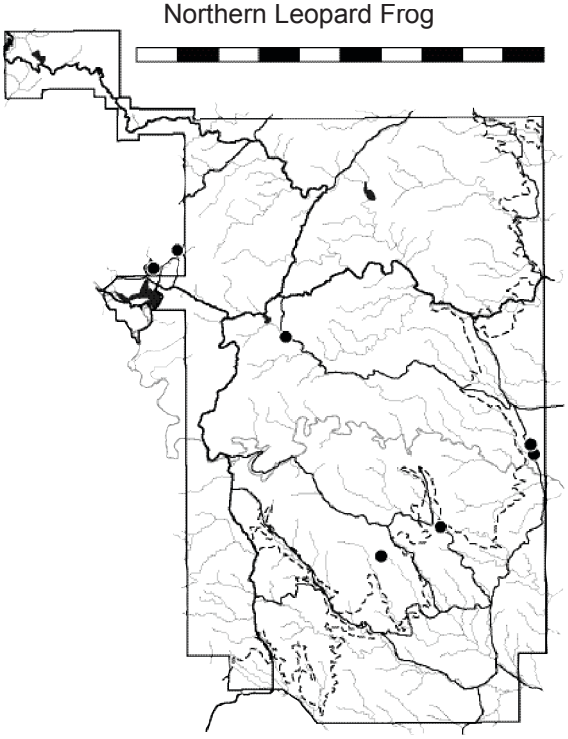
Figure 4. An adult specimen of *Bufo woodhousii* from CSP. Photograph by Suzanne L. Collins.

Pseudacris maculata
(Figure 5)

Small choruses (of up to 5 individuals) of the Boreal Chorus Frog were heard mostly the first two weeks of the survey (from 24 May to 1 June 2004); they called both during the day and in the evenings from any impounded water in CSP. An adult was found AOR on the night of 9 June 2004 during a rainstorm.

Boreal Chorus Frogs appeared to be common throughout Custer State Park wherever standing water was present (Map 5; Table 4).

Northern Leopard Frog



Map 5. Black dots show all localities where the Boreal Chorus Frog *(Pseudacris maculata)* was observed in Custer State Park, Custer County, South Dakota.

Rana pipiens
(Figure 6)

The Northern Leopard Frog was the most abundant and widespread anuran in Custer State Park (Map 6; Table 4); 182 individuals were observed, of which one was AOR and two DOR. The remaining

Figure 5. An adult specimen of *Pseudacris maculata* from CSP. Photograph by Suzanne L. Collins.

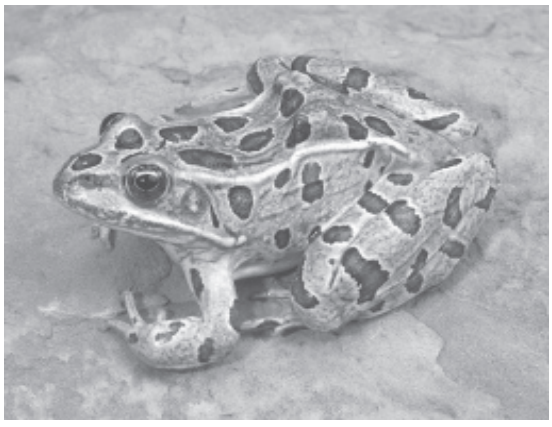


Figure 6. An adult specimen of *Rana pipiens* from CSP. Photograph by Suzanne L. Collins.

Table 1. Species of amphibians, turtles, and reptiles observed during this herpetofaunal survey from 21 May 2004 to 23 June 2004 at Custer State Park, Custer County, South Dakota.

Species	Common Name
Amphibians	
Ambystoma mavortium	Barred Tiger Salamander
Spea bombifrons	Plains Spadefoot
Bufo woodhousii	Woodhouse's Toad
Pseudacris maculata	Boreal Chorus Frog
Rana pipiens	Northern Leopard Frog
Turtles	
Chelydra serpentina	Common Snapping Turtle
Chrysemys picta	Northern Painted Turtle
Reptiles	
Coluber constrictor	Eastern Racer
Lampropeltis triangulum	Milk Snake
Liochlorophis vernalis	Smooth Green Snake
Pituophis catenifer	Gopher Snake
Storeria occipitomaculata	Redbelly Snake
Thamnophis elegans	Western Terrestrial Garter Snake
Thamnophis radix	Plains Garter Snake
Thamnophis sirtalis	Common Garter Snake
Crotalus viridis	Prairie Rattlesnake

Table 2. Total number of persons and days on site from 21 May 2004 to 23 June 2004 at Custer State Park, Custer County, South Dakota, during this herpetofaunal survey.

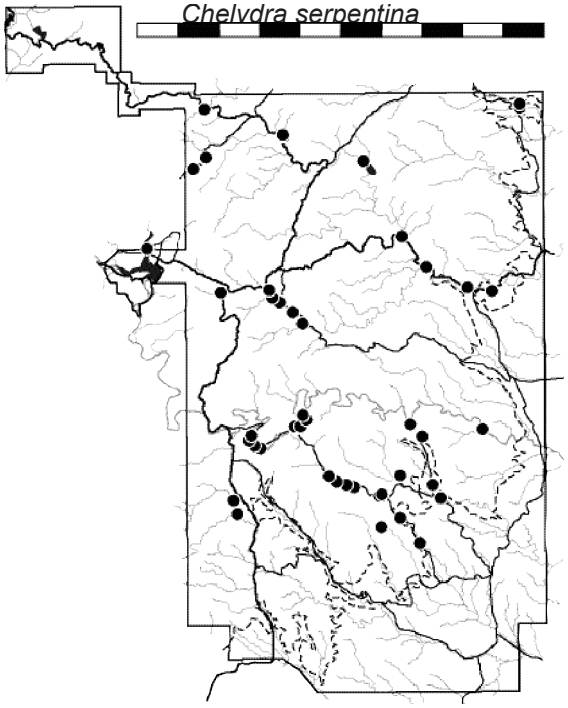
~~Individual~~	~~Days on site~~
~~Joseph T. Collins~~	~~33 days~~
Suzanne L. Collins	33 days
Jerry D. Collins	22 days
Ginny Weatherman	15.5 days
Ross McNearney	15.5 days
John Stoklosa	10.5 days
Travis W. Taggart	6 days
Curtis J. Schmidt	6 days
Richard Hayes	6 days
Mark R. Ellis	5 days
Andrew Sindorf	5 days
Errol D. Hooper, Jr.	4 days
Jay D. Kirk	4 days
Madeline Schickel	1 day
Meagan Hall	0.5 day
Andrew Kopp	0.5 day
Total person days on site	167.5 days

Table 3. Number of specimens of each of sixteen species of amphibians, turtles, and reptiles observed from 21 May 2004 to 23 June 2004 at Custer State Park, Custer County, South Dakota, during this herpetofaunal survey (shown in descending order of number observed).

Species Observed	Number Observed
Barred Tiger Salamander	368
Northern Leopard Frog	182
Northern Painted Turtle	182
Western Terrestrial Garter Snake	98
Smooth Green Snake	94
Woodhouse's Toad	67
Eastern Racer	60
Common Garter Snake	57
Prairie Rattlesnake	31
Boreal Chorus Frog	25
Redbelly Snake	12
Gopher Snake	9
Milk Snake.	4
Plains Garter Snake	4
Plains Spadefoot	3
Common Snapping Turtle	1
Total number of observations	1,197

179 frogs were found active in and along the edges of streams and stock and beaver ponds throughout Custer State Park. Adult and subadult specimens were also observed and counted at three of the four major reservoirs: Center Lake, Legion Lake, and Stockade Lake.

Common Snapping Turtle
Chelydra serpentina



Map 6. Black dots show all localities where the Northern Leopard Frog *(Rana pipiens)* was observed in Custer State Park, Custer County, South Dakota.

Table 4. Number of specimens of each of five species of amphibians observed from 21 May 2004 to 23 June 2004 at Custer State Park, Custer County, South Dakota, during this herpetofaunal survey (shown in descending order of number observed).

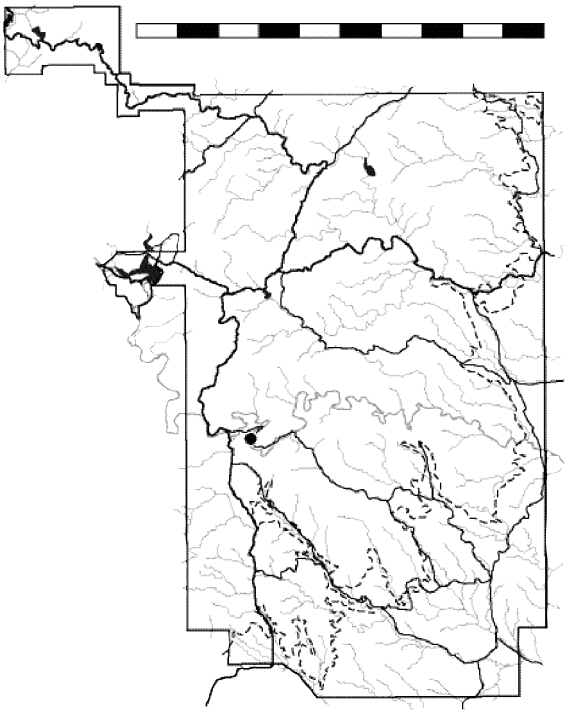
(Figure 7)

A single adult male specimen (carapace length ca. 8 inches straight-line) of this chelonian was observed in French Creek in the western part of Custer State Park (Map 7). The specimen was photographed and released.

Habitat for this large chelonian is marginal at best throughout CSP.

Northern Painted Turtle
Chrysemys picta

Figure 7. An adult specimen of *Chelydra serpentina* from CSP. Photograph by Suzanne L. Collins.



Map 7. Black dot showing the locality where the Common Snapping Turtle *(Chelydra serpentina)* was observed in Custer State Park, Custer County, South Dakota.

(Figure 8)

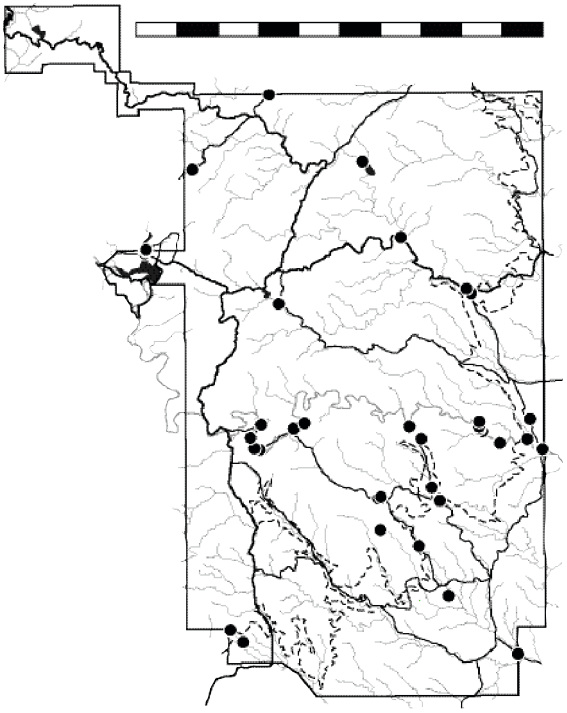
Northern Painted Turtles were abundant and widespread throughout Custer State Park (Map 8; Table 5). They were found in every aquatic situation, from stock and beaver ponds to creeks to large reservoirs. Of the 182 individuals encountered, only one was AOR and one DOR (one juvenile and one adult were also found dead at water edge); the remaining 178 were found basking, swimming, or crawling up ephemeral streambeds (except one adult, which was found crawling near a Prairie Rattlesnake den site on a ridge ca. 250 feet above an ephemeral streambed). Specimens were observed and counted at three of the four major reservoirs: Center Lake, Legion Lake, and Stockade Lake.

Eastern Racer
Coluber constrictor
(Figure 9)

Figure 8. An adult specimen of *Chrysemys picta* from CSP. Photograph by Suzanne L. Collins.

Table 5. Number of specimens of each of two species of turtles observed from 21 May 2004 to 23 June 2004 at Custer State Park, Custer County, South Dakota, during this herpetofaunal survey (shown in descending order of number observed).

Species Observed	Number Observed
Northern Painted Turtle	182
Common Snapping Turtle	1
Total number of observations	183



Map 8. Black dots show all localities where the Northern Painted Turtle *(Chrysemys picta)* was observed in Custer State Park, Custer County, South Dakota.

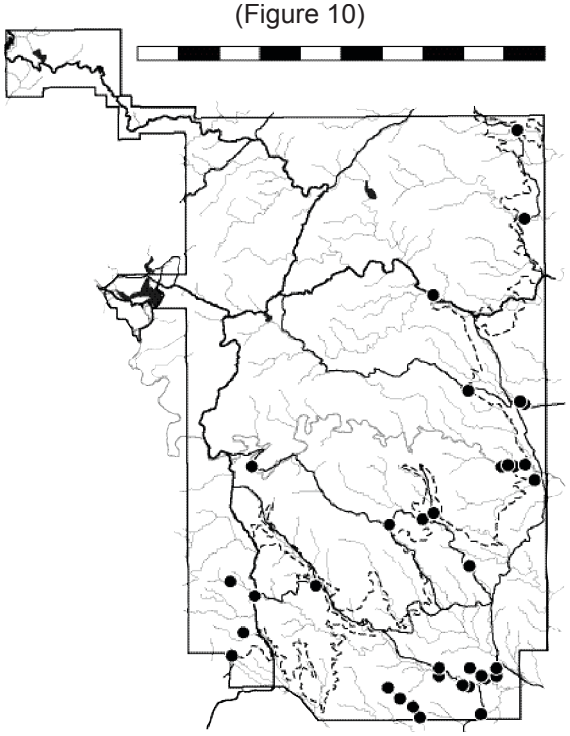
Sixty Eastern Racers were observed and recorded from throughout Custer State Park during this survey (Map 9); one was AOR and seven DOR. The remaining 52 observations were of seven juveniles, two subadults, forty adults, and three spent egg clutches; the 49 live specimens encountered in their native habitat were discovered active on sunny days or under rocks on cold overcast days, both in valleys and on ridges.

Eastern Racers are an abundant component of the

Figure 9. An adult specimen of *Coluber constrictor* from CSP. Photograph by Suzanne L. Collins.

Custer State Park herpetofauna (Table 9) and are one of the most widespread reptiles in CSP.

Milk Snake
Lampropeltis triangulum
(Figure 10)



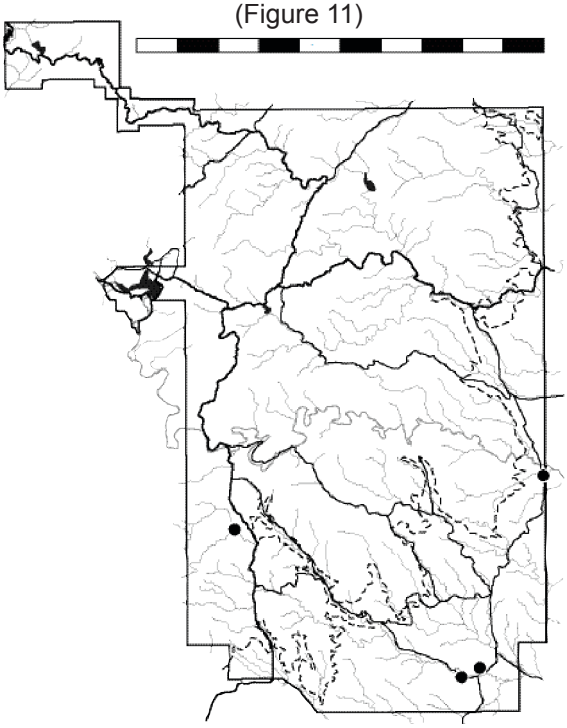
Map 9. Black dots show all localities where the Eastern Racer *(Coluber constrictor)* was observed in Custer State Park, Custer County, South Dakota.

Four Milk Snakes, one juvenile found AOR and three adults found under large rocks on south-facing ridges, were discovered in the Custer State Park during this survey (Map 10). One was a large gravid adult female found on 13 June 2004. This reptile is certainly more abundant than the results of our searching indicate (Table 9), but its secretive, semi-fossorial nature and affinity for living beneath large rocks makes it very difficult to find.

Milk Snakes appear to be restricted to the south-eastern portion of Custer State Park.

Figure 10. An adult specimen of *Lampropeltis triangulum* from CSP. Photograph by Suzanne L. Collins.

Smooth Green Snake
Liochlorophis vernalis
(Figure 11)



Map 10. Black dots show all localities where the Milk Snake *(Lampropeltis triangulum)* was observed in Custer State Park, Custer County, South Dakota.

The Smooth Green Snake was abundant (Table 9) in the northwestern part of Custer State Park (Map 11). Ninety-four specimens were recorded. Of these, one was AOR and two were DOR. The remaining 91 specimens were composed of five juveniles, eight shed skins (of adults), and 78 adults (including two gravid females observed on 12 June and 20 June 2004). Of the 83 adults and juveniles observed, 62 were in meadows along flowing streams engaged in the following activity or discovered in the following microhabitat: one basking; four actively crawling in grass, one under a piece of metal, one under a board, thirteen under rocks, and 42 under pine or birch logs. The remainder (20 adults & 1 juvenile) were found on hillsides above meadows, generally within 25 feet of the valley floor under rocks or logs (Table 6).

Smooth Green Snakes were apparently restricted to the northwestern part of Custer State Park because of their affinity for high cool grassy meadows with

flowing streams.

Gopher Snake
Pituophis catenifer
(Figure 12)

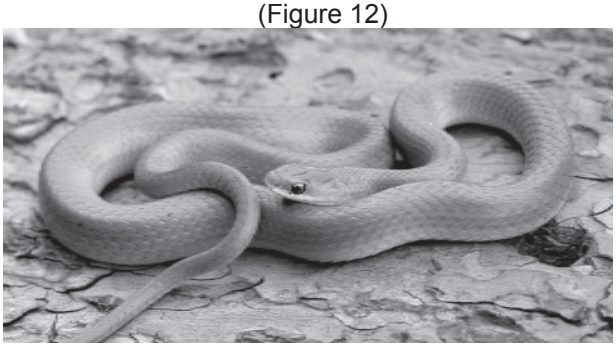
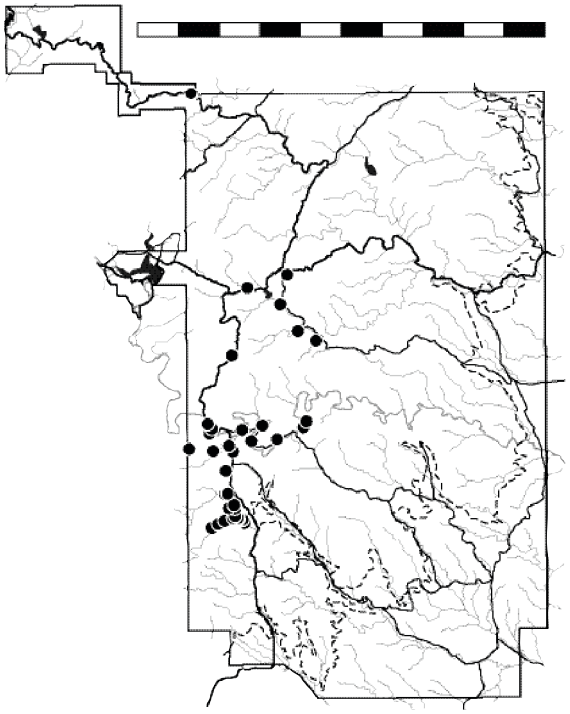


Figure 11. An adult specimen of *Liochlorophis vernalis* from CSP. Photograph by Suzanne L. Collins.



Map 11. Black dots show all localities where the Smooth Green Snake *(Liochlorophis vernalis)* was observed in Custer State Park, Custer County, South Dakota.

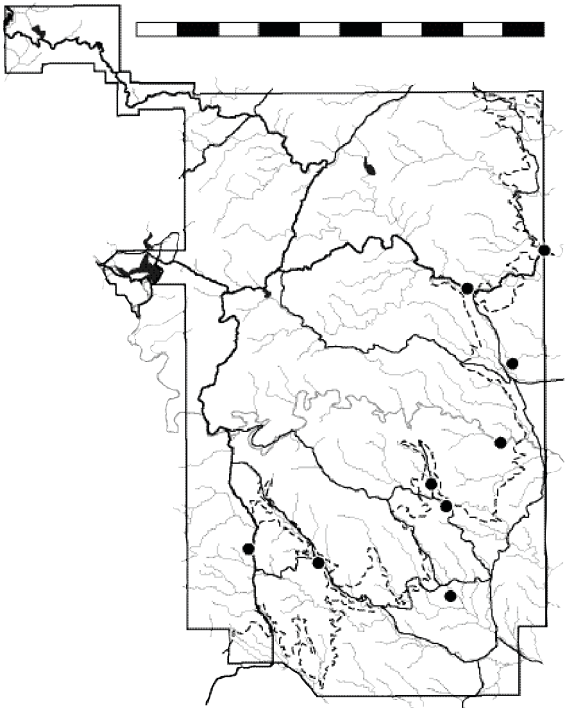
Nine examples of this large serpent were observed during our survey at Custer State Park; one was AOR and one was DOR. The remaining seven records consisted of two shed skins (of adults), one skeleton (of an adult) found in a meadow near the Game Lodge, and four adults discovered as follows: one basking on a high ridge at a Prairie Rattlesnake den site, one under a piece of metal, one under a rock on a hillside, and one emerging from beneath a very large rock on a hillside.

Table 6. Habitat associations of the Smooth Green Snake *(Liochlorophis vernalis)* based on 83 observations from 21 May 2004 to 23 June 2004 at Custer State Park, Custer County, South Dakota, during this herpetofaunal survey.

Habitat	Frequency
Meadows (usually near streams)	
Under pine or birch logs	42
Under rocks	13
Crawling in grass	4
Under a piece of metal	1
Under a board	1
Basking	1
Hillsides above meadows (usually near streams)	21
Total number of observations	83

The Gopher Snake is probably more abundant than these discoveries indicate; it appears to be restricted to the grassland ridges of CSP (Map 12).

Redbelly Snake
Storeria occipitomaculata
(Figure 13)



Map 12. Black dots show all localities where the Gopher Snake *(Pituophis catenifer)* was observed in Custer State Park, Custer County, South Dakota.

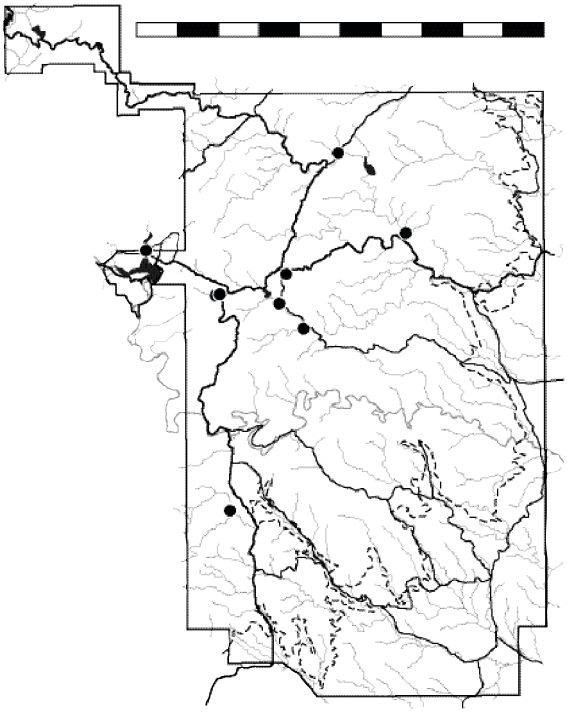
Figure 12. An adult specimen of *Pituophis catenifer* from CSP. Photograph by Suzanne L. Collins.

The Redbelly Snake was a difficult serpent to find due to its small size and cryptic coloration, but our field team recorded twelve of them during the 34-day survey. Two were disgorged by a Western Terrestrial Garter Snake; the remaining ten were discovered as follows: one adult active along a stream, six adults (3 of them gravid females on 22 June 2004) under pine logs near a stream, one under a birch log near a beaver pond, and two under rocks in a sparsely forested grassland near a stream.

This was not an abundant snake in Custer State Park (Table 9); it was found only in the northwestern portion of CSP (Map 13), apparently sharing with the Smooth Green Snake an affinity for high cool grassy meadows with flowing streams.

Western Terrestrial Garter Snake
Thamnophis elegans
(Figure 14)

Figure 13. An adult specimen of *Storeria occipitomaculata* from CSP. Photograph by Suzanne L. Collins.



Map 13. Black dots show all localities where the Redbelly Snake *(Storeria occipitomaculata)* was observed in Custer State Park, Custer County, South Dakota.

Based on number of observations (98), the Western Terrestrial Garter Snake was the most abundant serpent in Custer State Park, although it was restricted to the northwestern portion. Nine specimens were found AOR or DOR, and another was the shed skin of an adult; the remaining 88 comprised nineteen juveniles, eight subadults, and 61 adults. Of these 88 serpents, one was sunning in a streambed, three

Figure 14. An adult specimen of *Thamnophis elegans* from CSP. Photograph by Suzanne L. Collins.

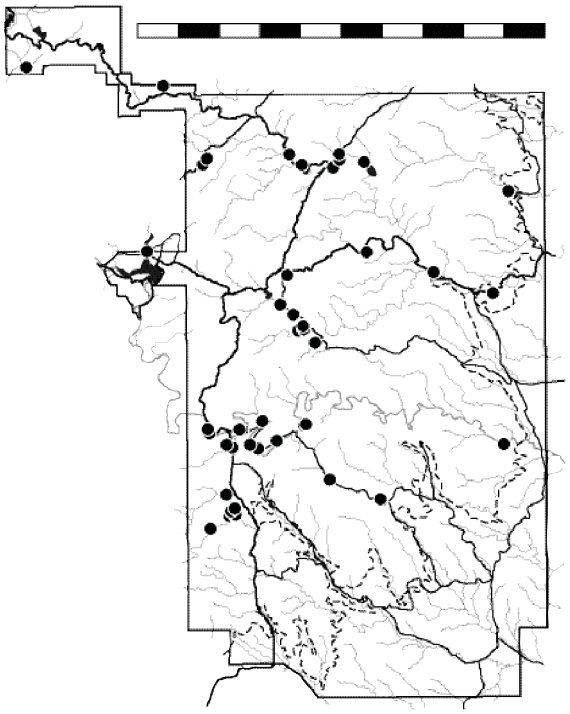
were discovered under rocks on hillsides, four under rocks in or near a stream, two under debris, one inside a pine stump, one under a board, 22 under logs near streams, and 54 active along streams or pond/lake margins (Table 7).

Of the three species of Garter Snakes found in Custer State Park, the Western Terrestrial Garter Snake was the most common (Table 9), and was an important component of CSP herpetofauna (Map 14). Shortly after capture, one adult Western Terrestrial Garter Snake disgorged two Redbelly Snakes.

Table 7. Habitat associations of the Western Terrestrial Garter Snake *(Thamnophis elegans)* based on 88 observations from 21 May 2004 to 23 June 2004 at Custer State Park, Custer County, South Dakota, during this herpetofaunal survey.

Habitat	Frequency
Active along margins of streams/ponds/lakes	54
Under logs near streams	22
Under rocks in or near a stream	4
Under rocks on hillsides	3
Under debris	2
Under a board	1
Inside a pine stump	1
Sunning in a dry streambed	1
Total number of observations	88

Plains Garter Snake
Thamnophis radix
(Figure 15)

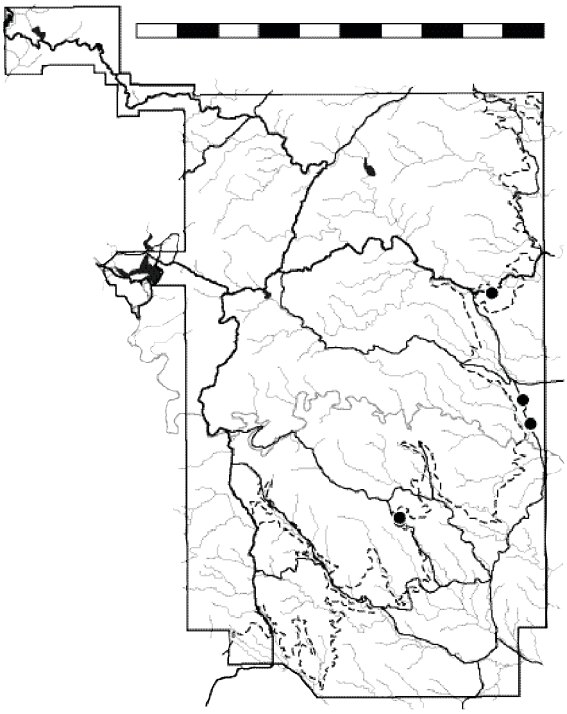


Map 14. Black dots show all localities where the Western Terrestrial Garter Snake *(Thamnophis elegans)* was observed in Custer State Park, Custer County, South Dakota.

The least common of the three species of *Thamnophis* found in Custer State Park (Table 9); only four examples of the Plains Garter Snake were observed during the course of our survey. One adult and one subadult were found AOR, the latter at night during a heavy rainstorm. Of the remaining two examples, one was observed swimming in a stream and the other was found under a log on a low ridge above a stream.

Plains Garter Snakes were found only in the southeastern part of Custer State Park (Map 15); they appear to prefer the plains habitat typical of that part of CSP.

Common Garter Snake
Thamnophis sirtalis
(Figure 16)



Map 15. Black dots show all localities where the Plains Garter Snake *(Thamnophis radix)* was observed in Custer State Park, Custer County, South Dakota.

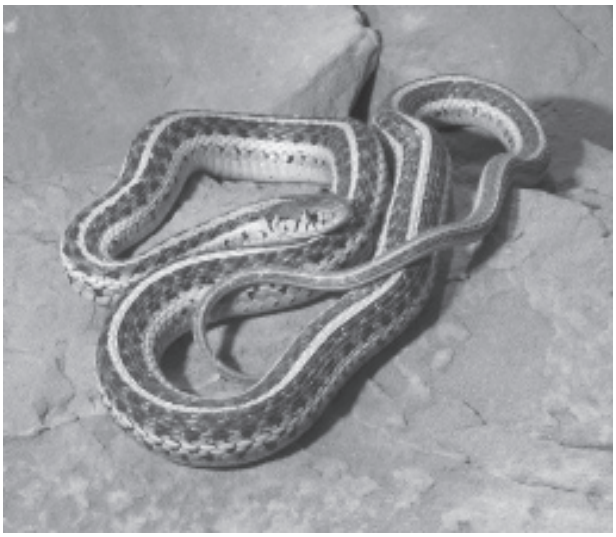


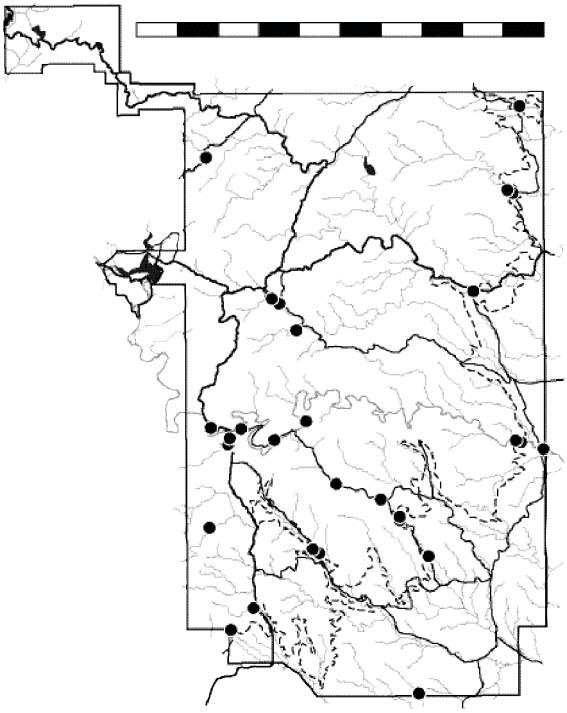
Figure 15. An adult specimen of *Thamnophis radix* from CSP. Photograph by Suzanne L. Collins.

Common Garter Snakes were, indeed, common in Custer State Park (Table 9); 57 examples were observed during our survey. Of these, one was AOR, one was DOR, and two were found dead near stock ponds. Of the remaining 53, seven were juveniles, five were subadults, and 41 were adults. Eighteen individuals were found beneath logs near water, five under rocks near water, one under bark near water, two swimming in streams, two under rocks on a hillside, one inside a pine stump, and 24 active near water (Table 8).

The Common Garter Snake appeared to have a widespread distribution in Custer State Park (Map 16).

Figure 16. An adult specimen of *Thamnophis sirtalis* from CSP. Photograph by Suzanne L. Collins.

Prairie Rattlesnake
Crotalus viridis
(Figure 17)



Map 16. Black dots show all localities where the Common Garter Snake *(Thamnophis sirtalis)* was observed in Custer State Park, Custer County, South Dakota.

Table 8. Habitat associations of the Common Garter Snake *(Thamnophis sirtalis)* based on 53 observations from 21 May 2004 to 23 June 2004 at Custer State Park, Custer County, South Dakota, during this herpetofaunal survey.

Habitat	Frequency
Active near water	24
Under logs near water	18
Under rocks near water	5
Swimming in streams	2
Under rocks on a hillside	2
Under bark near water	1
Inside a pine stump	1
Total number of observations	53

The Prairie Rattlesnake is the only venomous serpent found in Custer State Park. Our field team recorded 31 examples of this reptile; one was AOR, eleven DOR, and one was the shed skin of an adult. The remaining eighteen snakes comprised fifteen adults and three juveniles discovered as follows: two adults and three juveniles under rocks on south-facing

hillsides, one adult active in an ephemeral streambed, one adult on a hillside above an ephemeral streambed, eleven adults basking (7 of them together with a Gopher Snake at a den site located high on a ridge above an ephemeral streambed).

The Prairie Rattlesnake is common in the southeastern portion of Custer State Park (Map 17).

Summary

During the course of a 34-day survey of the herpetofauna of Custer State Park, our field team documented the presence of sixteen species (Table 1), spent 167.5 person days in the field (Table 2), and made 1,197 observations (Table 3) of amphibians (Table 4), turtles (Table 5), and reptiles (Table 9). Of the 1,197 salamanders, frogs and toads, turtles, and snakes observed, only 76 were found alive crossing roads or dead on roads (Table 10).

Our data show that the Barred Tiger Salamander was the most abundantly collected amphibian, followed by the Northern Leopard Frog (Table 4). Northern Painted Turtles were the only abundant chelonian in CSP (Table 5). The Western Terrestrial Garter Snake and Smooth Green Snake were the most observably abundant reptiles in Custer State Park (Table 9), despite their restricted range.

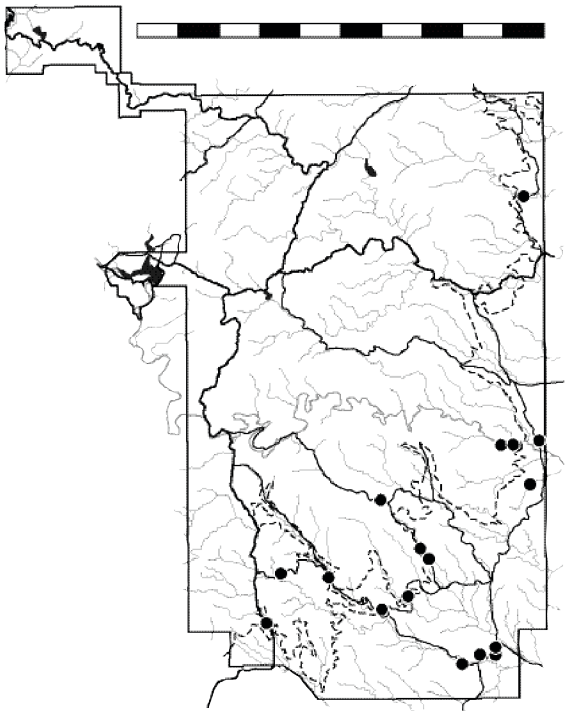
The herpetofauna of Custer State Park consists of two distinct components or assemblages, a southeastern grassland component and a northwestern or montane component. In addition, some species were found throughout CSP, having adapted to all the varied environments found there.

The grasslands component consisted of seven species (3 amphibians and 4 reptiles) as follows: Barred Tiger Salamander, Plains Spadefoot, Woodhouse's Toad, Milk Snake, Gopher Snake, Plains Garter Snake, and Prairie Rattlesnake.

The northwestern or montane component consisted of three species of reptiles, the Smooth Green Snake (Table 6), Redbelly Snake, and the Western Terrestrial Garter Snake (Table 7).

Five species (2 amphibians, 1 turtle, and 2 reptiles) occur throughout Custer State Park. They are the Boreal Chorus Frog, Northern Leopard Frog, Northern Painted Turtle, Eastern Racer, and Com-

Figure 17. An adult specimen of *Crotalus viridis* from CSP. Photograph by Suzanne L. Collins.



Map 17. Black dots show all localities where the Prairie Rattlesnake *(Crotalus viridis)* was observed in Custer State Park, Custer County, South Dakota.

Table 9. Number of specimens of each of nine species of reptiles observed from 21 May 2004 to 23 June 2004 at Custer State Park, Custer County, South Dakota, during this herpetofaunal survey (shown in descending order of number observed).

Species Observed	Number Observed
Western Terrestrial Garter Snake	98
Smooth Green Snake	94
Eastern Racer	60
Common Garter Snake	57
Prairie Rattlesnake	31
Redbelly Snake	12
Gopher Snake	9
Milk Snake.	4
Plains Garter Snake	4
Total number of observations	369

mon Garter Snake.

Finally, our field team did not secure enough records to determine the distribution of the Common Snapping Turtle in Custer State Park.

Acknowledgements

Jerry D. Collins (Cincinnati, Ohio) caught numerous amphibians, turtles, and reptiles, provided logistical support, grilled his famous recipes, and entertained all of us. Curtis J. Schmidt and Richard Hayes (Sternberg Museum of Natural History, Fort Hays State University, Hays, Kansas), John Stoklosa and Ginny Weatherman (University of Kansas, Lawrence), Ross McNearney (Leawood, Kansas), Errol D. Hooper, Jr. (Greentop, Missouri), Mark Ellis (Wakarusa, Kansas), Jay D. Kirk (Friends University, Wichita, Kansas), and Andrew Sindorf (Eudora, Kansas) were the field crew so essential for a survey such as this to succeed. Madeline Schickel (Lakewood, Ohio, and an ornithologist by inclination), joined our field crew on several occasions to search for herpetofauna, and spent a number of evenings at the dinner table with us. Meagan Hall and Andrew Kopp visited on the last day of our survey, and made new discoveries that we added to our database. Gary Brundage, biologist for Custer State Park, cheerfully helped our crew get settled and started, and we owe him much thanks. Brian Smith (Black Hills State University, Spearfish, South Dakota) provided sage advice during the planning stages of the project and to him we are indebted.

Lastly, we owe a great deal of appreciation to Alyssa Kiesow (South Dakota Department of Game, Fish & Parks); she helped all along the way with support and the numerous kindnesses that made for a better survey.

Table 10. Number of specimens of each of sixteen species of amphibians, turtles, and reptiles found alive on road (AOR) or dead on road (DOR) from 21 May 2004 to 23 June 2004 at Custer State Park, Custer County, South Dakota, during this herpetofaunal survey (number in parentheses following common name is total observed during survey as shown in Table 3).

Species Observed	Number AOR/DOR
Barred Tiger Salamander (368)	1/0
Northern Leopard Frog (182)	1/2
Northern Painted Turtle (182)	1/0
Western Terrestrial Garter Snake (98)	1/8
Smooth Green Snake (94)	1/2
Woodhouse's Toad (67)	28/3
Eastern Racer (60)	1/7
Common Garter Snake (57)	1/1
Prairie Rattlesnake (31)	1/11
Boreal Chorus Frog (25)	1/0
Redbelly Snake (12)	0/0
Gopher Snake (9)	1/1
Milk Snake (4)	1/0
Plains Garter Snake (4)	2/0
Plains Spadefoot (3)	3/0
Common Snapping Turtle (1)	0/0
Total number of observations	44/35
Number of observations made AOR/DOR (79) as a percent of total observations (1197)	6.6%

Literature Cited

Ballinger, Royce, Justin W. Meeker, and Marcus Thies. 2000. A checklist and distribution maps of the amphibians and reptiles of South Dakota. Transactions of the Nebraska Academy of Science 26: 29–46.

Peterson, Charles R. 1974. A preliminary report on the amphibians and reptiles of the Black Hills of South Dakota and Wyoming. Master's Thesis, University of Illinois, Urbana-Champaign. iv + 112 pp.

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.

Nominations should be sent to the KHS Awards Committee Chair, and must be postmarked by 15 September. The scholarship winner 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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KHS members only are eligible to apply for The Alan H. Kamb Grant for Research on Kansas Snakes. The recipient of the grant (minimally $100.00) will be selected by the KHS Awards Committee. If no qualified proposals are submitted, no award will be made for that year.

The KHS Awards Committee will entertain proposals for research on Kansas snakes. The proposal must be limited to ten typed pages, and should include, but not be limited to the following: title, name of researcher, contact information, abstract, introduction and justification, objectives or hypotheses, materials and methods, significance of research and possible results, literature cited, timetable, and proposed budget. The research must be conducted on one or more native Kansas snake species. Additionally, a majority of the field work or observations must be proposed to occur in Kansas, or the data must be proposed to be collected, at least in part, on Kansas specimens.

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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Conditions and Stipulations: The Award shall be known, presented, and portrayed as the *Suzanne L. & Joseph T. Collins Award for Excellence in Kansas Herpetology* and may not be changed for any reason, nor added to or merged with any other award, prize, or gift. 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, turtles, and reptiles 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. The Award may not be divided, but must be presented in full to a single individual. The Award consists of a trust-in-perpetuity, owned and invested by the *The Center for North American Herpetology*, and part of the interest from the trust is annually forwarded to the *Kansas Herpetological Society*, should they choose to make an award in that year.

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

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 systematics, ecology, or conservation of a native species of Kansas amphibian, turtle, and/or reptile in the *Journal of Kansas Herpetology*, *Transactions of the Kansas Academy of Science*, *Herpetological Review*, or the *Journal of Herpetology*, and/or presented a lecture of excellence on the systematics, ecology, or conservation of a native species of Kansas amphibian, turtle, and/or reptile at the KHS Annual Meeting. To qualify for the Award, a portion of the field work or observations must have occurred in Kansas, or the systematic data must have been based in part on Kansas specimens. *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, turtles, and/or reptiles, said competition to take place under the auspices and on the occasion of the annual meeting of the *Kansas Herpetological Society.* To qualify for the Award, the art work must portray a species native to Kansas.

The Collins Award is minimally $1000.00, and is neither a grant nor a scholarship. No nominations or applications can be made for it.

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