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Front Cover: Ring-necked Snake
(*Diadophis punctatus*) by Tiffany A. Jehle

Collinsorum

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KHS 2017 Field Trips	
Spring	
<i>Beaumont, KS / Elk County</i>	21-23 Apr.
Summer	
<i>Ellis/Russell counties</i>	21-23 Jul.
Fall	
<i>Kanopolis State Park</i>	29 Sep. - 1 Oct.

<p>You can now pay your 2017 dues On-line...</p> <p>Visit the KHS Website cnah.org/khs</p> <p>...now, and never miss out!</p>
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LETTER FROM THE PRESIDENT

Dear KHS Members:

As we head into this new year of Kansas Herpetology, I decided to reach out and communicate directly with our members, old and new. First off, thank you for the continued support and participation that makes KHS one of the longest lived and most productive regional herp societies in the country.

I'd like to encourage you to continue this tradition and join us for at least one of the three field trips that we will host this year! Travis Taggart (Field Trip Chair) is working to ensure a most enjoyable and educational experience is had by all. So look ahead in this issue of *Collinsorum* for more details, and make plans to join us!

Following that, the next bit of business to which I'd like to attend regards a changing of the guard on several committees, as well as welcoming new (and old) faces to the Executive Council! First, I'd like to formally welcome Lynnette Sievert to the position of President-elect, having emerged victorious from the first contested election that KHS has seen in several years. Welcome, Lynette! I look forward to getting to know you better, and working together in the next two years! Hopefully this also means that Emporia State University will continue to make their presence known at Field Trips and the Annual Meeting. The second change in EC that I'd like to acknowledge is the transition of Eric Kessler to Immediate Past-President, replacing Dan Fogell who stepped back into the position last year when it was abdicated by Walter Meshaka. Thank you, Dan, for stepping up and helping, even after your commitment of service had expired! And thank you, Eric, for presiding over the KHS in 2016 and hosting a highly successful meeting. My impression was that it was enjoyed by all, and I personally felt that both the paper sessions and the auction were top notch! Last, and certainly not least, in the EC transitions in 2017 is the stepping down of Curtis Schmidt as Editor, and Travis Taggart replacing him. Curtis, thank you for holding down the fort and producing top notch journals through the last several years! Travis,

welcome back to the editorship! I look forward to working with you this year!

Additionally to the EC changes, there are a few alterations to the Committee Chairs. As President, it is my constitutional duty to appoint committee chairs every year, and I've given great deliberation in these matters. First, Dan Carpenter is stepping down as Chair of the Nominations Committee. Dan has ably guided that boat for several years, and it's bittersweet to see him step down. Replacing Dan as Chair of the Nomination Committee will be Brent Schulze, from Denver, Colorado. Brent sits on the steering committee for Colorado Partners for Amphibian and Reptile Conservation, and I think he'll serve KHS splendidly as the Committee Chair. Secondly, Serena Randolph of Friends University has agreed to my request of Chairing the Media and Publicity Committee. Serena will work closely with myself and Travis to produce press releases to the media across Kansas advertising our field trips and annual meeting to the public, as well as providing follow-up releases discussing the (presumed) success of the events.

Finally, plans are underway for the 44th Annual Meeting of the KHS! It will be in Wichita, over the weekend of 4 & 5 November. Currently, Friends University is slated to host the paper sessions, and we will adjourn to the Sedgwick County Zoo for yet another rousing, highly successful auction! More ideas are in the works, such as possibly hosting a pre-meeting workshop or micro-conference, and inviting local food trucks to Friends U. to provide lunch. For those of you who met with us in Wichita for the 40th Annual Meeting, you'll be pleased to know that the exotic looking, uniquely flavored pastries from the Donut Whole will make another appearance as well! The Suzanne L. and Joseph T. Collins Award for Excellence in Kansas Herpetology will be awarded for the best photograph of a species of amphibian or reptile native to Kansas, complete with a check for \$1,000. So get out there, snap those shutters, and bring your best prints to Wichita in November!

Please feel free to reach out to me with questions or ideas for the meeting, or KHS in general!

In my most sincere type,

Dexter R Mardis
KHS President 2017



KHS BUSINESS

Minutes of the 26 February 2017 KHS Executive Council Meeting

The executive meeting of the Kansas Herpetology Society was called to order at 2:25pm by President Dexter Mardis. The meeting was held at Willie's Bar & Grill in Eldorado, Kansas. In attendance were six Executive Council members (Dexter Mardis, Suzanne Collins, Lynnette Sievert, Kelley Tuel, and Travis Taggart) and two members (Dan Carpenter and Sarah Taggart). Executive Council members Eric Kessler and Daren Riedle were not in attendance. Standing Committee Chairpersons not in attendance were Dan Fogell, Serena Randolph, and Brent Schulze.

Past President's Report: Eric Kessler's report was provided by email. He stated that although the fall meeting was a Saturday only event, both meeting and auction were a success. We should consider using UMKC as a venue in the future.

Editor's Report: Travis Taggart: Issues on the 15th of the months of March, June, September and December. Submissions for the Journal are due by the end of the month preceding a new issue. The most recent print journal was mailed last week. There was discussion about including papers from the award winners into *Collinsorum*. Suzanne moved that we do this; it was seconded by Dexter. During discussion, we talked about including abstracts from the November meeting speakers into the December issues as well. The motion was Kamb-Grant and Toland award winners be required to submit results and/or a summary of research to *Collinsorum*. This would affect a candidate's eligibility for the award. The motion passed. Travis also brought up the point that previous Executive minutes were published in our journal. At some point in the past, we stopped doing that. He will start publishing those again. Also, herp counts will be back into the Journal as well.

Secretary's Report: Kelley Tuel: We currently have 68 paid members for 2017. We are in the process of putting the membership renewal online to the KHS Membership page. This would include accepting PayPal for renewals. It should be ready next week with an email announcement to the membership who provided their email addresses. Traditional mailings will go out to previous members who we do not have email addresses for. If everyone on our list renews, we would have approximately 200

members.

Treasurer's Report: Dexter Mardis for Daren Riedle: Our current balance is \$10,756.70 and our Savings/Investment Balance is \$21,876.89. Our expenses totaled \$2,635.17 from the Fall 2016 Annual Conference. This included food, rooms, event insurance, awards and miscellaneous. There were total deposits of \$4,895.35. The auction raised \$2,150.00; we had \$795.35 income from meeting registration.

Annual secretary expenses and *Collinsorum* expenses should be determined to help us set a budget. Secretary expenses include mailing the checks to Treasurer Daren and paying postage due costs for journal issues which are returned (because people haven't updated addresses when they move). The most recent issue of the *Collinsorum* cost \$762 which includes printing and postage.

Award Committee Report: Travis Taggart will talk to Ft. Hays State University about the possibility of producing the bronze salamander trophies.

Field Trip Chairperson Report: Travis Taggart: The 2017 Spring Trip will be to Elk County on April 21-23. We discussed the Beaumont Hotel for accommodations. They have rooms for a group rate available. They also have a camp area for tents and 11 RVs. We have permission to herp 3 ranches thus far.

The Summer Trip is tentatively scheduled for Ellis & Russell counties for July 21-23 during the new moon. Plans have not yet been made for the Fall Trip.

Media & Publicity Chairperson Report: Although not in attendance, Chair Serena Randolph communicated with Dexter. She is looking forward to working with KHS on this committee. Suzanne stated that the list of award recipients need to go out immediately following the Fall Meeting.

Nominating Committee Report: Previous Nominating Chair, Dan Carpenter, discussed how there are so many good choices for the Executive Board. We look forward to nominating dedicated and involved people.

Historian's Report: Suzanne Collins: Suzanne continues to collect newspaper clippings and photographs for KHS. We discussed the possibility of adding a "throwback" item to *Collinsorum* for fun. From an archival perspective, we are missing a copy of Special Publication Issue 1

which included two volumes with a species list of the state. These were published February 1976 and August 1977. If anyone has a copy, we would love one.

President's Proposals for 2017: Dexter Mardis:

Dexter will work to transition the new committee chairs. The Fall Meeting will be held in Wichita with the auction at the Zoo and the meeting at Friends University. There will be t-shirts with the Ring-necked Snake design. On Saturday, there will be donuts/bagels for breakfast and cookies/snacks in the afternoon. Food trucks on the Friends campus were discussed as a lunch option. Dexter asked for \$2,000 to cover the meeting. This would cover printing of the programs, t-shirts, food at the meeting, beer/snacks for the auction, etc. Suzanne made the motion for \$2,000 to cover the meeting. Travis seconded motion; motion passed.

NEW BUSINESS:

How could we boost attendance at the 44th Annual Meeting? There could be a workshop prior to the meeting or having an expert talk about stable/unstable populations from surrounding states. We could host a symposium with all speakers under a certain theme. There could also be a Friday night social.

Updates to KHS Constitution and By-Laws? Dexter has been working on updates. Changes

include combining the appointed Chairperson of Webmaster and Executive position of Editor to one position of "Publications Director," an executive position. Members can petition for changes with 10 signatures. Any changes need to be published in the September Journal with a vote from members at the Fall Meeting. *Is the print journal still relevant?* Discussion included offering a choice to members if they prefer to receive a print journal or digital copy. The printed copy every December costs more per copy than the quarterly issues we used to print because it has more pages. In 2012, we spent approximately \$1400 on three issues. We also talked about publishing general interest articles and announcements, plus the abstracts of the papers in the Journal, with reference to the entire paper online. This discussion was tabled for future discussion once we have more information regarding the cost of the issue that came out last week.

ANNOUNCEMENTS:

Our next face-to-face Executive meeting will be at the Fall Field Trip.

The meeting was moved and seconded for adjournment. Meeting adjourned at 4:35pm.

Respectfully submitted with edits 3/8/17 by Kelley Tuel, KHS Secretary.

Plan now to attend the
KHS 44th Annual Meeting

4-5 November 2017
Wichita, Kansas



Paper sessions/Keynote - Friends University



Auction - Sedgwick County Zoo

The KHS Spring Field Trip to be held in the Flint Hills of Elk County

When: 21-23 April 2017

Where: The 2017 Spring KHS Field Trip will be headquartered in Beaumont Hotel in Beaumont, Kansas. KHS members will gather as early as Friday evening (21 April 2017). KHS signs will be posted.

Field trip forays will be held in adjacent Elk County. KHS herpetofaunal counts will officially take place from 9:00am to 5:00 pm on Saturday (22 April 2017) and on Sunday morning (23 April 2017) from 9:00am to noon. Individuals wishing to participate should meet at the group campsite at Beaumont Hotel on both dates at 9:00am. More information is available at KHS 2017 Spring Field Trip - Kansas Herpetology Facebook Group.

KHS Field Trips are open to anyone interested in learning more about the Kansas herpetofauna. Participants need not be members to

participate, though they are certainly encouraged to join. So feel free to bring your family, friends, and social groups to enjoy a truly unique area of Kansas.

The Beaumont Hotel has set aside 9 rooms @ \$99+tax/night. They also have a new tiny house with a queen bed and loft @ \$115+tax/night. Please call (620.843.2422) to make reservations [block rooms are not available online].

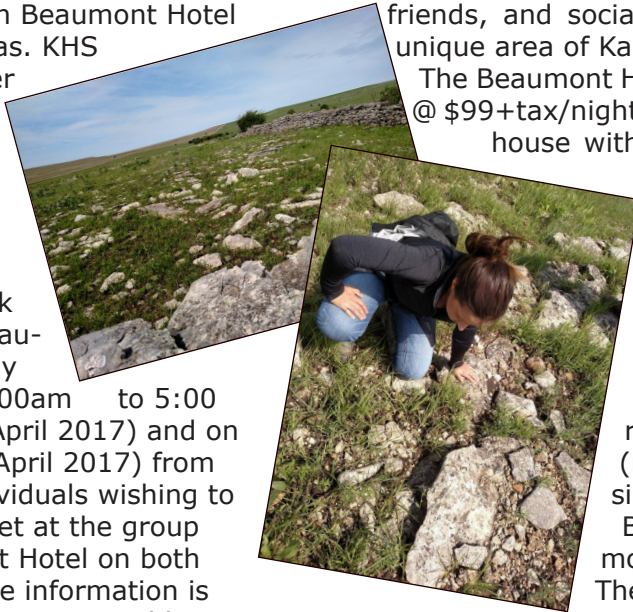
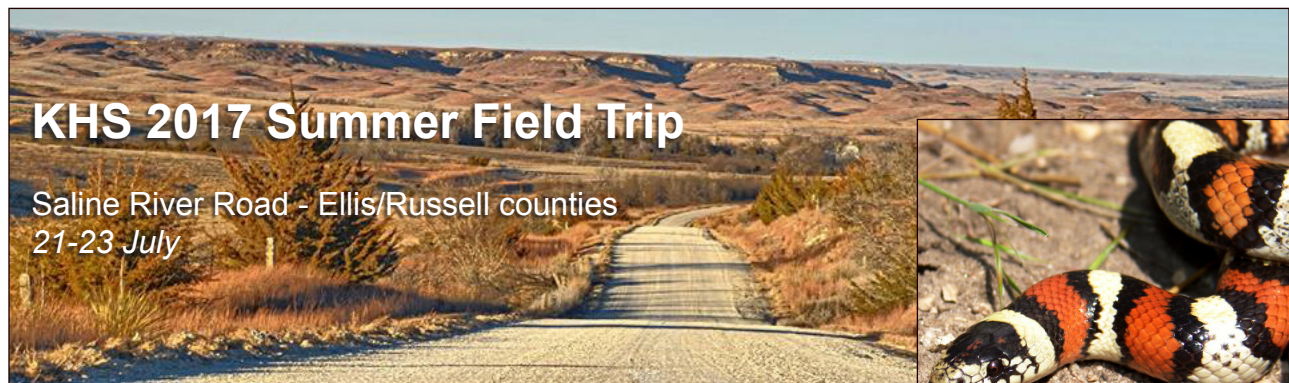
Tent camping is \$30 for both nights.

Potable water and bathroom (w/ running water) (room 111) will be accessible to tent campers.

Beaumont is relatively remote and dining is limited. There is a possibility of a Saturday morning and evening

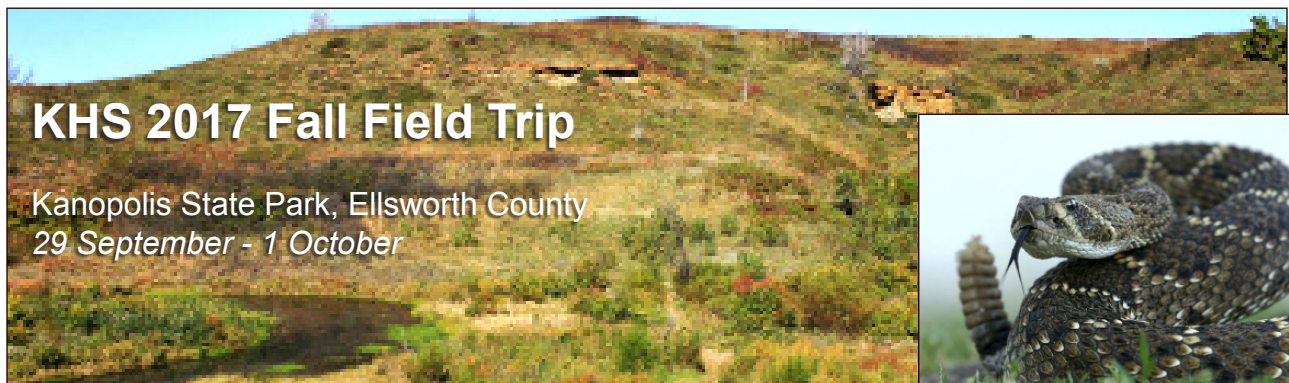
buffet if enough interest is shown.

- Travis W. Taggart
KHS Fieldtrip Chairperson

KHS 2017 Summer Field Trip

Saline River Road - Ellis/Russell counties
21-23 July

KHS 2017 Fall Field Trip

Kanopolis State Park, Ellsworth County
29 September - 1 October



Kansas Herpetological Society Treasurer's Report for 2017 KHS Midyear Meeting

\$8,496.63 Checking Account Balance 04/01/2016
\$10,756.70 Checking Account Balance 02/20/2017

\$2,635.17 Total Expenses*
\$4,895.35 Total Deposits**

*Annual Meeting Expenses

\$1,124.90 Rockhurst University (Food and Rooms)
\$ 134.00 Event Insurance
\$1,000.00 Awards
\$ 157.27 Misc.
\$2,416.17 Total Meeting Expenses

**Annual Meeting Income

\$ 795.35 Registration
\$2,150.00 Auction Proceeds
\$2,945.35 Total Meeting Proceeds

\$21,829.34 Savings and Investment Balance 04/01/2016
\$21,876.89 Savings and Investment Balance 02/21/2017

Awards Investments (I still need to transfer to Truman Heartland Trust)

\$2,000.00 Fitch-Platt
\$7,468.65 Gloyd-Taylor
\$7,980.56 Kamb-Grant

Total Account Balance 11/01/2016: \$32,633.59

Respectfully submitted,
24 February 2017

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... or by mail to the KHS Secretary

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OTHER BUSINESS

2017 Fort Riley Annual Herpetological Survey Set

The 16th Annual Fort Riley Herpetological Survey will be held from 7:00am to 3:00pm on Friday, May 5, 2017. Participants should meet at the DPW Environmental Division Office, Bldg. 407 Pershing Court at 7:00am for a short pre-event briefing (Please see attached map for directions to Bldg. 407). We will plan on leaving for the field by 7:30am. Participants must wear one article of blaze orange (cap, vest, shirt, etc.) since spring turkey season is open. We also recommend participants wear proper attire for hiking (hiking boots, protective clothing for ticks or poison ivy), bring a digital camera (for documentation of species ID), bring plenty to drink, and a lunch for the field.

IMPORTANT ACCESS INFORMATION

The Herpetological survey will be a hosted event, so anyone attending must forward the

following information to the Event POC (Mike Houck ASAP; see address below):

- Last Name
- First Name
- Middle Initial
- Date of Birth
- Driver's License #
- Driver's License State
- Gender
- Email Address (if none; phone #)

MIKE HOUCK
 Threatened & Endangered Species Biologist
 DPW Environmental Division
 Bldg. 407, Pershing Court
 Fort Riley, KS 66442
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 mike.p.houck.civ@mail.mil



NOTES

Results from Three Herpetofaunal Tallies at Wichita State University's Youngmeyer Ranch in Northwestern Elk County

Nestled at the edge of a wind farm in northwestern Elk County, the Youngmeyer Ranch is 4,700 acres of nearly pristine, native Flint Hills tallgrass prairie. Beginning in late 2014, Wichita State University has had management and research rights to the ranch that is owned by the Youngmeyer Family Trust. One of the priorities has been to survey the diversity on the property to establish species lists for future reference. In accordance to that priority, the WSU Department of Biological Sciences hosted three herpetofaunal tallies through 2015 and 2016.

The first survey, hosted on 23 May, 2015, was a dreary day with temperatures hovering just above 50°F, heavy clouds, and intermittent light rain and mist. However, 19 fearless herpers converged on the Beaumont Hotel to get information and caravan to the ranch. These 19 constituted staff, faculty, and students from WSU, herpetologists from the Sedgwick County Zoo, staff from the Great Plains Nature Center, and five additional enthusiastic souls from Wichita

and Lawrence, KS. Anyone who has flipped very many rocks knows well that overcast, wet days are simply the best for herping! Two-hundred forty animals of 19 species and 18 genera were documented that day, as well as 44 species of birds, and three species of crayfish. Two species of reptile recorded that day are listed as Species of Greatest Conservation Need by the Kansas State Wildlife Action Plan: the Texas Horned Lizard (*Phrynosoma cornutum*) and the Western Massasauga (*Sistrurus tergeminus*). Those hardy souls remaining in the afternoon were ultimately chased off of the ranch by a truly toad-choking thunderstorm. Foraging at the Beaumont Hotel provided warm food and fine libations to ward off the chill, and celebrate a very successful day.

Conducted on 16 April, 2016 the second survey was more widely advertised, and 55 people eagerly milled around the Beaumont Hotel and airfield to the south before organizers gathered folks in and gave them the rundown for the



Allie Hicks (McPherson) shows off two juvenile North American Racers with boldly different coloration at the 4/16/16 herp tally.



A Derby High School student shows off the large Western Milksnake that her group found in the afternoon of the 4/16/16 herp tally.



Herpers quickly learn that the rocky slopes above a creek are highly productive. Photo by Mary Liz Jameson.



A young Western Massasauga in ecdysis (shed) as can be seen by the blue tint of the eyes.



Allie Hicks (McPherson) examines a North American Racer and gives a lesson to Emmy Engasser and Hannah Hoetmer (WSU students) while Jamie Hicks (mother) documents the event.



(L-R) WSU students Kory McLinn, Lauren Rierson, Niall Horton, Kyle Engasser, and Friends University student Lindy Gates were all amazed by the plants and animals of the Youngmeyer Ranch.



A pair of Three-toed Box Turtles were disturbed while undertaking exercises in reproductive fitness during the 9/23/16 herp survey.



A Little Brown Skink discovered scampering through the leaf litter during the 4/23/16 herp tally. Photo by Mary Liz Jameson.

Number of individuals found on three dates over two years (5/23/2016, 4/16/2016, and 9/24/2016) at Youngmeyer Ranch, Elk County, Kansas.

English Name	5/23	4/16	9/24
American Toad	6	1	-
Blanchard's Cricket Frog	35	27	-
Boreal Chorus Frog	3	2	-
W. Narrow-mouthed Toad	4	-	-
Plains Leopard Frog	16	-	-
American Bullfrog	-	2	-
Smallmouth Salamander	-	1	-
Snapping Turtle	-	1	-
Three-toed Box Turtle	-	-	2
Ornate Box Turtle	4	6	-
Pond Slider	-	3	-
Slender Glass Lizard	4	2	-
Eastern Collared Lizard	27	70	12
Texas Horned Lizard	8	10	-
Common Five-lined Skink	-	2	-
Great Plains Skink	29	121	15
Little Brown Skink	3	1	-
Six-lined Racerunner	-	1	-
North American Racer	1	30	4
Prairie Kingsnake	1	1	-
Western Milksnake	-	7	1
Speckled Kingsnake	2	9	1
Rough Greensnake	-	1	1
Great Plains Ratsnake	7	12	3
Western Ratsnake	-	3	2
Gopher Snake	-	2	-
Western Massasauga	9	14	-
Ring-necked Snake	-	6	-
Plains Flat-headed Snake	76	210	1
Plain-bellied Watersnake	-	13	-
Western Ribbonsnake	3	9	-
Common Gartersnake	-	6	-
Lined Snake	2	3	-
Totals	240	576	42

day! Comprising this larger survey squad were gentlemen from Kansas City, an enthusiastic young lady from McPherson who convinced her grandparents and mother to bring her, a high school biology student of Jeff Calhoun who likewise persuaded his father to bring him and his younger brother, as well as representatives of Emporia State and Kansas State universities, and many folks from around the greater Wichita area. The first people were barely inside the gate when the first herp was found, a Texas Horned Lizard, and immediately after that two Western Massasaugas were found. Differing from the previous year, the skies were clear,

and the day quickly reached a comfortable, if breezy, high in the mid 70's. One small group (Ryan Forkell [Manhattan], Nate Nelson, Joey Kippenberger, and Jason Talbot [all of Wichita]) surprised everyone in the afternoon by finding a county record Rough Greensnake [(*Opheodrys aestivus*) (Mardis, Dexter R. 2016. Geographic distribution note: Rough Greensnake. *Collinsorum* 5(4) p. 16)]. The final tally for the day was 576 individual captures of 30 species and 25 genera, and three flat tires! In keeping with traditions, refueling food and refreshing libations were successfully foraged for at the Beaumont Hotel to end the day.

As the first herp tally to be hosted in the fall, organizers were excited to see what the event on 24 September, 2016 would produce. In total, 17 participants spent the day scrabbling over the property chasing warm and feisty reptiles. The "crew" consisted of students from both Friends University and WSU, a small battalion of high schoolers from Derby, ably led by teacher Bill Welch. Temperatures climbed quickly into the low 80's, and the ground was dry from a recent dry spell. As such, numbers of both species and general observations were down from the previous tallies. Only 41 individuals of 10 reptile species were documented, and no amphibians. The surviving participants at the end of the day held to behavioral norms



Ashely Karpinski (Wichita) excitedly shows the first Plains Flat-headed Snake she's ever held. The 4/16/16 herp tally was the first time either he or her husband Michael had herped before.

and sought rejuvenating sustenance at the Beaumont Hotel.

Overall, the three public herpetofaunal tallies at the Youngmeyer Ranch proved to be both wildly popular, and successful. The 91 participants recorded 857 individual amphibians and reptiles, representing 33 species including the county record Rough Greensnake! The property certainly has a lot to offer for the future, in terms of not only research and education, but conservation and public outreach as well.

Participants of the three events include: Sarah Parker, Stephanie Kelley, Nate Nelson, Jason Talbot, Joey Kippenberger, Mike Caron, Jeanette Kekahbah, Kristen Kelley, Jenny Smith, Melissa Smith, Melissa Skelton, Rachel Roth, Todd Volkman, Kendall Lundy, Adam Duvall, Cheryl Miller, Mary Liz Jameson, Chris Rogers, Jeremy Birket, Hannah Hoetmer, Serena Randolph, Emmy

Engasser, Kyle Engasser, Rachel Stone, Leland Russell, Kelly Kluthe, Bret Budach, Chelsea Sink, Jon Lane, Ryan Forkell, Greg Sievert, Alexis Powell, Olivia Schouten, Kory Mclinn, Brian Kilmer, Darrin Obenland, Colton Farra, Tiffany Jehle, Nicole Brown, Scott Norton, Harry Gregory, Jackie Baum, Ashely Karpinski, Michael Karpinski, Lindy Gates, Niall Horton, Bill Welch, Ethan Foster, Taylor Nickel, Kim Boyd, Logan Connady, Molly Reichenborn, Dexter Mardis, Jamie Hicks, Allie Hicks, Jim Boyer, Edee Boyer, Justin Bucci.

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A New State Size Record for the Red-spotted Toad (*Anaxyrus punctatus*): A Species in Need of Conservation in Kansas

The Red-spotted Toad, *Anaxyrus punctatus*, is a small, nocturnal toad with a distribution extending from near Hidalgo, Mexico in the south to southeastern California in the west, and southwestern Kansas at the northern and easternmost extent of its range (Stebbins 2003). *Anaxyrus punctatus* inhabits some of the most extreme arid environments available. Although populations of *A. punctatus* require standing water for reproduction, they are otherwise able to persist for long periods of time due to their ability to aestivate (Tevis 1966).

Turner (1959) recorded maximum dispersal distance for *A. punctatus* in Death Valley to be ~0.4km and Tevis (1966) recorded a maximum dispersal distance in the Colorado Desert at ~0.8km. Bradford et al. (2003) observed *A. punctatus* to have a patchy distribution near water resources in the Mojave Desert, and inferred that based on occupancy and distance between suitable patches the toads are likely capable of dispersal much greater than the <1km previously reported in the literature.

In Kansas, *A. punctatus* is considered a Species in Need of Conservation (SINC) and has been recorded in only four counties along the southern border of the state: Barber, Clark, Comanche, and Morton (Collins, Collins, and Taggart 2010). The maximum recorded size of *A. punctatus* in North America is 76 mm SVL, with a significantly smaller SVL of 56 mm in

Kansas (Conant and Collins 1998; Collins, Collins, and Taggart 2010). Here we report a new maximum size for a Kansas specimen recently collected from Barber County, Kansas.

On 27 May 2014 a gravid adult female was collected at night from a paved road near Sun City in Barber County, Kansas (37.21058°N, 98.55557°W). A SVL of 62.5 mm was measured using digital calipers. This represents an unusually large size for Kansas *A. punctatus* and a new size record for the state.

The specimen (KU 337000) was deposited in the University of Kansas Natural History Museum and Biodiversity Institute (KUBI) herpetological collection. *Anaxyrus punctatus* is considered to be more ecologically restricted than other closely related species (Ferguson and Lowe 1969). This ecological isolation may make locating and studying populations of *A. punctatus* more difficult than other members of the genus, especially near the fringes of its distribution (e.g., southern Kansas).

Additional surveys in Barber County and areas proximate will help elucidate the ecological requirements and restrictions of this species, document population densities and demographics, provide insights into the natural history of this toad, and contribute to our understanding of the conservation needs of this species at the extremity of its range (Miller 1987; Rundquist 2002; Taggart 2006).

We thank Eric Rundquist for guidance in the field and helpful comments during the development of this manuscript, and Chan Kin Onn and members of the 2014 University of Kansas field herpetology course for collecting and preparation assistance. This specimen was collected under Kansas Department of Wildlife and Parks permit SC-048-2014 issued to Rafe M. Brown (DSM subpermittee).

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Early Chorusing Activity for Some Kansas Anurans

The Spring Peeper (*Pseudacris crucifer*) has been reported chorusing from 18 February to 10 May in Kansas, based on 110 observations in the Kansas Herpetofaunal Atlas database (Taggart and Schmidt, 2017; Brunson and Collins, 2017), with most activity taking place throughout March and into early April (Median 21 March).

On 10 February 2017, I observed 10+ Spring Peepers in a complex of wetlands at 7:40pm in Cherokee County, Kansas (37.059398°, -94.647089°; WGS84). Several Boreal Chorus Frogs were heard at several locations in Cherokee County as well.

I went out at approximately 6:00pm on February 11th, walking around my neighborhood in Galena, and could hear both Spring Peepers and Boreal Chorus Frogs at five additional localities (37.059016°, -94.643148°; 37.056583°, -94.641475°; 37.056100°, -94.639253°; 37.067433°, -94.640189°; 37.068465°, -94.639561° [all WGS84]).

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Recent Sightings of the Western Diamond-backed Rattlesnake at Kanopolis State Park, Ellsworth County, Kansas

On 13 November 2016 one of us (PH) was exploring the Buffalo Track Canyon Nature Trail while attending a camping birthday party at Kanopolis State Park (Ellsworth County, Kansas) with Eli McCoy, Nathan Price, Israel Richman, and Mike McCoy.

Three Western Diamond-backed Rattlesnakes (WDBs) (*Crotalus atrox*) were observed coiled in a small cave (38.676613°, -97.993563°; WGS84) at 11:32am. The absolute size of the snakes was difficult to determine; two were coiled together and much larger than the third which was coiled about 1.5 feet away. The smaller specimen looked to be just over a foot long, and as thick as a quarter round. The snakes were not touched and didn't move while they were observed.

It was a cool but sunny day. At the time the snakes were observed they were laying in the shade, just out of the sunlight. A juvenile Gopher Snake (*Pituophis catenifer*) was observed in an adjacent cave.

On 1 November 2016 one of us (TWT) was contacted by Wendy Bowles at Kanopolis State Park. Wendy had collected a mid-sized (70cm SVL; 4.8cm tail; 4.6cm rattle [9 segments including button) WDB from one of the caves on the Buffalo Track Canyon nature trail (38.677401°, -97.993829°; WGS84). Wendy stated it was the third WDB encounter in the



An adult (top) and juvenile (bottom) Western Diamond-backed Rattlesnake (*Crotalus atrox*) observed along the Buffalo Track Canyon Nature Trail, Kanopolis State Park, Ellsworth County, Kansas. Photos by Paxon Hutto.

area that year.

The WDB was retrieved (by TWT) the following day. The specimen (a 2-3 year old female [Fitch and Pisani 1993]) has been deposited in the Sternberg Museum herpetology collection (FHSM 17464). Tissues were taken and are available for future analyses. No embryos were present.

WDBs were first noticed along the Kanopolis State Park nature trails in 1991 and they were steadily reported through 1999 (summarized by Riedle 1996; Matlack and Rehmeier 2002, Taggart 2006). These observations represent the seventh published report of WDBs at Kanopolis State Park and the fifth vouchered specimen (KU 289048 (1999), KU 289619 (1999); *FHSM 8052 (2003), *FHSM 7929 (2006), *FHSM 17464 (2016) (*tissues available).

It is unclear if these latest observations represent new illegal releases or indicate that this introduced population is reproducing in Ellsworth County.

We thank Curtis Schmidt, Collections Manager, Sternberg Museum of Natural History, for obtaining the measurements of FHSM 17464.

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Winter Predation of an Adult Spiny Softshell (*Apalone spinifera*) Likely Committed by a Bald Eagle (*Haliaeetus leucocephalus*) in Central Nebraska

Adult Softshells (*Apalone spp.*) are thought to have few predators, with the exception of alligators (*Alligator mississippiensis*) and humans (the latter for both consumption and the pet trade) (Kellogg 1929, Ernst and Lovich 2009). Adult Spiny Softshells (*Apalone spinifera*) are the fastest swimming turtles in the Great Plains and exceedingly good at escaping predation in aquatic systems (Webb 1962, Fletcher 2002, Ernst and Lovich 2009, Fogell 2010). Their keen vision, cryptic coloration, and ability to burrow into sand or mud (while allowing only their snout-like nose to breach the soil surface) further lessens predation (Webb 1962, Fitch and Plummer 1975, Bodie 2001, Harper et al. 2014).

Hatchlings and nests are often predated by Raccoons (*Procyon lotor*), Striped Skunks (*Mephitis mephitis*), Red Foxes (*Vulpes vulpes*), and Herons (*Ardeidae spp.*) (Hammerson 1999). *Apalone spp.* eggs hatch in the late summer and hatchlings and adults must brumate by submerging themselves underwater at a suitable depth due to their reduced freeze-tolerance compared to other chelonians (Plummer 1976, Graham and Graham 1991, Costanzo et al. 1995). These turtles are able to absorb oxygen through their skin from the surrounding water at temperatures as low as 3°C, and are among the most anoxia-intolerant of turtles in North America (Reese et al. 2003, Ultsch 2006, Jackson and Ultsch 2010). Thus, Spiny Softshells thrive in permanent bodies of oxygen-rich water (e.g. ponds, marshes, reservoirs, ditches, rivers, and streams) with soft benthic substrates that contain sandy banks or islands free from vegetation for basking and egg laying (Plummer 1976, Jones et al. 1981, Harding 1997, Behler and King 1998, Bodie 2001, Dixon 2009, Dieter et al. 2014, Fogell 2010).

The Spiny Softshell (*Apalone spinifera*) has a wide distribution across North America (Powell et al., 2016). Though their habitats are diverse, they now exist in isolated populations that are considered to be at risk due to anthropic activities (e.g. reduced habitat, pollution, and human recreation) in Canada, Iowa, Vermont, and South Dakota (Fletcher 2002, Kiesow 2006, Galois and Ouellet 2007, Plummer et al. 2009, Osterkamp and Hanson 2012). In Nebraska, the physical attributes of most aquatic systems provide excellent habitat for this species (Lynch 1985). However, agricultural activities have di-

minished or denuded most water resources in the state, calling for *A. spinifera* to be regarded as a species in need of conservation (Williams 1978, Sidle et al. 1989, Fogell 2010). *A. spinifera* has been detected during herpetofauna surveys along the Platte River at the Crane Trust, in central Nebraska and is presumably abundant in this region (Jones et al. 1981, Geluso and Harner 2013).

We discovered the remains of an adult male *A. spinifera* on 16 December 2016 (air temperature = -3°C) on a two-track dirt road, adjacent to a recent tree clearing. The location was approximately 60 meters away from the north bank of the southernmost channel of the Platte River at (40.788199°N, 98.454185°W, WGS84, 580m elev.). The river channel was largely frozen, with only a few narrow open sections. The carcass was found approximately 80 meters from open water at the time. The carapace and plastron appeared to be fully intact (Figures 1-6) with uneven scratch marks across the plastron (Figure 1). The limbs, head, and tail were completely removed along with most internal organs. The shell was left untouched that day.

The following day, 17 December 2016 (air temperature = -16°C), the region received ~1/2" of snow. On 19 December 2016 (air temperature = -6°C), the site was revisited and the shell was collected and voucher photos were taken of landscape. The surface of the river channel was completely frozen at this time, with no immediate access to open water. Potential predators were identified post-mortem by two methods, direct observation and track identification in the snow within 50m of the shell. Potential predators were surveyed at the time of collection by sight and through track identification in the snow. Predator species and the method used to identify them are listed in Table 1.

A necropsy was performed ex-situ after the remains slowly thawed in a refrigerator for two days at 2°C. Precise shell metrics and a subset of scratches on the plastron (Figure 1) were taken, while noting other wounds that appeared fresh and unscarred on the shells exterior. Shell metrics are displayed in Table 2. Plastron scratches ranged from 0.7 to 4.6cm (\bar{x} =2.8cm) long. The left pectoral scute had a 0.7cm tear where the plastron connects to the carapace (Figure 2); while the left anal scute had an acutely triangular 0.6cm puncture wound

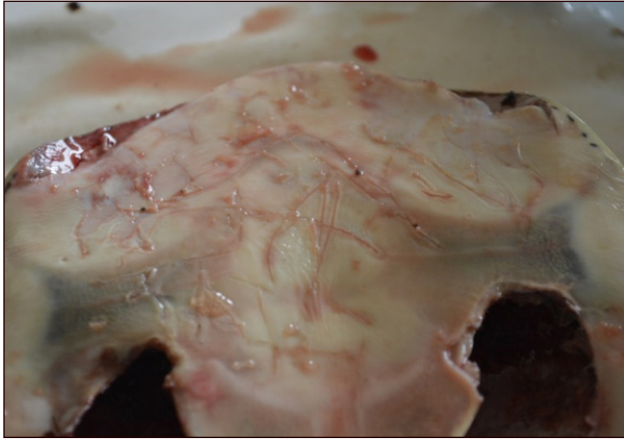


Figure 1: Scratch marks on plastron of *A. spinifera*, presumably inflicted by Bald Eagle talons, 12 December 2016.

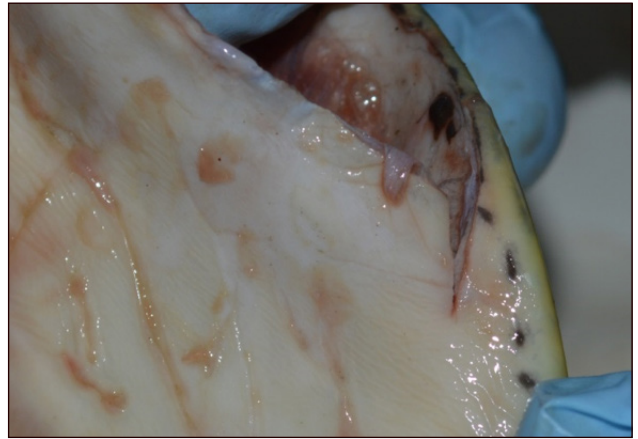


Figure 2: Tear between the left pectoral scute and the carapace of *A. spinifera*, 12 December 2016.

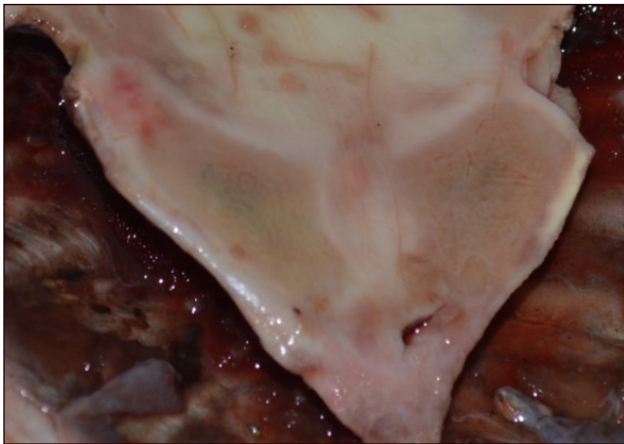


Figure 3: Puncture wound on the left anal scute of *A. spinifera*, 12 December 2016.

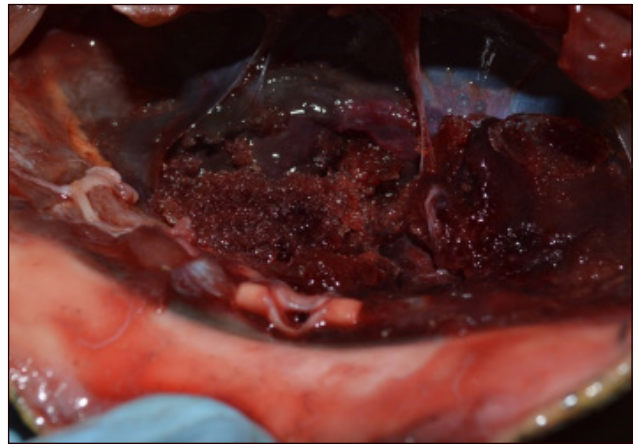


Figure 4: Spine separated at the last cervical vertebrae of *A. spinifera*, 12 December 2016.

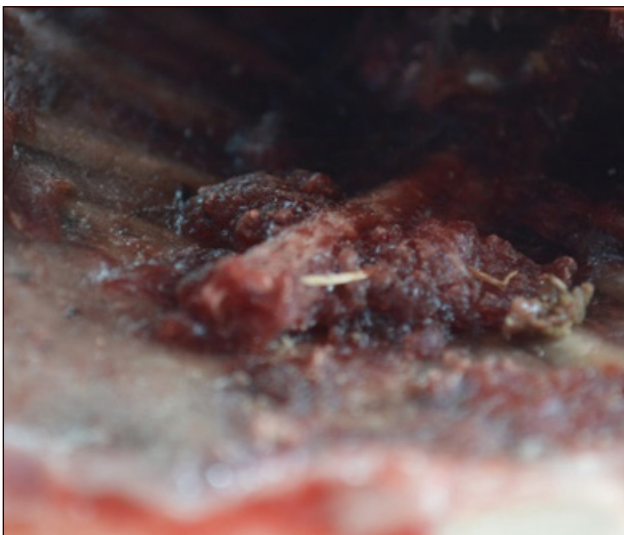


Figure 5: Spine separated at the last caudal vertebrae of *A. spinifera*, 12 December 2016.

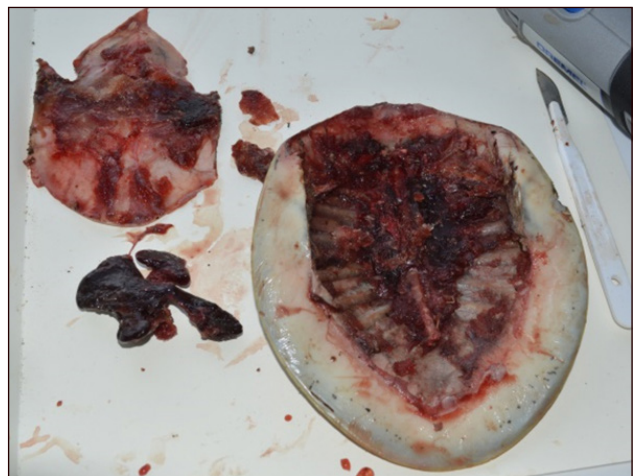


Figure 6: Shell with plastron cut and separated from the carapace revealing organs of *A. spinifera* (lung tissue, liver, and segments of the heart), 12 December 2016.

Table 1: Potential predators of Spiny Softshell (*A. spinifera*) detected at kill site and the method of identification.

Standard English Name	Species	n	Method of Identification
Bald Eagle	<i>Haliaeetus leucocephalus</i>	3	Sight
Rough-legged Hawk	<i>Buteo lagopus</i>	1	Sight
River Otter	<i>Lontra canadensis</i>	1	Tracks
American Mink	<i>Neovison vison</i>	1	Tracks
Coyote	<i>Canis latrans</i>	1	Tracks
Long-tailed Weasel	<i>Mustela frenata</i>	1	Tracks
Raccoon	<i>Procyon lotor</i>	2	Tracks

Notes: The minimum number of each identified species detected at the kill site is denoted by "n".

(Figure 3). The limb bones including the scapula, coracoid, proscapular process, femur, and tibia were completely absent. The spine was snapped off after the last cervical vertebrae (Figure 4) and after the last caudal vertebrae (Figure 5). The necropsy was continued by separating the plastron from the carapace using a Dremel™ tool and cutting wheel along the outer edges of the hyoplastron and hypoplastron. Only about half of the liver, some arteries to the heart, and lung tissue attached to the carapace remained (Figure 6).

After a thorough examination of the markings on the shell and taking into account predation evidence and predators present at the site, we determined the likely predator at this kill site was a raptor species. The turtle shell lacked evidence of commonly found teeth markings of predatory mammals (Bowns 1995). The uneven scraping and triangular puncture wound on the plastron are more suggestive of raptor claw marks (Dolbeer et al. 1994, Bowns 1995, Errington 1932, Washburn 2016). The spinal detachment above and below the vertebrae fused to the carapace and depth at which the organs were removed is indicative of pulling and tearing of a raptor species (Washburn 2016). Post-mortem evidence alludes to a raptor standing on the carcass as leverage while using its talons to grip the slick plastron as it tore at the turtle's flesh with its beak. The surgical precision of the organ excavation indicates a very sharp tool, likely a beak, which can puncture the pliable shell of this species (Errington 1932, Washburn 2016). Beak morphology and a longer beak length favor Bald Eagles as likely candidate as opposed to the Rough-legged Hawk, which has a bill not suited for carving out the deeper organs of softshell turtles (Bechard and Swem 2002, Ligouri 2011, Crossley et al. 2013). Videos of Bald Eagles feeding on two turtle species,

one of which was a Florida Softshell (*Apalone ferox*), were examined to confirm such eating behavior (989razzle 2013, Lady Hawk 2016).

The lack of a trace blood trail may indicate that the turtle was carried from the river in the air to be killed and fed upon on the cleared two-track road, a common behavior of Accipitrids, including hawks and eagles (Fowler et al. 2009). In terms of identifying the particular avian predator that made the kill, evidence conclusively corroborated support for the Bald Eagle. In our inventory of possible predators, Rough-legged Hawks and Bald Eagles were the only avian predators detected, though other wintering raptors are known to be present along the Central Platte River including: Red-tailed Hawk (*Buteo jamaicensis*), Northern Harrier (*Circus cyaneus*), Cooper's Hawk (*Accipiter cooperii*), Prairie Falcon (*Falco mexicanus*), Merlin (*Falco columbrius*), American Kestrel (*Falco sparverius*), and a few owl species. Bald Eagles, compared to other Accipitrids, possess elongated D-III and D-IV talons and their talons are more curved making them the most adept anatomically to retrieve a Spiny Softshell from the river. (Fowler et al. 2009).

Diet preference of Bald Eagles and other raptors is perhaps the most convincing indication of a predator species. Knowledge of reptiles in raptor diets seems to be underrepresented to some degree, especially chelonians (McAtee 1935, Ross 1991). *Apalone* spp. have been noted as common and likely under represented prey items of Bald Eagles (Watermolen 2004). In Wisconsin, Bald Eagles were estimated to consume between 2-5 softshell turtles per week based upon carcasses found in a nest study (Watermolen 2004). In Texas, *A. spinifera* specifically have been reported to compose as much as 27% of nesting Bald Eagle's diet (Mabie et al. 1995). They are known predators of at least 12 turtle species, especially while nesting

Table 2: Carapace and plastron measurements (cm) from Spiny Softshell (*A. spinifera*) remains.

<i>Shell Anatomy</i>	<i>Length</i>	<i>Width</i>
Carapace	17.6	15.4
Inner Plastron	13.6	10.3
Outer Plastron	17.3	14.4

Notes: Length denotes distance from anterior to posterior of shell, while width denotes the lateral distance between the left and right side of shell.

(Smith 1936, McEwan and Hirth 1980, Dugoni et al. 1986, Haines 1986, Jackman et al. 1999, Watermolen 2004). However, Red-shouldered hawks (*Buteo lineatus*), Great Horned Owls (*Bubo virginianus*), and other raptors have been documented to prey upon chelonian hatchlings (Ross 1991, Toland 1991, Walsh and Heinrich 2015). Rough-legged Hawks do not vary much from their diet of rodents; trace stomach contents of reptiles are rare, likely ruling them out as a predator (McAtee 1935). The Bald Eagle is an opportunistic carnivore with a highly diverse diet, adapting their diet as resources become limited, especially by frozen water bodies in the winter (Knight and Knight 1983, Jorde and Lingle 1988, Stalmaster and Plettner 1992, Power and Mitchell 1993).

To our knowledge, this is the first account of a likely predation on *A. spinifera* by a Bald Eagle in Nebraska and the first predation of this species documented this far into brumation. This observation contests the idea that adult Spiny Softshell turtles have few natural predators (Fogell 2010). Instead, we propose that *Apalone* spp. predation and its importance as a food source in this region are poorly understood. Furthermore, *Apalone* spp. are likely under-represented in the winter diets of Bald Eagles along the Platte River and similar freshwater systems in central Nebraska. Across Nebraska, the population of nesting Bald Eagle has increased substantially over the last 25 years (Jorgensen and Dinan 2016). The Platte River offers a variety of resources, including channels of open water, which has made it a preferred winter residence for these raptors (Lingle and Krapu 1986). During Crane Trust avian monitoring surveys on 9 and 12 of December 2016, less than one week prior to the shell's discovery, a total of 23 Bald Eagles were detected, constituting a localized peak in their population within 10km of the kill site (Crane Trust, unpublished data). Bald Eagle reliance on softshell turtles for winter nourishment warrants

further investigation, in particular in the prairie rivers of central Nebraska.

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Carroll County, Arkansas Herpetofaunal Adventure

Taking a much needed hiatus from a USDA-funded project involving the noxious weed *Sericea (Lespedeza cuneata)*, my wife, brother-in-law, and I found ourselves on a weekend journey to the hardwood forests of the Ozark Mountains.

We set our sights on the spring-fed Lake Leatherwood, where the steep limestone hills offered myriad crags and crevices for salamander cover. My expectations were low as there had been little precipitation, and temperatures during the week preceding the trip observed highs nearing triple digits and lows in the 80s.

Furthermore, the temperature for the 25th and 26th of June was set to peak at 101°F. Nevertheless, we set out to explore the humid woodlands, and I had my heart set on adding the elusive Pygmy Rattlesnake to my life list.

On the morning of the 25th, we began our hike in a well-drained valley on the SE side of lake and gradually trudged our way up a bluff. The sun was hot and the air stifling, but the thick canopy of mixed hardwoods and pines provided sweet, shady relief. The creek at the bottom of the valley proved to be slightly disappointing, however, after flipping over a few rocks I

uncovered my first Green Frog! As we climbed an escarpment to reach an enticing vista, I turned over every rock I could manage and was eventually rewarded with two Ring-necked Snakes. Little Brown Skinks were plentiful, and



A Long-tailed Salamander (*Eurycea longicauda*), found in the twilight zone of a cave at Pivot Rock Park.



Western Slimy Salamander (*Plethodon albagula*) found inside a rock crevice in the forest surrounding Lake Leatherwood.



A Cave Salamander (*Eurycea lucifuga*) found in the twilight zone of a cave at Pivot Rock Park.

could be seen scampering among the leaf litter on the forest floor. Using my trusted flashlight, I peeked into every conceivable crevice I could find in small rock formations and discovered multiple Western Slimy Salamanders and Green Frogs. On the last leg of our hike we happened upon a clear, bubbling spring where we found a Three-toed Box Turtle partially submerged in the frigid water and Common Watersnakes basking on the surface.

The most exhilarating finds of the trip came from an unexpected jaunt to a tourist attraction. Pivot Rock Park boasts a unique formation that gives the park its name, but this was not what captured my attention. A small cave, seemingly unremarkable to most passerby, immediately caught my eye and I crawled inside to see what treasures awaited. I was not disappointed; the cave was teeming with salamanders clinging to damp rocks within the twilight zone. I encountered one Long-tailed Salamander along with several Cave Salamanders and Western Slimy Salamanders, all within close proximity to one another. Unfortunately, I never was able to escape *Sericea*, as every drainage, ditch, roadside, and clear-cut was infested by the horrendous weed, and I never did find my lifer Pygmy Rattlesnake, but every amphibian found was a new species I could add to my life list. This brief exposure to the Ozark herpetofauna has left me craving, and I'll certainly be back in the foreseeable future to add the Pygmy Rattlesnake to my list!

Herpetofaunal count:

Green Frog	4
Cave Salamander.....	6
Long-tailed Salamander.....	1
Western Slimy Salamander	11
Three-toed Box Turtle.....	1
Prairie Lizard	1
Little Brown Skink.....	10
Common Five-Lined Skink.....	1
Ring-necked Snake	2
Common Watersnake	2

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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 of 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, (address inside the front cover)

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

Editorial Policy

Collinsorum, currently issued quarterly (March, June, September, and December), publishes all society business.

Submission of Manuscripts

As space allows, *Collinsorum* 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.

Reprints & Artwork

Collinsorum 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.

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 presented 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. Research results (in whole or in part) must be submitted for publication in *Collinsorum*.

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. Research results (in whole or in part) must be submitted for publication in *Collinsorum*.

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.

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