

JOURNAL OF KANSAS HERPETOLOGY

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Front Cover: An Alligator Snapping Turtle (Macrochelys temminckii). Illustration by Marty Capron, Oxford.

Journal of Kansas Herpetology

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KHS BUSINESS

Kansas Herpetological Society Executive Council Meeting

The KHS Executive Council Meeting was called to order by KHS President Derek Schmidt at ca. 1:15 pm 20 February 2011. Present: Board Members Present: Derek Schmidt, Joseph Collins (proxy for Curtis Schmidt), Suzanne Collins, Kathy Ellis, Eva Horn, David Oldham, Travis Taggart. Committee Chairpersons Present: Dan Fogell, Robin Oldham. Others Present: Mary Kate Baldwin, Mark Ellis, Eric Kessler. President Derek Schmidt presided.

Financial Report for Calendar 2011

Mary Kate Baldwin distributed the 2010 Annual Financial Report. The Executive Council reviewed the report. It indicated that the end of year bank balance was \$4,776.51. Mary Kate transferred the records to Eva Horn who was elected as the secretary for 2011.

Eric Kessler transferred records to David Oldham who was elected the treasurer for 2011.

2010 Annual Meeting Income and Expense Summary

The Council congratulated KHS Past-President Kathy Ellis on holding an excellent annual meeting. They also recognized the Topeka Zoo for their support of the meeting and their outstanding facilities.

A critique of the annual meeting raised the question of outside vendors selling t-shirts. It was moved and seconded (EH/TWT) that no vendors be allowed to sell merchandise without formal consent of the Executive Council. Vendors must submit their request to the president by September 1 prior to the meeting. The request must include specifications of what is to be sold. Motion was approved.

Eric Thiss of Serpents Tale has prior approval and will not be required to make a formal request.

Report and Plans for the 2011 Annual Meeting

The Great Plains Nature Center has been reserved for the KHS annual meeting to be held November 4-6, 2011. The KHS auction will be held on Saturday night, November 5, at the Sedgwick County Zoo. The Society will provide

beer, soft drinks, and snacks.

Derek will work with Dan Carpenter on the details of the meeting, including a Friday night social, etc. He will recruit volunteers from Friends University and Wichita State University and will check computer access to insure it will be easily available for use of speakers. He will also check hours of operation for GPNC so the program can be scheduled during their regular hours of operation or by other arrangement.

Derek and David Oldham will design and arrange for printing a t-shirt for the annual meeting.

It was moved and seconded (SLC/EH) to approve \$1,000.00 for meeting expenses and \$400.00 for production of a T-shirt. Motion approved.

Report and Budget Request for 2011 for the Journal of Kansas Herpetology

Travis presented the 2011 budget request. It was the same as last year's request, \$2,000 for printing and preparing four issues of the Journal of Kansas Herpetology for mailing and \$500 for annual postage. The request was approved.

After extensive discussion about the pros and cons of printing the Journal in color as opposed to black and white, it was agreed that the increased cost of color printing was prohibitive.

It was moved and seconded (TWT/DO) to cease printing the Journal and instead produce it in PDF format only. Motion failed.

It was moved and seconded (KE/EH) that Eva Horn write a proposed statement to be included with the annual meeting registration asking if members would prefer to receive the Journal electronically or in printed form. Information received will be discussed at a future Executive Council meeting. Motion approved.

It was moved and seconded that all Journals be available immediately as a PDF on the KHS website. Currently Journals are available one year after publication. Motion approved.

Critique of 2010 Field Trips

There was discussion of the importance of finding field trip sites that accommodate the

number of participants. Travis offered to distribute and collect membership forms with the hope that some of the participants may join KHS.

There was no budget request to reimburse the field trip chairmen.

The spring field trip will be in Chautauqua County. Primitive camping sites will be available. Travis will display turtle trapping techniques. Participants will be asked to help and should be prepared to get wet. Fall field trip will be in Jewell County.

Report of the KHS Historian

Suzanne continues to collect and store KHS information and photographs.

2011 KHS Awards Ceremony

The Executive Council unanimously agreed to present The Bronze Salamander Award to Mary Kate Baldwin and Eric Kessler for their long service as Secretary and Treasurer. The awards will be presented at the 2011 annual meeting.

Report of Media and Publicity for 2010

Robin continues to write news releases. She and Joe send them to various news agencies. She will also contact local school districts.

Report of Nominating Committee

The Committee is composed of Dan Carpenter, David Oldham, and Joe Collins. They will meet during the summer to prepare a slate of officers for 2012.

Approval of KHS Budget for 2010

The KHS Executive Council discussed the following budget for 2011:

Print four issues of the Journal of Kansas Herpetology	\$2000.00
Postage for four issues of the Journal of Kansas Herpetology	\$500.00
KHS Annual Meeting Expenses	\$1000.00
KHS Annual Meeting T-Shirts.....	\$400.00
Awards	\$200.00
Secretary/Treasurer Expenses	\$300.00
Total	\$4400.00
Anticipated 2010 Income (based on 2010 income).....	\$5000.00

It was moved and seconded (SC/TWT) to approve the budget. Motion approved unanimously.

New Business

There was no new business.

Old Business

There was no old business.

Meeting was adjourned at 3:45 pm.

Suzanne Collins
Historian

SUBMIT YOUR FIELD REPORTS

Starting in the next number (38), JKH will begin publishing field reports on your herpetological expeditions wherever they may be.

Of course we are always interested in your geographic and natural history notes, original articles, and artwork Contact the Editor (see inside of front cover).

PAY YOUR 2011 DUES

If you have not already done so, send your calendar 2010 dues (\$15.00 regular, \$20.00 contributing) to:

Eva A. Horne
KHS Secretary

Division of Biology, Kansas State University
Manhattan, Kansas 66506

Your attention to this matter will ensure that delivery of the Journal of Kansas Herpetology will be uninterrupted.

KHS 2011 FALL FIELD TRIP

The KHS 2011 Fall Field Trip will be to Jewell County. For tentative information as it develops, be sure to check the KHS web site regularly at:

www.cnah.org/khs/FieldTripFallInfo.html

For immediate information, contact:

Travis W. Taggart
KHS Field Trip Co-Chairperson

(see inside front cover of this issue)

Kansas Herpetological Society
Annual Financial Report 2011

Bank Statement 31 Devenber 2010\$4776.51

<u>Income</u>	<u>Expenses</u>
Membership Dues	Annual Meeting.....\$2149.79
Regular.....\$1725.00	The Collins Award.....\$100.00
Contributing.....\$840.00	The Alan H. Kamb Grant..... \$300.00
Total.....\$2565.00	The Gloyd/Taylor Scholarship.....\$600.00
Annual Meeting	Office of the Secretary/Treasurer\$270.73
Registration.....\$1035.00	Journal of Kansas Herpetology (4 issues).....
Auction.....\$1065.00	\$1815.20
Sale of KHS T-Shirts\$270.00	Office of the Editor.....\$485.00
Sponsors.....\$200.00	Awards Committee\$83.79
Sale of KHS Snake Bags\$30.00	Additions to The Kamb Grant\$93.06
Total.....\$2400.00	Additions to The G/T Scholarship.....\$31.15
Donations\$585.00	Total Expenses\$5928.72
Interest from Endowed Funds\$256.90	Outstanding checks\$300.00
Total Income\$5806.90	Bank Statement 31 December 2010\$4776.51
	<u>Endowed Funds</u>
	Alan H. Kamb Grant\$7843.06
	Gloyd/Taylor Scholarship.....\$7331.15
	Total in Endowed Funds\$15174.21

Bank Statement 1 January 2010 \$4598.33

Total Assets (31 December 2011)..... \$19950.72

Respectfully submitted,
Eva Horn, Secretary
David Oldham, Treasurer

Kansas Herpetological Society 2011 Spring Field Trip to be held in Chautauqua County

The 2010 Spring KHS Field Trip will be held at Sedan City Lake (New) in Chautauqua County, Kansas. KHS members will gather as early as Friday evening (8 April 2011) at the Campsite displaying a large KHS sign. To familiarize yourself with the area, consult the map on page seven.

Restaurants and motels are available in nearby Sedan.

Ranch Motel, 116 S. School,
620.725.3163

Green Door Rentals Bed & Breakfast
620.725.3393 or 620.725.3280

The Stone House, Spruce St.,
620.725.4022

Grandma's House, 219 S. Montgomery
620.725.5278

Maps and other information will be available at the campsite each day at 9:00 am. Facilities at Sedan City Lake consist of camping areas and restrooms.

KHS herpetofaunal counts will officially take place from 9:00 am to 5:00 pm on Saturday (9 April) and on Sunday (10 April) from 9:00 am to noon. Individuals wishing to participate should meet at the KHS sign at Sedan City Lake on both dates at 9:00 am.

Herpetofaunal opportunities abound at Sedan City Lake and in the surrounding vicinity. The area is largely unexplored, herpetologically, and offers the chance to produce several significant additions to our understanding of amphibian, reptilian, and chelonian distributions and natural history in this area of Kansas.

The KHS Field Trip Committee has several activities planned, and will be leading participants to several sites that offer prime herping habitat. KHS member Daren Riedle and colleagues have released over 250 Alligator Snapping Turtles in the Caney River southeast of Elgin in adjoining

Osage County, Oklahoma. Weather permitting, fieldtrip participants will spend an afternoon checking and resetting turtle traps and seining the Caney River and nearby tributaries.

If you plan to attend the KHS Spring Field Trip, be prepared. You should minimally have heavy gloves, hiking boots, and a flashlight. In addition, it is useful to have a field notebook and pen or pencil. Field notes are very important and provide much additional information about your field activities, information that you might need to resource in the future. Other field items that will improve your KHS experience are bottled water and snacks; remember, you are often not near any grocery stores or fast-food outlets. Maps, such as the one accompanying this article are an important adjunct to any field trip. If you don't want to bring this issue of the *Journal of Kansas Herpetology* with you, make a copy of these pages and don't forget them.

Physiography of Chautauqua County

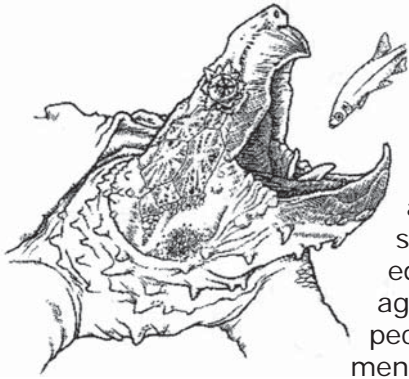
Chautauqua County encompasses three unique physiographic provinces. The Flint Hills pass through the extreme northwest section of the county with undulating grasslands broken by bluffs composed of alternating limestone and chert. The eastern half of the county lies in the Chautauqua Hills physiographic province (or Cross Timber) and is dominated by Oak-Hickory forests in the bottoms with grasslands above and is underlain by sandstone which forms substantial bluffs in certain areas. The remainder of the county is contained within the Osage Cuestas physiographic province. This region is characterized by a series of east facing bluffs composed of limestone, shale, and some sandstone.

Species of interest in Chautauqua County:

Alligator Snapping Turtle - This has never been observed in Chautauqua County but has been documented from Cowley and Montgomery counties to the west and east respectively. Over 250 young Alligator Snapping Turtles have been released within the past few years into the Caney River within two miles of the Kansas border.

Cottonmouth - A persistent large population approximately 12 miles south of the Kansas





border in Osage County, Oklahoma.

Barred Tiger Salamander - A single aberrantly patterned specimen was collected nearly twenty years ago. It has been suspected that this specimen may simply be escaped bait, and is in need of corroboration.

Northern Painted Turtle - The Kansas/Oklahoma border represents the southern range boundary of this taxon in the region, and all specimens are of interest.

Cajun Chorus Frog - A specimen was collected five miles south of the town of Caney and possibly ranges into Montgomery and Chautauqua counties in Kansas. The discovery of this frog would represent another species additon to the Kansas herpetofauna.

Hurter's Spadefoot - This frog has been reported from adjacent Osage County, Oklahoma and would represent an addition to the Kansas herpetofauna.

Eastern Mud Turtle - Known from Craig County, Oklahoma (to the east). Would represent a new member of the Kansas herpetofauna.

Species that are known from Kansas but not from Chautauqua County (county records):

- Woodhouse's Toad
- Smooth Softshell
- Common Map Turtle
- Eastern Hognose Snake
- Lesser Earless Lizard
- Yellow Mud Turtle
- Green Frog
- Red River Mudpuppy
- Broadhead Skink
- Strecker's Chorus Frog
- Common Musk Turtle
- Plains Blackhead Snake
- Smooth Earth Snake

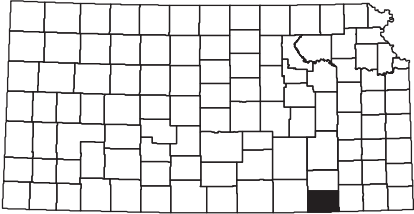
Species for which have not been documented in the county for more than 30 years:

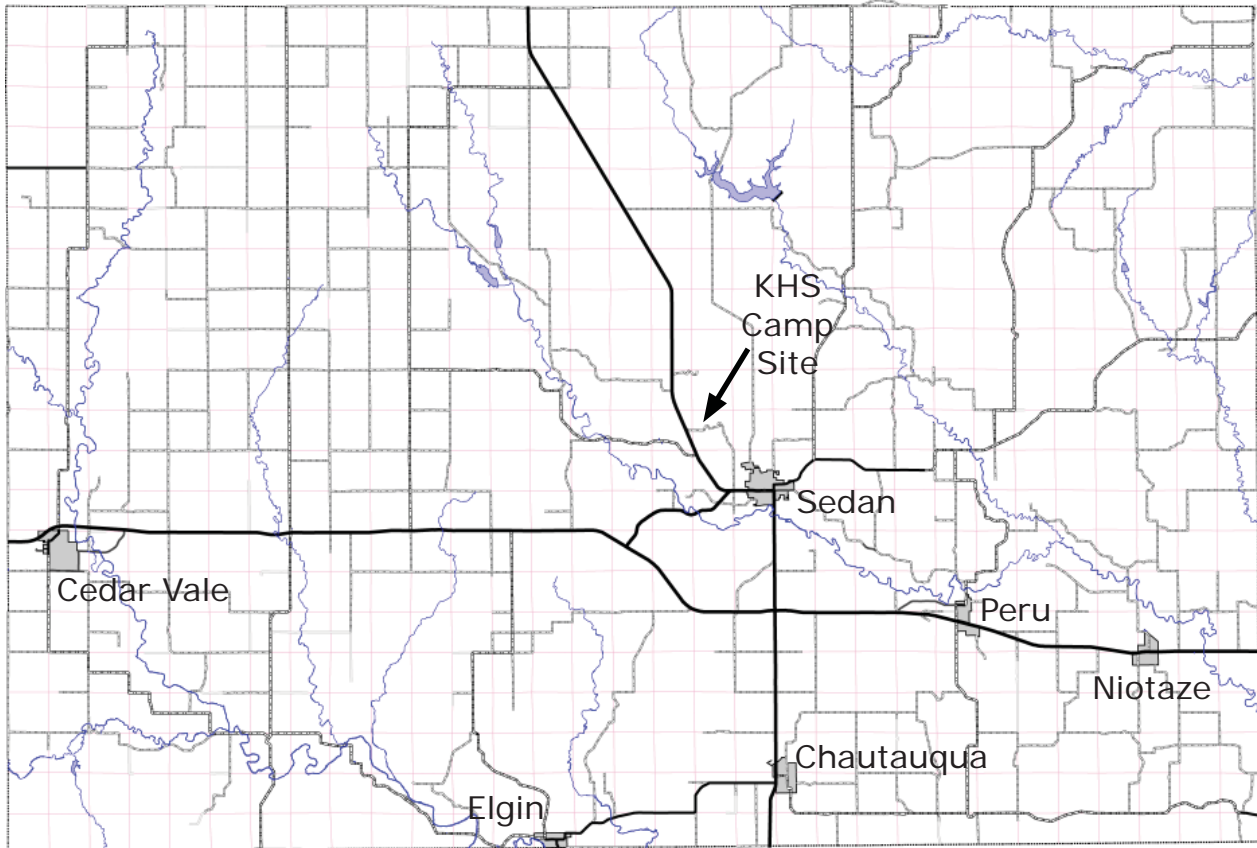
- Smallmouth Salamander
- Great Plains Toad
- Six-lined Racerunner
- Common Snapping Turtle
- Great Plalins Narrowmouth Toad
- Western Hognose Snake
- Prairie Kingsnake

- Speckled Kingsnake
- Plains Leopard Frog
- Bullfrog
- Diamondback Water Snake
- Northern Water Snake
- Coachwhip
- Plainbelly Water Snake
- Texas Horned Lizard
- Coal Skink
- Great Plains Skink
- Southern Prairie Skink
- Spotted Chorus Frog
- Eastern River Cooter
- Prairie Lizard
- Ground Skink
- Western Rat Snake
- Ground Snake
- Plains Spadefoot
- Ornate Box Turtle
- Western Ribbon Snake
- Common Garter Snake
- Slider

Species that have been previously recorded from Chautauqua County based on data in the *Kansas Herpetofaunal Atlas* and are not listed elsewhere in this article:

- American Toad
- Blanchard's Cricket Frog
- Gray Treefrog complex
- Boreal Chorus Frog
- Crawfish Frog
- Southern Leopard Frog
- Barred Tiger Salamander
- Western Slender Glass Lizard
- Eastern Collared Lizard
- Five-lined Skink
- Northern Prairie Skink
- Eastern Racer
- Milk Snake
- Rough Green Snake
- Great Plains Rat Snake
- Gopher Snake
- Copperhead
- Timber Rattlesnake
- Massasauga
- Western Worm Snake
- Ringneck Snake
- Graham's Crayfish Snake
- Brown Snake
- Lined Snake
- Rough Earth Snake
- False Map Turtle
- Eastern Box Turtle
- Spiny Softshell

	SEDAN CITY LAKE (NEW) INFORMATION 2.5 miles N of Sedan on K-99 City of Sedan 620-725-4033
	Fees: Daily Camping Permit: \$10.00
	Coordinates: GPS: 37.15211, -96.20802 Sec 28, T33S, R11E



A map of Sedan City Lake and vicinity, site of the KHS 2011 Spring Field Trip. The Society will gather at a designated campground demarked by a large KHS sign. The campground includes a bathroom.

Come prepared to have a great time herping. Saturday and Sunday mornings we will be visiting local ranches to observe herps, and we'll spend Saturday afternoon along the Caney River; checking and resetting turtle and mudpuppy traps, seining, dip netting, and turning rocks and logs along the shore.

Bring your wading shoes and some gloves; it should be an enjoyable and educational experience for all that can attend.

Travis W. Taggart and Daniel Murrow, KHS Field Trip Co-Chairpersons

NOTES

An observation of scavenging by *Crotalus molossus* (Baird and Girard, 1853)

Steven G. Platt¹ and Thomas R. Rainwater²

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²619 Palmetto Street, Mount Pleasant, South Carolina 29464

Scavenging (carrion foraging) by terrestrial vertebrates is more prevalent than generally recognized, and rather than a curiosity of animal behavior it is a key ecological process that must be accounted for (DeVault et al., 2003). Although scavenging appears to be widespread among snakes, researchers generally assume that most if not all items found in dietary analyses were consumed as prey rather than as carrion (DeVault and Krochmal, 2002; DeVault et al., 2003), despite the recognition that many species of snake readily accept dead prey items in captivity (DeVault and Krochmal, 2002). Because analyses of scat and stomach contents can reveal the composition of the diet, but not the foraging mode (DeVault and Rhodes, 2002), the vast majority of scavenging events by snakes are probably undetectable (DeVault and Krochmal, 2002). Given the difficulties inherent in detecting scavenging behavior, and the need to identify scavengers in order to understand scavenging as a trophic pathway (DeVault and Rhodes, 2002; Selva and Fortuna, 2007), field observations of scavenging snakes are especially noteworthy (Logan and Montero, 2009). Here we report an observation of attempted scavenging by a black-tailed rattlesnake (*Crotalus molossus*) on the carcass of an eastern white-throated woodrat (*Neotoma leucodon*).

This observation occurred approximately 4.8 km west of the town of Alpine in Brewster County, Texas. On 13 October 2006 we established a transect of small mammal snap traps (Victor® rat traps and Museum Special traps) among scattered oak (*Quercus* spp.) and juniper (*Juniperus* spp.) on a steep rocky hillside (30°20.69'N; 103°43.71'W; elevation ca. 1547 m). Each trap was baited with a mixture of peanut butter and oatmeal, and secured to a rock or log with a length of wire to prevent predators from removing traps containing cap-

tured mammals. The following morning (14 October) an adult female *N. leucodon* (mass = 155 grams) was captured in a Victor rat trap set at the entrance to a woodrat den. The den entrance was beneath a large rock and plugged with clusters of cholla (*Opuntia imbricata*) spines, presumably positioned to deter snakes and other predators (Hill, 1942).

Upon arriving at the site, we noted the trap and woodrat carcass had been pulled from the den entrance and moved about 50 cm away; the retaining wire was extended to its full length. An adult *Crotalus molossus* (total length ca. 80 cm) was found coiled beside the woodrat carcass; it began to rattle vigorously as we approached and then slowly withdrew into the woodrat den, passing over the barrier of cholla spines. An examination of the woodrat carcass found the head covered with fresh saliva, suggesting the snake had attempted to swallow the carcass, but was unable to do so because of the trap bar across the base of the woodrat's neck. During a subsequent necropsy of the carcass we noted what appeared to be a single puncture wound in the skin of the right shoulder and extensive hemorrhaging in the underlying muscle consistent with envenomation.

Scavenging behavior has been documented in seven species of *Crotalus* (DeVault and Krochmal, 2002), but to our knowledge this is the first report of scavenging by *C. molossus*. Our observation is not unexpected; pit vipers in general are among the snakes most likely to scavenge because their "strike and release" mode of prey acquisition dictates they locate and consume envenomated dead prey (DeVault and Krochmal, 2002). Furthermore, rattlesnakes are attracted to the odors of decomposition even when carrion is not present (Cowles and Phelan, 1958), suggesting that scavenging is more widespread among this ge-

nus than available reports would indicate. It is thus likely that most, if not all species of *Crotalus* will consume carrion if available (Gillingham and Baker, 1981), although additional field observations and experimental studies are required for confirmation.

ACKNOWLEDGMENTS

The field assistance of Lewis Medlock was greatly appreciated. Linda Epps and the inter-library loan staff at Sul Ross State University are thanked for obtaining literature.

LITERATURE CITED

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ARTICLES

A herpetofaunal survey of Boyer Chute National Wildlife Refuge,
Washington County, Nebraska

Kyle A. O'Connell and Dennis M. Ferraro
School of Natural Resources
University of Nebraska Lincoln
Lincoln, Nebraska 68007

ABSTRACT: A herpetological survey was conducted between the months of May and July 2008 at Boyer Chute National Wildlife Refuge in Washington County, Nebraska. The survey investigated general species diversity and abundance. This survey will serve as baseline data for future comparisons of the refuge, and also assesses population numbers in regards to the heavy amount of human disruption of the Boyer Chute National Wildlife Refuge area.

KEY WORDS: Boyer Chute NWR, herpetological survey, amphibians, reptiles, turtles, Nebraska

INTRODUCTION

Historically the Missouri River weaved and braided through multiple channels. Between the late 1800s and early 1900s the river became fixed in its current position. The area that is now Boyer Chute National Wildlife Refuge, located 3 miles east of Fort Calhoun, Nebraska, was once an aggregation of sand and sediment left by the Boyer River. When the Missouri River migrated to its present location it cut a channel, or chute, through the sediment. In 1937, the Army Corp of Engineers blocked off the upstream end of the chute to improve the flow of the main channel. Small amounts of water were allowed to enter but sediment built up and trees took over the area below the dam. In 1993, as part of the region-wide Missouri River Stream bank Stabilization Project, work was begun to restore Boyer Chute to its original state. Efforts were called The Boyer Chute Restoration Project. In 1994, the 2.5-mile stretch was excavated and reinforced. Native vegetation was replanted and corn and soybean fields were converted back to native prairie and wetlands. Due to the efforts of the US Army Core of Engineers, the Papio-Missouri River Natural Resources District, and the US Fish and Wildlife Service, 3350 acres have been restored to their native state (USFWS, 2008). The focus of this investigation was to conduct the first survey of herpetofauna within Boyer Chute National Wildlife Refuge and to determine the species composition and habitat selection.

MATERIALS AND METHODS

A herpetological survey was conducted at Boyer Chute National Wildlife Refuge (Boyer Chute) to identify species composition, diversity and location of amphibians, reptiles, and turtles in Boyer Chute. Surveys were conducted in 2008 on the dates of 21-23, 26, and 31 of May: 1, 7-8, 14-15, 21, and 29 of June: as well as the 3 and 4 of July. Boyer Chute encompasses restored wetland, planted tallgrass prairie, riparian floodplain forest, streams, and river habitats.

Survey methods included walking transects and conducting visual searches between the hours of 0900 and 2100. This method accounted for approximately 65 person hours. Visual searches were conducting while driving on roads within the Reserve between the hours of 0800 and 1100 and 1800 and 2100. Approximately 7 person hours were spent road cruising. A total of 37 cover boards were placed at 3 sites (Figure 1) and checked once weekly usually between the hours of 1000 and 1200. Each cover board was approximately 1m x 1m and constructed of corrugated galvanized metal. One cover board was placed in each of the previously mentioned habitats (wetland, forest, and prairie) Site 1 was on the south side of the park primarily consisting of well drained riparian forest bordered by prairie and a creek. Site 2 bordered the southwest corner of the island and consisted of floodplain surrounded by the chute and prairie. Site 3, lying just north of site 2, was spread through riparian forest

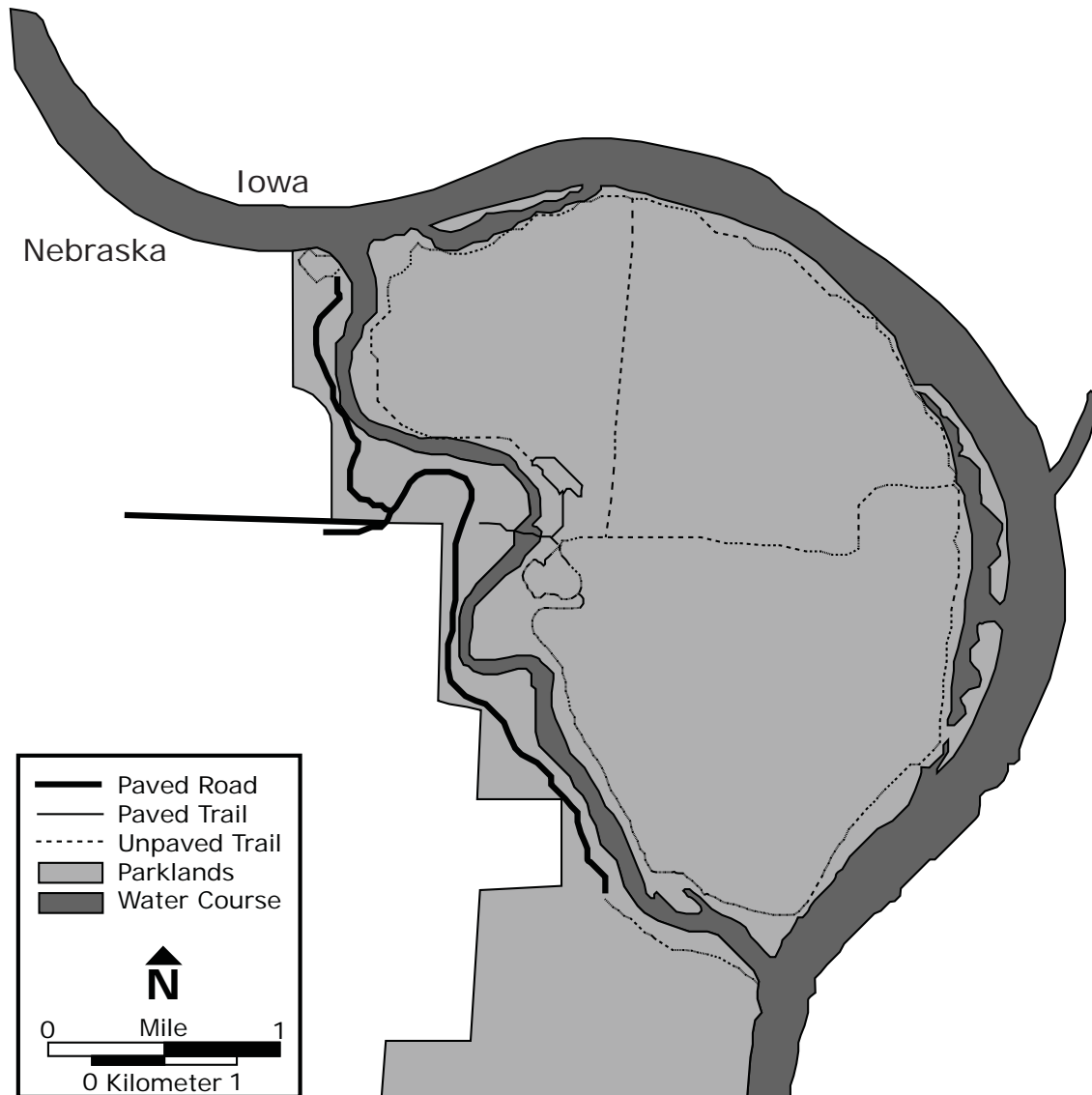


Figure 1. Boyer Chute National Wildlife Refuge.

and prairie edge habitat. Approximately 21 person hours were spent checking artificial cover. Natural cover was investigated during the previously cited search time (transects and visual searches). At the start of each day the following data was collected: time and date, air temperature, ground temperature, percent relative humidity, wind speed, at one meter above ground level, and sky conditions. Air temperature, percent relative humidity and wind speed were measured using a Kestrel 1000. Wind speed was measured to $\pm 3\%$. Air temperature and percent relative humidity were measured to the tenth degree. Ground temperature was measured using the Extech Pocket IR Thermometer measured to the nearest degree with an error of 2.5%.

At each site of capture, the time, ground temperature, snout-vent-length (SVL), and Global Positioning System measurements (Latitude/Longitude) were recorded. Global Positioning System measurements were taken with a Garmin eTrex Legend™. Shannon's Index was used to measure diversity and evenness.

RESULTS

Thirteen species were recorded during this survey. A total of 79 individuals were caught or sighted. Auditory cues of many more anurans were noted during the survey. Table 1 lists all the individual species that were identified or caught. *Plestiodon septentrionalis* was the most common reptile and *Apalone*

Table 1. A list of species identified and number of individuals caught and recorded.

Amphibia	
<i>Anaxyrus woodhousii</i>	7
<i>Anaxyrus americanus</i>	2
<i>Lithobates pipiens</i>	?
<i>Lithobates blairi</i>	3
<i>Lithobates catesbeianus</i>	2
<i>Hyla chrysoscelis</i>	?
<i>Acris blanchardi</i>	8
<i>Pseudacris maculata</i>	5
Chelonia	
<i>Chrysemys picta</i>	2
Unknown Turtle	1
<i>Apalone</i> sp.....	9
Reptilia	
<i>Plestiodon septentrionalis</i>	10
Unknown Skink.....	2
<i>Storeria dekayi</i>	3
<i>Thamnophis</i> sp.	6

sp. were the most common turtle. Of all but *Hyla chrysoscelis* and *Anaxyrus woodhousii*, amphibian populations were too high to be individually counted. According to the University of Nebraska-Lincoln state museum records there is the possibility of 26 reptile species (including turtles) and fifteen amphibian species at the refuge. Records indicate the common herpetofauna typically includes the Common Snapping Turtles (*Chelydra serpentina*), False Map Turtles (*Graptemys pseudogeographica*), Softshells (*Apalone* sp.), Northern Water Snakes (*Nerodia sipedon*), Bullsnares (*Pituophis catenifer*), and Garter Snakes (*Thamnophis* sp.). This investigation found only *Apalone* sp. and *Thamnophis* sp., the Softshells and Garter Snakes. Common amphibians are listed as Spadefoots (*Spea bombifrons*) and Leopard Frogs (*Lithobates blairi* or *pipiens*). We found many *Lithobates* spp. as well as *Acris blanchardi* and *Pseudacris maculata* but no *Spea bombifrons*.

Using population numbers both estimated and measured, we measured the Shannon diversity index for Boyer Chute. The results are as follows. Shannon's diversity index (1-H) was 0.619. Due to large populations of some amphibian species, species evenness was 0.6514.

ENVIRONMENTAL CONDITIONS

For the purpose of establishing a baseline data set for reference of future studies, the following data has been included. Weather in May was wet and cool. The mean temperature was 16.1 °C, 1.2 degrees below normal. The middle of the month was especially cool and relatively dry. Very little rain fell until 21 May. However, for the following 9 days there was measurable precipitation adding up to 12.4 centimeters. This was the second longest period of precipitation for the month of May on record.

Weather in June was wet with close to normal temperatures. The average temperature was 22.1°C, just 0.2 degrees below normal. There were no unusual temperature extremes. Precipitation was frequent. The monthly total was 24.2 centimeters, 14.4 centimeters above normal. This made it the sixth wettest June on record. The heaviest rain was 5.7 centimeters on 11 June with three other days totaling above an inch. Rainfall for both May and June was 40.3 centimeters, breaking the record set in 1958.

The average temperature for the month of July was 25.1°C. There were no temperature extremes. Precipitation was 8.0 centimeters. This was 1.8 degrees below normal (National Weather Service, 2008).

DISCUSSION

Compared to surveys conducted in Nebraska (Collins and Collins, 1991; Fogell, 2010; Hudson, 1956), a comparable number of both individuals and species of amphibians were found at Boyer Chute. With the exception of the American toad, Plains Spadefoot, and Barred Tiger Salamander, (*Anaxyrus americanus*, *Spea bombifrons*, *Ambystoma mavortium*), high numbers of amphibians were found. One adult Cope's Gray Treefrog (*Hyla chrysoscelis*) was found, although at least 10 larvae were found. Perhaps by using elevated artificial refugia constructed of PVC more could have been found (Boughton et al, 2000; Zacharow et al., 2003). Froglogger devices could also be used in spring to assess population numbers of these anuran species. Frogloggers would be most effective between late April and mid-June, during the peak-breeding season for these three frog species. In the future, seining could supplement shore netting and hand gathering for all the amphibian species. Corn (2000) found that frogloggers are a more efficient tool for locating rare amphibian species than manual call

Table 2. Estimated Species Populations and Shannon's Diversity Index.

<i>Taxon</i>	<i>Individuals Estimated (Measured)</i>	<i>(pi) Relative Abundance of Individuals</i>	<i>Cumulative # of Individuals</i>	<i>pi (lnpi)</i>
<i>Anaxyrus woodhousii</i> *	200	.0590	200	-.1670
<i>Anaxyrus americanus</i>	(3)	.0008852	203	-.006222
<i>Lithobates pipiens</i>	1050	.3098	1253	-.3630
<i>Lithobates blairi</i>	1050	.3098	2303	-.3630
<i>Lithobates catesbeianus</i>	100	.0295	2403	-.1040
<i>Hyla chrysoscelis</i>	(5)	.001475	2308	-.009622
<i>Acris blanchardi</i>	525	.1549	2833	-.2889
<i>Pseudacris maculata</i>	425	.1254	3258	-.2604
<i>Chrysemys picta</i>	3	.0008852	3262	-.006223
<i>Apalone mutica/spinifera</i>	(9)	.002656	3270	-.01575
<i>Plestiodon septentrionalis</i>	(10)	.002950	3280	-.01719
<i>Storeria dekayi</i>	(3)	.0008852	3283	-.006223
<i>Thamnophis radix/sirtalis</i>	(6)	.001770	3289	-.01122

* *A. woodhousii* - Shannon diversity index $(1-H) = 0.619$; Species evenness = 0.6514

surveys, although they are subject to equipment failure and are costly. Because amphibian larvae are susceptible to more environmental factors than adults, a concise larvae survey is the most accurate way to assess population health. This could be done by seining different times of day between early May and late June. When thermoregulating, amphibian larvae can be found in different parts of water bodies so it is important to seine during various times of day.

Comparing to historical data of Washington County, five species of turtles are known to exist in the area. The refuge is thought to contain: *Chelydra serpentina*, *Chrysemys picta*, *Graptemys pseudogeographica*, *Apalone spinifera*, and *Apalone mutica*. When water was abundant in June, *Apalone* sp.) were seen regularly at the mouth of the chute and the stream at the south end of the park. Without turtle nets, however, none were captured and therefore a differentiation of species could not be made. Two *Chrysemys picta* were identified in temporary waterways, and others were spotted along the bank of the faster-moving chute.

High densities of the Northern Prairie Skink (*Plestiodon septentrionalis*) were recorded during our survey. There is the possibility that other species of lizards could exist in Boyer Chute; according to historic Nebraska range

maps, the Six-lined Racerunner (*Aspidoscelis sexlineatus*) also likely exists in the refuge, though none were caught nor observed. The additional usage of drift fencing and pitfall traps, may furnish useful data regarding other lizard species. Drift fences might be most effective on the island where the skinks were found. Areas with sparse vegetation, sandy soil, and forest/grass edge would be best for drift fences and pitfall traps. Areas on the north and west side of the island best represent this habitat type.

Compared to similar areas in Nebraska, snake abundance and diversity was very low on Boyer Chute (Fogell, 2010). This might be attributed to a variety of factors such as weather and environmental conditions, temperature requirements; prey availability and foraging area, available cover as refuge and hibernacula sites.

High numbers of Garter Snakes were found (*Thamnophis* sp.), although a distinction was not made between the Plains Garter Snake (*T. radix*), and the Common Garter Snake (*T. sirtalis*). Both species have been found in Omaha (Douglas County; Iverson, 1975). In this study, these species were always captured in or within proximity to permanent wetlands. Here, they likely found cover from predators, basking areas, and abundant prey sources (tadpoles, minnows, worms) (personal ob-

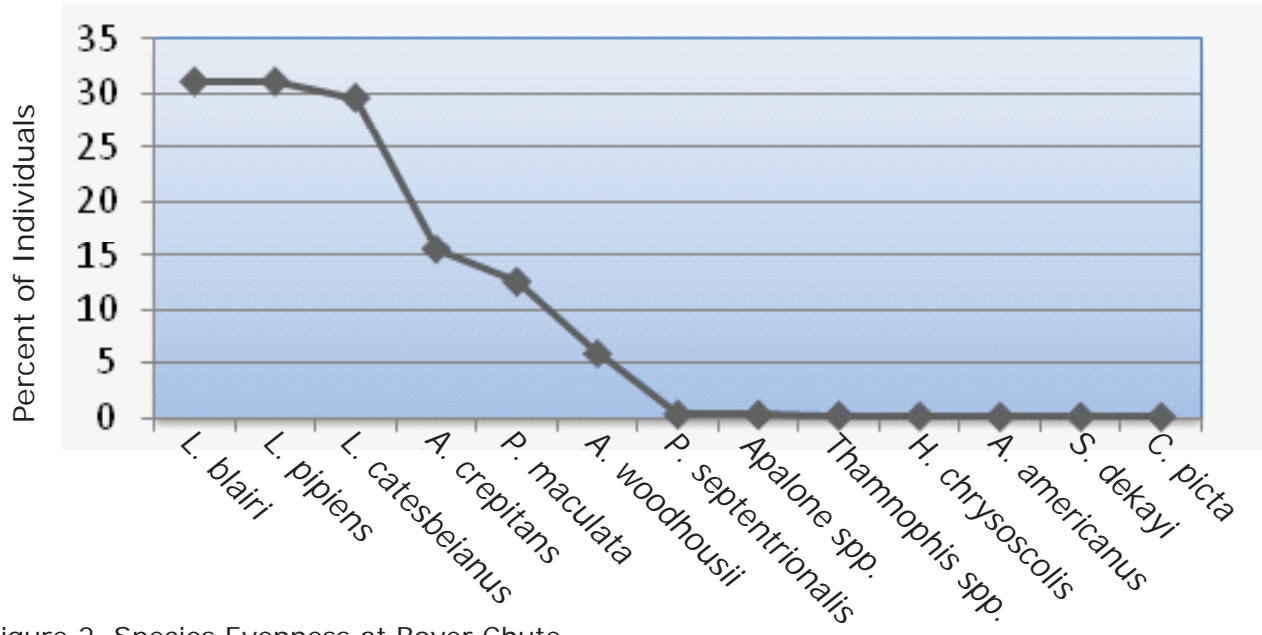


Figure 2. Species Evenness at Boyer Chute

ervation). Garter Snakes have been shown to brumate in any subterranean cavity deep enough to avoid freezing winter temperatures (Carpenter, 1955).

Brown Snakes (*Storeria dekayi*) were found, always under artificial cover. Individuals were usually encountered in edge areas, perhaps because of the shorter grass and more cover from fallen logs. There were also more snails and slugs, the main diet of the brown snake, in the moister substrate under the logs.

Continued survey work and research is needed at Boyer Chute National Wildlife Refuge. Extensive amphibian, turtle and reptile sampling needs to be done and compared to the species and population numbers we found in this survey. Seining and hand gathering adult amphibians and conducting a larval survey has the potential to be productive. Turtle sampling using two-sided mesh nets (hoop nets) staked down in different aquatic habitats (fast-moving chute, slow-moving back-waters, pond or lake), or by using floating nets, would potentially provide significant information about these chelonians. To better survey for lizards, drift fencing (steel or aluminum= 45cm in width) and pitfall traps (three gallon plastic buckets) on the west and north side of the island could help to clarify the species composition of the Refuge, and might yield more precise population numbers. Tall mesh or cloth drift fences (100cm in width) and funnel traps (mesh wire 90cm in length) might be used to better locate large snakes in the Refuge. Cov-

er boards may supply additional data, paying close attention to flood plain habitat. Between the dates 7–21-June, 8 cover boards at site two were submerged on the island flood plain between N.41 27' 28.5" W.95 57' 26.1" and N.41 27' 19.8 W.95 57' 23.5". Rodent sampling (aluminum small rodent traps) to find prey diversity and abundance might reveal important insights into the lack of large snakes on the refuge.

ACKNOWLEDGMENTS

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Seasonal activity, reproduction, and growth of the Northern Redbelly Snake, *Storeria occipitomaculata occipitomaculata* (Storer, 1839), from Pennsylvania

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ABSTRACT: We examined museum specimens of the Northern Redbelly Snake in Pennsylvania to determine the seasonal activity, reproductive cycles, clutch characteristics, and growth of this geographically widespread species in the United States. Seasonal incidence of captures during April-October was bimodal with most individuals having been captured in May and August. Testis length was greatest in late summer. Nearly all young were produced during July-August. Mean estimated clutch size was 10.6 young, and clutch size co-varied positively with female body size. Reproduction was annual in females. Monthly distribution of body sizes suggested that sexual maturity in both sexes was reached at approximately one year of age and females produced young for the first time at two years of age. Minimum, mean, and maximum adult body sizes were larger in females. Data from Pennsylvania populations corroborate rangewide patterns of latitudinal or local variability in traits such as activity season, clutch size, and body size and reduced variability in other traits such as annual frequency of clutch production, parturition season, and growth to sexual maturity.

INTRODUCTION

The Redbelly Snake, *Storeria occipitomaculata* (Storer, 1839), is a geographically widespread and polytypic species in the eastern United States (Conant and Collins, 1998). The Northern Redbelly Snake, *S. o. occipitomaculata* (Storer, 1839), found throughout much of the eastern United States and southeastern Canada, is the most widespread of the three recognized forms. Seasonal activity or aspects of reproduction have been discussed for the Northern Redbelly Snake across Pennsylvania (Hulse et al., 2001) and for the species generally across much of its geographic range (Bishop, 1927; Ditmars, 1936; Blanchard, 1937; Klemens, 1993; Mitchell, 1994; Trauth et al., 1994; Palmer and Braswell, 1995; Harding, 1997; Minton Palmer and Braswell, 1995).

Using a large series of specimens we examined patterns in seasonal activity, reproduction, and growth of this species from Pennsylvania to enhance the understanding of these aspects of its ecology in Pennsylvania and their relation to those across its geographic range in eastern North America.

MATERIALS AND METHODS

Three hundred and forty six museum speci-

mens of the Northern Redbelly Snake collected during 1899-2004 from 43 counties in Pennsylvania in the Carnegie Museum of Natural History were examined to determine seasonal activity. A sub-sample of 252 specimens collected during the same time period from 34 counties was used to determine reproductive biology and growth of the species in Pennsylvania. Body lengths were measured as snout-vent length (SVL). Length and mid-section width of the right testis were measured with calipers. The lengths of the largest follicles were measured were measured with calipers, and counts were made to estimate clutch sizes. F-tests were used to test for differences in variance, and two-tailed t-tests were used to test for differences in the mean. Statistical significance was recognized at an alpha level of 0.05.

RESULTS

Seasonal activity.—Surface movements of 346 individuals occurred during April-October, with the highest numbers of captures having occurred in May and August (Figure 1). Number of captures decreased abruptly thereafter.

Testicular size.—Monthly changes in testis dimensions revealed a rapid increase beginning

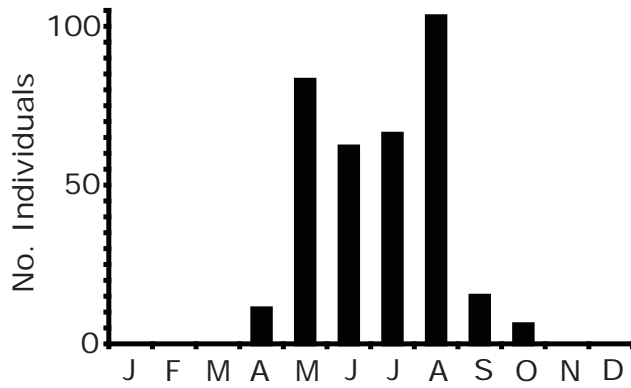


Figure 1. Monthly number of captures of 346 Northern Redbelly Snakes (*Storeria o. occipitomaculata*) during 1899-2004 from 43 counties in Pennsylvania.

in the spring and having peaked by July or August (Figure 2).

Ovarian cycle.—Follicular growth was underway in April (Figure 3). Nearly all gravid females had ovulated by May and given birth during July-August (Figure 3). Small ovarian follicles were present in some females throughout the breeding season, which indicated an overwhelming even if not absolute annual reproduction in this sample. The distribution of follicle size was indicative of annual clutch production in Pennsylvania.

Clutch characteristics.—Counts of developing young in the oviducts provided a mean estimated clutch size of 10.6 ± 2.81 ; range = 4-17; $N = 71$). Excluded from this dataset was a 21.0 cm SVL female apparently captured during parturition with two fully formed young remaining to be delivered. A 26.9 cm SVL female was found to have 15 ovarian follicles, the largest of which measured 8.2 in diameter. Litter size significantly co-varied with female body size (Figure 4).

Body size.—The smallest sexually mature male measured 14.0 cm SVL, and the smallest sexually mature female measured 16.0 cm SVL (Table 1). Likewise, the largest sexually mature male (28.3 cm SVL) was smaller than the largest sexually mature female (30.2 cm SVL) (Table 1). Significant differences existed in the variance ($f = 0.6777$; $df = 110$; $p < 0.02$) and mean ($t = -6.7578$; $df = 220$; $p < 0.001$) of the body sizes of 111 males (20.2 ± 2.59) and 116 females (22.8 ± 3.15).

Growth and maturity.—Parturition occurred

for nearly all females during July-August and all but ceased in September. Two fully formed fetuses from a litter size of 10 produced by a 30.2 cm SVL female measured 6.3 and 6.6 cm SVL. The smallest young of the year was collected in October and measured 10.1 cm SVL (Figure 5). The monthly distribution of body sizes (Figure 5) were such that the minimum body sizes of males (14.0 cm SVL) and females (16.0 cm SVL) would be reached at approximately 11 and 13 months of age, respectively. If this were true, then females would be about two years of age when they produced their first litter.

DISCUSSION

Examination of a large museum series over a long period of collecting provided an opportunity to provide detail to selected aspects of the ecology of Pennsylvania populations of the Northern Redbelly Snake and to interpret these findings with the larger context of regional variation of this geographically widespread species.

Duration of seasonal activity of the Northern Redbelly Snake in Pennsylvania was April-October (Hulse et al., 20011; this study) and typified the shorter activity seasons of northern populations: March-October in New York (Wright and Wright, 1957), April-October in Connecticut (Klemens, 1993), April or May-October or November Great Lakes (Harding, 1997), April-September in Ohio (Conant, 1938), May-October in Wisconsin (Vogt, 1981), April-October in Indiana (Minton, 2001), March-October in Virginia even if individuals could be found at other

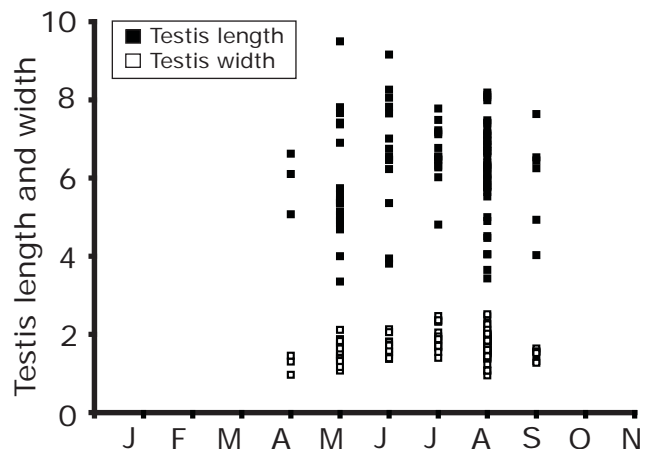


Figure 2. Monthly distribution of testis size of 105 Northern Redbelly Snakes (*Storeria o. occipitomaculata*) from Pennsylvania.

Table 1. Means, followed by ranges in parentheses, of adult body sizes (cm SVL), body size dimorphism, clutch sizes, and birthing season ranges, followed by peak month or months in parentheses, of the Redbelly Snake, *Storeria o. occipitamaculata*. * = converted by Semlitsch and Moran (1984).

<i>Location</i>	<i>Male</i>	<i>Female</i>	<i>M:F body size</i>	<i>Clutch size</i>	<i>Birthing Season</i>
Arkansas ¹	-	-	-	7.6 (5-9)	-
Connecticut ²	16.8 (15.4-19.0)	19.8 (17.4-23.1)	0.85	8 (5-9)	-
Great Lakes ³	-	-	-	7-8 (1-21)	7-9
Indiana ⁴	15.9, 17.8, 17.9	19.8 (18.0-21.6)	0.87	-	-
Kansas ⁵	-	-	-	8 (1-18)	7-9
Michigan ⁶	*18.7 (16.9-22.3)	*19.4 (16.9-24.5)	0.96	7.2 (1-13)	7-9 (8)
Minnesota ⁷	-	-	-	15.5 (1-21)	-
New York ⁸	-	-	-	8.1 (6-13)	-
North Carolina ⁹	17.1 (12.7-24.7)	-	-	7.0 (2-16)	6-8
Nova Scotia ¹⁰	-	7.4 (3-12)	8-9	-	-
Pennsylvania ¹¹	21.3 (17.0-25.8)	24.6 (18.5-29.8)	0.87	11.5 (4-21)	7-9 (8)
Pennsylvania ¹²	20.2 (14.0-28.3)	22.8 (16.0-30.2)	0.89	10.6 (4-17)	7-9(7-8)
Pennsylvania ¹³	21.8 (18.4-24.8)	25.0 (19.7-31.8)	0.87	-	8
South Carolina ¹⁴	15.0 (11.8-18.4)	15.7 (12.6-21.1)	0.96	9.0 (2-15)	6-8
Virginia ¹⁵	18.0 (15.5-25.2)	20.2 (15.2-29.5)	0.89	7.5 (2-12)	7-8
Wisconsin ¹⁶	13.7 cm smallest	15.1 cm smallest	-	-	-
	-	-	-	-	8-9

¹Trauth et al., 1994; ²Klemens, 1993; ³Harding, 1997; ⁴Minton, 2001; ⁵Collins et al., 2010; ⁶Blanchard, 1937; ⁷Nelson, 1969; ⁸Bishop, 1927; Ditmars, 1936; ⁹Palmer and Braswell, 1995; ¹⁰Gilhen, 1984; ¹¹Hulse et al., 2001; ¹²this study; ¹³Meshaka, 2010; ¹⁴Semlitsch and Moran, 1984; ¹⁵Mitchell, 1994; ¹⁶Vogt, 1981

times of the year (Mitchell, 1994), March-November in Kansas (Collins et al., 2010), late February to late Fall in Arkansas (Trauth et al., 2004), year-round in North Carolina (Palmer and Braswell, 1984), and nearly continuous South Carolina (Semlitsch and Moran, 1984).

Based upon museum collections, our data indicated a bimodal seasonal activity pattern whose first peak in May was smaller than the second peak in August. This finding conflicts with observations by Hulse et al. (2001) for Pennsylvania generally and for a single site in western Pennsylvania where snakes were systematically trapped during May-September for seven years (Meshaka, 2010). These latter two studies reported a unimodal pattern to the seasonal activity of this snake, which was also noted for Connecticut (Klemens, 1993), North Carolina (Palmer and Braswell, 1995), and South Carolina (Semlitsch and Moran, 1984). We surmise that the pattern derived from our collection was more an artifact of collecting ef-

fort than an actual reflection of the snake's activity pattern.

Young were produced annually in Pennsylvania (Hulse et al., 2001; this study), South Carolina (Semlitsch and Moran, 1984) and Michigan (Blanchard, 1937), and a parturition season during Mid-summer to early fall, with a peak in late summer, typified that of Pennsylvania populations and of those across its geographic range (Table 1). However, much more variable than this trait was mean litter size; 10.6 (this study) to 11.5 (Hulse et al., 2001) in Pennsylvania were second only to that of Wisconsin (Table 1). Elsewhere, mean litter sizes ranged 7-9 young (Table 1) with no discernable geographic pattern. However, in light of a significant and positive association between litter size and female body size in Pennsylvania females (Hulse et al., 2001; this study) and the largest sized females in any study, it was not surprising that litter sizes were large in Pennsylvania (Table 1).

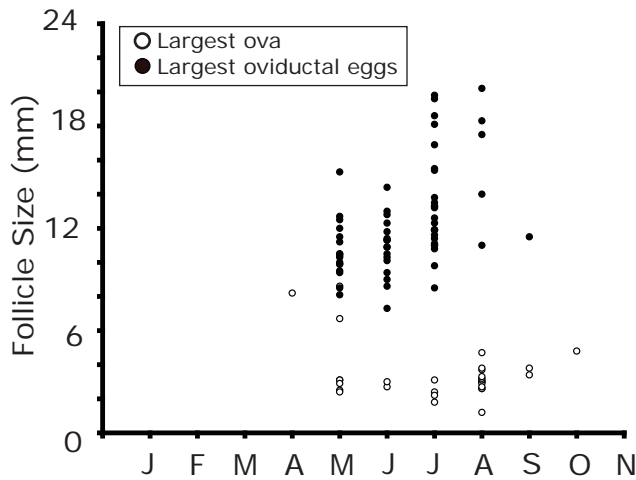


Figure 3. The annual ovarian cycle of 107 Northern Redbelly Snakes (*Storeria o. occipitamaculata*) from Pennsylvania.

Like those of South Carolina (Semlitsch and Moran, 1984), Redbelly Snakes in Pennsylvania reached sexual maturity at about one year of age, and females of these two sites and Michigan (Blanchard, 1937) produced their first litters at two years of age. However, minimum and mean adult body sizes varied along a latitudinal cline, such that among populations from Virginia northwards, minimum body size at sexual maturity of females was consistently larger (approx. 16-20 cm SVL) than that of North Carolina and South Carolina (approx. 13 cm SVL) (Table 1). Likewise, mean adult female body sizes tended to be of a similar size (approx. 20 cm SVL) that was noticeable larger than those of North and south Carolina (approx. 16-17 cm SVL) (Table 1). However, strikingly different were the mean values from Pennsylvania females that ranged approximately 23-25 cm SVL (Table 1). Although Pennsylvania females followed the trend of larger body size in the North, they were too large for body their body size to be fully explained by latitude.

A similar pattern existed among males. Minimum body size at sexual maturity of males was 13.7- cm SVL from Virginia northward and was 12.0 cm SVL in South Carolina (Table 1). Mean body size of adult males ranged approximately 16-22 cm SVL from Virginia northward but was only 15.0 cm SVL in South Carolina (Table 1). Also, despite a northward trend in male body size largest males on average were found in Pennsylvania (Table 1).

Mean body size of males was consistently smaller than that of females across the geographic range of the species with the nota-

ble exception of Michigan and South Carolina whose body size dimorphism was weakly developed.

The two measurements of hatchlings from a single female in our study were similar to the 6.1 cm SVL mean value of hatchlings from South Carolina (Semlitsch and Moran, 1984) but our sample size was too small to make meaningful comparisons.

Pennsylvania populations of the Northern Redbelly Snake typified the shorter duration of activity seasons and overall larger adult body sizes of northern populations; however, the exceptionally large adult body sizes of Pennsylvania individuals indicated that latitude alone was insufficient to explain what otherwise was a geographic trend. Typical of the species rangewide, Pennsylvania females produced single clutches each year during late summer and very early fall. Growth was rapid, with production of first litters at the age of two among Pennsylvania Redbelly Snakes was also found in northern and southern sites. Only clutch size did not fit either a geographic trend a pattern of rangewide consistency. More so than any of the other traits examined in this study, clutch size was the most variable and least predictable, leading us to look to site-specific differences or temporal differences in prey availability as the most likely explanations for the wide range in litter size variability in this species.

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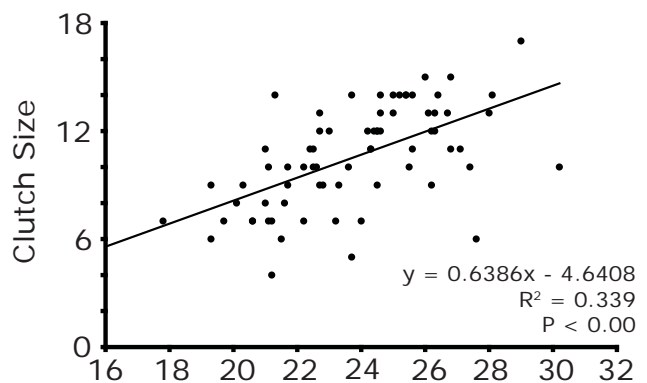


Figure 4. The relationship between clutch size and body size in mm SVL of 71 female Northern Redbelly Snakes (*Storeria o. occipitamaculata*) from Pennsylvania.

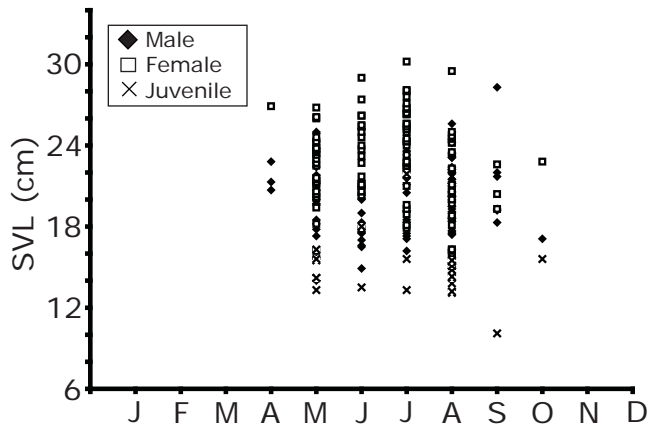


Figure 5. Monthly distribution of body sizes of male (n= 107), female (n= 107), and juvenile (n= 24) Northern Redbelly Snakes (*Storeria o. occipitomaculata*) from Pennsylvania.

former Director of the State Museum of Pennsylvania, for his strong support of curatorial research endeavors.

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About the Kansas Herpetological Society

The KHS 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 the herpetofauna of Kansas in particular; and to achieve closer cooperation and understanding between herpetologists, so that they may work together in common cause. All interested persons are invited to become members in the Society. Membership dues per calendar year are \$15.00 (U.S., Regular), \$20.00 (outside North America, Regular), and \$20.00 (Contributing) payable to the KHS. Send all dues to: KHS Secretary, 5438 SW 12th Terrace Apt. 4, Topeka, Kansas 66604.

KHS Meetings

The KHS holds an annual meeting in the fall of each year. The meeting is, minimally, a two day event with lectures and presentations by herpetologists. All interested individuals are invited to make presentations. The annual meeting is also the time of the Saturday night social and fund-raising auction.

Field Trips

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.

Editorial Policy

The Journal of Kansas Herpetology, currently 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 1st 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 comprehension, the standardized common names used in *JKH* will follow those used in *Amphibians, Reptiles, and Turtles in Kansas* (Collins, Collins, and Taggart, 2010).

Reprints & Artwork

JKH publishes original peer-reviewed submissions under the Articles and Notes sections. Upon review, acceptance, and publication, Portable Document File (PDF) copies are provided gratis to the author on request. Figures and photographs submitted with manuscripts are welcome, but must be sized appropriately by authors for this journal's column sizes (i.e., 19.5 or 39 picas wide). Particular attention should be paid to reduction of text on the figures.

Societal Awards, Grants, and Recognitions

Distinguished Life Members

Individuals selected as *Distinguished Life Members* are chosen by the KHS Executive Council based on their distinguished published research papers on Kansas herpetology.

Bronze Salamander Award

Established in 1987, this Award is presented to those individuals whose efforts and dedication to the Kansas Herpetological Society go far beyond the normal bounds. The recipients of this Award have given exemplary service to the KHS, and are presented with an elegant bronze sculpture of a Barred Tiger Salamander.

The Howard K. Gloyd - Edward H. Taylor Scholarship

Established in 1993, *The Gloyd-Taylor Scholarship* is present annually by the Kansas Herpetological Society to an outstanding herpetology student. The scholarship is a minimum of \$300.00 and is awarded on the basis of potential for contributing to the science of herpetology. Students from grade school through university are eligible.

The Alan H. Kamb Grant for Research on Kansas Snakes

KHS members only are eligible to apply for *The Alan H. Kamb Grant for Research on Kansas Snakes*, which was established in 2001. The recipient of the grant will be selected by the KHS Awards Committee. A minimum award of \$300 is given annually.

The Henry S. Fitch - Dwight R. Platt Award for Excellence in Field Herpetology

KHS members only are eligible to apply for *The Henry S. Fitch - Dwight R. Platt Award for Excellence in Field Herpetology*, which was established in 2010. The recipient of the grant will be selected by the KHS Awards Committee. The award will be given annually when sufficient funds have been raised to establish a trust.

The George Toland Award for Ecological Research on North American Herpetofauna

This CNAH Award was established in 2008 in recognition of the scientific career of George Fredrick Toland, whose life-long interest in herpetology was passed on to so many of his students. The recipient of this award will be selected by the KHS Awards Committee. A minimum award of \$200 is given annually at the end of the KHS meeting.

The Suzanne L. & Joseph T. Collins Award for Excellence in Kansas Herpetology

This CNAH Award was established by Westar Energy in 1998 in recognition of the achievements of Suzanne L. Collins and Joseph T. Collins. In even years, the Award is bestowed upon an individual who, in the preceding two calendar years, had published a paper of academic excellence on native species of Kansas amphibians, reptiles, and/or turtles, and in odd years, the Award is given to an individual who, in a juried competition, took the best photograph of a Kansas amphibian, reptile, or turtle. *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.

KANSAS HERPETOLOGICAL SOCIETY
ATTN: DR. EVA A. HORNE, TREASURER
DIVISION OF BIOLOGY - ACKERT HALL
KANSAS STATE UNIVERSITY
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