

**Missouri Herpetological
Association**

Newsletter



Number 2

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INTRODUCTION

The Second Annual Meeting of the Missouri Herpetological Association took place on 30 September and 1 October 1989 at the Reis Biological Station near Steelville 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 levels, 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, it will serve to inform the herpetological community of new distributional and size records of Missouri's herpetofauna. Other items of interest may be included in future editions of the Newsletter.

At this time the Association would again like to acknowledge the contribution of Dr. Nevin Aspinwall, of the Reis Biological Station, for allowing us the use of the Station's excellent facilities.

ANNOUNCEMENT

Third Annual Meeting of the Missouri Herpetological Association

The Third Annual Meeting of the Missouri Herpetological Association will be held on 29-30 September 1990 at the Reis Biological Station. Registration forms and calls for papers will be mailed at a later date. For more information please contact Tom R. Johnson at (314) 751-4115 or write:

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**Abstracts of Papers presented at the Second Annual Meeting
of the
Missouri Herpetological Association**

30 September - 1 October 1989

**ELECTROPHORETIC ANALYSIS OF *EURYCEA TYNERENSIS* AND
NEOTENIC *EURYCEA MULTIPLICATA***

Steve Thornhill and Robert Wilkinson
Southwest Missouri State University, Springfield, Missouri 65804

Electrophoresis was used to compare two morphologically similar species of *Eurycea*, *Eurycea tynerensis* and neotenic *Eurycea multiplicata griseogaster*. Heterozygosity values were low, while F_{ST} values were high. Cluster analysis using Nei's identity values failed to group all populations as expected. Various methods of identification proved highly contradictory when used on specimens in this study. Neotenic salamanders with 18 or more costal grooves in southwest Missouri are recommended to be considered one species.

PREMETAMORPHIC SURVIVAL OF *AMBYSTOMA ANNULATUM*

Robert Wilkinson, Chris Peterson, Don Moll, and J.T. Holder
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Premetamorphic survival of *Ambystoma annulatum* was estimated in two ponds (average size 122 m² and 128 m²) in southwestern Missouri. We estimated the 57,000-90,000 eggs were deposited in each pond during September 1988 by 150-230 females. Premetamorphic mortality was greatest during the first two months and during the metamorphic period. Between 10 April and 4 June 1989, 88 juveniles were captured emigrating from one pond and 89 juveniles from the other pond. Premetamorphic mortality was 99.9% in both ponds. Premetamorphic production was estimated to be 75 g/m² in one pond and 142 g/m² in the other pond. In April, 1483 *A. maculatum* embryos were counted in one pond and 231 embryos in the other pond. No recruitment of juvenile *A. maculatum* occurred.

**POPULATION SIZE FLUCTUATION AND FORAGING ECOLOGY IN A
TROPICAL FRESHWATER STREAM TURTLE COMMUNITY**

Don Moll
Southwest Missouri State University, Springfield, Missouri 65804

Population sizes, densities, and food habits of four turtle species inhabiting a sluggish stream at Chan Chen Junction, Corozal District, Belize, were investigated from January through April, 1984. Population estimates in January indicated that *Trachemys scripta* was most abundant and reached the highest density, followed by *Kinosternon scorpioides*, *K. leucostomum*, and *Staurotypus triporcatus*. Population estimates in April indicated little change in population size or density of *T. scripta* or *S. triporcatus*, but significant increases in numbers and densities of *K. scorpioides* and *K. leucostomum*. The increases probably reflect movement into the stream from nearby ephemeral habitats that dried during the prolonged spring dry season.

Adult *T. scripta* foraged throughout the stream and were primarily herbivorous, whereas juveniles were restricted to dense mats of vegetation along stream margins and were insectivorous. Adult *K. scorpioides* and *K. leucostomum* were ubiquitous and primarily insectivorous, but their dietary similarity decreased as population sizes increased. *Staurotypus* foraged throughout the stream on large gastropods and turtles, the latter increasing in importance as the kinosternid populations increased.

GEOGRAPHIC VARIATION IN THE ADVERTISEMENT CALL OF GRAY TREEFROGS *HYLA CHRYSOSCELIS* AND *HYLA VERSICOLOR*

H. Carl Gerhardt
University of Missouri, Columbia, Missouri 65211

No abstract submitted.

THE EFFECTS OF TEMPERATURE ON INCUBATION PERIOD AND HATCHLINGS OF THE ROUGH GREEN SNAKE *OPHEODRYS AESTIVUS*

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A female rough green snake (*Opheodrys aestivus*), captured 4 July 1989, 4.5 km N Kingsville, Johnson Co., MO, delivered 11 eggs on 9 July with mean measurements of 21.6 x 11.0 mm and a mean weight of 1.94 g. The female had a snout-vent length (SVL) of 538 mm, tail length (TaL) of 210 mm, and weight of 33.0 g.

Eggs were divided into 2 groups and placed on paper towels moistened with distilled water inside zip-fastening plastic bags. One bag was maintained in an un-air-conditioned room while the other was kept in an air-conditioned room.

Eggs kept in the un-air-conditioned room, mean daily temperature of 27.8°C ± 0.42 (23.0- 33.5°C, n = 35), hatched on 16 August, 38 days after delivery. Eggs kept in the cooler room, mean daily temperature of 24.4°C ± 0.16 (20.6 -27.3°C, n = 67), hatched on 4 September, 57 days after delivery. Based on dates of hatching and within limits of observed average room temperatures, incubation period increased by about 5.5 days for each decrease of 10°C in ambient temperature.

Males only resulted from the eggs maintained at higher ambient temperatures (n = 5), this differs significantly from a 1:1 ratio in a test of binomial probability (P < 0.05). Although results are not conclusive due to small sample size, they do suggest the possibility of temperature-dependent sex determination. Males, incubated at cooler temperatures (n = 3) had significantly longer tails, larger TaL/SVL ratios, more ventrals, and fewer subcaudals than did siblings incubated at warmer temperatures (p <= 0.05).

GENETIC ANALYSIS OF POPULATION STRUCTURE IN *CRYPTOBRANCHUS ALLEGANIENSIS* AND *AMBYSTOMA TIGRINUM*

Eric Routman
Washington University, St. Louis, Missouri 63130

Protein electrophoresis (*Ambystoma*) and restriction mapping of mtDNA (*Ambystoma* and *Cryptobranchus*) were used to help elucidate population structure of these species. *Cryptobranchus alleganiensis* had previously been shown to be genetically uniform (in protein electromobilities) throughout its range, but mtDNA rflp's demonstrate a great deal of variation, almost all of which is distributed as between river variation. A phylogeny of

the haplotypes is discussed.

Samples of *Ambystoma tigrinum* were collected from sites from Illinois, Missouri, and Nebraska, spanning the interface between two subspecies. Evidence for hybridization in Missouri (an eastward expansion of the western subspecies) and the high level of population subdivision are addressed.

CAPTURE TECHNIQUE FOR THE THREE-TOED AMPHIUMA

Tom R. Johnson

Missouri Department of Conservation, Jefferson City, Missouri 65102

No abstract submitted.

NEW RECORDS OF AMPHIBIANS AND REPTILES IN MISSOURI FOR 1989

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The new county or maximum size records listed below are those accumulated or brought to our attention since our last update (Johnson and Powell 1988) of records listed in *The Amphibians and Reptiles of Missouri* (Johnson 1987). Publication of this list allows us to express appreciation to the many individuals who contributed specimens or information. Further, recipients of this list have the opportunity to update range maps and size maxima listings. Finally, these new records represent information that expands our knowledge of these animals in Missouri.

The specimens listed represent the first records for the given county based on preserved, cataloged voucher specimens (unless indicated as sight-records only). Size records require the deposition of the specimen in an institutional collection. All new records listed here are presented in the standardized format of Collins (1986): common and scientific name, county, specific locality (when available or unless withheld for rare or endangered species), date of collection (when available), collector(s), and place of deposition and catalog number (if available or applicable). If the record was published elsewhere, the citation is given. New size maxima are presented in accordance with criteria established by Powell et al. (1982) and are expressed in both metric and English units.

The following acronyms apply to institutional collections in which specimens are deposited: BWMC -Bobby Witcher Memorial Collection, Avila College, Kansas City, Missouri 64145; KU -University of Kansas Museum of Natural History, Lawrence, Kansas 66045; SMSU -Southwest Missouri State University, Springfield, Missouri 65804.

NEW COUNTY RECORDS

Amphibia: Caudata

RINGED SALAMANDER (*Ambystoma annulatum*)

HOWELL CO: R.F. Wilkinson and D. Moll (SMSU).

SPOTTED SALAMANDER (*Ambystoma maculatum*)

GREENE CO: R.F. Wilkinson and D. Moll (SMSU).

SMALLMOUTH SALAMANDER (*Ambystoma texanum*)

DADE CO: R.F. Wilkinson and D. Moll (Sight record only).

EASTERN TIGER SALAMANDER (*Ambystoma tigrinum tigrinum*)

WEBSTER CO: R.F. Wilkinson and D. Moll (Sight record only).

LONGTAIL SALAMANDER (*Eurycea longicauda*)

REYNOLDS CO: HW HH creek 6 mi E HW 21 Sec 36 T28N R1E, 15 April 1989, S.S. Duer and S.A. Maxey (BWMC 03708).

CENTRAL NEWT (*Notophthalmus viridescens louisianensis*)

WRIGHT CO: HW 95 at HW AF Sec 4 T31N R13W, 16 April 1989, S.S. Duer and S.A. Maxey (BWMC 03714).

MUDPUPPY (*Necturus maculosus*)

GREENE CO: R.F. Wilkinson and D. Moll (SMSU).

Amphibia: Anura

WOODHOUSE'S TOAD (*Bufo woodhousii*)

RAY CO: Sunshine Lake SW Henrietta Sec 29 T51N R27W, 18 June 1989, D.D. Smith (BWMC 03948).

BLANCHARD'S CRICKET FROG (*Acris crepitans blanchardi*)

CEDAR CO: Pond 1 mi N HW CC 2 mi E HW 97 Sec 3 T34N R28W, 9 June 1989, S.A. Maxey and R. Powell (BWMC 03947).

COPE'S GRAY TREEFROG (*Hyla chrysoscelis*)

BARTON CO: HW V 4.5 mi W HW 71 pond near Drywood Creek Sec 17 T33N R31W, 8 June 1989, S.A. Maxey and R. Powell (BWMC 03941). CEDAR CO: Pond 1 mi N HW CC 2 mi E HW 97 Sec 3 T34N R28W, 9 June 1989, S.A. Maxey and R. Powell (BWMC 03946).

NORTHERN SPRING PEEPER (*Pseudacris [Hyla] crucifer crucifer*)

VERNON CO: W of Osage Prairie Natural Area Sec 4 T33N R31W, 31 March 1989, S.A. Maxey and T.G. Tarwater (BWMC 03701). WRIGHT CO: HW 95 at HW AF Sec 4 T31N R13W, 16 April 1989, R. Powell (BWMC 03715).

WESTERN CHORUS FROG (*Pseudacris triseriata*)

LAFAYETTE CO: HW 2241 mi W Lexington city limits Sec 26 T51N R27W, 27 August 1989, D.D. Smith (BWMC 03992).

VERNON CO: W of Osage Prairie Natural Area Sec 4 T33N R31W, 31 March 1989, S.A. Maxey and K. Jurd (BWMC 03702).

NORTHERN CRAWFISH FROG (*Rana areolata circumlosa*)

VERNON CO: W of Osage Prairie Natural Area Sec 4 T33N R31 W, 31 March 1989, S.S. Duer (BWMC 03700).

BULLFROG (*Rana catesbeiana*)

BARTON CO: HW V 4.5 mi W HW 71 pond near Drywood Creek Sec 17 T33N R31W, 8 June 1989, S.A. Maxey and R. Powell (BWMC 03942). BOLLINGER CO: Duck Creek Wildlife Area Sec 30 T28N R9E, 15 April 1989, M.A. Cusumano (BWMC 03706).

GREEN FROG (*Rana clamitans melanota*)

WEBSTER CO: R.F. Wilkinson and D. Moll (Sight record only).

SOUTHERN LEOPARD FROG (*Rana sphenoccephala*)

LIVINGSTON CO: Sampsel Sec 27 T58N R25W, 15 July 1989, F. Blake and D.D. Smith (BWMC 03953). OSAGE CO: Creek N Linn Sec 2 T43N R8W, 4 July 1989 D.P. Jurd (BWMC 03951).

Reptilia: Testudinata

COMMON SNAPPING TURTLE (*Chelydra serpentina serpentina*)

BARTON CO: HW 160 0.8 mi E HW NN Sec 25 T32N R33W (DOR), 9 June 1989, S.A. Maxey and R. Powell (BWMC 03944). CHRISTIAN CO: R.F. Wilkinson and D. Moll (SMSU).

YELLOW MUD TURTLE (*Kinosternon flavescens*)

RAY CO: Hardin HW 10 Sec 33 T52N R26W (DOR), 16 July 1989, F.E. Blake and D.D. Smith (KU 211303) (Smith and Blake, in press).

MISSISSIPPI MUD TURTLE (*Kinosternon subrubrum hippocrepis*)

WAYNE CO: Mingo National Wildlife Refuge Sec 9 T27N R8E (DOR), 14 April 1989, S.A. Maxey (BWMC 03703).

STINKPOT (*Sternotherus odoratus*)

BATES CO: HW 71 at Marais des Cygnes River Sec 29 T39N R31W (DOR), 8 June 1989, S.A. Maxey and R. Powell (BWMC 03940). DADE CO: R.F. Wilkinson and D. Moll (SMSU).

WESTERN PAINTED TURTLE (*Chrysemys picta bellii*)

BARTON CO: HW 1601 mi W HW W Sec 26 T32N R32W (DOR), 9 June 1989, S.A. Maxey and R. Powell (BWMC 03943). BATES CO: HW 71 at Marais des Cygnes River Sec 29 T39N R31W (DOR), 8 June 1989, S.A. Maxey and R. Powell (BWMC 03939). DADE CO: R.F. Wilkinson and D. Moll (SMSU).

OUACHITA MAP TURTLE (*Graptemys pseudogeographica ouachitensis*)

TANEY CO: R.F. Wilkinson and D. Moll (SMSU).

MISSOURI RIVER COOTER (*Pseudemys concinna metteri*)

TANEY CO: R.F. Wilkinson and D. Moll (Sight record only).

ORNATE BOX TURTLE (*Terrapene ornata ornata*)

MORGAN CO: HW 52 Benton Co line Sec 6 T42N R19W (DOR), 2 September 1989, R. Powell (BWMC 04002).

RED-EARED SLIDER (*Trachemys scripta elegans*)

BARTON CO: SE of Prairie State Park Sec 28 T32N R33W (DOR), 9 June 1989, SA. Maxey and R. Powell (BWMC 03945). BOLLINGER CO: Duck Creek Wildlife Area Sec 30 T28N R9E, 15 April 1989, C.A. Cunningham (BWMC 03707). LAFAYETTE CO: HW 23 4.2 mi N HW UU Sec 28 T51N R24W (DOR), 1 July 1989, D.D. Smith (BWMC 03950). TANEY CO: R.F. Wilkinson and D. Moll (Sight record only).

Reptilia: Squamata: Sauria

FIVE-LINED SKINK (*Eumeces fasciatus*)

LIVINGSTON CO: Sampsel Sec 27 T58N R25W, 15 July 1989, J. Williams (BWMC 03954). TEXAS CO: HW 32 AT HW AH Sec 2 T32N R12W, 16 April 1989, R. Powell (BWMC 03713).

Reptilia: Squamata: Serpentes

PRAIRIE RINGNECK SNAKE (*Diadophis punctatus arnyi*)

TEXAS CO: HW 32 AT HW AH Sec 2 T32N R12W, 16 April 1989, J.S. Parmerlee (BWMC 03712).

BLACK RAT SNAKE (*Elaphe obsoleta obsoleta*)

TEXAS CO: HW 2 Roby Sec 3 T32N R11W (DOR), 16 April 1989, Avila Herpetology Class (BWMC 03711).

WESTERN MUD SNAKE (*Farancia abacura reinwardtii*)

WAYNE CO: Mingo National Wildlife Refuge Sec 9 T27N R8E, 14 April 1989, R. Powell and T.G. Tarwater (BWMC 03704).

EASTERN COACHWHIP (*Masticophis flagellum flagellum*)

TANEY CO: 1.5 mi SW HW 265 on 265-20 Sec 35 T22N R22W, 14 October 1989, B.J. Powell and R. Powell (BWMC 04150).

BROAD-BANDED WATER SNAKE (*Nerodia fasciata confluens*)

WAYNE CO: Mingo National Wildlife Refuge Sec 9 T27N R8E, 14 April 1989, R. Powell and T.G. Tarwater (BWMC 03705).

DIAMONDBACK WATER SNAKE (*Nerodia rhombifer rhombifer*)

DADE CO: R.F. Wilkinson and D. Moll (Sight record only).

MIDLAND BROWN SNAKE (*Storeria dekayi wrightorum*)

REYNOLDS CO: HW HH creek 6 mi E HW 21 Sec 36 T28N R1E, 15 April 1989, J.M. Cisek (BWMC 03710).

COMMON GARTER SNAKE (*Thamnophis sirtalis*)

LAFAYETTE CO: Napoleon HW 224 0.4 mi E HW D Sec 24 T50N R29W (DOR), 9 September 1989, D.D. Smith (BWMC 04144). REYNOLDS CO: HW HH creek 6 mi E HW 21 Sec 36 T28N R1E, 15 April 1989, J.S. Parmerlee and R. Powell (BWMC 03709).

CENTRAL LINED SNAKE (*Tropidoclonion lineatum annectens*)
VERNON CO: County Road between Osage and Little Osage Prairies Sec4 T33N
R31W, 30 April 1989, R. Powell (BWMC 03777).

NEW MAXIMUM SIZE RECORDS

Reptilia: Testudinata

MISSISSIPPI MUD TURTLE (*Kinosternon subrubrum hippocrepis*)
WAYNE CO: Mingo National Wildlife Refuge Sec9 T27N R8E (DOR), 14 April 1989,
S.A. Maxey (BWMC 03703). Carapace length: 117 mm (4.6 in).

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