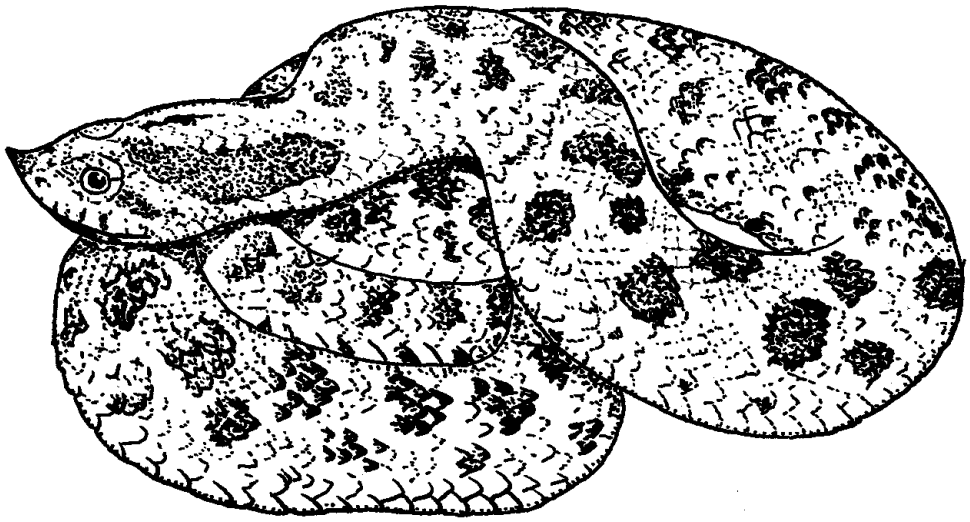
Missouri Herpetological Association



Newsletter

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MISSOURI HERPETOLOGICAL ASSOCIATION NEWSLETTER NO. 23

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Cover art: *Heterodon nasicus* by Tom R. Johnson. *H. nasicus* is classified as extirpated by MDC based on the absence of any verified sightings in over 40 years despite several reports from northwest Missouri. The closely related *H. gloydi* was recently rediscovered in southeast Missouri. See Briggler (2004) MHA Newsletter (17): 13.

INTRODUCTION

The Twenty-third Annual Meeting of the **Missouri Herpetological Association** was held 16-17 October 2010 at **Reis Biological Station**, Crawford County, Missouri. This organization is designed to provide herpetologists in Missouri and surrounding states with an opportunity to meet and exchange ideas regarding current efforts in research and other professional activities. High on the list of priorities is to provide students, involved in research at either the graduate or undergraduate level, (1) the chance to interact with senior herpetologists, and (2) an outlet to present, in a semi-formal setting, the results of their labors.

This newsletter is the result of a decision made at the inaugural meeting to provide a means of publicly acknowledging papers presented at this and subsequent annual meetings. Further, the newsletter will inform the herpetological community of new distribution records of Missouri's herpetofauna, additions to the bibliography dealing with the state herpetofauna and provide an outlet for the publication of short notes dealing with the natural history of Missouri amphibians and reptiles.

ANNOUNCEMENTS

24th Annual Meeting of the Missouri Herpetological Association

The Twenty-fourth Annual Meeting of the **Missouri Herpetological Association** will be held on 24-25 September 2011 at **Reis Biological Station**, Crawford County, Missouri. A "call for papers" and registration materials will be sent electronically in mid-July. For more information please contact **Jeff Briggler** at:

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MHA on the Net

The Association has an official site on the Internet. Point your browser to http://www.moherp.org/ for copies of current and past publications and to view photos and information from past field trips and meetings. Send ideas, suggestions, comments, and content to the Webmaster (webmaster@moherp.org).

Abstracts of Papers Presented at the 23rd Annual Meeting of the Missouri Herpetological Association

Reis Biological Station
16-17 October 2010

USING COVER BOARDS TO EXAMINE BIODIVERSITY IN THE LOESS HILLS AT SQUAW CREEK NATIONAL WILDLIFE REFUGE.

Teresa Ausberger and Mark Mills
Missouri Western State University, St. Joseph, MO

In the fall of 2009, a research project began in the Loess Hills at Squaw Creek National Wildlife Refuge. During this time period, cover boards (2'x4') were placed in prairie and forested areas in order to examine the biodiversity in the Loess Hills and determine species composition and abundance for the reptiles and amphibians captured. Sampling began in the spring of 2010 and since that time period, a total of 68 organisms comprised of six species have been captured. These species are *Diadophis punctatus*, *Thamnophis sirtalis, Coluber constrictor, Carphophis vermis, Lampropeltis triangulum,* and *Pseudacris triseriata (=maculata)*. Of these six species, *D. punctatus* was the most common capture with males more commonly found under cover boards than females. Throughout the course of the sampling season, most organisms were captured in prairie versus forested habitat. Our goals for this project include: (1) determine reptile and amphibian biodiversity in the Loess Hills through long-term sampling, (2) obtain measurements for captured organisms, and (3) determine if any life history traits are evident within certain species and their geographical range.

PREDATION RISK HAS CONDITION-DEPENDENT EFFECTS ON TERRITORIAL BEHAVIOR

Jenny Parsons and Alicia Mathis
Department of Biology, Missouri State University, Springfield, Missouri

Relatively few studies have addressed how predation risk influences territorial defense. Because loss of territorial contests might have different consequences for territory owners and intruders, we examined whether the influence of predation risk had different effects on aggressive behavior of owners and intruders. We tested how exposure to predatory stimuli immediately prior to being tested affected territorial behavior by owners and intruders of Ozark zigzag salamanders (*Plethodon angusticlavius*). Residents were more aggressive than intruders regardless of whether they were stressed by exposure to predatory stimuli. Stressed residents performed more chemosensory sampling but otherwise were not affected by predatory stress. In contrast, stressed intruders were less aggressive than unstressed intruders. Focal salamanders also altered their behavior based on the stress status of their opponents.

ONGOING STUDIES ON THE RESPONSES OF OZARK ZIGZAG SALAMANDERS EXPOSED TO ARMADILLO STIMULI

Adam Crane, Carly McGrane and Alicia Mathis
Department of Biology, Missouri State University, Springfield, Missouri

Amphibians often exhibit innate recognition of odors from sympatric predators. When new predators invade a habitat, either through range extensions or introductions, prey individuals may be at a high risk because they do not recognize the predators as dangerous. The armadillo forages by searching through soil and leaf litter, and so it is likely a predator of forest salamanders, including Ozark zigzag salamanders (*Plethodon angusticlavius*). We tested whether these salamanders exhibit anti-predator behavior in the presence of armadillo chemical cues and whether they can discriminate between armadillos and a nonpredatory sympatric mammal. We conducted a series of experiments where salamanders were exposed to feces of armadillos, feces from a nonpredator (white-tailed deer) and a blank control. When cues were placed on substrates, salamanders appeared to recognize armadillos as a threat because they increased escape behaviors and oxygen consumption in the presence of armadillo substrate stimuli relative to the two controls. In a test with airborne chemical cues, salamanders spent relatively more time in an inconspicuous posture (bodies flat on substrate) when exposed to the armadillo stimuli. Whether this result is due to chemical cues that are specific to the armadillo or based on cues in the predators' diet will require further testing.

ECOLOGY OF TWO AQUATIC TURTLE COMMUNITIES IN EASTERN TEXAS

J. Daren Riedle[1], Richard Kazmaier[2], Jamie Killian[3], and Wes Littrell[3]

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[3]Texas Parks and Wildlife Department, Tennessee Colony, TX

The Chelonia, as a whole, are experiencing a multitude of anthropogenic stressors and many species are in peril of extinction. Despite these conservation issues, studies of turtle communities are few. In 2006, we began intensively sampling one site, Gus Engeling Wildlife Management Area (WMA), in eastern Texas to determine species patterns associated with environmental gradients. In 2009, we began sampling a second site, Keechi Creek WMA, within the same river drainage to compare species richness, similarity of community structure, and patterns of habitat use between sites. We sampled Gus Engeling WMA from 2006-2009 with a total effort of 1,314 net nights making 651 captures of 511 individuals of 8 species of turtles. Based on ordination analyses, turtle species segregated along gradients related to flow, depth, and presence of emergent vegetation. Habitat partitioning was also observed between related species within the family Chelydridae and Kinosternidae. Keechi Creek WMA was sampled in June and July of 2009 for 78 net nights resulting in 110 captures of 87 individuals of 5 species of turtles. Keechi Creek WMA had lower habitat heterogeneity, and lower species richness, but higher capture rates than Gus Engeling WMA. Species common to both sites had a higher degree of overlap in habitat use at Keechi Creek WMA than at Gus Engeling WMA. Although additional sampling is needed at more sites, it appears that turtles do segregate between habitats, although habitat availability may determine species occurrence and abundance at any particular site.

PHYSIOLOGICAL PLASTICITY OF YELLOW MUD TURTLES (*Kinosternon flavescens*) DURING HIBERNATION

TY SANDERS, DAY B. LIGON, RICHARD KAZMAIER
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Global warming is expected to increase stochasticity and geographical distributions of climate patterns. The extent to which a particular species will be affected by climate change is, in part, dependent upon individuals' ability to physiologically or behaviorally compensate for environmental change. Species that hibernate during the winter months are particularly susceptible to range contractions due to the fact that

they do not migrate to warmer areas, which would allow for greater behavioral flexibility to cope with changes in climate. For hibernating species that rely on low temperatures to maintain a low metabolic rate during winter, unseasonably warm conditions can have dramatic detrimental effects. Therefore, physiological plasticity in such species could become vitally important to their survival during winter months. We assessed the degree to which hibernating yellow mud turtles (*Kinosternon flavescens*) are affected by warming winter temperatures. To assess physiological capacity to tolerate variable winter conditions we compared energy consumption rates and blood chemistry profiles between a group of turtles hibernating at actual winter temperatures and another group maintained at artificially warm temperatures over a six-month period. Our results indicate that yellow mud turtles that experience unseasonably warm winters are behaviorally disinclined to hibernate and achieve anhomeostatic conditions quickly.

NESTING ECOLOGY IN A TRANSLOCATED POPULATION OF ALLIGATOR SNAPPING TURTLES

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[2]Tishomingo National Fish Hatchery, Tishomingo, OK

Alligator snapping turtles (*Macrochelys temminckii*) were once found in all major river systems in eastern Oklahoma, but overharvesting and habitat alteration have caused significant population declines throughout much of their former range. In efforts to reestablish extirpated populations, translocated adults were released into Oklahoma river systems in 2007 with the expectation that these animals could quickly establish reproductively viable populations. However, few studies have focused on nesting ecology in *M. temminckii,* and none have investigated reproductive patterns of recently translocated individuals. To address this information deficit, between 15 May and 18 June 2010 we conducted daily nest searches of shorelines on two oxbow lakes located along the Washita River channel in southern Oklahoma. Nests located prior to predation were excavated to determine nest depth, clutch size and egg diameter, and then reburied with a data logger to record nest temperatures. These nests were re-excavated on 27 July and incubation was completed at 28°C at Missouri State University so that hatching success could be determined and turtles could be individually marked for future identification. Nesting activity occurred from 16 May to 17 June and incubation periods ranged from 76-97 days. Nest temperatures will be used to estimate sex-specific recruitment, for which there is currently no information from natural nests. Predation rates by raccoons approached 100% for nests not protected within several hours of being laid, indicating that continued efforts to protect nests will be necessary to boost hatchling recruitment rates in the short-term.

HELLBENDERS (*Cryptobranchus alleganiensis*) STATUS REPORT

Jeffrey T. Briggler
Missouri Department of Conservation, Jefferson City, MO.

Hellbenders are large, aquatic salamanders that prefer shallow, swift-flowing permanent river and streams with a high association with spring-fed sections of these rivers. Data show that hellbender populations have declined by an average of 77% since the 1970's in Missouri and have shifted in age structure with large, mature individuals being most prevalent and young age classes being virtually absent. Due to the decline of hellbender populations in Missouri, state and federal protection has been evaluated and efforts have been increased to determine the reasons for the decline. Researchers from several universities, public zoo, fish hatchery, herpetologists, and state and federal agencies representatives have formed the Ozark Hellbender Working Group. The Working Group pools their resources to prioritize and coordinate recovery efforts. Recent conservation efforts include monitoring population status, investigations of hellbender abnormalities, assessing health conditions and levels of reproductive hormones, stress hormones, and heavy metal levels in hellbenders, exploring the interactions of hellbenders with native and non-native fish, sampling the frequency and distribution of diseases, determining survival and movement of release, captive-reared hellbenders, and expansion of captive propagation facilities. With continued efforts by the Ozark Hellbender Working Group, hellbenders will hopefully continue to inhabit cold-water ecosystems of Ozark rivers and streams.

NATURAL HISTORY NOTES

NEW HERPETOLOGICAL DISTRIBUTION RECORDS FOR MISSOURI IN 2010

Richard E. Daniel[1], Brian S. Edmond[2] and Jeffrey T. Briggler[3]

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[2]Computer Services, Missouri State University, Springfield, MO 65897

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The following list represents new county records accumulated or brought to our attention since the publication of Johnson (2000), Daniel and Edmond (2000, 2001) and Daniel *et al*. (2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009). Publication of these records extends our knowledge of the amphibians and reptiles native to Missouri. In addition, recipients of this list have the opportunity to update checklists and distribution maps. Finally, the publication of this list allows us to acknowledge the contributions of the many individuals who have provided information or specimens.

The specimens listed below represent the first reported occurrence of the species within a given county and are based on catalogued voucher specimens or photographs deposited in a public institution. Distribution records are presented in the standardized format of Collins (1989): common and scientific name, county, specific locality (unless withheld for species of special concern), legal description of locality, date of collection, collector(s), institution and catalogue number where the specimen is deposited.

The specimens reported in this note have been deposited in the Dean E. Metter Memorial Collection, University of Missouri, Columbia, MO. Unless otherwise indicated, all distribution records are documented by post-metamorphic/hatchling fluid preserved specimens.

We would like to extend our appreciation to M. Jeppson, C. Montgomery, M. Ormsby, K. Scott, C. Starbuck, R. Thies for contributing specimens or photographs used in this note.

ANURA (FROGS AND TOADS)

EASTERN GRAY TREEFROG

Hyla versicolor

Livingston Co.: Rt. Y (T59N R24W S29); 5 June 2010; B. Edmond, M. Bowe (verified by call, UMC 8772).

CAUDATA (SALAMANDERS)

DARK-SIDED SALAMANDER

Eurycea longcauda

Polk Co.: Possum Creek at S 170th Rd. (T35N R22W S11); 10 July 2010; B. Edmond, M. Bowe (digital photo, UMC 1966P).

FOUR-TOED SALAMANDER

Hemidactylium scutatum

Laclede Co.: (T34N R17W S17); 12 March 2010; M. Jeppson (digital photo, UMC 1875P).

SQUAMATA (SNAKES)

COPPERHEAD

Agkistrodon contortrix

Cooper Co.: Boonville (T47N R15WS6); 3 June 2010; K. Scott (digital photo, UMC 1944P).

Grundy Co.: 2.73 miles W Edinburg (S18 T61N R25W); 24 May 2010; P. Muelleman (digital photo, UMC 1843P).

TIMBER RATTLESNAKE
Crotalus horridus
Schuyler Co.: Rt. W, Queen City (T65N R115W S27); 12 August 2009; collector unknown (digital photo, UMC 2009P).

PRAIRIE KINGSNAKE
Lampropeltis calligaster
Schuyler Co.: Rt. W, 3.3 air miles WNW Queen City (T65N R15W S19); 10 October 2010; R. Daniel (digital photo, UMC 2019P).

NORTHERN WATERSNAKE
Nerodia sipedon
Sullivan Co.: MO 6, 0.1 mile N Jct. Ribbon Rd./MO 5 (T62N R20W S10); 28 September 2009; C. Montgomery (digital photo, UMC 1853P).

GRAHAM'S CRAYFISH SNAKE
Regina grahamii
Grundy Co.: MO 6, 0.3 mile W Trenton (T61N R24W S15/22); 24 May 2010; C. Montgomery (digital photo, UMC 1846P).

NORTHERN RED-BELLIED SNAKE
Storeria occipitomaculata
Clark Co: Charlie Heath Conservation Area (T67N R9W S34); 13 June 2010; C. Starbuck (digital photo, UMC 1839P).
St. Charles Co.: Foristell (T46N R1E S9); 9 May 2010; M. Ormsby (digital photo, UMC 1932P).

FLAT-HEADED SNAKE
Tantilla gracilis
Warren Co.: Little Lost Creek Conservation Area (T46N R4W S7); 15 May 2010; B. Willey, R. Thies (digital photo, 1933P).

WESTERN RIBBONSNAKE
Thamnophis proximus
Scotland Co.: Rt. A, 0.2 mile S Jct. US 136 (T65N R10W S8/9); 10 October 2010; R. Daniel (digital photo, UMC 2015P).

TESTUDINES (TURTLES)
SNAPPING TURTLE
Chelydra serpentina
Mercer Co.: Rt. B, 0.2 mi S St. Paul Church (T65N R25W S11); 25 June 2010; B. Edmond, M. Bowe (digital photo, UMC 1959P).

NORTHERN MAP TURTLE
Graptemys geographica
Ripley Co.: Little Black Conservation Area (T24W R3E S4); 5 May 2010; J. Briggler, R. Rimer, S. Paes (digital photo, UMC 1859P).

FALSE MAP TURTLE
Graptemys pseudogeographica
Ripley Co.: Current River (T23N R2E S33); 9August 2010; J. Briggler, K. Irwin, J.Ackerson (digital photo, UMC 1863P).

EASTERN MUSK TURTLE
Sternotherus odoratus
Laclede Co.: Osage Fork of the Gasconade River (T35N R14W S33); 12 June 2010; B. Edmond, M. Bowe (UMC 8755 and digital photo, UMC 2025P).

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NEW SIZE RECORDS FOR THREE MISSOURI REPTILES

Richard E. Daniel
Division of Biological Sciences, University of Missouri, Columbia, MO 65211

Edmond and Daniel (2001) provided the most recent compilation of maximum size records for Missouri amphibians and reptiles. Here I present records of an exceptionally large snake and a turtle that exceed the published size maxima for Missouri and provide a previously missing size record for another turtle species. Body size measurements were taken to the nearest mm using standard measurement techniques for snakes (snout-vent (SVL) and total length (TL)) and turtles (carapace length (CL)) given by Conant and Collins (1998). All three specimens have been deposited in the Dean E. Metter Memorial Collection, University of Missouri-Columbia.

On May 10, 2010 Cedar Lohraff collected a large female *Heterodon platirhinos* (UMC 8738) at his home in Dixon in northeast Pulaski County. The specimen measured prior to preservation had a SVL of 72.8 cm and a TL of 86.7 cm. The previous size record (KU 83065) had a TL of 83.5 cm.

The author collected a female *Graptemys pseudogeographica* (UMC 8771) at Eagle Bluffs Conservation Area in Boone Co. on June 27, 2010. It had a carapace length of 25.0 cm. The previous size record for Missouri (KU 91332) was 15.0 cm.

No Missouri size record is currently recognized for *Emydoidea (Emys) blandingii*. The specimen given by Powell (1994) as the size record (KU 91330) is actually a *Graptemys geographica*. A male *E. blandingii* (UMC 8749) collected in 1981 near Wayland in Clark Co. with a carapace length of 19.0 cm will be listed as the current state size record.

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ATYPICAL COLORATION IN THE SOUTHERN RED-BACKED SALAMANDER (*Plethodon serratus)*

Katie O'Donnell and Dana L. Drake
Division of Biological Sciences, University of Missouri, Columbia, Missouri.

While sampling for *Plethodon serratus* in Dent County, MO, between April and October 2010, we found 3 individuals with atypical coloration patterns out of a total of 1025 *P. serratus* captured. We found one *P. serratus* (UMC 2021P) with a light grey stripe rather than red stripe (32mm SVL), and one leucistic *P. serratus* (UMC 2022P) (32mm SVL) on 29 September, as well as one "leadback" (UMC 2023P) on 30 September (35mm SVL).

Although reference guides have indicated that "specimens lacking the red dorsal stripe have been found in Missouri" (Johnson 2000), we have been unable to locate any published reports on the occurrence, frequency or distribution of atypical coloration patterns in *P. serratus*.

UMC 2021P

UMC 2023P Photos by Dana L. Drake.

UMC 2022P

Literature Cited

.Johnson, T.R. 2000. *The amphibians and reptiles of Missouri* (second edition). Missouri Department of Conservation, Jefferson City, Missouri.

AERIAL BASKING BEHAVIOR IN MISSOURI EASTERN MUSK TURTLES (*Sternotherus odoratus*)

Brian S. Edmond[1] and Richard E. Daniel[2]
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[2]Division of Biological Sciences, University of Missouri, Columbia, MO 65211

Aerial basking behavior is commonly observed in most aquatic turtle species (Ernst *et al*., 1994). Musk turtles typically bask by floating on top of aquatic vegetation or by exposing part of their carapace to the air while remaining mostly submerged (Ernst and Lovich, 2009). Janzen *et al*. (1992) observed hatchling and juvenile musk turtles basking on stream banks or clumps of mud near the shoreline. In a long-term study of musk turtles in Pennsylvania, Ernst (1986) rarely observed aerial basking, but did conclude that the species was primarily nocturnal or crepuscular, possibly reducing the value of aerial basking.

Although aerial basking behavior in all turtle species is usually assumed to be driven by thermoregulatory needs, Manning and Grigg (1997) has shown for one species (*Emydura signata*) that basking did not result in a body temperature that was significantly elevated above ambient water temperature. Furthermore, basking behavior in musk turtles did not change appreciably at the northern extreme of the species' distribution (Picard *et al*., 2011) but other behaviors, such as microhabitat selection, did change in response to the cooler conditions.

Nickerson (2000) reported frequent basking in a population of musk turtles on the Northfork River in Ozark County, Missouri. He speculated that the cool, spring-fed water of the Northfork resulted in more frequent basking for thermoregulation purposes because the ambient water temperature of the river never reached the species preferred body temperature. However, he also suggested the turtles could possibly be basking more to help augment a low dietary intake of vitamin D_3.

Here, we report on four observations of aerial basking in this species in more than 52 combined years of turtle observations in Missouri.

Observations

Pulaski Co MO: Gasconade River, just upstream from its confluence with Roubidoux Creek at N37º 50.974' 92º 12.886'. 8 September 1990. Richard Daniel.

Crawford Co MO: Courtois Creek, just upstream from its confluence with Huzzah Creek. 25 August 1995. Brian Edmond.

Laclede Co MO: Osage Fork of the Gasconade River, at N37º 42.8774' W92º 28.57232'. 12 June 2010. Brian Edmond. UMC 8755. *See accompanying photo* (UMC 2025P).

Shannon Co MO: Current River State Park, lake spillway pond at N37º 19.5629' W91º 26.2002'. 25 September 2010. Richard Daniel and Brian Edmond.

Pictured below is an example of aerial basking behavior, observed in the eastern musk turtle (*Sternotherus odoratus*) on the Osage Fork of the Gasconade River on 12 June 2010 (see list). This individual, a female, was kept in captivity for more than four weeks, was never observed eating, spent a significant amount of time out of the water, and generally behaved in an unusual and lethargic manner. After about three weeks, she laid two eggs. She was found dead on 14 July 2010. One of the eggs hatched on or about 14 September 2010. After several more days, the remaining egg was manually broken open and a fully developed but dead turtle was found within.

UMC 2025P.

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ATTEMPTED PREDATION OF A HATCHLING NORTH AMERICAN RACER (*Coluber constrictor*) BY A HATCHLING TEXAS RATSNAKE (*Pantherophis obsoletus*) IN MISSOURI

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Here, I report the attempted predation of a hatchling North American racer (*Coluber constrictor*) by a hatchling Texas ratsnake (*Pantherophis obsoletus*) (top left) and individual photographs of predator (top right) and prey (bottom) after the unsuccessful predation attempt. The encounter was observed and photographed hours in Pike County, Missouri by Jim Edmond on 24 September 2008 at approximately 1530 hours. At first encounter, the racer had been ingested for more than half of its body length. By the time photographs were taken, the ratsnake had begun to release its grip, possibly in response to the original encounter. Shortly thereafter, the racer began thrashing violently and eventually escaped.

ASSOCIATION EVENTS IN 2010

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Introduction

For the fifth year, the Missouri Herpetological Association (MHA) sponsored three official events: the traditional annual meeting and two field trips. A total of 30 individuals, collectively representing ten (10) institutions and agencies, attended at least one of these events. Seven scientific papers were presented during the twenty-third annual meeting and countless conversations, anecdotes, tales, and plans were exchanged among the members attending the various events.

More than 332 individual reptiles and amphibians were observed on the two field trips, representing 36 species (6 salamanders, 9 anurans, 5 lizards, 9 snakes, 7 turtles). Individual animals collected or photographed were deposited in the University of Missouri's Dean E. Metter Memorial Collection and will thus be reported as new records where appropriate and used in future updates of the *Atlas of Amphibian and Reptiles of Missouri* (http://atlas.moherp.org/). Furthermore, an official field trip report was provided to the Department of Natural Resources, the official sponsor of both field trips.

Photos and details for all association events, past and future, can be found on the "Events" page of the Association's web site (http://www.moherp.org/).

Spring 2010 Field Trip: Sam A. Baker State Park

The spring field trip was held on the weekend of 7 - 9 May 2010 at Sam A. Baker State Park, Wayne County, Missouri. The purpose of the trip was a brief survey of select portions of the park.

Seven participants caught or observed more than 216 individual reptiles and amphibians, representing a total of 30 species. Most collecting activity occurred on Sat 8 May 2010, but a few individual animals were caught on Friday or Sunday. The entire weekend was characterized by cool evening temperatures and unseasonably cool, but mostly sunny, daytime conditions. Habitats searched included woodlands, glades, streams, ponds, rivers, and roads.

A few of the observed species (including the Northern Red-bellied Snake and the Red-eared Slider) were new for the park. A complete species list is presented in Table 1.

The MHA would like to thank the Missouri Department of Natural Resources for providing permission to use state park property for the field trip. Special appreciation is extended to Tim Turpin for his hospitality and for leading the group on Saturday.

Fall 2010 Field Trip: Current River State Park

The fall field trip was held on the weekend of 24 - 26 September 2010 at Current River State Park, Shannon County, Missouri. The purpose of the trip was a brief survey of select portions of the park.

Eight participants caught or observed more than 116 individual reptiles and amphibians, representing a total of 24 species. Most collecting activity occurred on Sat 25 Sep 2010, but a few individual animals were caught on Friday. The weekend was unseasonably cool, but mostly sunny conditions prevailed during the daytime. Habitats searched included woodlands, glades, streams, ponds, rivers, and roads.

Many of the species observed represented new records for the area, including *Ambystoma annulatum* (Ringed Salamander), *Ambystoma maculatum* (Spotted Salamander), *Notophthalmus viridescens* (Central Newt), *Plethodon albagula* (Western Slimy Salamander), *Plethodon serratus* (Southern Red-backed Salamander), *Pseudacris crucifer* (Spring Peeper), *Lithobates palustris* (Pickerel Frog), *Scincella lateralis* (Little Brown Skink), and *Trachemys scripta* (Red-eared Slider). The complete species list is presented in Table 1.

The MHA would like to thank the Missouri Department of Natural Resources for providing permission to use state park property for the field trip. Special appreciation is extended to Jim Newberry, park manager, for his hospitality during the weekend.

Table 1. List of species captured or observed during the 2010 field trips. (* indicates minimum number)

Species	Common Name	No	Sam A Baker SP	Current River SP
Salamanders (Caudata)				
Ambystoma annulatum	Ringed Salamander	1		+
Ambystoma maculatum	Spotted Salamander	1		+
Notophthalmus viridescens	Central Newt	2	+	+
Hemidactylium scutatum	Four-toed Salamander	3	+	
Plethodon albagula	Western Slimy Salamander	13	+	+
Plethodon serratus	Southern Red-backed Salamander	8	+	+
Frogs and Toads (Anura)				
Anaxyrus americanus	American Toad	64*	+	
Anaxyrus fowleri	Fowler's Toad	3	+	+
Acris crepitans	Cricket Frog	31*	+	+
Hyla chrysoscelis	Cope's Gray Treefrog	1	+	
Pseudacris crucifer	Spring Peeper	9*	+	+
Lithobates catesbeianus	Bullfrog	57*	+	+
Lithobates clamitans	Green Frog	3	+	
Lithobates palustris	Pickerel Frog	1		+
Lithobates sphenocephalus	Southern Leopard Frog	15*	+	+
Lizards and Snakes (Squamata)				
Aspidoscelis sexlineata	Six-lined Racerunner	1	+	
Plestiodon fasciatus	Common Five-lined Skink	8	+	+
Plestiodon laticeps	Broad-headed Skink	1	+	
Scincella lateralis	Little Brown Skink	12*	+	+
Sceloporus consobrinus	Prairie Lizard	47*	+	+
Carphophis vermis	Western Wormsnake	8	+	+
Coluber constrictor	North American Racer	5	+	+
Diadophis punctatus	Ring-necked Snake	4	+	+
Lampropeltis getula	Speckled Kingsnake	1		+
Nerodia sipedon	Northern Watersnake	3	+	+
Storeria occipitomaculata	Northern Red-bellied Snake	1	+	
Thamnophis sirtalis	Common Gartersnake	1	+	
Crotalus horridus	Timber Rattlesnake	1	+	
Sistrurus miliarius	Western Pygmy Rattlesnake	1		+
Turtles (Testudines)				
Chelyrda serpentina	Eastern Snapping Turtle	1	+	
Sternotherus odoratus	Common Musk Turtle	2		+
Graptemys geographica	Northern Map Turtle	3	+	+
Pseudemys concinna	River Cooter	6*	+	
Terrapene carolina	Three-toed Box Turtle	7	+	+
Trachemys scripta	Red-eared Slider	6*	+	+
Apalone spinifera	Spiny Softshell	1	+	

Annual Meeting: Reis Biological Station

The 23rd Annual Meeting of the Missouri Herpetological Association was held on 16 - 17 October 2010 at Reis Biological Station near Steelville, Crawford County, Missouri.

A total of 21 members, representing ten (10) institutions and agencies, attended the meeting. Seven paper sessions were presented during the regular meeting. A brief business meeting followed the last regular presentation. Business meeting discussion topics included the date and location of the 2011 meeting.

The MHA would like to thank Saint Louis University for once again generously hosting the 2010 meeting. We wish to extend a special appreciation to Robert Aldridge and John Hutchison for making arrangements for the group to use the field station.

ADDITIONS TO THE BIBLIOGRAPHY OF REFERENCES ON THE HERPETOFAUNA OF MISSOURI

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The following is a list of references dealing with the biology of amphibians and reptiles from Missouri that have been brought to my attention since the publication of Johnson (2000), Powell and Daniel (2000), and Daniel (2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009). Readers are requested to notify the author of any additional references that should be included in future compilations.

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