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Contents

INTRODUCTION 2

ANNOUNCEMENTS 2

ABSTRACTS OF PAPERS PRESENTED AT THE TWENTY-SEVENTH ANNUAL MEETING OF THE MHA.......... 4

THE TALE OT TWO HEADS, THE NATURAL OCCURRENCE OF A TWO-HEADED TURTLE. **G.J. MANNING.**

PHYLOGEOGRAPHY AND ECOLOGICAL NICHE MODELING OF THE QUEENSNAKE (*Regina septemvittata*). **D. FILIPEK.**

CONVERGENT EVOLUTION OF BRAIN MORPHOLOGYAND COMMUNICATION MODALITIES IN LIZARDS. **C.D. ROBINSON, M.S. PATTON, B.M. ANDRE AND M.A. JOHNSON.**

ADAPTIVE DIFFERENTIATION IN MORPHOLOGY AFTER COLONIZATION OF NOVEL ENVIRONMENTS. **I.T. CLIFTON, J.D. CHAMBERLAIN AND M.E. GIFFORD**.

THE INFLUENCE OF PREY TYPE AND SIZE ON FORAGING BEHAVIOR IN THE COTTONMOUTH, *Agkistrodon piscivorus*. **K. SPIVEY AND B. GREENE.**

A COMPARISON OF TURTLE COMMUNITIES IN NATURAL AND ARTIFICIAL WETLANDS. **J.R. HARMON AND D.B. LIGON.**

LANDING IN BASAL FROGS: EVIDENCE OF SALTATIONAL PATTERNS IN THE EVOLUTION OF ANURAN LOCOMOTION. **R.L. ESSNER.**

A TALE OF TWO SALAMANDERS: COMPARING BEHAVIOR AND METABOLIC RATES. **B. DALTON, T. REEDER, R. BORTOSKY AND A. MATHIS.**

BEHAVIORAL RESPONSES OF RINGED AND SPOTTED SALAMANDERS WHEN EXPOSED TO CUES FROM PREDATORS WITH DIFFERENT DIETS. **K. SHELTON AND A. MATHIS.**

POPULATION LEVEL DIFFERENCES IN THERMAL SENSITIVITY OF ENERGY ASSIMILATION. **T.A. CLAY AND M.E. GIFFORD.**

VARIABILITY IN FUNCTIONAL RESPONSE CURVE AMONG LARVAL SALAMANDERS: COMPARISONS ACROSS SPECIES AND SIZE CLASSES. **T. ANDERSON, C. RAMIREZ, K. DODSON AND R. SEMLITSCH.**

DETERMINANTS OF DISPERSAL PATTERNS IN THE STREAM SALAMANDER, *Desmognathus brimleyorum*. **A.L. ANDERSON AND M.E. GIFFORD.**

USE OF ARTIFICIAL SHELTERS (NEST BOXES) TO SUPPLIMENT BREEDING HABITAT FOR HELLBENDERS (*Cryptobranchus alleganiensis*). **J.T. BRIGGLER AND J.R. ACKERSON.**

NEW HERPETOLOGICAL DISTRIBUTION RECORDS FOR MISSOURI IN 2015. R.E. DANIEL, B.S. EDMOND AND J.T. BRIGGLER ………………………………….……………………...................…................... 10

NATURAL HISTORY NOTES

SCAVENGING BEHAVIOR IN THE THREE-TOED BOX TURTLE (*Terrapene carolina*). **B.S. EDMOND** 15

TWO FIVE-LINED SKINK (*Plestiodon fasciatus*) CLUTCHES. **B.S. EDMOND** 16

ADDITIONS TO THE BIBLIOGRAPHY OF REFERENCES ON THE HERPETOFAUNA OF MISSOURI. R.E. DANIEL ……..… 17

AUTHOR INDEX TO THE MISSOURI HERPETOLOGICAL ASSOCIATION NEWSLETTER NUMBER 1-28 (1988-2015) 19

INTRODUCTION

The Twenty-eighth Annual Meeting of the **Missouri Herpetological Association** was held 19-20 September 2015 at, **Reis Biological Station**, in 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

29th Annual Meeting of the Missouri Herpetological Association

The Twenty-ninth Annual Meeting of the Missouri Herpetological Association will be held 17-18 September 2016. Next year we will return to the **Bull Shoals Field Station**, Taney County near Forsyth, Missouri. A "call for papers" and registration materials will be sent electronically in mid-July. For additional information, please check the official MHA site or contact **Jeff Briggler** at:

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P.O. Box 180
Jefferson City, MO 65102-0180
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MHA on the Net

The Association has an official site on the internet at http://mha.moherp.org/. Here, you will find information on meetings and copies of past newsletters. The Missouri Herpetological Atlas Project and the most recent edition of the Atlas can be accessed at http://atlas.moherp.org/.

Cover: Northern Italian Wall Lizard *(Podarcis siculus campestris)*. Gravid female from introduced population in Joplin, Jasper County, Missouri. See page 12 this issue.

Abstracts of Papers Presented at the 28th Annual Meeting of the Missouri Herpetological Association

Reis Biological Station 19-20 September 2015

THE TALE OF TWO HEADS, THE NATURAL OCCURRENCE OF A TWO-HEADED TURTLE

Glenn J. Manning
College of Mathematical and Natural Science, University of Arkansas at Monticello, Monticello, AR

On 12 April 2014, a two- headed turtle was discovered at the Greenhill United Methodist Church, Wilmar, AR. In addition to being two-headed, the turtle had two sets of front legs and only one pair of back legs. The turtle was confirmed to be an Eastern River Cooter (*Pseudemys concinna concinna*). The turtle was retained in the lab to observe behavior and to investigate anatomical structures. The right head was observed to be the dominant during feeding trials. An X-ray revealed that the split in the two individuals was approximately the sacral region. Due to complication of the polycephaly the turtle did drown due to not being able to right itself after flipping over in the shallow water of its enclosure.

PHYLOGEOGRAPHY AND ECOLOGICAL NICHE MODELING OF THE QUEENSNAKE (*Regina septemvittata*)

Derek Filipek
Biology Department, University of Central Arkansas, Conway, AR

Allopatric speciation is driven by a restriction of gene flow due to geographic isolation of populations and is considered the most common geographic mode of speciation. A significant barrier to gene flow in eastern North America is the Mississippi River which has been implicated in causing lineage divergence in a wide range of taxa groups. The Queensnake (*Regina septemvittata*) has a large contiguous range in eastern North America except for a geographically isolated population in Arkansas which represents the only population west of the Mississippi River. I hypothesize that the Arkansas population of *R. septemvittata* represents an evolutionary lineage distinct from eastern *R. septemvittata* due to the Mississippi River acting as a barrier to gene flow and the great extent of spatial separation between the two range segments. I am currently

performing phylogenetic analyses to determine if the Arkansas population represents a distinct monophyletic group (clade) compared to the eastern population using samples from throughout the distribution of the species. I am also looking at the historical demography of this species as well as making ecological niche models to test hypotheses about range-limiting factors, past range dynamics, and niche evolution. Sequencing results so far indicate little sequence divergence between the range segments (~1%) which suggests the two range segments were separated relatively recently. Ecological niche models suggest that the two range segments are currently separated by unsuitable habitat and that the species had a contiguous distribution in the Gulf Coast region during the Last Glacial Maximum (~22,000 years ago).

CONVERGENT EVOLUTION OF BRAIN MORPHOLOGY AND COMMUNICATION MODALITIES IN LIZARDS

Christopher D. Robinson, Michael S. Patton, Brittney M. Andre, and Michele A. Johnson
Department of Biology, Trinity University, San Antonio, TX

Animals can send and receive information using several types of communication modalities, including visual, chemical, auditory, and tactile. Although we understand that communication behaviors are linked to certain brain regions, we don't yet know if cellular morphology in these regions has evolved in conjunction with the use of a modality. To address this, we investigated the relationship between communication modalities and neural morphology in six lizard species. We chose two species (*Anolis carolinensis* and *Leiocephalus carinatus*) that use mainly visual forms of communication, two species (*Aspidoscelis gularis* and *Scincella lateralis*) that use mainly chemical forms of communication, and two species (*Sceloporus olivaceus* and *Hemidactylus turcicus*) that use both of these modalities to communicate. For each species we performed focal observations to quantify communications behaviors, collected 9-10 males of each species, and cryosectioned their brains to measure soma size and density in the lateral geniculate nucleus, nucleus rotundus (two areas associated with visual behaviors), and the nucleus sphericus (associated with chemical behaviors). Using phylogenetically informed statistics, we found that density of neurons in the lateral geniculate nucleus was positively correlated with rate of visual behaviors and that the size of neurons in the nucleus sphericus was positively correlated with proportion of chemical behaviors. These relationships suggest convergent evolution of neural morphology among species that use similar communication modalities.

ADAPTIVE DIFFERENTIATION IN MORPHOLOGY AFTER COLONIZATION OF NOVEL ENVIRONMENTS

Ian T. Clifton, Jeremy D. Chamberlain, and Matthew E. Gifford
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Colonization of a novel environment by a species is often associated with a divergence in phenotype from the "ancestral" population in response to the new environmental pressures such as prey availability. Morphology associated with feeding is likely influenced by prey size, especially in gape-limited predators. We studied the response of diamond-backed watersnakes (*Nerodia rhombifer*) to new environments with different prey regimes than "ancestral" environments. While *N. rhombifer* generally inhabit natural areas, they have also colonized fish farms. These farms frequently specialize in the types of fish they produce with some raising large-bodied fish and others raising small-bodied fish. We found that snakes inhabiting environments with large fish have relatively larger heads than snakes inhabiting small-prey environments. We also provide evidence that cranial traits are significantly heritable thus differences are unlikely to be greatly influenced by phenotypic plasticity.

THE INFLUENCE OF PREY TYPE AND SIZE ON FORAGING BEHAVIOR IN THE COTTONMOUTH, *Agkistrodon piscivorus*

Kari Spivey and Brian Greene
Biology Department, Missouri State University, Springfield, MO

Studies of pitviper foraging behavior have revealed that the duration of fang contact and the amount of venom expended during an envenomating strike vary across foraging contexts. Some of the variation in strike behavior appears to be explained by adaptive responses to prey type and size. For example, mammalian prey are usually released and trailed by rattlesnakes after envenomation whereas birds are held until immobilized. Similarly, rattlesnakes typically inject larger quantities of venom into larger prey which are more difficult to subdue and digest than smaller prey. To provide an ecological contrast to rattlesnakes, we used staged foraging trials to study the effects of prey body size and prey type on latency to strike and prey time to death in ten cottonmouths (*Agkistrodon piscivorus*). Two separate experiments were conducted. We evaluated the effects of prey type by comparing response variables for three common types of ecologically relevant cottonmouth prey species: five-lined skinks (*Plestiodon fasciatus*), leopard frogs (*Lithobates pipiens*) and mice (*Mus musculus*). The mean latency to strike was not significantly different across all five prey types; however, skinks survived significantly longer than any other prey type. Snakes also struck and held skinks significantly more often than other prey types. This result suggests that cottonmouths may be compensating for increased immobilization latencies in skinks to increase foraging success. Ongoing parallel studies of venom expenditure across prey types and sizes are incomplete but predictions will be discussed.

A COMPARISON OF TURTLE COMMUNITIES IN NATURAL AND ARTIFICIAL WETLANDS

Joshua R. Harmon and Day B. Ligon
Department of Biology, Missouri State University, Springfield, MO

The construction of artificial wetlands is a common means of mitigating the loss of natural wetland. Although such wetlands are often specifically managed for particular

taxa, such as waterfowl, other species may reap unintended benefits. While waterfowl and amphibian communities in artificial wetlands have been well-studied, research regarding the utilization of these artificial wetlands by aquatic and semi-aquatic turtles is limited. Using a mark-recapture approach to conduct population censuses, we compared the turtle communities of two naturally-made beaver ponds with two artificially constructed wetlands that are managed for waterfowl. We detected several turtle species using both natural and artificial wetlands, but turtle community structure and size differed among locations. The differences in the turtle communities is dependent on many factors but is most likely influenced by vegetation, depth, resource availability, and seasonality of water availability. Our results highlight the relative effectiveness of constructed wetlands as a resource for freshwater turtles. Additional work is needed to determine management prescriptions that will benefit waterfowl and aquatic turtles alike.

LANDING IN BASAL FROGS: EVIDENCE OF SALTATIONAL PATTERNS IN THE EVOLUTION OF ANURAN LOCOMOTION

Richard L. Essner, Jr.
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All frogs are assumed to jump in a similar manner by rapidly extending hindlimbs during the propulsive phase and rotating the limbs forward during flight in order to land forelimbs first. However, studies of jumping behavior are lacking in frogs of the family Leiopelmatidae which diverged from all other frogs (Lalagobatrachia) over 200 mya. These semi-aquatic or terrestrial anurans retain a suite of plesiomorphic morphological features and are unique in using an asynchronous (trot-like) rather than synchronous "frog-kick" swimming gait of other frogs. We compared jumping behavior in leiopelmatids to more derived frogs and found that leiopelmatids maintain extended hindlimbs throughout flight and landing phases and do not land on adducted forelimbs. These "belly-flop" landings limit the ability for repeated jumps and are consistent with a riparian origin of jumping in frogs. The unique behavior of leiopelmatids shows that frogs evolved jumping before they perfected landing. Moreover, an inability to rapidly cycle the limbs may provide a functional explanation for the absence of synchronous swimming in leiopelmatids.

A TALE OF TWO SALAMANDERS: COMPARING BEHAVIOR AND METABOLIC RATES

Ben Dalton, Travis Reeder, Rachel Bortosky and Alicia Mathis
Biology Department, Missouri State University, Springfield, MO

If two closely-related species share the same niche, you could expect them to not only converge on a common phenotype, but to behave similarly in when presented with similar, naturally-occurring situations. Salamanders of the genus *Plethodon* are diverse in form and wide-ranging across the eastern US. Two Missouri salamanders, *Plethodon angusticlavius* and *Plethodon serratus*, are virtually identical and, while they share the same habitat type, they have been evolutionarily separated for approximately 25mya. When presented with an exploratory experiment, in which the time to enter an unfamiliar area was recorded, the two species showed two very different responses: *P. angusticlavius* explored farther and more quickly than *P. serratus*. In an attempt to identify the underlying cause of this difference in exploratory behavior, basal metabolic rates of the two species were quantified via oxygen consumption across three temperatures. No differences between species were recorded, although temperature had a very significant effect on metabolic rate. In light of this difference in exploratory behavior, yet no difference in basal metabolism, other hypotheses must be explored.

BEHAVIORAL RESPONSES OF RINGED AND SPOTTED SALAMANDERS WHEN EXPOSED TO CUES FROM PREDATORS WITH DIFFERENT DIETS.

Kayla Shelton and Alicia Mathis
Biology Department, Missouri State University, Springfield, MO

Multiple species of *Ambystoma* can sometimes coexist in ponds, creating the potential for intra-guild predation. In the Ozarks, ringed salamanders (*Ambystoma annulatum*) can coexist with marbled salamanders (*A. opacum*) and spotted salamanders (*A. maculatum*). Ringed and marbled salamanders lay their eggs in ponds in the fall and overwinter as larvae, whereas spotted salamanders breed in the spring. Ringed and marbled salamander larvae can be cannibalistic and can prey upon larvae of the other two species. Larvae should experience increased survival if they can discriminate between predators that have recently consumed another salamander (high risk) versus those that have not (low risk). We exposed two life stages of ringed and spotted salamanders to chemical cues from marbled salamanders that had consumed different diets and quantified their responses. Embryos of spotted salamanders showed increased gill pulses in response to cues from predators that had consumed congeneric *Ambystoma* than predators that had consumed worms. Larval ringed salamander showed increased movements in response to predators that had consumed a conspecific versus a worm. Therefore, predator diet influences responses of both embryonic and larval ambystomatid salamanders.

POPULATION LEVEL DIFFERENCES IN THERMAL SENSITIVITY OF ENERGY ASSIMILATION.

[1]Timothy A. Clay and [2]Matthew E. Gifford
[1]Department of Biology, University of Arkansas at Little Rock, Little Rock, AR
[2]Biology Department, University of Central Arkansas, Conway, AR

Previous work has shown that among species of terrestrial salamanders, thermal performance metrics are correlated with average environmental conditions. Species with large ranges usually encompass a wide range of environmental gradients as a result of variations in elevation or latitude. Given a large range of environmental conditions, we

could expect to see population level adaptations to local environmental conditions. We explored the thermal sensitivity of energy assimilation within two species of Plethodon to answer: are there local adaptations to environmental conditions and are these consistent with theoretical predictions? We examined populations at the extremes for each species, with respect to latitude, populations that were separated by 500km and with respect to elevation, populations that were separated by 900m. Controlled feeding trials were conducted at ecologically relevant temperatures to produce thermal performance curves for each population. Preliminary work suggests that elevation and latitude affects thermal sensitivity of energy assimilation. Specifically, populations from warmer environments, low elevation or low latitude, may have higher assimilation rates than populations from cooler environments, high elevation and high latitudes. These preliminary observations are consistent with a pattern of co-gradient variation.

VARIABILITY IN FUNCTIONAL RESPONSE CURVES AMONG LARVAL SALAMANDERS: COMPARISONS ACROSS SPECIES AND SIZE CLASSES

Tom Anderson, Cristina Ramirez, Katelyn Dodson and Ray Semlitsch
Division of Biological Sciences, University of Missouri, Columbia, MO

Predator species and body size represent critical factors that have differential effects on prey populations, as well as overall community structure. However, investigations of how morphologically-similar predator species, simultaneous to variation in predator body size, influence lower trophic levels are infrequently performed. We tested whether predator species and body size influenced the functional response curve of three larval ambystomatid salamanders (*Ambystoma annulatum*, *A. opacum* and *A. maculatum*) while eating congeneric prey. We combined larval salamanders of varying body sizes with up to six prey densities within experimental microcosms. We tested for the shape of the functional response curve, and obtained parameter estimates for attack rate and handling time for each predator size-species combination. We found variability among both species and size classes, with a combination of Type I and Type II functional response curves. Large size classes of predators had higher attack rates than smaller size classes, but equivalently sized larvae of different species exhibited differences in attack rates and handling time. Our study shows that predation risk varies depending on the size structure and diversity of predators present in a food web, and that grouping predators by either species or size class may reduce the ability to predict changes in community structure resulting from such interactions.

DETERMINANTS OF DISPERSAL PATTERNS IN THE STREAM SALAMANDER, *Desmognathus brimleyorum*

Amber L. Anderson and Matthew E. Gifford
Biology Department, University of Central Arkansas, Conway, AR

Dispersal is fundamental to evolution, population demography, and community assembly. Understanding the mechanisms that influence dispersal is especially important

in the context of landscape fragmentation and global climate change. An individual's propensity to disperse is dependent on a variety of both extrinsic and intrinsic factors. A spatially explicit mark recapture study is being conducted to better understand the multiple factors influencing dispersal and population dynamics in the stream salamander, *Desmognathus brimleyorum*. The aim of this study is to effectively make population level predictions about factors influencing dispersal and how it contributes to population dynamics of *D. brimleyorum* within a stream corridor. There is an observed upstream dispersal bias; future investigations intend to determine the factors that influence upstream dispersal. We predict that there will be an association between survival rates and habitat variation along the stream corridor and that the traits of individuals will correlate with dispersal phenotypes.

USE OF ARTIFICIAL SHELTERS (NEST BOXES) TO SUPPLEMENT BREEDING HABITAT FOR HELLBENDERS (*Cryptobranchus alleganiensis*)

[1]Jeffrey T. Briggler and [2] John R. Ackerson
[1]Missouri Department of Conservation, Jefferson City, MO
[2] Missouri Department of Conservation, West Plains, MO

Currently, there are two recognized subspecies of hellbenders; the Ozark hellbender (*C. a. bishopi*) and the eastern hellbender (*C. a. alleganiensis*). Both subspecies are found in the Ozark Highlands of Missouri and have experienced severe population declines with limited evidence of recruitment. With the multitude of threats for this aquatic salamander, as well as the decline, considerable resources have been devoted to artificial propagation efforts to sustain and restore populations in Missouri. Part of these efforts is to collect eggs from the wild to hatch and head-start resulting larvae and juveniles at propagation facilities. Therefore, we designed and experimented with artificial shelters (i.e., nest boxes) in both wild and captive situations to increase our ability to obtain egg clutches. Three experimental prototypes were constructed and tested in the wild in 2008 and 2009 with some occupancy by adult hellbenders. Modifications of one of the original prototypes however, led to the first clutch of Ozark hellbender eggs deposited within a nest box in 2010. With this initial success achieved, additional nest boxes have been used throughout Missouri's rivers for both Ozark and eastern hellbender populations resulting in >15 egg clutches in the last three years. The use of such artificial shelters has also advanced the knowledge and understanding of breeding behavior and phenology of this species. This innovative approach has played a vital role in the recovery of this species in Missouri and may be of benefit rangewide.

NEW HERPETOLOGICAL DISTRIBUTION RECORDS FOR MISSOURI IN 2015

Richard E. Daniel[1], Brian S. Edmond[2] and Jeffrey T. Briggler[3]
[1]Division of Biological Sciences, University of Missouri, Columbia, MO 65211
[2]Computer Services, Missouri State University, Springfield, MO 65897
[3]Missouri Department of Conservation, P.O. Box 180, Jefferson City, MO 65102

The following list represents new county records accumulated or brought to our attention since the publication of Daniel and Edmond (2014) and Daniel, *et al*. (2014). Publication of these records extends our knowledge of the amphibians and reptiles found within the state of 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 contributed information or specimens.

The records listed below represent the first report 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), catalogue number and institution where the specimen is deposited.

Specimens reported in this note have been deposited in the Dean E. Metter Memorial Collection, University of Missouri, Columbia, MO (UMC) and Natural History Museum of Los Angeles County, Los Angeles, CA (LACM). Unless otherwise indicated, all distribution records are documented by post-metamorphic/hatchling fluid preserved specimens.

We would like to extend our appreciation to A. Braun, D. Brown, T. Carpenter, M. Cravens, J. Dawson, D. Hoisington, R. Krager, D. McKnight, A. Nicholson, D. Siegel, S. Snow, M. Stanley, S. Staten, G. Stoner, B. Swearingen, R. Thies, M. Tovar, and S. Tracy for contributing photographs that were used in this note.

AMPHIBIA: CAUDATA (SALAMANDERS)

SMALL-MOUTHED SALAMANDER

Ambystoma texanum

Gasconade Co.: 4.19km SSE Pershing (T44N R6W S28); March 2015; S. Staten (digital image, UMC 2866P).

Moniteau Co.: 3.58km NNW Latham (T44N R16W S9); May 2015; S. Staten (larva; digital image, UMC 2765P).

CENTRAL NEWT

Notophthalmus viridescens

Cole Co.: Scrivner Road Conservation Area (T43N R13W S7); 12 May 2015; J. Briggler (digital image, UMC 3030P).

AMPHIBIA: ANURA (FROGS AND TOADS)

GREAT PLAINS TOAD

Anaxyrus cognatus

Platte Co.: 3.09km SE Waldron (T51N R35W S25); 7 May 2015; M. Tovar (digital image, UMC 2762P).

FOWLER'S TOAD
Anaxyrus fowleri
Osage Co.: Painted Rock Conservation Area (T42N R11W S2); 13 May 2015; J. Briggler (digital image, UMC 3038P).

WOODHOUSE'S TOAD
Anaxyrus woodhousii
Boone Co.: Eagle Bluffs Conservation Area (T47N R14W S13); 6 July 2015; R. Daniel (UMC 8907).

EASTERN NARROW-MOUTHED TOAD
Gastrophryne carolinensis
Montgomery Co.: Grand Bluff Conservation Area (T46N R6W S33); 24 October 2015; R. Thies, K. Irwin (digital image, UMC 2995P).
St. Charles Co.: Weldon Springs Conservation Area (T45N R3E S4); 2 October 2015; R. Thies (digital image, UMC 2991P).

GREEN TREEFROG
Hyla cinerea
Cape Girardeau Co.: Cape Girardeau, Old Rt. V (T31N R14E S21); 19 June 2015; J. Davenport, D. Siegel (digital image, UMC 2804P) (Davenport and Siegel, 2015).
Greene Co.: Lake Springfield (T28N R21W S20); 1 May 2013; D. McKnight (digital image, UMC 2764P).

GRAY TREEFROG
Hyla versicolor
Callaway Co.: 6.66km SSW of Holts Summit (T44N R11W S15); 28 May 2015; R. Daniel (digital image, UMC 2791P).

AMERICAN BULLFROG
Lithobates catesbeianus
Platte Co.: 6.95km W Parkville (T51N R34W S31); 7 May 2015; D. Tovar (digital image, UMC 2761P).

WOOD FROG
Lithobates sylvaticus
Iron Co.: Taum Sauk Mountain State Park (T33N R3E S4); 30 September 2015; M. Cravens, D. Jones (digital image, UMC 2987P).

REPTILIA: SQUAMATA (LIZARDS)
MEDITERRANEAN HOUSE GECKO
Hemidactylus turcicus
Newton Co.: Joplin (T27N R33W S24); 3 August 2015; A. Braun (digital image, UMC 2982P).

WESTERN SLENDER GLASS LIZARD
Ophisaurus attenuatus
Cedar Co.: 14.86km WNW Stockton (T34N R28W S1/2); July 2015; B. Hesington (digital image, UMC 2986P).

ITALIAN WALL LIZARD
Podarcis siculus
Jasper Co.: Joplin (T27N R33W S3); 11 October 2013; J. Briggler, R. Rimer (UMC 8890-8892) (Briggler *et al*., 2015).

REPTILIA: SQUAMATA (SNAKES)
COPPERHEAD
Agkistrodon contortrix
Ralls Co.: Mark Twain Lake (T55N R6W S9); 27 July 2015; B. Edmond, B. Lichtenberg (digital image, UMC 2930P).

WESTERN WORMSNAKE
Carphophis vermis
Osage Co.: Painted Rock Conservation Area (T42N R11W S2); 13 May 2015; J. Briggler (digital image, UMC 3031P).

TIMBER RATTLESNAKE
Crotalus horridus
Benton Co.: 4.12km NNE Hastain (T40N R20W S17); 1 September 2015; C. Lutjen (digital image, UMC 2988P).

PRAIRIE KINGSNAKE
Lampropeltis calligaster
Putnam Co.: 5.05km SSW Chariton (T66N R17W S15); 6 June 2015; R. Daniel (UMC 8906).

SPECKLED KINGSNAKE
Lampropeltis holbrooki
Henry Co.: Rt. C, 4.67km NNW of Leesville (T42N R24W S27/34); 9 April 2015; J. Briggler (digital image, UMC 3033P).

PLAIN-BELLIED WATERSNAKE
Nerodia erythrogaster
Lawrence Co.: 4.82km NW Monette (T26N R28W S24); 20 May 2015; R. Krager, J. Conner, A. Conner (digital image, UMC 2994P).

ROUGH GREENSNAKE
Opheodrys aestivus
Barton Co.: Prairie State Park (T32N R33W S8/17); 15 October 2015; D. Hoisington (digital image, UMC 2993P).

WESTERN RATSNAKE
Pantherophis obsoletus
Nodaway Co.: Bilby Ranch Lake Conservation Area (T64N R38W S10); 27 May 2015; J. Briggler, G. Stephenson, B. Gordon (digital image, UMC 3036P).
Saline Co.: 5.76km W of Glasgow (T51N R18W S6); 6 June 2015; R. Daniel (digital image, UMC 2792P).

EASTERN FOXSNAKE
Pantherophis vulpinus
St. Louis Co.: location withheld; 1 October 2014; J. Dawson (digital image, UMC 3039P).

NORTHERN RED-BELLIED SNAKE
Storeria occipitomaculata
Madison Co.: Rt. D, 1.94km SW Oak Grove (T33N R6E S8); 21 March 2015; A. Nicholson (digital image, UMC 2755P).

WESTERN RIBBONSNAKE
Thamnophis proximus
Nodaway Co.: Bilby Ranch Lake Conservation Area (T64N R38W S15); 16 April 2015; J. Briggler, G. Stephenson, B. Gordon (digital image, UMC 3035P).
Pettis Co.: 5.4km E Beaman (T46N R20W S13); 25 May 2015; R. Daniel (digital image, UMC 2788P).

COMMON GARTERSNAKE
Thamnophis sirtalis
Nodaway Co.: Bilby Ranch Lake Conservation Area (T64N R38W S22); 16 April 2015; J. Briggler, G. Stephenson, B. Gordon (digital image, UMC 3034P).
Putnam Co.: MO 149, Graysville (T65N R17W S11); 11 October 2015; R. Daniel (digital image, UMC 2864P).

LINED SNAKE
Tropidoclonion lineatum
Schuyler Co.: 7.55km W of Lancaster (T66N R14W S14); 11 October 2015; R. Daniel (digital image, UMC 2859P).

REPTILIA: TESTUDINES (TURTLES)
WESTERN PAINTED TURTLE
Chrysemys picta
Newton Co.: George Washington Carver National Monument (T26N R31W S7); 11 March 2015; B. Swearington (digital image, UMC 2767P).
Sullivan Co.: 3.46km NE Humphreys (T62N R21W S29/30); 6 June 2015; R. Daniel (digital image, UMC 2798P).

NORTHERN MAP TURTLE
Graptemys geographica
Newton Co.: Shoal Creek (T25N R31W S7); 2 May 2015; D. McKnight, B. Edmond, D. Ligon (digital image, UMC 2898P).

FALSE MAP TURTLE
Graptemys pseudogeographica
Atchison Co.: Missouri River floodplain (T65N R42W S33); 10 September 2014; B. Hubbs (digital image, LACM PC 1860) (Hubbs, 2015).

RIVER COOTER
Pseudemys concinna
Greene Co.: Lake Springfield (T28N R21W S20); 29 May 2015; B. Swearingen (digital image, UMC 2766P).
Howell Co.: 8.32km SW West Plains (T23N R9E S13); 2 April 2015; A. George (digital image, UMC 2756P).
Stone Co.: James River (T26N R22W S8); 21 March 2015; D. McKnight, B. Edmond, D. Ligon (digital image, UMC 2875P).

EASTERN MUSK TURTLE
Sternotherus odoratus
Franklin Co.: Shaw Nature Reserve (T43N R2E S8); 22 June 2015; D. Brown (digital image, UMC 2818P).
St. Clair Co.: Bartle Scout Camp (T39N R24W S34); 9 August 2015; G. Stoner (digital image, UMC 3028P).

Literature Cited

Briggler, J.T., R.L. Rimer and G. Deichsel. 2015. First record of the Northern Italian Wall Lizard (*Podarcis siculus campestris*) in Missouri. *IRCF Reptiles & Amphibians* 22(1): 43-45.
Collins, J.T. 1989. New records of amphibians and reptiles in Kansas for 1989. *Kansas Herpetological Society Newsletter* (78): 16-21.
Daniel, R.E. and B.S. Edmond. 2014. *Atlas of Missouri Amphibians and Reptiles for 2013*. <http://altlas.moherp.org/pubs/atlas13.pdf>.
Daniel, R.E., B.S. Edmond and J.T. Briggler. 2014. New herpetological distribution records for Missouri in 2014. *Missouri Herpetological Association Newsletter*. (27): 15-18.
Davenport, J.M. and D.S. Siegel. 2015. Geographic distribution: USA: Missouri: *Hyla cinerea*. *Herpetological Review* 46(3): 378.
Hubbs, B. 2015. Geographic distribution: USA: Missouri: *Graptemys pseudogeographica*. *Herpetological Review* 46(4): 565.

Adult male *Podarcis siculus campestris*. Jasper County, MO.

NATURAL HISTORY NOTES

SCAVENGING BEHAVIOR IN THE THREE-TOED BOX TURTLE (*Terrapane carolina*)

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On 30 August 2015, at approximately 1114 hours, I observed an adult female *Terrapene carolina* consuming a DOR Hackberry Butterfly, *Asterocampa celtis,* (Lepidoptera: Nymphalidae: Apaturinae) on Polk County road S-11 approximately 5.7 km southeast of Bona, Missouri (Figure 1).

Three-toed box turtles are dietary generalists and will consume nearly anything that is readily available. Scavenging behavior in box turtles has been widely reported (see Dodd 2002 for a summary for the genus), but most reports are of consumption of vertebrate carrion.

This is the first known report of a *T. carolina* consuming a butterfly species and the first report of a box turtle consuming roadkill.

Figure 1. Female *Terrapene carolina* feeding on roadkill *Asterocampa celtis* (UMC 2940P).

Literature Cited

Dodd, C.K. 2002. *North American Box Turtles: A Natural History*. University of Oklahoma Press, Norman, OK. 231 Pp.

TWO FIVE-LINED SKINK (*Plestiodon fasciatus*) CLUTCHES

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On 24 June 2015, Julian Edmond and I found and excavated two Five-Lined Skink (*Plestiodon fasciatus*) nests in a native plant garden 7.3 km northwest of Willard, Greene County, Missouri. The first nest was found after accidentally dislodging a flat rock. The second nest was discovered after we moved a second rock to excavate the first nest. The rocks were slabs of sandstone approximately 45 x 20 x 10 cm. Both nests initially contained attendant, guarding females, both of which escaped after the first encounter. The female from the second nest attempted to return to the site at least three times during the excavation.

The first nest contained twelve (12) eggs, with a mean mass 0.72 ± 0.06g (range, 0.6-0.8g), mean length 13.82 ± 0.47mm (range, 13.13-14.74mm), and mean width 9.95 ± 0.30mm (range, 9.44-10.50mm). The second nest contained eleven (11) eggs, with a mean mass 0.65 ± 0.05g (range, 0.6-0.7g), mean length 13.01 ± 0.35mm (range, 12.20-13.45mm), and mean width 9.77 ± 0.26mm (range, 9.44-10.32mm).

Both clutches were relocated to plastic containers, seated in moist, partially decomposed leaf and twig litter from the site, and allowed to incubate (Figure 1) out of direct sunlight. Twenty-two animals hatched on or about 14 July 2015 and were photographed (Figure 2) and released at the site on 15 July 2015.

Clutch sizes from this observation are consistent with other observations (Smith 1961, Trauth *et al.* 2004), though most nests were recovered from rotten logs. Individual egg sizes are comparatively small, but the eggs are known to expand somewhat as they age, particularly in the presence of moisture (Cagle 1940).

Other clutches observed in Missouri include four recovered from depressions in the soil under limestone rocks (Anderson 1965). Those clutches contained 8, 10, 12, and 13 eggs. On 30 June 2000, two clutches were observed in central Missouri (R. Daniel, pers. com.), one in Howard County under bark on a downed log with 10 eggs and another in Randolph County in a rotten log with 11 eggs. Both nests were found with attendant females, but the Howard County female escaped. Both clutches (UMC 7056, 7058) and the Randolph County female (UMC 7057) were deposited in the Dean E. Metter Memorial Collection at the University of Missouri.

Figure 1. Relocated partial clutch of *P. fasciatus.*

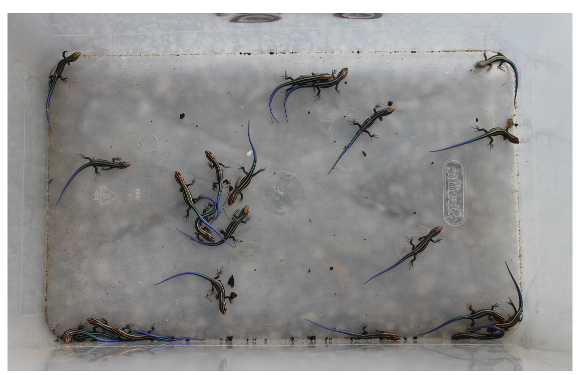

Figure 2. Hatchling *P. fasciatus*.

Literature Cited

Anderson, P. 1965. *The Reptiles of Missouri.* University of Missouri Press, Columbia, MO., xxiii+330 p.

Cagle, F. R. 1940. Eggs and Natural Nests of *Eumeces fasciatus*. *American Midland Naturalist*

23: 227-233.
Smith, P. W. 1961. The Amphibians and Reptiles of Illinois. *Illinois Natural History Survey Bulletin* 28(1): 1-298.
Trauth, S. E., H. W. Robison, and M. V. Plummer. 2004. *The Amphibians and Reptiles of Arkansas*. University of Arkansas Press, Fayetteville. xviii + 421 p.

ADDITIONS TO THE BIBLIOGRAPHY OF HERPETOFAUNAL REFERENCES FOR 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 the attention of the author since the publication of Daniel (2014). Readers are requested to notify the author of any additional references that should be included in future compilations.

Anderson, T.L., B.H. Ousterhout, W.E. Peterman, D.L. Drake, R.D. Semlitsch. 2015. Life history differences influence the impacts of drought on aquatic survival and occupancy of two pond-breeding salamanders. *Ecological Applications* 25(7): 1896-1910.
Briggler, J.T., R.L. Rimer and G. Deichsel. 2015. First record of the Northern Italian Wall Lizard (*Podarcis siculus campestris*) in Missouri. *IRCF Reptiles & Amphibians* 22(1): 43-45.
Daniel, R.E., B.S. Edmond and J.T. Briggler. 2014. New herpetological distribution records for Missouri in 2014. *Missouri Herpetological Association Newsletter*. (27): 15-18.
Davenport, J.M. and D.S. Siegel. 2015. Geographic distribution: USA: Missouri: *Hyla cinerea*. *Herpetological Review* 46(3): 378.
Drake, D.L., B.H. Ousterhout, J.R. Johnson, T.L. Anderson, W.E. Peterman, C.D. Shulse, D.J. Hocking, K.L. Lohraff, E.B. Harper, T.A.G. Rittenhouse, B.B. Rothermel, L.S. Eggert and R.D. Semlitsch. 2015. Pond-breeding amphibian community composition in Missouri. *The American Midland Naturalist* 174(1): 180-187.
Edmond, B.S. and R.E. Daniel. 2014. A new kingsnake for Missouri and some comments on the biogeography of southeast Missouri. *Missouri Herpetological Association Newsletter*. (27): 18-21.
Gordon, N.M. and M. Hellman. 2015. Dispersal distance, gonadal steroid levels, and body condition in Gray Treefrogs (*Hyla versicolor*): seasonal and breeding night variation in females. *Journal of Herpetology* 49(4): 655-661.
Hubbs, B. 2015. Geographic distribution: USA: Missouri: *Graptemys pseudogeographica*. *Herpetological Review* 46(4): 565.
Humfeld, S.C. and B. Grunert. 2015. Effects of temperature on spectral preferences of female Gray Treefrogs (*Hyla versicolor*). *Herpetological Conservation and Biology* 10(3): 1013-1020.
Jensen, E.L., P. Govindarajulu and M.A. Russello. 2015. Genetic assessment of taxonomic uncertainty in painted turtles. *Journal of Herpetology* 49(2): 314-324.
McCluskey, E.M. and D. Bender. 2015. Genetic structure of Western Massasauga Rattlesnakes (*Sistrurus catenatus tergeminus*). *Journal of Herpetology* 49(3): 343-348.

O'Donnell, K.M. and R.D. Semlitsch. 2015. Advancing terrestrial salamander population ecology: The central role of imperfect detection. *Journal of Herpetology* 49(4): 533-540.

Peterman, W.E., T.L. Anderson, B.H. Ousterhout, D.L. Drake, R.D. Semlitsch and L.S. Eggert. 2015. Differential dispersal shapes population structure and patterns of genetic differentiation in two sympatric pond breeding salamanders. *Conservation Genetics* 16(1): 59-69.

Semlitsch, R.D. and D.L. Drake. 2015. Structure and dynamics of *Lithobates sylvaticus* (Wood Frog) at the periphery of its range in Missouri. *Southeastern Naturalist* 14(2): 329-341.

Semlitsch, R.D., W.E. Peterman, T.L. Anderson, D.L. Drake, and B.H. Ousterhout. 2015. Intermediate pond sizes contain highest density, richness, and diversity of pond-breeding amphibians. *PLOS One* 10:e0123055, doi:10:1371/journal.pone. 0123055.

Thesing, B.D., R.D. Noyes, D.E. Starkey and D.B. Shepard. 2015. Pleistocene climatic fluctuations explain the disjunct distribution and complex phylogeographic structure of the Southern Red-backed Salamander, *Plethodon serratus*. *Evolutionary Ecology* doi:10.1007/s10682-015-9794-3: 1-16.

Literature Cited

Daniel, R.E. 2014. Additions to the bibliography of references on the herpetofauna of Missouri. *Missouri Herpetological Association Newsletter*. (27): 22-24.

Author Index to Missouri Herpetological Association Newsletter 1988-2015 (Number 1-28)

Alamillo, H. 2003. Tail autotomy in six species of *Amphisbaena* (Amphisbaenia, Reptilia) from the Antilles. *Abstract* (16): 3.

Aldridge, R. 1990. Preliminary data on the reproductive biology of the Diamondback Water Snake (*Nerodia rhombifer*) from Veracruz, Mexico. *Abstract* (3): 2.

Aldridge, R.D. 1996. Mating season and cost of reproduction in the Glossy Snake (*Arizona elegans*). *Abstract* (9): 8.

Aldridge, R.D. 1998. Effects of nutrition on the reproductive biology of the Brown Tree Snake (*Boiga irregularis*). *Abstract* (11): 4.

Aldridge, R.D. 1999. Evolution of mating season in rattlesnakes (Crotalinae). *Abstract* (12): 3.

Aldridge, R.D. 2000. The evolution of the mating season in the pitvipers of North America. *Abstract* (13): 3.

Aldridge, R.D. 2002. Hormonal control of male reproductive behavior and the reproductive cycle of the colubrid snakes of temperate North America. *Abstract* (15): 3.

Aldridge, R.D. 2003. Herpetological theses and dissertations at St. Louis University. Addendum. Additions to the bibliography on the herpetofauna of Missouri. (16): 20.

Aldridge, R.D. 2006. Courtship behavior and evacuation of the urinary ducts in captive Brown House Snakes (*Lamprophis fuliginosus*). *Abstract* (19): 7.

Aldridge, R.D. 2008. Colubrid snakes of North America. *Abstract* (21): 4.

Aldridge, R.D. and A. Arackal. 2004. Reproductive biology and stress of captivity in male Brown Treesnakes (*Boiga irregularis*) on Guam. *Abstract* (17): 3.

Aldridge, R.D. and W.S. Brown. 1994. The cost of reproduction in male snakes. *Abstract* (7): 2.

Aldridge, R.D. and A.P. Bufalino. 2003. Courtship, mating, and pheromone communication in the watersnake, *Nerodia sipedon*, in the wild. *Abstract* (16): 3.

Aldridge, R.D. and J.M. Cox. 2005. Reproductive biology of the massasauga (*Sistrurus catenatus*) from south-central Illinois. *Abstract* (18): 7.

Aldridge, R.D., B.C. Jellen and D.S. Siegel. 2009. Seasonal variation in the relative mass of the testis and sexual segment of the kidney in the Ophidia. *Abstract* (22): 5-6.

Aldridge, R.D., D.A. Kangas and J.M. Jones. 2003. (Poster) Amphibian pond selection: an inquiry based study-I. Introduction. *Abstract* (16): 4.

Aldridge, R.D. and M.V. Plummer. 1988. The male reproductive biology of the Rough Green Snake (*Opheodrys aestivus*). *Abstract*. (1): 3.

Aldridge, R.D. and A.A. Reeves. 1995. Pheromone communication in the Northern Water Snake, *Nerodia sipedon*. *Abstract* (8): 3-4.

Aldridge, R.D. and D.S. Siegel. 2011. Spermatogenic cycles of snakes and lizards. *Abstract* (24): 4.

Aldridge, R.D. and K.A. Williams. 1995. Seasonal patterns of feeding and coelomic fat mass in the Diamondback Water Snake (*Nerodia rhombifer*) in Veracruz, Mexico. *Abstract* (8): 4.

Aldridge, R.D. and S.S. Wisniewski. 2007. The structure and function of copulatory "plug" in the African Brown House Snake (*Lamprophis fuliginosus*). *Abstract* (20): 8.

Altnether, S. 2003. Subterranean oviposition in the Worm Snake, *Carphophis vermis*. (16): 16.

Anders, B. and D. Moll. 2007. Turtle community structure in an urban Ozark stream. *Abstract* (20): 6.

Anderson, A.L. and M.E. Gifford. 2015. Determinants of dispersal patterns in the stream salamander, *Desmognathus brimleyorum*. *Abstract* (28): 8-9.

Anderson, C. and W. Drda. 2001. Preliminary data from TRRP (Timber Rattlesnake Research Project). *Abstract* (14): 3.

Anderson, C. and W. Drda. 2002. Preliminary data on movement patterns in a western range Timber Rattlesnake population. *Abstract* (15): 3.

Anderson, K., A. Mathis, and B. Dalton. 2014. Response to chemical alarm cues of Oklahoma Salamander by sympatric and allopatric Rainbow Darters. *Abstract* (27): 4-5.

Anderson, T.L., B.H. Ousterhout, W.E. Peterman, D.L. Drake, J. Burkhart, F. Rowland, L.S. Eggert and R.D. Semlitsch. 2014. Biotic and abiotic influences on larval salamander abundance, occupancy and body size. *Abstract* (27): 6-7.

Anderson, T., C. Ramirez, K. Dodson and R. Semlitsch. 2015. Variability in functional response curves among larval salamanders: comparisons across species and size classes. *Abstract* (28): 8.

Anthony, T.L. and D.B. Ligon. 2011. Freshwater turtle community composition in three rivers in northeastern Oklahoma. *Abstract* (24): 4-5.

Anthony, T., D. Riedle and D. Ligon. 2012. Reintroduction of a long-lived species: the Alligator Snapping Turtle. *Abstract* (25): 5.

Ashley, C.D. 2004. A report on a species of ectoparasite on the Grotto Salamander (*Typhlotriton spelaeus*) in Tumbling Creek Cave, Taney County, Missouri. *Abstract* (17): 3.

Ausberger, T. and M. Mills. 2010. Using cover boards to examine biodiversity in the loess hills at Squaw Creek National Wildlife Refuge. *Abstract* (23): 3.

Ausberger, T., K. Sheehan, C. Zirkle and M.S. Mills. 2009. Population ecology and metapopulation dynamics of turtles on Missouri Western State University. *Abstract* (22): 3.

Ballard, S.R. 1994. The Mississippi Green Water Snake (*Nerodia cyclopion*) in Illinois: status and distribution. *Abstract* (7): 5.

Banbury, B.L., K. Buchholz and A. Maglia. 2003. Preliminary analyses of cranial development in spadefoot toads. *Abstract* (16): 4.

Barnes, C.L. and M.E. Gifford. 2011. Thermal sensitivity of energy consumption in montane and lowland salamanders. *Abstract* (24): 5.

Barrett, K., W. Anderson and A. Wait. 2001. Lizard communities and habitat subsidies on islands in the Gulf of California. *Abstract* (14): 3.

Bass, M.N. 2012. The Missouri River Fish and Wildlife mitigation. Herps: the gift that keeps on giving. *Abstract* (25): 4.

Bellows-Blakely, S. 2000. Observations on the snakes of the Red Hills, Kansas. *Abstract* (13): 3.

Birt, R., R. Powell and A. Mathis. 1996. Aspects of the ecology of *Anolis barkeri*, a semi-aquatic lizard from southern Mexico. *Abstract* (9): 7.

Bodie, J.R. and R.D. Semlitsch. 1996. Aquatic turtle distribution and abundance in Missouri River flood plain wetlands. *Abstract* (9): 6-7.

Bodie, J.R. and R.D. Semlitsch. 1997. Size-dependent mortality and selection in natural populations of aquatic turtles. *Abstract* (10): 6.

Boeckman, D., M. Clark, R. Powell, B. Greene and J.D. Lynch. 1997. *Eleutherodactylus loki* (Leptodactylidae): natural history and polymorphism, with notes on the leaf litter frog community of the Los Tuxtlas region, Veracruz, Mexico. *Abstract* (10): 7.

Bogosian, V. 2012. Turtle populations of an intensively managed MDC wetland area. *Abstract* (25): 6.

Boone, M.D. 1999. Latent effects of the aquatic environment: size and overwintering survival of juvenile frogs. *Abstract* (12): 3-4.

Boone, M.D. and C.M. Bridges. 1998. Effects of temperature on the potency of Carbaryl for survival of Green Frog tadpoles, *Rana clamitans*. *Abstract* (11): 3.

Boone, M.D., D.C. Scott and P.H. Niewiarowski. 1996. The boon of predation: competitive and predatory interactions of ambystomatid salamanders in large-scale field enclosures. *Abstract* (9): 3-4.

Boone, M.D. and R.D. Semlitsch. 1997. Effects of an insecticide on amphibian communities under different levels of biotic stress. *Abstract* (10): 4.

Bortosky, R. and A. Mathis. 2013. Honest signaling in aggressive contests between Ozark Zigzag Salamanders (*Plethodon angusticlavius*). *Abstract* (26): 5.

Bortosky, R. and A. Mathis. 2014. Honest signaling in aggressive contests between Ozark Zigzag Salamanders (*Plethodon angusticlavius*). *Abstract* (27): 5.

Brauner, D. 1997. Reproductive behavior of the Marbled Salamander, *Ambystoma opacum*. *Abstract* (10): 7.

Brennan, A.M., B. Greene, T. Tomasi and A. Mathis. 2003. The effect of temperature and digestion on metabolism in the rat snake *Elaphe obsoleta*. *Abstract* (16): 4.

Bridges, C.M. 1996. Effects of an agricultural chemical on tadpole activity and swimming performance. *Abstract* (9): 6.

Bridges, C. 1997. Tadpoles balance the conflicting demands of foraging and predator avoidance: the effects of predation, pond drying and hunger. *Abstract* (10): 3.

Bridges, C.M. 1998. Genetic variation in *Rana sphenocephala* in response to an agricultural chemical: implications for amphibian conservation. *Abstract* (11): 4.

Briggler, J.T. 2001. Small grant reports submitted to the Missouri Department of Conservation. Addendum: Additions to the bibliography of amphibians and reptiles in Missouri. (14): 18-19.

Briggler, J.T. 2004. Trace from the past: herpetofauna discoveries. *Abstract* (17): 4.

Briggler, J.T. 2004. Rediscovery of the Dusty Hog-nosed Snake (*Heterodon nasicus gloydi*) in Missouri. (17): 13.

Briggler, J.T. 2005. Eastern Collared Lizard (*Crotaphytus collaris*) range extension plan: success or failure. *Abstract* (18): 5.

Briggler, J.T. 2006. State wildlife grants and important herpetofaunal areas. *Abstract* (19): 7-8.

Briggler, J.T. 2008. Amphibian chytrid fungus (*Batrachochytrium dendrobatidis*) in amphibian populations in Missouri. *Abstract* (21): 8.

Briggler, J.T. 2010. Hellbenders (*Cryptobranchus alleganiensis*) status report. *Abstract* (23): 5.

Briggler, J.T. and J.R. Ackerson. 2015. Use of artificial shelters (nest boxes) to supplement breeding habitat for hellbenders (*Cryptobranchus alleganiensis*). *Abstract* (28): 9.

Briggler, J.T. and W.L Puckette. 2002. Observations on the reproductive biology and brooding behavior of the Ozark Zigzag Salamander, *Plethodon angusticlavius*. *Abstract* (15): 3-4.

Brinkman, L., J. Ray and B. Greene. 2013. Natural history and conservation of salamanders in central Panama. *Abstract* (26): 4.

Brinkman, L., J. Ray and B. Greene. 2014. Natural history and conservation of salamanders in central Panama. *Abstract* (27): 7.

Britzke, E. and A. Mathis. 1994. Body size asymmetries influence agonistic displays by the Ozark Zigzag Salamander, *Plethodon dorsalis*. *Abstract* (7): 3.

Bufalino, A.P. 2000. The distribution, habitat, and taxonomic status of the Plainbelly Water Snake (*Nerodia erythrogaster*) in the lower Cumberland River basin. *Abstract* (13): 4.

Cafer, A., E. Shuford, J. Lippman, L. McGuire, R.D. Aldridge, D.A. Kangas and M. Jones. 2004. (Poster) Amphibian pond selection: an inquiry based study-II. Tadpole data-two years. *Abstract* (17): 4.

Chamberlain, J.D. and M.E. Gifford. 2014. Comparison of reproduction in four populations of the Diamond-backed Watersnake (*Nerodia rhombifer*) differing in prey size. *Abstract* (27): 12-13.

Christman, B., T. Forbes, K. Ricke, T. Wills and E. Wallace. 1992. The Missouri Ozark Forest Ecosystem Project (MOFEP): an informal presentation on the herpetofaunal study. *Abstract* (5): 4.

Churilla, J. and B. Greene. 2014. Do musk gland secretions function as alarm cues in snakes? *Abstract* (27): 13-14.

Clay, T.A. and M.E. Gifford. 2011. Aggressive behavior in sympatric *Plethodon cylindraceus* and *P. montanus*. *Abstract* (24): 5.

Clay, T.A. and M.E. Gifford. 2013. Thermal tolerance and interspecific variation in geographic distributions. *Abstract* (26): 4.
Clay, T.A. and M.E. Gifford. 2015. Population level differences in thermal sensitivity of energy assimilation. *Abstract* (28): 7-8.
Clay, T.A., M.E. Gifford and W.E. Peterman. 2014. Physiological and fitness consequences of embryonic rearing environment among populations of post-metamorphic Wood Frogs, *Lithobates sylvaticus*. *Abstract* (27): 8-9.
Clifton, I.T., J.D. Chamberlain and M.E. Gifford. 2015. Adaptive differentiation in morphology after colonization of novel environments. *Abstract* (28): 4-5.
Clifton, I. and M. Gifford. 2014. Osteological predictors of gape circumference in Diamondback Water Snakes (*Nerodia rhombifer*). *Abstract* (27): 13.
Combs, R.D. and M.L. McKnight. 2007. Comparative phylogenetic analysis in populations of the Western Cottonmouth (*Agkistrodon piscivorus leucostoma*) distributed in three North American drainage basins. *Abstract* (20): 7.
Couch, B., J. Sunderland, D. Arbuckle, D.M. Drake and M.S. Mills. 2014. Success of amphibian reproduction in man-made vernal pools. *Abstract* (27): 8.
Crabill, T.L. and R.A. Seigel. 2009. The suitability of roadside ditches as habitat for salamanders. *Abstract* (22): 6.
Crane, A.L. 2005. The effect of reproductive condition on the thermal and spatial ecology of the female cottonmouth (*Agkistrodon piscivorus*) in southwest Missouri. *Abstract* (18): 6.
Crane, A. and A. Mathis. 2008. Predator-recognition learning by larval Hellbenders (*Cryptobranchus alleganiensis*). *Abstract* (21): 6-7.
Crane, A. and A. Mathis. 2011. Socially facilitated antipredator behavior by Ringed Salamanders (*Ambystoma annulatum*). *Abstract* (24): 5-6.
Crane, A., C. McGrane, and A. Mathis. 2010. Ongoing studies on the responses of Ozark Zigzag Salamanders exposed to armadillo stimuli. *Abstract* (23): 4.
Cunningham, C.A. and S. Trautwein. 1995. The occurrence, habitat use, and breeding status of an aquatic salamander, *Amphiuma tridactylum*, in southeastern Missouri. *Abstract* (8): 7.
Dalton, B., A. Mathis and A, Crane. 2012. Sexual discrimination and parasitic effects in a territorial salamander, *Plethodon angusticlavius*. *Abstract* (25): 7.
Dalton, B., T. Reeder, R. Bortosky and A. Mathis. 2015. A tale of two salamanders: comparing behavior and metabolic rates. *Abstract* (28): 6-7.
Daniel, R.E. 2000. New *Lampropeltis getula holbrooki* size record for Missouri. (13): 20.
Daniel, R.E. 2001. Additions to the bibliography of amphibians and reptiles in Missouri. (14): 17-18.
Daniel, R.E. 2001. Herpetological theses and dissertations at University of Missouri-Columbia. Addendum: Additions to the bibliography of amphibians and reptiles in Missouri. (14): 19-21.
Daniel, R.E. 2002. Additions to the bibliography of amphibians and reptiles in Missouri. (15): 39-40.
Daniel, R.E. 2003. Additions to the bibliography of references on the herpetofauna of Missouri. (16): 19-20.
Daniel, R.E. 2004. Additions to the bibliography of references on the herpetofauna of Missouri. (17): 17-18.
Daniel, R.E. 2005. New size records for two species of Missouri turtles. (18): 13.
Daniel, R.E. 2005. Additions to the bibliography of references on the herpetofauna of Missouri. (18): 14-15.
Daniel, R.E. 2006. New state size records for Missouri reptiles. (19): 14-15.
Daniel, R.E. 2006. Additions to the bibliography of references on the herpetofauna of Missouri. (19): 17-18.
Daniel, R.E. 2007. New size records for three species of Missouri reptiles. (20): 16-17.

Daniel, R.E. 2007. Additions to the bibliography of references on the herpetofauna of Missouri. (20): 22-23.
Daniel, R.E. 2008. Scavenging behavior of *Thamnophis sirtalis*. (21): 15.
Daniel, R.E. 2008. New size records for four Missouri snakes. (21): 16.
Daniel, R.E. 2008. Additions to the bibliography of references on the herpetofauna of Missouri. (21): 21-23.
Daniel, R.E. 2009. New size records for two Missouri turtles. (22): 9.
Daniel, R.E. 2009. Additions to the bibliography of references on the herpetofauna of Missouri. (22): 13-14.
Daniel, R.E. 2010. Three new herpetological size records for Missouri. (23): 8-9.
Daniel, R.E. 2010. Additions to the bibliography of references on the herpetofauna of Missouri. (23): 15-16.
Daniel, R.E. 2011. Updated maximum size records for amphibians and reptiles from Missouri. (24): 17-20.
Daniel, R.E. 2011. Additions to the bibliography of references on the herpetofauna of Missouri. (24): 27-28.
Daniel, R.E. 2012. New herpetological size records for Missouri. (25): 20.
Daniel, R.E. 2012. Additions to the bibliography of references on the herpetofauna of Missouri. (25): 24-25.
Daniel, R.E. 2013. Additions to the bibliography of references on the herpetofauna of Missouri. (26): 76-78.
Daniel, R.E. 2014. Additions to the bibliography of references on the herpetofauna of Missouri. (27): 22-24.
Daniel, R.E. 2015. Additions to the bibliography of references on the herpetofauna of Missouri. (28): 17-18.
Daniel, R.E. and B.S. Edmond. 2000. New and previously unreported distribution records of amphibians and reptiles in Missouri for 2000. (13): 14-19.
Daniel, R.E. and B.S. Edmond. 2001. New and previously unreported distribution records of amphibians and reptiles in Missouri for 2001. (14): 7-12.
Daniel, R.E. and B.S. Edmond. 2002. Revised county distribution maps of amphibians and reptiles of Missouri. (15): 16-38.
Daniel, R.E. and B.S. Edmond. 2007. Stream breeding by Spotted Salamander (*Ambystoma maculatum*) in Missouri. (20): 15-16.
Daniel, R.E., B.S. Edmond and J.T. Briggler. 2002. New and previously unreported distribution records of amphibians and reptiles in Missouri for 2002. (15): 9-15.
Daniel, R.E., B.S. Edmond and J.T. Briggler. 2003. New and previously unreported distribution records of amphibians and reptiles in Missouri for 2003. (16): 11-15.
Daniel, R.E., B.S. Edmond and J.T. Briggler. 2004. New herpetological records from Missouri for 2004. (17): 9-12.
Daniel, R.E., B.S. Edmond and J.T. Briggler. 2005. New herpetological records from Missouri for 2005. (18): 8-11.
Daniel, R.E., B.S. Edmond and J.T. Briggler. 2006. New herpetological records from Missouri for 2006. (19): 9-12.
Daniel, R.E., B.S. Edmond and J.T. Briggler. 2007. New herpetological records from Missouri for 2007. (20): 10-13.
Daniel, R.E., B.S. Edmond and J.T. Briggler. 2008. New herpetological records from Missouri for 2008. (21): 9-14.
Daniel, R.E., B.S. Edmond and J.T. Briggler. 2009. New herpetological distribution records from Missouri for 2009. (22): 7-9.
Daniel, R.E., B.S. Edmond and J.T. Briggler. 2010. New herpetological distribution records from Missouri for 2010. (23): 6-8.

Daniel, R.E., B.S. Edmond and J.T. Briggler. 2011. New herpetological distribution records from Missouri for 2011. (24): 14-16.
Daniel, R.E., B.S. Edmond and J.T. Briggler. 2012. New herpetological distribution records from Missouri for 2012. (25): 11-15.
Daniel, R.E., B.S. Edmond and J.T. Briggler. 2013. New herpetological distribution records from Missouri for 2013. (26): 11-15.
Daniel, R.E., B.S. Edmond and J.T. Briggler. 2014. New herpetological distribution records from Missouri for 2014. (27): 15-18.
Daniel, R.E., B.S. Edmond and J.T. Briggler. 2015. New herpetological distribution records from Missouri for 2015. (28): 10-14.
Daniel, R.E., B.S. Edmond and T.R. Johnson. 1998. New and previously unreported records of amphibians and reptiles in Missouri for 1998. (11): 8-17.
Daniel, R.E., B.S. Edmond and T.R. Johnson. 1999. New and previously unreported records of amphibians and reptiles in Missouri for 1999. (12): 10-18.
Daniel, R.E. and H.C. Gerhardt. 2013. Nocturnal activity in the Dusty Hog-nosed Snake, *Heterodon gloydi*, in Missouri. (26): 75.
Daniel, R.E. and J.R. Johnson. 2004. New size records for three species of Missouri amphibians. (17): 14.
Daniel, R.E. and T.R. Johnson. 1997. Range extension and new county record for the Wood Frog, *Rana sylvatica*, in Missouri. (10): 70.
Davis, J., H. Loe, T. Messa, C. Richardson, N. Wallace, M.S. Mills and D. Welchert. 2012. Radio telemetry of Blanding's Turtle movement and population ecology of turtles at Squaw Creek National Wildlife Refuge. *Abstract* (25): 6.
Drake, D.L. and B.H. Ousterhout. 2011. Summer breeding of the Southern Leopard Frog, *Rana sphenocephala* (=*Lithobates sphenocephalus*) in southern Missouri. (24): 21-22.
Dunn, D.D. 1995. Range extension of the Western Lesser Siren, *Siren intermedia nettingi*. (8): 13.
Durbian, F. 2001. Current and future herpetological studies at Squaw Creek National Wildlife Refuge, Missouri. *Abstract* (14): 4.
Durbian, F. 2002. Preliminary results of Eastern Massasauga Rattlesnake research on Squaw Creek NWR. *Abstract* (15): 4.
Durbian, F. 2003. The effects of pre-burn mowing and summer burning on Eastern Massasauga Rattlesnakes. *Abstract* (16): 4.
Durbian, F., J. Gabbard and D. Mayer. 200. Comparison of snake abundance and diversity between native prairie and Reed Canary Grass dominated sites on Squaw Creek NWR. *Abstract* (15): 5.
Durbian, F. and L. Hanway. 2003. Seasonal activity patterns of select snake species on Squaw Creek NWR. *Abstract* (16): 5.
Durbian, F., L. Lehnhoff and B. Greene. 2002. Preliminary results of Blanding's Turtle habitat use and home range on Squaw Creek NWR. *Abstract* (15): 6.
East, M.B., D.B. Ligon and B. Fillmore. 2011. Diet and feeding behavior of juvenile Alligator Snapping Turtles (*Macrochelys temminckii*) in eastern Oklahoma. *Abstract* (24): 6.
Easterla, D.A. 2004. Those numerous, beautiful, diverse, and "crazy" color morph reptiles in the Big Bend Chihuahuan Desert country of southwest Texas. *Abstract* (17): 5.
Easterla, D.A. and D.D. Sleep. 1999. Records of reptiles from northwestern Missouri, including county range extensions for the Northern Prairie Skink (*Eumeces septentrionalis*). (12): 19-21.
Eaton, J.M., S.C. Larimer, K.G. Howard, R. Powell and J.S. Parmerlee. 2000. A solitary anole in altered habitats: *Anolis gingivinus* in Anguilla. *Abstract* (13): 4-5.
Edmond, B.S. 2003. Observation of Shrike predation on a Western Chorus Frog. (16): 16-17.
Edmond, B.S. 2006. Results of the spring and fall 2006 field trips. (19): 15-17.

Edmond, B.S. 2007. Possible mating mismatch in Madison County, Missouri? (20): 14.
Edmond, B.S. 2007. Association events in 2007. (20): 18-21.
Edmond, B.S. 2008. Association events in 2008. (21): 17-20.
Edmond, B.S. 2009. Association events in 2009. (22): 10-12.
Edmond, B.S. 2010. Attempted predation of a hatchling North American Racer (*Coluber constrictor*) by a hatchling Texas Ratsnake (*Pantherophis obsoletus*) in Missouri. (23): 11-12.
Edmond, B.S. 2010. Association events in 2010. (23): 13-14.
Edmond, B.S. 2011. Successful hatching from an unusually large racer (*Coluber constrictor*) clutch. (24): 22-25.
Edmond, B.S. 2012. Association events in 2011. (25): 23.
Edmond, B.S. 2015. Scavenging behavior in the Three-toed Box Turtle (*Terrapene carolina*). (28): 15.
Edmond, B.S. 2015. Two Five-lined Skink (*Plestiodon fasciatus*) clutches. (28): 16-17.
Edmond, B.S. and L.M. Bowe. 2012. Predation of an adult Blanchard's Cricket Frog (*Acris blanchardi*) by a juvenile Northern Watersnake (*Nerodia sipedon*) in Missouri. (25): 21-22.
Edmond, B.S. and R.E. Daniel. 2001. Maximum size records for amphibians and reptiles in Missouri. (14): 15-16.
Edmond, B.S. and R.E. Daniel. 2002. The Missouri Herpetological Atlas Project (MOHAP): an introduction. *Abstract* (15): 4-5.
Edmond, B.S. and R.E. Daniel. 2007. Herpetology Halloween: unnatural occurrences at the Missouri/Kansas border. *Abstract* (20): 5.
Edmond, B.S. and R.E. Daniel. 2007. Texas Garter Snakes in the Ozarks? (20): 24-25.
Edmond, B.S. and R.E. Daniel. 2014. A new kingsnake for Missouri and some comments on the biogeography of southeast Missouri. (27): 24-25.
Edmond, B.S., R.E. Daniel and J.T. Briggler. 2012. Updated county distribution records of amphibians and reptiles in Missouri. (26): 16-74.
Essner, R.L. 2015. Landing in basal frogs: evidence of saltational patterns in the evolution of anuran locomotion. *Abstract* (28): 6.
Essner, R.L., A.J. Henderschott and J.S. Scheibe. 1995. LCTA WETS Site, Wappapello, Butler County, Missouri. (8): 15.
Essner, R.L., A.J. Henderschott and J.S. Scheibe. 1996. Herpetofaunal sampling using the LCTA method at Lake Wappapello, Butler County, Missouri. *Abstract* (8): 6.
Ettling, J. 1990. Systematic re-evaluation of midwestern *Agkistrodon contortrix*. *Abstract* (3): 3.
Evans, W. and B. Greene. 2011. Effects of temperature on foraging success in two species of semi-aquatic snakes. *Abstract* (24): 6-7.
Filipek, D. 2015. Phylogeography and ecological niche modeling of the Queensnake (*Regina septemvittata*). *Abstract* (28): 3-4.
Fobes, T.M., R. Powell, J.S. Parmerlee, A. Lathrop and D.D. Smith. 1991. Notes on the natural history of *Anolis cybotes* (Sauria: Polychrotidae) from the Dominican Republic. *Abstract* (4): 3.
Fobes, T.M. and R.F. Wilkinson. 1993. Preliminary results of a critical habitat analysis of the Ozark Hellbender. *Abstract* (6): 2.
Fobes, T.M. and R.F. Wilkinson. 1994. Summer diurnal habitat analysis of the Ozark Hellbender, *Cryptobranchus alleganiensis bishopi*. *Abstract* (7): 3.
Fobes, T.M. and R.F. Wilkinson. 1996. Habitat analysis of the Ozark Hellbender, *Cryptobranchus alleganiensis bishopi*, in Missouri. *Abstract* (8): 6-7.
Fogarty, S.P. and R. Powell. 2004. The status of Lesser Antillean Iguanas (*Iguana delicatissima*) on St. Eustatius, with notes on saurian herbivory. *Abstract* (17): 5-6.
Fitch, H.S. 2000. Female copperhead aggregations in northeastern Kansas. *Abstract* (13): 5.

Frese, P.W. 2000. The natural history of the Northern Prairie Skink in a heavily disturbed landscape. *Abstract* (13): 5.
Frese, P.W., R.F. Wilkinson and A. Mathis. 1999. Preliminary observations on population characteristics and growth of the Lesser Siren. *Abstract* (12): 4.5.
Frese, P.W. 2000. Notes on the ecology of the Northern Crawfish Frog (*Rana areolata circulosa*) in southwest Missouri. (13): 20-21.
Frese, P.W. 2001. Observations on the herpetofaunal community of a natural marsh in northern Missouri. (14): 13-14.
Frese, P.W. 2001. Herpetological theses from Northwest Missouri State University. Addendum: Additions to the bibliography of amphibians and reptiles in Missouri. (14): 19-21.
Frese, P.W. 2002. Amphibian and reptile conservation on private land. *Abstract* (15): 5.
Frese, P.W. 2007. Spatial ecology and habitat use of Graham's Crayfish Snake, *Regina grahamii*, in an agricultural landscape. *Abstract* (20): 8-9.
Frese, P.W. and J.R. Parmerlee. 2001. The ecology and conservation of the Timber Rattlesnake (*Crotalus horridus*) in an agricultural landscape: preliminary results. *Abstract* (14): 4.
Frese, P.W., R.F. Wilkinson and A. Mathis. 1999. Preliminary observations on population characteristics and growth of the Lesser Siren. *Abstract* (12): 4.
Gall, B. and A. Mathis. 2007. Influence of stress secretions from the Ozark Hellbender (*Cryptobranchus alleganiensis bishopi*) on feeding behavior of native and non-native fishes: preliminary data. *Abstract* (20): 5.
Gann, E. and D. Ligon. 2014. Reintroduction ecology of Alligator Snapping Turtles (*Macrochelys temminckii*) on the Kansas/Oklahoma border. *Abstract* (27): 9.
Gatewood, J. and B. Greene. 2006. Diet composition of a stream-associated Cottonmouth (*Agkistrodon piscivorus*) population in southwest Missouri. *Abstract* (19): 5-6.
George, A.D., F.R. Thompson and J. Faaborg. 2013. Patterns: implications for bird nest predation. *Abstract* (26): 9.
Gerhardt, H.C. 1992. Reproductive character displacement on the weighting of acoustic properties used in mate choice in the Gray Treefrog (*Hyla chrysoscelis*). *Abstract* (5): 3.
Gerlane, N.M. 2000. The Kansas-Gap Project: implications for Kansas herpetology. *Abstract* (13): 5-6.
Gifford, M. and R. Powell. 1999. Prey availability and utilization by *Aristelliger cochranae* from Navassa Island, West Indies. *Abstract* (12): 4-5.
Glorioso, B.M. and V.A. Cobb. 2006. Population ecology and feeding activity of *Sternotherus odoratus* at Reelfoot Lake, Tennessee. *Abstract* (19): 6.
Glorioso, B.M. and A.J. Vaughn. 2007. Turtle composition and demography at Big Oak Tree State Park, with an eye on the future. *Abstract* (20): 6.
Gordon, N.M. and H.C. Gerhardt. 2006. Are experimental techniques stressful for amphibians? A test with the Gray Treefrog, *Hyla versicolor*. *Abstract* (19): 4.
Graham, K. 2000. Conservation of amphibians and reptiles at the Sedgwick County Zoo. *Abstract* (13): 6.
Graves, J. and J.M Jones. 1995. A herpetofaunal survey of Ted Shanks Conservation Area. *Abstract* (8): 4-5.
Graves, J. and J.M. Jones. 1995. Amphibians and reptiles of Ted Shanks Conservation Area, Pike County, Missouri. (8): 14.
Greenbaum, E. 2000. Some amphibians and reptiles of El Salvador. *Abstract* (13): 6.
Greenbaum, E. and J.L. Carr. 1999. Sexual differentiation in the Spiny Softshell (*Apalone spinifera*). *Abstract* (12): 5.
Greene, B.D. 2000. Herpetological theses at Southwest Missouri State University. Addendum. Additions to the bibliography of amphibians and reptiles in Missouri. (13): 23-25.
Greene, B.D. 2001. Ecology of the Western Cottonmouth, *Agkistrodon piscivorus leucostoma*, in southwest Missouri. *Abstract* (14): 4-5.

Grow, S., S. Daniels, A. Mathis and R.C. Vogt. 1996. Notes on the life histories of three sympatric tropical treefrogs from southern Mexico. *Abstract* (9): 5.

Guffey, C.A. and R.F. Wilkinson. 1993. Pheromones in *Cryptobranchus alleganiensis*. *Abstract* (6): 2.

Hachler, J. and J.D. Riedle. 2000. Amphibians and reptiles of Sequoyah National Wildlife Refuge. *Abstract* (13): 6-7.

Harford, K. and D. Kangas. 1996. Herpetological survey of Union Ridge Conservation Area, Sullivan, Putnam and Adair Counties, Missouri. *Abstract* (9): 8.

Harmon, J.R. and D.B. Ligon. 2015. A comparison of turtle communities in natural and artificial wetlands. *Abstract* (28): 5-6.

Harmon, J.R., D.T. McKnight and D.B. Ligon. 2014. Diet composition of the Razor-backed Musk Turtle. *Abstract* (27): 11.

Hart, S., F. Durbian and T. Eckdahl. 2004 Assessment of inter- and intra-specific genetic variation between Massasauga Rattlesnake subspecies via microsatellite analysis. *Abstract* (17): 6.

Haskell, N. 1990. Overwintering of American Alligators at the St. Louis Zoo. *Abstract* (3): 2.

Heeb, A. 2007. The unseen consequences of turtle racing. *Abstract* (20): 7.

Heeb, A. 2008. A study of relocated Three-toed Box Turtles (*Terrapene carolina triunguis*) from different ecoregions. *Abstract* (21): 5-6.

Helton, E., A. Mathis and A. Crane. 2012. Embryonic learning of food-related cues in Ringed Salamanders (*Ambystoma annulatum*). *Abstract* (25): 8.

Henderschott, A.J. 1996. Amphibians and reptiles of southeastern Missouri. (9): 18.

Henderschott, A.J., C.A. Cunningham and N. Young. 1996. Western Chicken Turtle in Missouri: a trap, mark, and release project. *Abstract* (9): 7.

Henderson, R.W. 2000. Neotropical boas: from the sublime to the enormous. *Abstract* (13): 7.

Herbeck, L.A. and D.R. Larson. 1995. Ecological interactions of vegetation and plethodontid salamanders in Missouri Ozark forests. *Abstract* (8): 5-6.

Heuring, C., W. Heuring, A. Mathis and A. Crane. 2012. Aggressive and foraging behavior of larval salamanders (*Ambystoma annulatum*): effects of diet quality. *Abstract* (25): 8.

Hoffman, A. and B. Greene. 2011. Use of managed wetlands by salamanders at Mingo National Wildlife Refuge in southeastern Missouri. *Abstract* (24): 7.

Holder, T. and D. Moll. 1988. Movement and natural history of *Sistrurus miliarius* in southwest Missouri. *Abstract*. (1): 2-3.

Hollender, E.C., T.L. Anthony and D.B. Ligon. 2012. The effects of recreational boat traffic on injury rates in freshwater turtles in northeastern Oklahoma. *Abstract* (25): 10.

Hooper, E.D. and T. Elmeer. 1996. New Missouri records of amphibians and reptiles and additional observations resulting from an inventory and monitoring project. (9): 15-17.

Humfeld, S.C. 1999. Differences among male Green Treefrogs adopting alternative mating tactics. *Abstract* (12): 5-6.

Humfeld, S.C. and H.C. Gerhardt. 2001. Male acoustic preferences parallel female mate choice preferences. *Abstract* (14): 5.

Irwin, K.J. 2000. Problems in Arkansas herpetology. *Abstract* (13): 7.

James, S. and E. Little. 2001. Effects of Cadmium-contaminated soil on overwintering American Toads (*Bufo americanus*). *Abstract* (14): 5.

Jellen, B.C. and M.J. Kowalski. 2006. Movements and growth of neonate Eastern Massasaugas (*Sistrurus catenatus*). *Abstract* (19): 7.

Johnson, J.R. 2004. Fall breeding of the Southern Leopard Frog (*Rana sphenocephala*) in central Missouri. (17): 14-16.

Johnson, J.R. and R.D. Semlitsch. 2004. Non-breeding season movements and identification of overwintering sites of the Gray Treefrog (*Hyla versicolor*). *Abstract* (17): 7.

Johnson, S., J.D. Riedle, F. King-Cooley and L. Prater. 2012. Population structure and growth in an urban population of Three-toed Box Turtle (*Terrapene carolina triunguis*). *Abstract* (25): 4.

Johnson, T.R. 1990. Additions and changes to Missouri's rare and endangered species list: amphibians and reptiles. (3): 9.

Johnson, T.R. 1991. Turtles in trouble. *Abstract* (4): 4.

Johnson, T.R. 1998. Amphibian and reptile management guidelines. *Abstract* (11): 3.

Johnson, T.R. 2000. Highlights in a career of a state herpetologist. *Abstract* (13): 8.

Johnson, T.R. and R. Powell. 1988. New records of amphibians and reptiles in Missouri for 1988. (1): 4–8.

Jones, V., A. Mathis and A. Crane. 2011. Predatory chemical cues affect gill blood flow in larval Ringed Salamanders. *Abstract* (24): 7.

Jones, V., A. Mathis and A. Crane. 2012. Metabolic differences among clutches of newly hatched Spotted Salamanders (*Ambystoma maculatum*). *Abstract* (25): 9.

Kallash, K., J. Niemeyer, R. Niemeyer, D. Norton, J. Werenski, J.D. Wilson, M. Graves, R.D. Aldridge, D.A. Kangas and J.M. Jones. 2003. (Poster) Amphibian pond selection: an inquiry based study- III. Adult frog and physical data. *Abstract* (16): 5.

Kearney, M. and L. Sievert. 2000. Digestive parameters of Great Plains Skinks (*Eumeces obsoletus*) in Kansas. *Abstract* (13): 8.

Kimmons, J. and D. Moll. 2003. Seed dispersal by the Common Snapping Turtle and the Red-eared Slider. *Abstract* (16): 6.

King, T., A. Maglia and J. Leopold. 2003. Biodiversity at Bray Conservation Area: a collaborative approach to teaching bioinformatics. *Abstract* (16): 6.

King-Cooley, F., J.D. Riedle, S. Johnson and L. Prater. 2012. Home range and movements of the Three-toed Box Turtle (*Terrapene carolina triunguis*) in an urban environment. *Abstract* (25): 3.

Kirk, J. 2000. Reintroduction of the Pickerel Frog in Cherokee County, Kansas. *Abstract* (13): 8.

Koseva, B.S., A.H. DeBrot, D.R. Elliot, C.M. Owens, and C.E. Montgomery. 2009. Digestive efficiency of three Missouri snake species. *Abstract* (22): 4.

Krenz, J.D. and P.A. Mahoney. 1996. Development of genetic markers for parentage determination in the Gray Treefrog (*Hyla chrysoscelis*) *Abstract* (9): 4-5.

Krenz, J.D. and P.A. Verrell. 1997. Courtship compatibility between terrestrial and aquatic forms of the Mole Salamander *Ambystoma talpoideum*. *Abstract* (10): 4-5.

Kupec, C. and D.B. Ligon. 2014. Underwater and undetected: aquatic respiratory capacity of a secretive aquatic turtle. *Abstract* (27): 10.

Lamp, M., A. Mathis and A. Crane. 2011. Detecting danger from prey-guild members: behavioral and metabolic responses of Ozark Zigzag Salamanders to stress secretions of earthworms. *Abstract* (24): 8.

Lancaster, D.L. 1994. Prey detection by the Ringneck Snake (*Diadophis punctatus*). *Abstract* (7): 3-4.

Larimer, S. and J. Shew. 2000. Sleep site fidelity and other nocturnal behaviors of *Anolis gingivinus* from Anguilla. *Abstract* (13): 8-9.

Lee, J.R., R.A. Seigel, R.B. Smith and J.P. Demuth. 2002. Comparison of reptile and amphibian biodiversity in natural versus created wetlands. *Abstract* (15): 6.

Lehnhoff, L. 2003. Habitat and spatial analysis of Blanding's Turtle at Squaw Creek National Wildlife Refuge. *Abstract* (16): 6-7.

Lehnhoff, L. 2004. Herpetological survey at Fort Leonard Wood military base, Fort Leonard Wood. 2004. *Abstract* (17): 6.

Lennon, C. and C.E. Montgomery. 2012. Records of reptiles and amphibians from Wakonda State Park, Lewis County, Missouri. (25): 16-19.

Loe, H., T. Messa, C. Richardson, N. Wallace and M.S. Mills. 2012 Metapopulation ecology of turtles on the campus of Missouri Western State University. *Abstract* (25): 7.

Ligon, D.B., B. Fillmore and D. Moore. 2009. Alligator Snapping Turtle conservation in Oklahoma. *Abstract* (22): 5.

Lindsay, C.R., S.S. Nava, R.W. Henderson and R. Powell. 2000. Microhabitat, activity, and density of Dwarf Geckos (*Spherodactylus*) on the Anguilla Bank. *Abstract* (13): 9.

Luhring, T.M. and B.D. Todd. 2008. Population ecology of the Greater Siren, *Siren lacertina*: the enigmatic giant salamander of North America. *Abstract* (21): 6.

Lynxwiler, J.R., R. Powell, J.S. Parmerlee, A. Lathrop and D.D. Smith. 1991. Notes on the natural history of *Hemidactylus brookii haitianus* (Sauria: Gekkonidae) from the Dominican Republic. *Abstract* (4): 2-3.

Maglia, A. 2003. The invasive potential of the African Clawed Frog (*Xenopus laevis*) in North America and its consequences for amphibian declines. *Abstract* (16): 7.

Maksimowich, D. and A. Mathis. 1997. Assessment of parasite load of conspecifics by *Plethodon dorsalis*: use of chemical cues. *Abstract* (10): 3-4.

Manning, G.J. 2008. Is New Mexico *Aspidoscelis tesselata* Pattern Class D a species, you decide? *Abstract* (21): 5.

Manning, G.J. 2015. The tale of two heads, the natural occurrence of a two-headed turtle. *Abstract* (28): 3.

Manning, G.J. and J.M. Walker. 2003. Status of *Aspidoscelis neomexicana* (Squamata: Teiidae) at Ft. Sumner, De Bacca Co., New Mexico. *Abstract* (16): 7.

Marshall, V. and H.C. Gerhardt. 2001. A preliminary description of the communication behavior of the Canyon Treefrog (*Hyla arenicolor*). *Abstract* (14): 5.

Martin, A. 2003. Effects of geographic distance and dispersal barriers on amphibian polymorphism. *Abstract* (16): 7-8.

Martin de Camilo, J.E. and C.S. Asa. 1999. Comparative ovarian dynamics of the Brazilian Rainbow Boa (*Epicrates cenchria cenchria*) and the Ball Python (*Python regius*). *Abstract* (12): 6.

Martínez Rivera, C.C. 2003. Chorusing behavior of the Bird-voiced Treefrog (*Hyla avivoca*). *Abstract* (16): 8.

Martínez Rivera, C.C. and C. Gerhardt. 2004. Chorusing behavior of the Bird-voiced Treefrog, *Hyla avivoca*. *Abstract* (17): 7.

Martínez Rivera, C.C., A.G. Negrón and J. Acosta. 2001. *Geckobia hemidactyli* (Lawrence 1935) from *Hemidactylus mabouia* in Puerto Rico and adjacent islands. *Abstract* (14): 6.

Martínez Rivera, C.C., M.H. Yánez Muñoz, and E.K. Astudillo Sánchez. 2005. Low impact ecological surveys: balancing taxonomy and conservation. The Loma Alta case study. *Abstract* (18): 7.

Mathis, A. and A. Crane. 2009. Morphological and behavioral changes in the Ozark Zigzag Salamander, *Plethodon angusticlavius*, following infection with the chytrid fungus. *Abstract* (22): 4.

Mathis, A. and K. Murray. 1998. Size-dependent responses by larval Ringed Salamanders to chemical stimuli from predatory newts. *Abstract* (11): 5.

Mathis, A. and J. Whitham. 1999. Effects of hunger and predation risk on the foraging behavior of the Graybelly Salamander, *Eurycea multiplicata*. *Abstract* (12): 6-7.

Mathis, A. and N. Windel. 2006. Learning by embryos: experience with predatory cues in the egg stage influences post-hatching behavior of salamanders. *Abstract* (19): 5.

McCoy, K., K. Street and R. Powell. 2013. Preliminary results of a coverboard study on reclaimed prairie at Jerry Smith Park, Kansas City, Missouri. *Abstract* (26): 7.

McGrane, C., A. Crane and A. Mathis. 2008. Escape responses by Ozark Zigzag Salamanders (*Plethodon angusticlavius*) exposed to armadillo stimuli. *Abstract* (21): 7.

McKnight, D.T., T.L. Dean and D.B. Ligon. 2012. An effective method for increasing the catch rate of pitfall traps. *Abstract* (25): 5.

McKnight, D.T., H.J. Howell, E.C. Hollender and D.B. Ligon. 2014. Good vibrations: a novel method for sexing chelonians. *Abstract* (27): 11.

McKnight, D.T. and D.B. Ligon. 2013. The spring-summer nesting and activity patterns of the Western Chicken Turtle (*Deirochelys reticularia and miaria*). *Abstract* (26): 6.

McKnight, M.L. and N.A. Nelson. 2005. Life history and color variants from within the same matriline in *Eurycea tynerensis* (Caudata: Plethodontidae). *Abstract* (18): 5.

Meinhardt, D.J. 1992. Comparison of external and internal morphology in an investigation of heterochrony in the Black Salamander (*Aneides flavipunctatus*) *Abstract* (5): 5.

Meshaka, W.E. and K.G. Rice. 2000. The Knight Anole (*Anolis equestris*) in extreme southern mainland Florida: life has never been so good. *Abstract* (13): 9.

Miller, J., B. Fillmore, M. East and D. Ligon. 2010. Nesting ecology in a translocated population of Alligator Snapping Turtles. *Abstract* (23): 5.

Miller, L.L. 2000. Amphibians, turtles and reptiles of the Smoky Hill Ranch and surrounding areas of western Kansas. *Abstract* (13): 10.

Mills, M.S., W.R. Hiler and C.R. Hickman. 2002. Snails, snakes, and students: herpetological research at Van Meter State Park. *Abstract* (15): 8.

Mills, M.S., C. Lanier, J. Streett, W. Walker and T. Ausberger. 2011. Using coverboards to examine herpetological biodiversity in the loess hills at Squaw Creek National Wildlife Refuge, Missouri. *Abstract* (24): 8.

Mills, M.S., T.N. Sample, J.L. Godfrey and S. Mosquera. 2004. Reproductive ecology of an urban population of Small-mouthed Salamanders (*Ambystoma texanum*): year three. *Abstract* (17): 8.

Mills, M.S., T.N. Sample, J.L. Godfrey, S. Mosquera, M.L. Carter and M.C. Klein. 2007. Reproductive ecology of a suburban population of Small-mouthed Salamanders (*Ambystoma texanum*): year six. *Abstract* (20): 4.

Mills, N.E. and M.C. Barnhart. 1996. Effects of dissolved oxygen on development and hatching of *Ambystoma maculatum* and *Rana sphenocephala*. *Abstract* (9): 4.

Mills, N.E. and R.D. Semlitsch. 2001. Direct and indirect effects of an insecticide on the Southern Leopard Frog. *Abstract* (14): 6.

Moll, D. 1989. Population size fluctuation and foraging ecology in a tropical freshwater stream turtle community. *Abstract* (2): 2-3.

Moll, D. 1990. Freshwater and terrestrial turtle research at Tortuguero, Costa Rica. *Abstract* (3): 2.

Moll, D. and D. White. 1988. Ecological characteristics of Niangua River map turtles. *Abstract* (1): 3.

Moll, D., R.F. Wilkinson, C.L. Peterson and T.L. Holder. 1991. Reproductive ecology of the Zigzag Salamander, *Plethodon dorsalis*, in northwestern Arkansas. *Abstract* (4): 3-4.

Morrow, R.B. and R. Powell. 2008. Distribution of garter snakes (*Thamnophis sirtalis*) in Missouri. *Abstract* (21): 5.

Muelleman, P.J. and C.E. Montgomery. 2009. The ecology of a snake community in northern Missouri. *Abstract* (22): 4-5.

Mueller, E. and D.H. Jennings. 2013. Endocrine mechanisms of evolutionary changes in body size of *Anolis* lizards. *Abstract* (26): 6-7.

Mueller, J.M. 2005. Osteology of *Acris crepitans blanchardi* and skeletal variation among hylids. *Abstract* (18): 4.

Muensch, A., B. Greene, E. Menzel and A. Crane. 2009. Ontogenetic changes in habitat use and spatial patterns in the cottonmouth, *Agkistrodon piscivorus*. *Abstract* (22): 6.

Mullich, D. 2007. Variation in antipredator behaviors of the Western Cottonmouth, *Agkistrodon piscivorus*, as a result of temperature, size and reproductive condition. *Abstract* (20): 7-8.

Murphy, K. 1992. Chorus tenure in the Barking Treefrog is energy-limited. *Abstract* (5): 2.
Murray, E.M. and R.A. Saporito. 2011. Predation in the Strawberry Poison Frog *Oophaga pumilio*: are adults and juveniles equally protected from ctenid spiders? *Abstract* (24): 8-9.
Nelson, M.M., R.S. Klann and R.D. Sage. 1994. Identification of the parents of hybrids between two species of Missouri leopard frogs (*Rana pipiens* complex) using maternally inherited genetic markers. *Abstract* (7): 2-3.
Nelson, S.E., B.L. Banbury, R.A. Sosa and R. Powell. 1999. Natural history of *Leiocephalus semilineatus* from Hispaniola. *Abstract* (12): 7.
O'Donnell, K and D.L. Drake. 2010. Atypical coloration in the Southern Red-backed Salamander (*Plethodon serratus*). (23): 9-10.
Palenske, N. and D. Saunders. 2000. Blood viscosity comparisons between endotherms and ectotherms at two temperatures. *Abstract* (13): 10.
Parris, M.J. and R.D. Semlitsch. 1996. Larval performance in *Rana blairi* and *R. sphenocephala*: effect of pond drying. *Abstract* (9): 5-6.
Parris, M.J. and R.D. Semlitsch. 1997. Effects of density and interspecific competition on larvae of the Northern Crawfish Frog (*Rana areolata circulosa*): implications for the conservation of rare species. *Abstract* (10): 5-6.
Parris, M.J., R.D. Semlitsch and R.D. Sage. 1995. The effects of hybridization on larval performance in *Rana blairi* and *R. sphenocephala* (Anura: Ranidae). *Abstract* (8): 8.
Parsons, J. and A. Mathis. 2010. Predation risk has condition-dependent effects on territorial behavior. *Abstract* (23): 3.
Parsons, J., A. Mathis and A. Crane. 2009. Influence of prior exposure to predator cues on the Ozark Zigzag Salamander, *Plethodon angusticlavius*. *Abstract* (22): 3-4.
Parsons, K.J. and R. Powell. 1994. The diet of the endemic Hispaniolan toad, *Peltophryne guentheri*. *Abstract* (7): 3.
Pearson, L., N. Sachse and B. Cash. 2014. The corticosterone stress response of the Ouachita Map Turtle and the effects of trapping on corticosterone concentrations in the Red-eared Slider Turtle. *Abstract* (27): 12.
Peterman, B., J. Earl, T. Rittenhouse and R. Semlitsch. 2011. Patterns in time and space: population connectivity and persistence of Missouri Wood Frogs. *Abstract* (24): 9.
Pettinelli, T. 2003. Albinistic (Xanthomorphic) *Virginia valeriae* from Lewis County, Missouri. (16): 18.
Pflanz, D.J. and R. Powell. 1990. Death feigning by a coachwhip from Missouri. (3): 12.
Platt, D.R. 2000. Food habits of snakes on a sand prairie in south-central Kansas. *Abstract* (13): 10.
Plummer, M.V., N.E. Mills and S.L. Allen. 1997. Activity, habitat, and movement patterns of *Trionyx spiniferus* in a small stream. *Abstract* (10): 5.
Powell, M.A. and R. Powell. 2011. Aquatic turtles feasting on Periodical Cicadas. (24): 21.
Powell, R. 1988. The herpetofauna of Ozark Prairie-a progress report. *Abstract* (1): 2.
Powell, R. 1990. Bibliography of references to the herpetofauna of Missouri. (3): 13–17.
Powell, R. 1991. On the status of the Northern Fence Lizard, *Sceloporus undulatus hyacinthinus*, in Jackson County, Missouri. (4): 11–12.
Powell, R. 1991. Additions to the bibliography of references to the herpetofauna of Missouri. (4): 12–13.
Powell, R. 1992. Additions to the bibliography of references to the herpetofauna of Missouri. (5): 15.
Powell, R. 1993. Additions to the bibliography of references to the herpetofauna of Missouri. (6): 31.
Powell, R. 1994. Updated size records for amphibians and reptiles in Missouri. Appendix. New records of amphibians and reptiles in Missouri for 1994. (7): 7–9.

Powell, R. 1994. Additions to the bibliography of references to the herpetofauna of Missouri. (7): 10.
Powell, R. 1995. Additions to the bibliography of amphibians and reptiles in Missouri. (8): 16.
Powell, R. 1996. Additions to the bibliography of amphibians and reptiles in Missouri. (9): 19.
Powell, R. 1997. Additions to the bibliography of amphibians and reptiles in Missouri. (10): 72.
Powell, R. 1998. Additions to the bibliography of amphibians and reptiles in Missouri. (11): 19–20.
Powell, R. 1999. Additions to the bibliography of amphibians and reptiles in Missouri. (12): 22.
Powell, R. 2001. Do solitary anoles exhibit ecological release? *Abstract* (14): 6.
Powell, R. and R. Daniel. 1997. County distribution records of amphibians and reptiles in Missouri. (10): 12–69.
Powell, R. and R. Daniel. 2000. Additions to the bibliography of amphibians and reptiles in Missouri. (13): 22-23.
Powell, R., T.R. Johnson, and J.S. Parmerlee, Jr. 1993. Updated distribution maps for amphibians and reptiles in Missouri. Appendix. New records of amphibians and reptiles in Missouri for 1993. (6): 7–26.
Powell, R., T.R. Johnson, and D.D. Smith. 1989. New records of amphibians and reptiles in Missouri for 1989. (2): 4–8.
Powell, R., T.R. Johnson, and D.D. Smith. 1990. New records of amphibians and reptiles in Missouri for 1990. (3): 4–8.
Powell, R., T.R. Johnson, and D.D. Smith. 1991. New records of amphibians and reptiles in Missouri for 1991. (4): 5–10.
Powell, R., T.R. Johnson, and D.D. Smith. 1992. New records of amphibians and reptiles in Missouri for 1992. (5): 6–13.
Powell, R., T.R. Johnson, and D.D. Smith. 1993. New records of amphibians and reptiles in Missouri for 1993. (6): 3–7.
Powell, R., T.R. Johnson, and D.D. Smith. 1994. New records of amphibians and reptiles in Missouri for 1994. (7): 5–7.
Powell, R., T.R. Johnson, and D.D. Smith. 1995. New records of amphibians and reptiles in Missouri for 1995. (8): 9–12.
Powell, R., T.R. Johnson, and D.D. Smith. 1996. New records of amphibians and reptiles in Missouri for 1996. (9): 9–14.
Powell, R., T.R. Johnson, and D.D. Smith. 1997. New records of amphibians and reptiles in Missouri for 1997. (10): 8–12.
Powell, R. and J.S. Parmerlee. 1992. Studies of a lizard community in altered habitat in the Dominican Republic. *Abstract* (5): 5.
Powell, R., D.D. Smith, J.S. Parmerlee and M.L. Jolley. 1990. Spatial niche partitioning in a Hispaniolan lizard community. *Abstract* (3): 3.
Prosen, E., B. Wheeler and R.F. Wilkinson. 1998. A comparison of current and historic populations of Missouri hellbenders: preliminary analysis. *Abstract* (11): 5.
Radzio, T.A., C.R. Tucker, J.T. Strickland, B.D. Ligon and D.K. Delany. 2011. Can automated radio telemetry quantify Ornate Box Turtle activity and nesting patterns? *Abstract* (24): 9-10.
Reeder, T., A. Mathis and A. Crane. 2012. A behavioral syndrome in the Southern Redback Salamander (*Plethodon serratus*). *Abstract* (25): 7-8.
Reichert, M.S. and H.C. Gerhardt. 2009. Determinants of contest outcome and the use of the aggressive call in the Gray Treefrog, *Hyla versicolor*. *Abstract* (22): 5.
Renken, R.B. 1995. Herpetofaunal communities on the Missouri Ozark Forest Ecosystem Project (MOFEP): consistency among communities in pretreatment years? *Abstract* (8): 6.

Rheubert, J.L. and R.D. Aldridge. 2011. Spermatogenic cycle of *Sceloporus consobrinus* and insights into lizard spermatogenic cycles. *Abstract* (24): 10.

Riedle, J.D., S.F. Fox and P.A. Shipman. 2000. Ecology of the Alligator Snapping Turtle, *Macrochelys temminckii*, at Sequoyah National Wildlife Refuge. *Abstract* (13): 11.

Riedle, J.D., R. Kazmaier, J. Killian and W. Littrell. 2010. Ecology of two aquatic turtle communities in eastern Texas. *Abstract* (23): 4.

Riedle, J.D. and D.B. Ligon. 2011. Conservation of Alligator Snapping Turtles in the Mississippi River drainage, and a review of the species' status in Missouri. *Abstract* (24): 10-11.

Rizzo, L. 1997. Bird predation by a bullfrog. (10): 70.

Robinson, C.D., M.S. Patton, B.M. Andre and M.A. Johnson. 2015. Convergent evolution of brain morphology and communication modalities in lizards. *Abstract* (28): 4.

Roth, T.C. and B.D. Greene. 1999. Habitat use of the Northern Water Snake (*Nerodia sipedon*) in a southwestern Missouri lake. *Abstract* (12): 7-8.

Rothermel, B.B. and R.D. Semlitsch. 1999. Preliminary results from an experimental investigation of genetic structure and optimal outcrossing in Gray Treefrogs. *Abstract* (12): 8.

Routman, E. 1989. Genetic analysis of population structure in *Cryptobranchus alleganiensis* and *Ambystoma tigrinum*. *Abstract* (2): 3-4.

Routman, E. 1992. Biogeography of the hellbenders, *Cryptobranchus alleganiensis*. *Abstract* (5): 4.

Rudolph, L. and A. Mathis. 2014. Response to predatory threat by different sex classes of Oklahoma Salamanders, *Eurycea tynerensis*. *Abstract* (27): 4.

Russell, B. 2000. Natural history of the Mole Salamander, *Ambystoma talpoideum*, in southeastern Missouri. *Abstract* (13): 11.

Ryan, T.J. 1995. Life history, evolution and adaptive radiation of Hemidactyliine Salamanders (Caudata: Plethodontidae: Hemidactyliini). *Abstract* (8): 3.

Ryberg, W.A. 2006. The relative roles of biotic and abiotic factors in determining the distribution and abundance of fence lizards in Missouri glades. *Abstract* (19): 5.

Sage, R.D. 1991. Do leopard frogs hybridize in Missouri? They do in Texas! *Abstract* (4): 2.

Sage, R.D. 1992. Distribution and genetic interactions among Missouri leopard frogs (*Rana pipiens* complex). *Abstract* (5): 3-4.

Salveter A. and C. Overby. 1998. Early summer courtship and mating observations of Eastern Collared Lizards, *Crotaphytus collaris collaris*, in Reynolds County, Missouri. (11): 18-19.

Sammartano, D. 1992. Habitat partitioning by two species of box turtles (*Terrapene* sp.): some preliminary findings. *Abstract* (5): 5.

Sample, T. and M.S. Mills. 2002. Reproductive ecology of an urban population of Small-mouthed Salamanders (*Ambystoma texanum*): preliminary results. *Abstract* (15): 7.

Sample, T. and M.S. Mills. 2003. Reproductive ecology of an urban population of Small-mouthed Salamanders (*Ambystoma texanum*): year two. *Abstract* (16): 8-9.

Sanborn, S.M. and J. Sternberg. 1995. Amphibian and reptile surveys of Fort Leonard Wood, Pulaski County, Missouri. *Abstract* (8): 5.

Sanders, T., D.B. Ligon and R. Kazmaier. 2010. Physiological plasticity of Yellow Mud Turtles (*Kinosternon flavescens*) during hibernation. *Abstract* (23): 4-5.

Schepis, D. and B. Greene. 2011. Spatial patterns and multi-scale habitat selection of the Western Mud Snake (*Farancia abacura reinwardii*) at the northern limits of its range. *Abstract* (24): 11.

Schepis, D. and B. Greene. 2013. Spatial ecology and habitat selection of mudsnakes (*Farancia abacura*) in southeast Missouri. *Abstract* (26): 7-8.

Schuette, B. 1992. A clutch of Ground Skink eggs from Cuivre River State Park. (5): 14.

Schuette, B. 1997. Two clutches of Black Rat Snakes from eastern Missouri. (10): 70-71.
Schuette, B. 1997. A striped morph of the Prairie Kingsnake from Cuivre River state Park. (10): 71.
Schuette, B. 1998. Natural history notes on two reptiles from Lincoln County, Missouri. (11): 18.
Schuette, B. 1999. A note on reproduction in the Midland Brown Snake (*Storeria dekayi wrightorum*). (12): 18.
Schuette, B. 2005. Reproductive notes for reptiles from Cuivre River State Park. (18): 12.
Schuette, B. and R.E. Daniel. 2011. A second example of albinism in *Lampropeltis calligaster* from Missouri. (24): 25-26.
Schuette, B., S. Farrow and D. Sherbo. 1992. An observation of mating behavior in the Broadhead Skink (*Eumeces laticeps*). (5): 14-15.
Schwartz, J.J. 1992. Why stop calling? A study of cyclical calling in a neotropical treefrog. *Abstract* (5): 2-3.
Semlitsch, R.D. 1998. Wetland conservation: biological delineation of terrestrial buffer zones for pond-breeding salamanders. *Abstract* (11): 7.
Semlitsch, R.D., C.M. Bridges, and A.M. Welch. 1999. Genetic variation and a fitness tradeoff in the tolerance of Gray Treefrogs (*Hyla versicolor*) tadpoles to the insecticide Carbaryl. *Abstract* (12): 8-9.
Settle, R., J. Briggler and A. Mathis. 2014. Video analysis of nest-guarding behavior of a male Ozark Hellbender. *Abstract* (27): 7-8.
Sheil, C.A., J.R. Mendelson and H.R. da Silva. 1999. Phylogenetic relationships of the species of neotropical horned frogs, Genus *Hemiphractus* (Anura: Hylidae: Hemiphractinae), based on evidence from morphology. *Abstract* (12): 9.
Shelton, K. and A. Mathis. 2015. *Abstract* (28): 7.
Shulse, C.D. 1995. Size record for the Diamondback Water Snake, *Nerodia rhombifer*. (8): 13.
Shulse, C. 2006. Rediscovery of Kirtland's Snake (*Clonophis kirtlandii* Kennicott) in Missouri. (19): 13-14.
Shulse, C. and R.D. Semlitsch. 2006. Interagency wetlands guidance using amphibian health indicators. *Abstract* (19): 4-5.
Siegel, D.S. and R.D. Aldridge. 2011. The reproductive biology of newts from Reis Biological Station. *Abstract* (24): 11.
Siegel, D.S., S. Alvino and B. Cathcart. 2014. Spermatogenic cycle differences from two different populations of *Eurycea longicauda*. *Abstract* (27): 5-6.
Siegel, D.S., A. Nicholson, B. Beran, B. Rabe and S.E. Trauth. 2013. The evolution of sperm transport complex in plethodontid salamanders. *Abstract* (26): 3.
Sievers, E.R., C.R. Tucker, J.T. Strickland, D.K. Delaney and D.B. Ligon. 2014. Reintroduction program evaluated using activity patterns and home range size of head-started *Terrapene ornata*. *Abstract* (27): 9-10.
Smith, D.D. 1989. The effects of temperature on incubation period and hatchlings of the rough green snake *Opheodrys aestivus*. *Abstract* (2): 3.
Smith, D.D. 1990. Possible effects of temperature on incubation period and hatchlings in eggs from a rough green snake, *Opheodrys aestivus*. (3): 10-12.
Smith, D.D. and R. Powell. 1996. Cottonmouths at Lake of the Ozarks, Camden County, Missouri. (9): 15.
Smith, K., B. Docker, L. McGuire, R.D. Aldridge, D.A. Kangas and J.M. Jones. 2003. (Poster) Amphibian pond selection: an inquiry based study- II. Tadpole data. *Abstract* (16): 9.
Smith, K.G., C. Weldon, W. Conradie and L.H. du Preez. 2007. Tadpoles with bad teeth: does amphibian chytrid affect anuran larvae? *Abstract* (20): 4-5.
Solberg, L. 1998. Comparative toepad morphology in anurans: arboreal versus ground-dwelling species. *Abstract* (11): 5-6.

Sowell, S.P., R. Powell, J.S. Parmerlee, A. Lathrop and D.D. Smith. 1993. Niche partitioning by a lizard community in the Sierra de Baoruco, Hispaniola. *Abstract* (6): 3.

Spivey, K. and B. Greene. 2015. The influence of prey type and size on the foraging behavior in the cottonmouth, *Agkistrodon piscivorus*. *Abstract* (28): 5.

Stone, M. 2002. A comparison of the digestive efficiency between *Terrapene carolina* and *T. ornata* on pure diets of fruit. *Abstract* (15): 7.

Stone, S.M. and R.D. Sage. 1993. The effect of the great flood of '93 on leopard frogs. *Abstract* (6): 2.

Stone, S.M., M.M. Nelson and R.D. Sage. 1994. Natural habitat disturbances and hybridization between two species of Missouri leopard frogs (*Rana pipiens* complex). *Abstract* (7): 2.

Storrs, S.I. 2003. The influence of low-level pesticide exposure on survivorship in larval amphibians. *Abstract* (16): 9-10.

Sullivan A. and R.F. Wilkinson. 1998. Demography and reproductive ecology of the Lesser Siren, *Siren intermedia*: preliminary data and analysis. *Abstract* (11): 6.

Taggart, T.W. 2000. The herpetofauna of Kisatchie, Louisiana. *Abstract* (13): 11.

Tanner, S. 1992. Comparison of the arrival times and tenure at the chorus of two populations of Gray Treefrogs (*Hyla chrysoscelis* and *Hyla versicolor*). *Abstract* (5): 2.

Taylor, C.L. and R. Altig. 1990. Effects of density and oral morphology on the grazing of anuran tadpoles. *Abstract* (3): 3.

Tazelaar, K. and J.F. Mahaffy. 2013. Historic massasauga populations in northern Missouri. *Abstract* (26): 8.

Thomas, R.B. and D. Moll. 1993. Depressed growth rates of *Trachemys scripta* and *Graptemys geographica* in a thermally altered environment. *Abstract* (6): 2.

Thomas, R.B. and L. Robbins. 1994. Utilization of LCTA plot summary methodology for reptile and amphibian surveys. *Abstract* (7): 4.

Thomas, R.B., J. J. Steiert and D. Moll. 1993. Evidence of a symbiotic relationship between cellulolytic bacteria and a freshwater herbivorous turtle. *Abstract* (6): 3.

Thompson, D.M., B. Fillmore and D.B. Ligon. 2012. Direct and remote methods of assessing turtle nesting behavior. *Abstract* (25): 9.

Thompson, D.M. and D.B. Ligon. 2011. Rocky Raccoon must die: nest predation patterns in a reintroduced population of Alligator Snapping Turtles. *Abstract* (24): 11-12.

Thornhill, S. and R. Wilkinson. 1989. Electrophoretic analysis of *Eurycea tynerensis* and neotenic *Eurycea multiplicata*. *Abstract* (2): 2.

Toal, K.R. and R.S. Reiserer. 1991. A range extension of the Western Massasauga (*Sistrurus catenatus tergeminus*) in Missouri. (4): 11.

Toal, K.R. 2013. Herpetological theses and dissertations from Washington University in St. Louis (1969-2013). Addendum. Additions to the bibliography on the herpetofauna of Missouri. (26): 79-80.

Tollefson, J. 2000. Preliminary observations on turtle assemblages in the Kansas River drainage. *Abstract* (13): 12.

Tokarz, R., A. Patterson and S. McMann. 2002. A test of the functional significance of extending the male's dewlap in the lizard *Anolis sagrei*: results of a field study. *Abstract* (15): 7-8.

Trumbo, D., A. Burgett, E. Biro, J. Chase and J. Knouft. 2008. Using GIS and species distribution modeling to investigate the environmental factors regulating amphibian distributions in Missouri. *Abstract* (21): 7.

Tunn, J. and A.M. Maglia. 2005. The effects of mines on amphibian biodiversity. *Abstract* (18): 4.

Turner, L.K., D. Moll and R.B. Thomas. 1994. Life history and ecology of the Missouri River Cooter, *Pseudemys concinna*. *Abstract* (7): 4.

Turnquist, R.M. and W.J. Drda. 2005 Developing an experimental method to determine if there is a non-random preference for edge habitat by the Timber Rattlesnake (*Crotalus horridus*) at Tyson Research Center. *Abstract* (18): 4.

Turnquist, R.M., W. Drda, J. Ettling and J. Knouft. 2008. Preliminary observations of a Timber Rattlesnake (*Crotalus horridus*) and Osage Copperhead (*Agkistrodon contortrix*) telemetry study in east central Missouri. *Abstract* (21): 4-5.

Unger, S.D. and A. Mathis. 2002. Associated learning in the Gray-bellied Salamander, *Eurycea multiplicata*. *Abstract* (15): 8.

Vincent, F. and A. Mathis. 1994. The role of chemical and visual cues in recognition of predators by larval Central Newts, *Notophthalmus viridescens*. *Abstract* (7): 4.

Voltmer, L., M. Bembrick, B. Bremer, H. McMillian and M.S. Mills. 2011. Population ecology of turtles on the campus of Missouri Western State University. *Abstract* (24): 12.

Welch, A.M., G. Parra and S. McCauley. 1996. Population decline in *Bolitoglossa subpalmata*, a neotropical salamander. *Abstract* (9): 3.

Welch, A.M. and R.D. Semlitsch. 1995. Effects of female mate choice on offspring fitness in the Gray Treefrog (*Hyla versicolor*) *Abstract* (8): 7-8.

Welchert, D., M.S. Mills, C. Gaume and J.L. Davis. 2013. Spatial ecology of Blanding's Turtle, *Emydoidea blandingii*, on Squaw Creek National Wildlife Refuge, northwest Missouri. *Abstract* (26): 5-6.

White, A.M., E.J. Censky, R. Powell, J.S. Parmerlee and R.W. Henderson. 2000. Thermal biology of *Ameiva plei* and *Ameiva corax* from Anguilla Bank. *Abstract* (13): 12.

White, D. and D. Moll. 1991. Diet specialization and growth of the turtle (*Graptemys geographica*) in a Missouri stream. *Abstract* (4): 4.

Wieberg, T. and J.D. Riedle. 2011. Establishment of long-term herpetological research on the Lincoln University campus, Jefferson City, MO. *Abstract* (24): 12-13.

Wilkinson, R. 2000. The Hellbender, *Cryptobranchus alleganiensis*: then and now. *Abstract* (13): 12.

Wilkinson, R., J. Hutcherson and S. Nyman. 1988. Cannibalism and size relations in a cohort of larval Ringed Salamanders. *Abstract* (1): 2.

Wilkinson, R., C. Peterson, D. Moll and J.T. Holder. 1989. Premetamorphic survival of *Ambystoma annulatum*. *Abstract* (2): 2.

Williams, B.K. and T.A.G. Rittenhouse. 2003. The larval environment: implications of canopy cover and substrate. *Abstract* (16): 10.

Wilson, T.J. and R.F. Wilkinson. 1992. Predation on Ringed Salamander larvae. *Abstract* (5): 4-5.

Windel, N. and A. Mathis. 2004. Behavioral and metabolic responses of the Southern Red-backed Salamander (*Plethodon serratus*) to predatory stimuli: influence of body size. *Abstract* (17): 8.

Windel, N. and A. Mathis. 2005. Behavioral and metabolic responses of the Southern Red-backed Salamander (*Plethodon serratus*) to predatory stimuli: influence of body size. *Abstract* (18): 4-5.

Windel, N., A. Mathis and L. Sanders. 2003. Size-dependent behavioral and metabolic responses of the Southern Red-backed Salamander (*Plethodon serratus*) to predatory stimuli- preliminary findings. *Abstract* (16): 10.

Winter, D.T. and R.F. Wilkinson. 1994. A skeletochronological approach to determining the age of Ringed Salamanders (*Ambystoma annulatum*) by using growth rings found in phalanges. *Abstract* (7): 4.

Winters, A. and M.E. Gifford. 2013. Geographic variation in the water economy of a lungless salamander. *Abstract* (26): 4-5.

Wisniewski and R.D. Aldridge. 2006. Multi-year comparison of the male reproductive biology of the Brown Treesnake (*Boiga irregularis*). *Abstract* (19): 6.

Wrensch, Z. and B. Greene. 2013. Effects of gestation temperature on neonate phenotypes of the Northern Watersnake, *Nerodia sipedon*. *Abstract* (26): 9-10.
Young, V.K.H. and M.E. Gifford. 2011. Acclimation of locomotion to constant and variable environments in dusky salamanders, *Desmognathus brimleyorum*. *Abstract* (24): 13.
Zippel, K. 2000. Amphibian conservation at the Detroit Zoo. *Abstract* (13): 13.