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Cover: *Maiasaura peeblesorum*, a Late Cretaceous dinosaur, shown with nest and eggs. Fossils of adults have been found in Montana alongside young, eggs and nests, strongly suggesting parental care in this species. Drawing by John F. Lokke.

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A Few More Additions to the Literature on Parental Behavior in Lizards and Snakes

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In previous publications I have compiled a body of resources addressing parental behavior in lepidosaurs (tuatara, lizards, amphisbaenians, and snakes) and turtles (Somma, 2003a, b). I herein survey a few additional bibliographic sources referring to parental behavior in lizards and snakes in order to provide a quick update of some late additions which have recently come to my attention; additionally, I correct references from a previous article. These sources add to an increasing body of literature addressing a largely understudied aspect of reptilian reproduction (Shine, 1988; Gans, 1996; Clark et al., 1999; Burley and Johnson, 2002; Tullberg et al., 2002; Rosenblatt, 2003; Somma, 2003a, b, c).

A recent, exciting trend in the study of reptilian parental behavior is the use of molecular genetics to determine the existence of family groups in some species of lizards (Gardner et al., 2001, 2002; O'Connor and Shine, 2003; Schilthuisen, 2003; Somma, 2003b). Similar evidence for family group structures, which I missed in my previous compilations, exists for the skink *Egernia cunninghami* (Stow et al., 2001) and validates previous observations by Barwick (1965). This type of social behavior could be relatively common to the genus *Egernia* (Greer, 1989; Hoser, 1989; Gardner et al., 2001, 2002; Duffield and Bull, 2002; Chapple, 2003; O'Connor and Shine, 2003; Somma, 2003a). In addition to other species covered in my aforementioned publications, similar social structures are suspected but not verified for the viviparous New Zealand gecko, *Hoplodactylus duvauceli* (Robb, 1980, 1986), the viviparous cordylid *Cordylus macropholis* (Nieuwoudt et al., 2003), and the viviparous liolaemid *Liolaemus leopardinus* (Fox and Shipman, 2003).

Additional observations of lacertilian parental behavior include those referring to the anguids *Diploglossus bilobatus* (Bauer et al., 2002*), *Ophisaurus gracilis* (Daniels, 2002), *O. ventralis* (Funk, 2002), the skinks *Corucia zebrata* (Funk, 2002), *Eumeces fasciatus* (Cooper, 2003; Pianka and Vitt, 2003), *E. inexpectatus*, *E. laticeps* (Cooper, 2003), *E. septentrionalis* (Bredin, 1988, 2002) and *Tiliqua rugosa* (Bull, 2000), and the varanid *Varanus albigularis ionidesi* (Turner, 2003). The lattermost is a species not previously recorded defending its nest. If it can be verified that defensive nest-guarding in this lizard extends beyond behaviors immediately associated with oviposition and nest construction (sensu Somma, 2003a), it will add an eighth species to the number of varanids exhibiting some form of parental behavior (Somma, 2003a).

Additions to the literature on snakes known to exhibit maternal behavior include those for the pythons *Antaresia maculosa* (Reed, 2003), *Morelia viridis* (Hortenbach and Hortenbach, 1995; Kivit and Wiseman, 2000; Dowling, 2002),

Python anchietae (Walls, 2003), *P. molurus* (Daniel, 2002; Anonymous, 2003a), *P. regius* (Pitman, 1974; Bartlett and Bartlett, 2000; Aubret et al., 2003), *P. reticulatus* (Anonymous, 2003a, b), *P. sebae* (Aworu and Karama, 2003; Maharaj, 2003), *P. timoriensis* (Hoser, 2000), the colubrids *Amphiesma stolata*, *Oligodon taeniolata*, *Ptyas mucosus*, *Xenochrophis piscator* (Daniel, 2002), the oviparous elapids *Bungarus caeruleus* (Daniel, 2002), *Laticauda colubrina* (Steubing, 2003), *Naja kaouthia*, *N. naja*, *N. oxiana*, *Ophiophagus hannah* (Daniel, 2002), *Pseudonaja textilis* (Whitaker and Shine, 2003), the crotalines *Crotalus horridus* (Martin, 2002; Sealy, 2002), *C. polystictus* (McCranie and Wilson, 2001; McCranie and Porras in Greene et al., 2002), *Protobothrops mucrosquamatus* (Orlov et al., 2002), *Sistrurus miliarius* (Verkerk, 1987), and perhaps *C. oreganus* (Espinoza and Tracy, [1997]). *Crotalus polystictus* is the only snake new to this list and adds a 32nd species to the number of viperids exhibiting parental behavior (Somma, 2003a, b). Some important historical sources that I have come across are the references to lifelike display models used by the American Museum of Natural History to demonstrate the well-known occurrence of maternal brooding by *P. molurus* and the viperid *Lachesis muta* (Dickerson, 1911; Gardner, 1974; Myers, 2000).

I have previously cited the observations by Pitman (1938a) on maternal brooding in *Python sebae* (see citations in Somma, 1990, 2003a). However, I missed several different versions of these same observations by Pitman (1935, 1936, 1938b, 1974) which are all worth mentioning given the scarcity of Pitman's works (Adler, 2003). A valuable, exhaustive history of Pitman's *A Guide to the Snakes of Uganda* is provided by Adler (2003).

Lastly, I correct a mistake in one of my compilations in which I attribute references to brooding *P. regius* to the wrong source (cited as "Anonymous, 2003a, b" in Somma, 2003b). Here I provide the correct source (Anonymous, 2003c, d), along with an additional advertisement by this same organization, illustrating a *P. regius* brooding her eggs (Anonymous, 2003e).

Acknowledgments

Again I find myself thanking James D. Fawcett for continuing to provide me with more references, proofing the manuscript, and his unbounded encouragement. Coral J. Maves selflessly took the time to provide additional proofing. I am grateful to Richard S. Funk, James R. McCranie, and Charles W. Myers for generously sending their monographs to me. I thank Carolyn and David Seburn (Seburn Ecological Services, Oxford Mills, Ontario, Canada) for providing me with Bredin's 1988 unpublished report. I belatedly thank Michael A. Dloogatch for all of his crucial assistance with my previous

* This is the same as or a similar version of the photo by Michael and Patricia Fogden, of a galliwasp brooding her eggs, that appears in Savage (2002).

article in this year's April issue of the *Bulletin of the Chicago Herpetological Society*, and continued critical editorial skills on this odds-and-ends article.

The employee staff of the Rare Books Reading Room (Depart-

ment of Special and Area Collections, Smathers Library East, George A. Smathers Libraries, University of Florida) were most courteous and helpful in assisting my search for old issues of *The Uganda Journal*.

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Northern Watersnakes, *Nerodia sipedon sipedon*, on the Lower Missouri River, Clark County, Missouri

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All my life has been spent near water, so observing water-snakes has become a usual, enjoyable pastime. When the opportunity came to travel the Lewis and Clark River Route, I jumped into my 16-foot sea kayak and did not look back. On 23 May 1998, departing Alton Marina in Illinois, I paddled downstream on the Mississippi to its confluence with the Missouri River and turned upstream into the spring flood as it rushed past channel buoys, wing dams and fallen trees. I camped that first night eight miles up, on the left bank in Clark County, Missouri, thirty yards from the river, on a muddy but gently sloped shoreline overhung with thin branches of riparian trees. That evening I rinsed a sardine can in the river down near the kayak and slept wonderfully well. I remember the river bottom had been grainy with silt, like finely grated semi-sweet chocolate.

The next morning, with sunrise I ate a quick breakfast and strolled down to the river, gauging my energies and planning a

quick launch. Upstream, a foot or two from shore, a black colored snake was swimming down along the bank. It was full-length on the surface, keeping in what I would guess to be five inches of water. It was a dark, heavy-bodied snake, skin nearly black, except where the underbody lightened and the lower jaw formed. The head was wide, somewhat massive, almost globular, the jawbones strongly set away from the relatively narrow neck. Its flowing texture of small scales flexed with the backbone as I watched it swim directly under my gaze, my feet at the river's edge. The snake was approximately 24 inches long, 1¼ inch in maximum diameter, all of it afloat, chin to tail.

As I arched my body to inspect it more closely, the snake turned abruptly to its left, making a beeline to the exact spot where I had previously rinsed the can of sardines. The silt must have absorbed the oils, the strong scent attracting this snake directly towards me. I envisioned it swimming right up

onto the mud to my feet, so I used the kayak paddle to ward it off. The watersnake, however, just kept nudging and swimming toward me until finally it was fairly thrashing its body side to side in order to get past the paddle. More aggressively, I nudged it further out. Now, three feet from shore, it opened its mouth wide, like someone's hand about to splash you in the pool, and threw its head from side to side, throwing water, hissing and generally threatening with its surprisingly white inner mouth. I poked at it a few more times, and then it turned away, retreating about fifteen yards, swimming around a while, seemingly pacing back and forth. I threw several chunks of driftwood at it, and the snake submerged.

Because of this particular snake's aggressive behavior, its white inner mouth, and its ability to swim with its full length on the surface of the water, I suspected it might be a water moccasin, a western cottonmouth, *Agkistrodon piscivorus leucostoma*, a bit far north, but possibly there none-the-less as described by Johnson (2000, 2002).

However, after conversations with both natural biologists and herpetologists here in the state of Missouri, from the Conservation Corps and at universities, I was convinced finally that this snake was most probably a northern watersnake, *Nerodia sipedon sipedon*, with an outside chance of it being an older diamond-backed watersnake, *Nerodia rhombifer rhombifer*, and with a very improbable chance of it being a chunky yellow-bellied watersnake, *Nerodia erythrogaster flavigaster*, which also has distinct dorsal scales and an extremely pugnacious personality. Water moccasins had been captured further south and occasionally released this far north, but they would not survive these harsher winters.

While this swimming snake had been dry from jaw to tail, and had conformed to all field manual descriptions for water moccasins, it was a phone conversation with Dr. B. Green, a resident expert and researcher at Southwest Missouri State University, that finally persuaded me. At first, Dr. Green's description of the cottonmouth agreed with my own observations totally: the swimming full-length on the surface, the aggressive behavior, the white inner mouth, the heavy-body, the keeled dorsal scales, even the light coloring beneath the lower jaw, the pronounced shape of the head, and the triangular jut of the jaw. But, most importantly according to Dr. Green, the cottonmouth swims full-length upon the surface "as if it were an inflated bike tire." This is, of course, because of its full-length lung, yet it was this singular observation, above all else, that finally clarified the field description. My watersnake had a dry back, but its belly and sides had been submerged.

Secondly, some nonvenomous watersnakes do indeed swim full-length upon the surface, not only with their heads peri-

scoped above the water. This I did not know and, as I was told, my misconception is shared by many people who encounter these northern watersnakes (also see Tynning, 2002).

Beyond the identification, however, what remained extremely interesting was the very fact that this watersnake, on that morning in May, came right up the scent line of oily sardines captured in the silt, twelve hours after I had rinsed the can along the shore. This observed behavior suggests that taste and/or olfactory sensitivity may be well developed in watersnakes for predation. Their hunting techniques, their foraging behavior and their aggressive instincts, suggest that they are highly engaged with chemical trails left in the water. Perhaps this relatively unstudied behavioral characteristic indicates that watersnakes may act somewhat like sharks, or like the more closely related predation behavior of rattlesnakes tracking wounded prey on land using the tongue for sensing airborne molecules. This highly evolved ability may prove to be as true for watersnakes beneath the surface.

On my slow trek by kayak, I was lucky enough to observe other predation behaviors in aquatic (garter?) snakes as they hunted minnows in pools below falls or probed beneath stones (for leeches?) in the Jefferson River of western Montana. Additionally, as a boy raised along a trout stream in the foothills of the Catskills, in northern Connecticut, I once had observed a banded northern watersnake calmly swimming upstream along the gravel and rock bottom, four or five yards below a small speckled trout. From the blind area behind its tail, the snake approached and seized the trout and, with it sideways in its mouth, swam to a sandbar to eat.

In the clear water of a Connecticut trout stream, the snake's use of sight would be the most expected sense to use in predation, but in the dense chocolate stream of a spring flood on the Lower Missouri, where visibility is at best one to two inches, the ability to follow a scent would certainly be a more desirable adaptation. Along a major river that still has frogs, toads, and snakes, it might even suggest a herpetological study that would allow us a better understanding of these hunting techniques of the northern watersnake, *Nerodia sipedon sipedon*, one of the most successful species along this stretch of the Lower Missouri River.

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Cannibalistic Carrion Feeding by a Coachwhip (*Masticophis flagellum*) in New Mexico

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Carrion feeding in snakes has been occasionally reported in the literature, but is a largely unstudied behavior in this group of reptiles. In their recent review of scavenging in snakes, DeVault and Krochmal (2002) identified two published reports of carrion feeding in the coachwhip (*Masticophis flagellum*), a common diurnal colubrid snake of the United States and Mexico. Cowles (1946) observed an adult coachwhip (= red racer, *M. f. piceus*) ingest the badly decomposed carcass of a poor-will (*Phaelaenoptilus nuttallii*). Small et al. (1994) observed an adult red racer take a dead glossy snake (*Arizona elegans*) that apparently had been killed by a vehicle. In another observation not included in the review article, Barry (in press) witnessed red racers feeding on the desiccated carcasses of rodents that had been discarded by a mammal survey team. In this article, we report an observation of a western coachwhip (*M. f. testaceus*) feeding on the road-killed carcass of a conspecific snake in north-central New Mexico.

On 6 August 2003 (at 1030 h), one of us (MLW) observed a snake moving in a twisting manner on the paved surface of a rural road (State Highway 16) in an area of open, overgrazed grassland, ca. 8 km northeast of Cochiti Lake, Sandoval County. Based on its writhing movements, the snake initially appeared to have been injured by a vehicle. However, upon close approach, the snake (an adult coachwhip, ca. 1.5 m total length), was seen to be uninjured and was actually attempting to pry up with its jaws the flattened, desiccated carcass of another coachwhip (ca. 1 m total length) that was adhered to the pavement. The snake's efforts were watched for several minutes from a distance of ca. 3 m; during this time the snake seemed aware of the observer's presence but was intent on peeling the carcass from the pavement. As soon as the carcass was freed, the snake carried the item about 5 m off of the

highway into a four-wing saltbush (*Atriplex canescens*) where it was consumed in ca. 5 min. Weather at the time of the observation was warm and dry.

In addition to supplementing previous reports of carrion feeding in coachwhips, this observation provides additional evidence of ophiophagy and cannibalism (i.e., ingestion of a conspecific) in *M. flagellum*. Predation by coachwhips on other snake species has been documented by Beaman and Harris (2002, and references therein). Cannibalism has been reported in both wild and captive coachwhips (Mitchell, 1986; Degenhardt et al., 1996; LaDuc and LaDuc, 2003), but does not appear to be common in this species.

Scavenging of extremely flattened and adhered roadkills by snakes is not unknown. DeVault and Krochmal (2002) cited three published accounts of snakes eating the flattened carcasses of frogs or toads from a road surface. In an observation very similar to the one described herein, John Glunn (pers. com.) witnessed a southern black racer (*Coluber constrictor priapus*) attempt to eat a very flattened and adhered specimen of a rough green snake (*Opheodrys aestivus*) on a highway in north Florida. The available evidence indicates that carrion, opportunistically encountered and in an advanced state of decomposition or desiccation (such as roadkill), may be a common food source for snakes such as coachwhips which are active foragers and dietary generalists.

Acknowledgments

We thank Sean Barry and John Glunn for providing their unpublished personal observations, and Charles W. Painter for commenting on the manuscript.

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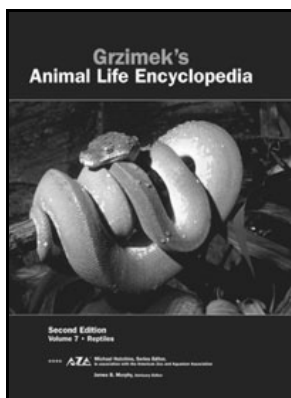
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Editor's note: J. Alan Holman, author of the book review below, is himself a contributor to the volume being reviewed.

Book Review: Grzimek's Animal Life Encyclopedia, 2nd edition. Volume 7, Reptiles edited by M. Hutchins, J. B. Murphy and N. Schlager. 2003. 593 pp. In English. Hardcover. Gale Group, Farmington Hills, MI (<http://www.gale.com>). ISBN 0-7876-5783-2. \$105.00

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This book on the reptiles of the world is a huge volume of classic proportions. It is organized on the basis of taxonomy (order, family, genus and species) and each chapter is written by a specialist. Thirty-two authors have contributed. The text is enhanced by 130 photos, 160 maps and 300 illustrations, all of these in color. Each featured species is illustrated and has a distribution



map. The entire second edition of the *Animal Life Encyclopedia* series consists of 17 volumes covering the major living animal groups, the last volume being a cumulative index. The first edition, produced over 30 years ago, was edited by Dr. Bernhard Grzimek, who was director of the Frankfurt Zoo in Germany. Grzimek was seeking to produce volumes along the line of the classic *Brehms Tierleben* volumes written in German.

The reptile volume is well organized and a “How to use this book” section in the front portion of the work is very useful for the reader. The book begins with introductory “Topic overviews,” namely: “What is a reptile?” (D. Chiszar and H. M. Smith), “Evolution of the reptiles” (J. A. Holman), “Structure and function” (H. B. Lillywhite), “Behavior” (D. Chiszar and H. M. Smith), “Reptiles and humans” (M. Rubio), and “Conservation” (C. K. Dodd, Jr.). I found the “Reptiles and humans” overview especially engaging.

The taxonomic section, which is the heart of the book, starts with an introduction to the order Testudines (Turtles and tortoises) [P. J. Baker] followed in turn by chapters on the various families. I was disappointed that the drawing of the typical turtle skull on p. 65 does not have the individual bones labeled. Although this chapter nicely defines the hidden-necked turtles (Cryptodira) and the sideneck turtles (Pleurodira), the families of these two main turtle groups are discussed in alphabetical rather than taxonomic order. Thus the following turtle families and representative species are presented as follows: Carettochelyidae (Pig-nose turtles) [J. B. Iverson], Chelidae (Australo-American sideneck turtles) [P. J. Baker], Cheloniidae (Sea turtles) [J. B. Iverson], Chelydridae (Snapping turtles) [J. B. Iverson], Dermatemydidae (Central American river turtles) [J. B. Iverson], Dermochelyidae (Leatherback sea turtles) [J. B. Iverson], Emydidae (New World pond turtles) [P. J. Baker], Geoemydidae (Eurasian

pond and river turtles, and Neotropical wood turtles) [J. B. Iverson], Kinosternidae (American mud and musk turtles) [J. B. Iverson], Pelomedusidae (African sideneck turtles) [J. B. Iverson], Platysternidae (Big-headed turtles) [J. B. Iverson], Podocnemididae (Afro-American river turtles) [J. B. Iverson], Testudinidae (Tortoises) [J. B. Iverson], and Trionychidae (Softshell turtles) [P. J. Baker]. Relatively few representative species are included in some of the larger turtle families, probably because of limitations of space; and this trend continues in the other reptile groups discussed.

An introduction to the Crocodylians (Crocodyles, alligators, caiman and gharials) [A. R. C. Britton] leads into the chapters on the families. I was disappointed again because the drawing of the typical crocodylian skull on p. 159 does not have the individual bones outlined, although lines with bone names attached point to various places on the skull. The families of crocodyles presented, unlike those of the turtles, are not in alphabetical order, but instead, followed the order of a phylogenetic tree presented on p. 158, the sequence being: Gavialidae (Gharials) [R. E. Whitaker III and N. Whitaker], Alligatoridae (Alligators and caimans) [L. A. Mertz], and Crocodylidae (Crocodyles and false gharials) [R. E. Whitaker III and N. Whitaker]. Both the color images and color photographs in this section are exceptional.

The section on the primitive Sphenodontia, Sphenodontidae (Tuataras) [D. R. Towns] is quite short. The illustrations are very good except for the tuatara skull drawing on p. 191, which again does not label the individual bones.

The next 304 pages of the book deal with the lizards and snakes (order Squamata). An introduction to the Squamata by E. R. Pianka points out the great diversity of the order (about 42 families, about 1880 genera, and about 7,200 species) as well as other important attributes of the group. Bones are fully labeled on the drawing of a typical snake skull (p. 201), but the lizard skull on p. 199 has the individual bones poorly delineated. A phylogenetic tree is presented for each group. These trees are mainly followed in the sequence of familial presentation. The lizard families are discussed as follows: Agamidae (Angleheads, calotes, dragon lizards and relatives) [E. R. Pianka], Chamaeleonidae (Chameleons) [A. L. Abate] (artwork and photographs spectacular), Iguanidae (Anoles, iguanas and relatives) [L. A. Mertz], Gekkonidae (Geckos and pygopods) [A. M. Bauer], Dibamidae (Blindskinks) [E. R. Pianka], Amphisbaenidae (Wormlizards) [M. Kearney], Bipedidae (Mole-limbed wormlizards) [M. Kearney], Rhineuridae

(Florida wormlizards) [M. Kearney], Trogonophidae (Spade-headed wormlizards) [M. Kearney], Xantusiidae (Night lizards) [R. L. Bezy and L. L. Grismer], Lacertidae (Wall lizards, rock lizards and relatives) [B. Branch], Gymnophthalmidae (Microteiids) [L. A. Fitzgerald], Teiidae (Whiptail lizards, tegus and relatives) [L. A. Fitzgerald], Cordylidae (Girdled and plated lizards) [B. Branch], Scincidae (Skinks) [E. R. Pianka], Anguidae (Alligator lizards, galliwasp, glass lizards and relatives) [R. L. Gutberlet, Jr.], Xenosauridae (Knob-scaled lizards) [G. R. Smith], Helodermatidae (Gila monsters and Mexican beaded lizards) [D. D. Beck], and Varanidae (Monitors, goannas and earless monitors) [E. R. Pianka].

In general, the lizard illustrations are of higher quality than those of the snakes to follow. This is probably because snakes are more difficult to draw and photograph than lizards. The snake families covered are as follow: Anomalepididae (Early blindsnakes) [N. J. Kley], Leptotyphlopidae (Slender blindsnakes) [N. J. Kley], Typhlopidae (Blindsnakes) [N. J. Kley], Anomochilidae (False blindsnakes) [D. Cundall], Uropeltidae (Shieldtail snakes) [D. Cundall], Cyliodrophiidae (Pipe snakes) [D. Cundall], Aniliidae (False coral snakes) [D. Cundall], Xenopeltidae (Sunbeam snakes) [D. Cundall], Loxocemidae (Neotropical sunbeam snakes) [J. A. Rodriguez-Robles] (illustrations not high quality), Boidae (Boas) [D. G. Barker

and T. M. Barker], Pythonidae (Pythons) [D. G. Barker and T. M. Barker], Bolyeriidae (Splitjaw snakes) [D. G. Barker and T. M. Barker], Tropicodophiidae (Woodsnakes and spinejaw snakes) [D. G. Barker and T. M. Barker], Acrochordidae (File snakes) [H. B. Lillywhite] (snake photo on p. 440 poor quality), Viperidae (Vipers and pitvipers) [G. Nilson and R. L. Gutberlet, Jr.], Atractaspididae (African burrowing snakes) [B. Branch], Colubridae (Colubrids) [A. H. Savitzky] (a shame only 18 pages could be devoted to this huge group), and Elapidae (Cobras, kraits, seasnakes, death adders and relatives) [J. S. Keough].

The rest of the book contains much information, including (1) "For further reading", (2) "Organizations", (3) "Contributors to the first edition", (4) a rather limited "Glossary", (5) "Reptiles species list" (scientific names only, pp. 520– 570), (6) a geological time scale, and (7) an Index (pp. 573– 593). The very long species list includes all species referred to in the text. Reflecting the large amount of taxonomic splitting that is going on, several species that are discussed in the text have different names in the reptile species list.

To conclude, this is a volume that every herpetologist should own, as it provides instant access to a huge amount of information on reptiles. The relatively few errors and inconsistencies that occur are inevitable in such a large volume.

Bull. Chicago Herp. Soc. 38(11):224-225, 2003

Book Review: *New York's Biggest Little Zoo: A History of the Staten Island Zoo* by Ken Kawata 2003. 193 pp. Kendall/Hunt Publishing Company, Dubuque, IA (<http://www.kendallhunt.com>) ISBN: 0-7575-0178-8. Softbound. \$20*

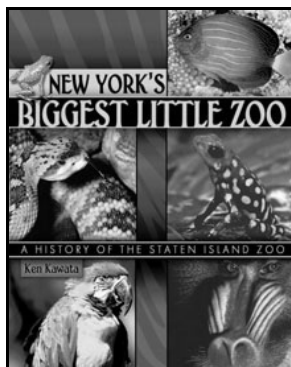
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Here is a "must-read" stand-out — a zoo history book by a working zoo professional who is also an excellent writer. The author gives the reader an insider's view of how zoos operate.

Although small, the Staten Island Zoo has had a number of significant distinctions. First, the zoo was founded by snake advocates, which in itself represents rarity in the zoo field. This helps explain the emphasis on reptiles at this zoo and why the zoo board strongly supported the longtime Reptile Curator Carl Kauffeld.

Second, from the time it opened in 1936, the Staten Island Zoo had formal education programs with classrooms as an



integral part of its activities. These efforts in education were far ahead of almost all other U.S. zoos at the time.

Third, in 1942, this zoo employed a full-time female veterinarian, Dr. Patricia O'Connor. There were only a handful of full time veterinarians in zoos at that time. Further, there were very few women veterinarians in the entire country then.

As in most other zoo books, this volume reports fascinating stories about individual animals. One almost unbelievable incident involved a young orangutan that got into a tiger's cage and was carried in the tiger's mouth until it was rescued by zoo staff unharmed.

However, this book tells far more than animal stories. It gives a great deal of background on the reasons behind the gradual changes that have shaped U.S. zoos. The author explains how the personality of the zoo's leadership is reflected in the growth and vitality of the organization.

The book discusses the evolution of zoo exhibits, which in Staten Island and elsewhere, developed from sterile tiles and barred displays into the more naturalistic settings that have become the goal of most zoo developments over the past few decades.

The author provides an in-depth portrayal of two key figures that built the Staten Island Zoo—Carl Kauffeld and Dr. Patricia O'Connor.

Carl Kauffeld began at the zoo as Curator of Reptiles when it opened in 1936. He had a charismatic personality and strongly influenced the zoo's goals and direction. Ken Kawata quotes Roger Conant, renowned herpetologist and author: "Kauffeld's influence on young people interested in herpetology was enormous. Field work was almost a passion with him and he escaped from the growing and festering megalopolis of New York at every opportunity."

Ken Kawata's book triggered the memory of my first visit to the Staten Island Zoo during World War II while attending Navy Officers Training at Columbia University in 1943. Although Kauffeld himself was away in the army, his staff treated me to a behind the scenes tour of their reptile wing.

The only time Carl and I collected snakes together was in the 1950's in Tucson. We were both visiting there for the same two reasons: to experience the fantastic reptile fauna—for example, southern Arizona harbored eleven species of rattlesnakes—more kinds than any other region of the United States.

The other compelling reason to be in Tucson was to visit Mervin Larson, the Curator of Exhibits (later Director) at the Arizona– Sonora Desert Museum. Mervin had developed a unique method of creating from a special mix of epoxies realistic exhibits that were resistant to water and daily use by live creatures. Both Carl and I wanted to learn from Merv so we could utilize his specialized techniques for our respective zoos.

I recall clearly some of the events of the night that we went

looking for tiger rattlesnakes. This is a choice species that is found in the US only in southern Arizona. Merv drove Carl and me through the rocky hills covered with giant saguaro cactus. After miles of driving, we found and collected several Western diamondback and Mojave rattlesnakes and a number of harmless snakes, but none of the elusive tigers. After more hours of driving, we finally located a fine *tigris* on the edge of the road. As I recall, Carl added this snake to his collection. What I most remember about Carl from our night "running the roads" was his enthusiastic delight in seeking reptiles in the desert that he so enjoyed.

Carl Kauffeld wrote a number of books about reptiles, snake hunting, and snake keeping. His popularity as an author and lecturer made his one of America's best known herpetologists. His special interest was rattlesnakes. By 1964, the Staten Island Zoo's collection included all thirty-two species and subspecies of rattlesnakes found in America, a record that has never been equaled by any other institution. Kauffeld became the Staten Island Zoo director in 1963 and retired a decade later.

New York's Biggest Little Zoo is such a well written book that it comes as a mild shock to discover that the author spent the first thirty-two years of his life in Japan. He was born in 1937 in a small city in the south of Japan. After surviving American bombs in World War II, he devoted himself to studying English in schools. He became a protégé of Dr. Tadamichi Koga, the legendary director of the Ueno Zoo in Tokyo. After working in and learning about zoos in Japan, Ken came to the United States in 1969. He has served as an official at several U.S. zoos, including Tulsa and Detroit, and has been General Curator at the Staten Island Zoo since 1999.

Ken Kawata has authored a carefully researched book that is both informative and well written. It is profusely illustrated with many historic black and white photos of the people and the animals that built the Staten Island Zoo. I highly recommend this zoo history book to readers interested in zoos and especially, to those who are curious about past herpetology.

About the Reviewer: Paul Breese is the Director Emeritus of the Honolulu Zoo, where he was director from 1947 to 1965. He served as Chief of Wildlife Branch for the State of Hawaii in the 1970s. He founded the Brown Tree Snake Control Group in 1990 to help keep this introduced reptile that has caused so much environmental and economic damage on Guam from entering Hawaii.

HerPET-POURRI

by Ellin Beltz

New Salamander Described

Researchers have separated what was formerly considered one population of dusky salamanders into two, naming the new species, *Desmognathus abditus*. The new specific name, *abditus* is said to mean “hidden, concealed or secret” according to the Knoxville *News-Sentinel*, November 10, 2003. Steve Tilley, one of the describers, said “it wouldn’t surprise him if future research doesn’t reveal more species of salamanders new to science on the Cumberland Plateau. ‘The Cumberland Plateau has not been studied as intensively as the Appalachians. In terms of salamanders, the plateau is turning out to be richer than we thought.’” The article adds that the Cumberland Plateau is a hotspot of biodiversity in the state of Tennessee which is also known for having great biological richness. An authority with the Nature Conservancy said, “Tennessee has more recorded caves than any state in the country, and the Cumberland Plateau is ground zero for caves. We’ve not scratched the surface as far as cave biodiversity.”

Two new contributors in one month!

- Marybeth Trilling, new contributor and self-described Frog-Lover, wrote on the outside of her latest contribution, “What do you call a frog who loves Christmas?” The answer (on the other side, of course) “A Mistle-toad.” Inside were a whole bunch of articles from *Chicago Parent*, October 2003, about the North American Reptile Breeders Conference & Trade Show in Chicago during October. You know you’re really way out of the herp-loop when you’ve never heard of the group, the conference or the magazine!
- My other new contributor, Donna Moe, sent a piece from the *Kankakee Daily Journal* (October 23, 2003) that tells how a 10-year-old Kentucky boy found a two-headed black kingsnake. The 8½-inch snake hadn’t eaten since it was found, so they turned it over to a herp enthusiast for care.

Not gone yet

- A lizard that had not been seen in the wild since it was discovered in 1971 has been found again in the eastern Indian state of Orissa. The Barkudia skink (*Barkudia insularis*) was found on Badakuda Island in a brackish lagoon. The four lizards seen appear to be healthy, the full size of the population is unknown. [October 6, 2003: *The News Tribune*, Tacoma, Washington, from Marty Marcus and the *Honolulu Advertiser* from Ms. G. E. Chow]
- In June, scientists in the Queensland National Park announced they had found a male Lavarack’s turtle, a species presumed to have been extinct because the only previously found specimens were all fossils! What happened to the turtle? It was flown, without a mate, to Park headquarters in Brisbane and put on display. [Chuck Shepherd, News of the Weird, *The News Tribune*, Tacoma, Washington, October 1, 2003, from Marty Marcus]
- Also in the lost-and-found department, are the Mississippi

gopher frogs (*Rana capito sevosa*), which researchers at the Memphis Zoo are trying to spawn in captivity. The frogs used to be fairly common all over the southern coastal plain in the U.S., but died out and were presumed extinct. In 1987, they were found at one pond from which 75 tadpoles were taken for the breeding program. The species received endangered species status in 2001. Fewer than 50 frogs are believed to persist in the wild. [Memphis, Tennessee *Commercial Appeal*, September 26, 2003, from Bill Burnett]

Back in the Shallows again!

- Reuters news agency reported that nearly 100,000 tadpoles of the Puerto Rican crested toad, which were raised in zoos around the world, have been repatriated to the Caribbean island in the past decade. Unfortunately, as with most small vertebrates, less than one percent grow to adulthood in the wild. [October 24, 2003]
- China’s Xinhua news agency reported that 250 captive bred giant salamanders were released into the largest reservoir in Guangdong Province. [October 6, 2003, from Mrs. P. L. Beltz]

Cricket frogs still missing

The *Chicago Sun-Times* reports that “80 percent of the wetlands in the Great Lakes states dried up over the last two centuries, causing a dramatic decline in the number of frogs.” Even so, the utter disappearance of the Blanchard’s cricket frogs is still a big mystery. Some possible culprits include drought, disease, habitat loss, landscape fragmentation and increased or changed predation. [September 25, 2003, from Mary Beth Trilling “I love Frogs!”]

It’s Halloween, not April Fool’s

In the interest of getting this story straight, the following is a direct quote from the Associated Press release. Only the names have been removed, you can find those yourself online. “PERTH, Australia – An award-winning British film producer and conservationist pleaded guilty Thursday to 33 charges of trying to smuggle 187 frogs and reptiles out of the country but said he would fight a charge of subjecting them to cruelty. . . . [The man] was arrested at Perth International Airport on October 20, after customs officials found 187 frogs, lizards, snakes, 26 reptile eggs and some insects in his suitcases. . . . [The man], producer of the British wildlife program *Survival*, pleaded guilty to 31 state offenses for which he could be fined up to \$87,000. He also pleaded guilty to a federal charge of removing animals from Australia, but he entered an innocent plea to a second federal charge of cruelty to animals. Both charges carry a maximum sentence of 10 years in jail. Prosecutors allege [his] suitcases had held 27 different species of Western Australian wildlife, including three cockroaches. The reptiles included types of geckos, skinks and snakes. Frogs included clicking froglets, squelching froglets and desert tree frogs. The court was told that [the man], who has worked for *National Geographic* and written several books on amphibians, acknowledged to customs officers he knew his actions were

illegal. He also allegedly admitted to police that in January he had smuggled two spiny-tailed geckos out of the country. That admission led to one of the federal charges. [He] was released on bail, to reappear in court on December 12. Western Australia's Department of Conservation and Land Management said the animals were discovered by X-ray at the airport, following a tip-off from a member of the public. Officers have since released the animals back into the wild." [October 31, 2003]

The Wisdom of Old Age

A 75-year-old alligator trapper has decided to retire this October on his 76th birthday. He says, "My reflexes are slowing down and I'm stumbling more than I used to. I wouldn't want to stumble in one's mouth." [*Leesburg Daily Commercial*, September 17, 2003, from Bill Burnett]

Exceptional Lake Griffin

"Fewer dead alligators are turning up in Lake Griffin [Florida], but what killed them remains a puzzle. . . . [Researchers] have not discovered any similar gator die-offs elsewhere in Florida." [*Orlando Sentinel*, September 1, 2003, from Bill Burnett] As you can see from so many other news stories, in most other Florida lakes, too many big healthy robust and hungry gators are the problem.

Culling improves the breed?

- More than 2,000 applied, but only 180 gator hunters were chosen in Georgia's first official alligator hunt since gators were placed on the Endangered Species List in 1987. "State officials hope the hunt will curb the problem of gators getting into carpools and swimming pools," according to *USA Today*. Only the hunters paid for the \$50 license which lets them take one four-foot or longer alligator. [September 16, 2003, from Bill Burnett]

- Gators are now being hunted legally in Texas, Florida, South Carolina, Georgia and Louisiana. Florida officials estimate their state has more than a million alligators while Louisiana's may number more than 1.5 million. As *Newsweek* reported, these high numbers "would be fine if [alligators] weren't such a pain." All states require catching the alligator before killing it, pointing out "you don't want zinging bullets around [because] they tend to skip [over water]." The hunt brings in a lot more to local economies than just the price of meat and skins. Louisiana estimates that combined impact on their economy from alligators totals \$54 million a year including tourism, hides, meat and other processing. [September 15, 2003, from Bill Burnett] The \$54 million annual economy boost in Louisiana seems like a lot, but works out to \$36 per living gator.

- "Family seeks new dog after gator killed pet" Only the day before, the family's pet sheepdog escaped from the 9-year-old child set to mind her, ran through a hole in a fence towards a Florida canal and was seized and killed by an 8-foot-long alligator that was later killed by trappers. [*Daytona Beach News-Journal*, September 15, 2003, from Bill Burnett] The story probably should have been subtitled, "Why you should have and use a well-fitting leash on your pet at all times."

- "A 5-year-old Lake County [Florida] boy was in the hospital . . . recovering from an alligator bite he got while swimming in a Sumter County lake . . ." with his dog splashing around in the late afternoon. This almost recipe for disaster ended well because the child was wearing a life jacket and popped back up to the surface when the alligator let go. Trappers suggest the gator realized it wasn't the dog he had caught and opened his mouth. The gator was later trapped and killed. [*Orlando Sentinel*, August 19, 2003]

- "Since 1948, there have been 200 unprovoked alligator attacks in Florida on humans. Twelve people have died. The latest death occurred in June when a 12-year-old boy was attacked while swimming with friends," according to the *Orlando Sentinel*, August 17, 2003] As all herpetologists are aware: (1) The standard times of day for alligator activity are early morning and late afternoon, when most other wildlife is equally active. (2) Do not feed any gators as that will make them unafraid of people and more likely to attack. (3) Swimming in Florida lakes is strongly discouraged due to the high concentration of alligators in the lakes. (4) Don't let your dog splash around in the surface waters of the states of Florida or Louisiana if you still want to have a dog.

Encouraged to do what?

A restaurant in Destin, Florida, has an unusual new attraction, a bright yellow alligator, named "Mellow Yellow" in its tank of normally colored alligators. The restaurant sells balanced alligator chow to its patrons to feed to its pet gators, none of which are long enough to really cause a problem. When they get too big the restaurant returns them to the gator farm from whence they came. Mellow Yellow gets a lot of attention because of his unusual coloring. Many visitors want to know "Is he real?" [*Orlando Sentinel*, September 27, 2003, from Bill Burnett]

Vliet's new "Crunch Bar"

"The maximum bite force from a human . . . is a nasty 170 pounds; . . . a Labrador retriever bites with 125 pounds; . . . a good-sized dusky shark puts out 300 pounds; . . . a lion has a bite force of 940 pounds; . . . a hungry hyena . . . bites with 1,000 pounds; . . . but the alligator is the most fearsome cookie in that box of animal crackers. . . . The bite bar was lucky to survive. . . . [It measured] 2,125 pounds of jaw pressure." This last lovely factoid comes from the work of alligator researcher Ken Vliet who invented the bite bar needed to record the measurement and put it into and removed it out of the jaws in which they recorded the one ton crunch. [*South Florida Sun-Sentinel*, September 9, 2003, from Alan Rigerman; Little Rock, Arkansas *Democrat-Gazette*, September 22, 2003, from Bill Burnett]

Actions speak louder than words

- Lake County was once a lovely rural part of Florida. Since the Florida housing and population booms of the early 1980s to the present, more and more habitat is being lost every year. Even though laws have been in place for years attempting to stem the loss of gopher tortoises, the huge amounts of money at stake from developers and individuals results in a human-

tortoise collision. This chart was a sidebar in an article about educational meetings for developers held by the state.

“Lake County Gopher-Tortoise Permits [GTP]

There are 2 major types of GTP: incidental take and standard/relocation. In incidental take permits (ITP), the developer does not have to relocate the tortoises — which often means the animals die in exchange for the developer giving money to a fund that buys land for tortoise habitat in other areas. Standard/relocation permits (SRP) give the developer permission to relocate tortoises to a safe spot on the site or off the property.

Year	ITP	SRP
2000	0	23
2001	7	16
2002	14	8
2003	15*	5*

* to date”

[Florida Fish and Wildlife Conservation Commission/*Orlando Sentinel*, September 15, 2003, from Bill Burnett]

• A previous article in the Leesburg, Florida, *Daily Commercial* pointed out that “Gopher tortoises were listed as threatened in 1975 but as their numbers grew, the designation changed in 1978 to a species of special concern. Since 1988 it has been illegal to kill them” without an incidental take permit. One small town mayor pointed out that part of the problem is the system was designed for the one or two homes a year that used to be built, not the five or 10 per month that are going up now. Next up for his town is an 800-home development on about 380 acres; the mayor promised that tortoises would be looked for and considered on that project. [August 16, 2003, from Bill Burnett]

Gecko Tape

Researchers in England and Russia announced that they have made a tape that is based on the structure of gecko-feet. The tape is covered with thousands of tiny hair like structures. It is good for about five uses so far. The geckos get lifelong use from their feet because they are made from water repelling keratin. So far researchers can only make gecko tape from water attracting materials. But the race to make gecko gloves and shoes is off and sticking. [*Science News*, June 7, 2003, from Marty Marcus]

Expensive Fish Food

A man who is really into Big Bass fishing noticed that a very large Big Bass struck at and devoured a very small watersnake which had been innocently swimming across the surface of the water. Since no one had ever managed to make a snake-shaped fishing lure that floated, he decided to make this his goal. He found a material which would float perfectly and sculpted his snake lures which with a little dynamic testing and fine tuning it. It is, of course, available for sale on the Internet, complete with nine snakes in four colors and so on. [*Orlando Sentinel*, September 14, 2003, from Bill Burnett] Hopefully all those really into Big Bass fishing will now spend money on plastic snakes and leave the local snake populations alone.

Next month . . . turtles, turtles, turtles and whatever you send. Join my wonderful contributors (and two new contributors in one month) and send whole pages of newspapers and magazines with herpetological articles and the date/publication slug firmly attached to: Ellin Beltz POB 1125, Ferndale CA 95536-1125. Please put your name on every page!



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Unofficial Minutes of the CHS Board Meeting, October 17, 2003

Vice-president Linda Malawy called the meeting to order at 7:31 P.M. Board members Tom Anton, Mike Dloogatch, Lori King and Mike Redmer were absent.

Officers' Reports

Recording Secretary: Zoe Magierek read the minutes of the September 12 board meeting. Corrections were made and the minutes were accepted as corrected.

Treasurer: Jim Hoffman presented an income statement and a balance sheet. An expense for photos was mentioned and it was clarified that it was Bob Bavirsha's fee for setting up the trees and photo booth at ReptileFest. The final zoo trip numbers will be in next month's report. Linda Malawy mentioned that it was helpful to see the treasurer's report in advance.

Vice-president: Geoffrey Sorrell will speak about eyelash vipers at the October meeting. His research was partially funded by a CHS grant. The program for November will be the choice of the nominating committee.

Corresponding Secretary: All adoption calls have been forwarded to Linda Malawy. Linda did not end up going to the Backer's show to look for raffle donations because they did not want solicitations.

Standing Committees

Grants: Steve Barten will be taking over as chair of the grants committee, which will be made up of Steve Barten, Mike Dloogatch and Lori King. Grant proposals will be accepted up through December 31, with the grants being awarded in the spring. The usual allocation is five \$500 grants. Steve Barten requested that we move to allocate \$2500 to grants committee funds. Jenny Vollman moved to allocate and Jack Schoenfelder seconded. The motion passed unanimously. The grants committee would like to thank the board for their support.

Shows: The Chicagoland Pet Show will be held at Arlington Park March 19– 21. Jenny Vollman made a motion to allocate \$600 to rent booth space, Linda Malawy seconded. The motion passed unanimously. Jack Schoenfelder made a post-vote suggestion that since this is an annual show, the expense should be written into the budget. Betsy Davis said that the CHS booth at the NARB show went well and \$295 was made towards *Cyclura* conservation. Jenny Vollman also requested permission to have CHS logo business cards printed for show use. The request was granted.

Raffle: Linda Malawy bought a T-shirt from Mark O'Shea who was at the Tinley Park show promoting Sri Lankan venom research. She also had him sign the shirt and wondered if she could be reimbursed for the cost of the T-shirt and include it in the raffle. No motion was needed because it was under \$25 and she should be reimbursed from petty cash. Jack Schoenfelder mentioned perhaps having an auction at one meeting a year instead of a raffle. The idea of an auction was discussed. Mark O'Shea was interested in becoming an honorary member; Linda Malawy suggested waiting to decide about this until

more people were present.

General Meeting Sales:

Books: Joan Moore presented an inventory and value amount of the books we have on hand. Jack Schoenfelder and Erik Williams mentioned perhaps preparing a statement of books ordered and books we have on hand for the board meetings. Linda Malawy mentioned it was nice to see the information Joan presented once in a while. The board thinks Joan satisfied the requirements set for the book sales.

Trout Chow and CHS Merchandise: The trout chow is selling better in kilo bags! November and December meeting will have the holiday sale. Jenny Vollman suggested inviting Don Wheeler to sell his book.

Conservation: John Archer mentioned running ads online and on the website for the massassauga shirts. New graduate students are being recruited into the massassauga project, and we are still collecting funds. More information on the Turtle Survival Alliance is expected soon. Erik Williams is waiting to hear back from Jessi Krebs about shirt sizes and project abstracts for the Cryptobranchid Interest Group.

Ad Hoc Committees

ReptileFest: John Archer will be holding a brainstorming meeting about ReptileFest at his house on November 2. John Archer also requested permission to be able to use the CHS logo on business cards he would have printed at his expense for ReptileFest related use. The board granted him permission.

Nominating Committee: John Archer wanted to thank the committee for doing such a good job and Betsy Davis wanted to thank John Archer for being such a good chairman! The slate will be announced at the general meeting. There was a discussion about contacting current board members about re-running so they could get on the absentee ballot, which often swings votes.

Annual Awards: There has been no awards committee meeting as of yet. Joan mentioned the idea of the awards going on hiatus. Jack Schoenfelder felt we should have awards and Linda Malawy and Jenny Vollman agreed. Joan was able to get the company we had used previously to provide a better price.

Old Business

State Reptile/Amphibian: The amphibian push is well under way, the kids will be voting at the end of this year.

Jenny Vollman moved to adjourn; Jack Schoenfelder seconded.

The meeting adjourned at 9:50 P.M.

Respectfully submitted by Recording Secretary Zoe Magierek

Herpetology 2003

In this column the editorial staff presents short abstracts of herpetological articles we have found of interest. This is not an attempt to summarize all of the research papers being published; it is an attempt to increase the reader's awareness of what herpetologists have been doing and publishing. The editor assumes full responsibility for any errors or misleading statements.

UV LIGHT SOURCES COMPARED

B. A. Aucone et al. [2003, J. Herpetological Medicine and Surgery 13(2):14-17] conducted two studies to determine the suitability of Westron self-ballasted mercury vapor lamps in the captive maintenance of chuckwallas, *Sauromalus obesus*. Initially, preference for basking under either a Westron lamp or an incandescent flood lamp was measured in a separate enclosure involving five individuals selected from a group of eight juveniles. Following this, the eight chuckwallas were divided into two groups and maintained for fifteen months in indoor enclosures illuminated with either an incandescent flood lamp and fluorescent Sylvania 350 BL combination or a single Westron self-ballasted mercury vapor lamp. Snout-vent length (SVL), body mass and cloacal body temperatures were measured every two weeks. After nine months, the lizards were radiographed to assess bone density and blood was collected for assay of 25-hydroxyvitamin D. No significant differences in SVL and body mass growth rates, cloacal body temperatures or bone densities were observed between the two groups. The serum 25-hydroxyvitamin D concentrations for lizards exposed to the incandescent lamp/Sylvania 350BL combination were significantly less than those measured in lizards exposed to the Westron lamp and wild-caught lizards. Furthermore, the Westron lamp maintained 25-hydroxyvitamin D at levels comparable to those observed from a wild-caught sample. Observations support a preference for basking under a Westron lamp. These data suggest that the Westron lamp is at least as effective as an incandescent/blacklight combination in maintaining desert dwelling chuckwallas and that either setup may result in adequate vitamin D production sufficient to sustain healthy bone density.

CUMBERLAND PLATEAU DUSKY SALAMANDERS

J. A. Anderson and S. G. Tilley [2003, Herpetological Monographs 17:75-110] attempted to identify salamanders from the Cumberland Plateau of Tennessee that have been referred by previous investigators to *Desmognathus ochrophaeus*. They compared variation at 22 allozyme loci in 10 populations to allozymic variation in other desmognathines. Multidimensional scaling, cluster, and parsimony analyses indicate that populations from their southernmost localities in the plateau are referable to *D. ocoee*, whereas the northernmost populations are *D. ochrophaeus*. In contrast, animals sampled from the middle of the plateau are genetically very distinct from all members of the complex and represent a new species described in this paper as *Desmognathus abditus*. *D. abditus* exhibits very limited gene exchange with *D. ocoee* and *D. ochrophaeus* where it contacts those forms. A population from the Eastern Highland Rim that has previously been referred to *D. ochrophaeus* may represent yet another undescribed species. The southern Cumberland Plateau clearly represents an area of substantial desmognathine diversity.

LYRE SNAKE TAXONOMY

T. J. LaDuc and J. D. Johnson [2003, Herpetologica 59(3): 364-374] note that *Trimorphodon biscutatus vilkinsonii*, at one time considered a full species, is presently regarded as a subspecies of *T. biscutatus* based on morphological data compiled from eight male specimens from southeastern Arizona and southwestern New Mexico; these specimens were thought to be intermediate between the currently recognized *T. b. lambda* (from Sonora and Arizona) and *T. b. vilkinsonii* (from Chihuahua and Texas). Statistical analyses of a morphological data set compiled for *T. b. vilkinsonii*, *T. b. lambda*, and specimens collected from the intermediate zone indicate that *T. b. vilkinsonii* is clearly distinct from *T. b. lambda*. Several characters, such as blotch width and interblotch distance, allowed more than 95% of specimens of both taxa to be classified properly. The data also confirm that specimens sampled from the intermediate zone should be considered *T. b. lambda*. The authors find that the *T. b. vilkinsonii* populations represent a separate, distinct lineage, and elevate this taxon to species level. They recommend "Chihuahuan Desert lyresnake" as the English name for *Trimorphodon vilkinsonii*.

BROWNSNAKE RADIOTELEMETRY

P. B. Whitaker and R. Shine [2003, Herpetological Monographs 17:130-144] radio-tracked 40 free-ranging eastern brownsnakes (*Pseudonaja textilis*) in an agricultural landscape in southeastern Australia to clarify the spatial ecology of these highly venomous animals. Most snakes overwintered in burrows within a small area on the bank of an irrigation canal, dispersing into agricultural land during the warmer months. The snakes sheltered overnight in burrows or soil cracks, reusing the same retreat on successive nights and moving about to forage during the day. Successive shelter-sites averaged 152 m apart, and the snakes moved between them on average every six days. Home ranges of adult snakes were small (average MCP = 5.8 ha), and did not differ significantly between years with varying prey abundance. Movement patterns depended upon the snakes' sex, reproductive condition and body size. Adult males moved earlier in spring than did the (smaller) adult females, moved further and more often, and had larger home ranges. Home range size increased with body size in males, but not in females. Shelter-site selection was influenced by the location of potential prey (house mice, *Mus domesticus*) and the location of other snakes. When radio-tracked snakes moved, they generally traveled from areas of lower to higher prey abundance (as determined by mammal-trapping). Throughout most of the year, adult male snakes were avoided by females and by other males. Adult males rarely cohabited with other snakes, and their arrival at an occupied burrow generally induced the resident snake to depart. This study thus provides the first strong evidence that agonistic interactions can influence the spatial ecology of snakes.

Advertisements

For sale: rats and mice—pinkies, fuzzies and adults. Quantity discounts. Please send a SASE for pricelist or call Bill Brant, *THE GOURMET RODENT*, 6115 SW 137th Avenue, Archer FL 32618, (352) 495-9024, E-mail: GrmtRodent@aol.com.

For sale: from **The Mouse Factory**, producing superior quality, frozen feeder mice and rats. We feed our colony a nutritionally balanced diet of rodent chow, formulated especially for us, and four types of natural whole grains and seeds. Mice starting from: pinks, \$.17 each; fuzzies, \$.24 each; hoppers, \$.30 each; weanling, \$.42; adult, \$.48. Rats starting with pinks at \$.45 each, to XL at \$1.80 each. Discount prices available. We accept Visa, MC, Discover or money orders. P.O. Box 85, Alpine TX 79831. Call us **toll-free** at (800) 720-0076 or visit our website: <http://www.themousefactory.com>.

For sale: from Bayou Rodents, excellent quality feeder mice and rats. Every size available. Pinks starting at \$20/100. Orders are shipped by overnight service Monday thru Thursday. We accept Visa, MasterCard and Discover. For more info, contact Rhonda or Peggy, (800) 722-6102.

For sale: **high quality frozen feeders**. Over a decade of production and supply. Seven sizes of mice available: small newborn pinks up to jumbo adults. Prices start at \$25 per 100. Feeders are separate in the resealable bag, not frozen together. Low shipping rates. Free price list. Kelly Haller, 4236 SE 25th Street, Topeka KS 66605, (913) 234-3358 evenings and weekends.

For sale: **Pillstrom Snake Tongs** are available from the manufacturer and are shipped worldwide. Lengths/prices: 26"/\$63, 36"/\$64, 40"/\$65, 46"/\$66, 50"/\$67. Shipping and handling costs in the U.S.: \$8 for the first tong, \$1 for each additional. Pillstrom Tongs, 4617 Free Ferry Road, Fort Smith AR 72903-2363, (479) 452-3001 phone, (479) 452-3671 fax. E-mail: pillstrom@aol.com. Website <members.aol.com/mpillstrom>.

For sale: herp books. *Wildlife in Papua New Guinea* by Eric Lindgren, 1975, 196 pp., 193 color photos, includes Boelen's, D'Albert's and green tree pythons and emerald monitor, DJ slightly torn at top of spine, otherwise excellent condition, hardbound, \$32; *A Biological Survey of the Tanami Desert in the Northern Territory* by D. F. Gibson, 1986, 258 pp., 18 color photos, 35 maps, 33 pp. on herps, softbound, \$45; *Handbook of Common New Guinea Frogs* by J. I. Menzies, 1976, 75 pp., 12 composite color photos, plastic boards, \$27; *Snakes of Southern Africa* by Vivian F. M. FitzSimons, 1962, 423 pp., 76 color plates, 43 b&w photos, DJ torn, hardbound, \$75; *Handbook of Lizards of the World* by Hobart Smith, 1946, 557 pp., 135 plates (b&w photos), previous owner's name and book title lettered on page edges, hardbound, \$40; *Living Reptiles of the World* by Schmidt and Inger, 1961 (1957), 287 pp., 145 color plus many b&w photos, DJ tattered, hardbound, \$25. Books make good Christmas presents. All books in excellent condition except as noted. Prices include postage. Send E-mail address for complete booklist. William R. Turner, 7395 S. Downing Circle West, Littleton, CO 80122, (303) 795-5128. E-mail: toursbyturner@aol.com.

For sale: high yellow male jungle carpet python, c.b. '03, German bloodline, papers included, \$200. Mike Wood, (574) 269-3441. E-mail: 2bears@myvine.com.

For sale: 8' male Colombian boa constrictor, \$300. Call (773) 719-6233.

For sale: Jungle carpet pythons, captive bred hatchlings from beautiful black and yellow adults, \$75. Ralph, (847) 904-7229.

For sale: two 18" creamsicle cornsnakes, \$75 each; one 18" motley cornsnake, \$75; one 3' sunglow motley cornsnake, \$100; two 15" gray-banded/mountain kingsnake hybrids, \$60 each; four 18" blue beauty ratsnakes, \$50 each; two breeding pairs of blue beauty ratsnakes, ~6', \$300 each; one male and two female 3' Chinese beauty ratsnakes, \$250/trio; three 5-6' cave-dwelling ratsnakes (*ridleyi*), \$1800; one 9' Taiwan beauty ratsnake, docile, \$250; one 28" green tree python, \$350. All are captive-bred. Will consider "best offer" on most. Will deliver in greater Chicago area. Bill, (708) 799-6697.

Herp Tours: Why pay more? Travel with the International Fauna Society, a 501 (c)3 not-for-profit organization, and experience the Costa Rican rainforest! Stay at the beautiful Esquinas Rainforest Lodge in the untouched herpetological paradise that is Piedras Blancas National Park. Meet new friends, relax in the naturally-filtered swimming pool or in the lush, fauna-filled tropical garden. Discounts for IFS and Chicago Herp Society members. For details, visit The International Fauna Society website at www.faunasociety.org or E-mail: joea@faunasociety.org.

Herp tours: Adventure trips to **Madagascar!** Journey somewhere truly unique to seek and photograph nature on the world's least-studied mini-continent. For maximum herp fun and discovery, join Bill Love as we go where few people will ever venture in their lives. Let his experience assure a comfortable tour finding the most colorful and bizarre species on the planet! Get all the details at Blue Chameleon Ventures' comprehensive new website: <<http://www.bluechameleon.org>>, E-mail: bill@bluechameleon.org, or call (239) 728-2390.

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Internship: The Kentucky Reptile Zoo, a nonprofit organization, is seeking a student intern for the 2004 spring, summer, and fall seasons. The zoo is an educational exhibit, reptile breeding and venom research facility located near Kentucky's Red River Gorge and Natural Bridge State Park. The intern will assist in the captive maintenance of the zoo's reptile collection, collect admissions to the exhibit, give interpretive talks and interact with the public, assist with educational outreach programs, and perform other duties as assigned. In addition, the intern will be responsible for the completion of at least one research project related to the field of herpetology. The intern will not be involved in the handling of any venomous reptiles. Desirable qualifications include a willingness to handle snakes and other reptiles on a daily basis, ability to communicate effectively with people, writing skills, orientation to details, and self-motivation. The intern will be required to work both Saturday and Sunday, with days off during the week. Interns are required to be either current college students or recent graduates; students majoring in the biological or natural sciences are preferred. Former interns have arranged for academic credit with their colleges or universities. Interns have also been successful in finding zookeeper positions, with a hire rate of over 95%! Benefits include experience with the most extensive and diverse collection of snakes in the U.S., housing, and \$55/week to cover expenses. Personal transportation is recommended. A valid driver's license is required. Starting dates are flexible, but a minimum commitment of three months covering spring (March-May), summer (June-August), or fall (September-November) is required. To apply send a cover letter, resume, transcript, and at least 2 (preferably 3) references to: Kristen Wiley, Internship Coordinator, Kentucky Reptile Zoo, 200 L & E Railroad, Slade, KY 40376. Or send via E-mail to: kyreptil@mailhost.mis.net.

Pet Sitting: In-home care for all your pets' needs. Specializing in reptiles, amphibians, birds, fish, dogs, cats. . . . Very passionate in herpetology, experienced vet technician at an exotic animal hospital, aquarium technician for over 10 years. Great references available. Call Lisa Collins to book your special care requests, (847) 644-3681. [Northshore based]

Line ads in this publication are run free for CHS members — \$2 per line for nonmembers. Any ad may be refused at the discretion of the Editor. Submit ads to: Michael Dloogatch, 6048 N. Lawndale Avenue, Chicago IL 60659, (773) 588-0728 evening telephone, (312) 782-2868 fax, E-mail: <MADadder0@aol.com>.

News and Announcements

HERP OF THE MONTH

Each monthly meeting will showcase a different herp. CHS members are urged to bring one specimen of the “Herp of the Month” to be judged against the entries from other CHS members. Prizes will be awarded to the top three winners as follows: 1st place—6 raffle tickets at next meeting; 2nd place—4 raffle tickets at next meeting; 3rd place—2 raffle tickets at next meeting. Here are the categories for the coming months:

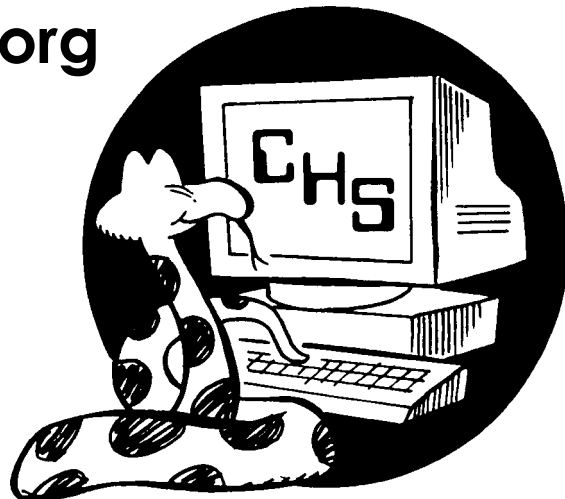
Month	Description of Contestants
November 2003	Tortoises
December 2003	Python species that do not exceed 8' in length
January 2004	Herps from South America
February 2004	Herps from Africa
March 2004	Amphibians of the world
April 2004	Beginner herps
May 2004	Herps from Madagascar

Next time you surf the WorldWide Web, crawl, run, slither, slide, jump, or hop over to the CHS web site!

www.chicagoherp.org

You'll find:

- **Announcements**
- **CHS animal adoption service**
- **CHS events calendar & information**
- **Herp news**
- **Herp links**
- **Meeting/guest speaker information**
- **Photos of Illinois amphibians & reptiles**
- **Much, much more!**



Chicagoherp.org is accepting applications for banner advertisements or links from herpetoculturists and manufacturers of herp-related products. Visit the site and contact the webmaster for details on how you can sponsor CHS!

UPCOMING MEETINGS

The next meeting of the Chicago Herpetological Society will be held at 7:30 P.M., Wednesday, November 26, at the Peggy Notebaert Nature Museum, Cannon Drive and Fullerton Parkway, in Chicago. This meeting will include the annual election of officers and members-at-large of the CHS Board of Directors. In addition to the elections, this meeting will feature several short slide and video presentations by local CHS members

Because the last Wednesday in December is New Year's Eve, the December CHS meeting will be held two weeks earlier than usual — Wednesday, December 17. The December *Bulletin* will not reach you before then, so please make a note of this middle-of-the-month meeting date.

The regular monthly meetings of the Chicago Herpetological Society are held at Chicago's newest museum—the **Peggy Notebaert Nature Museum**. This beautiful new building is at Fullerton Parkway and Cannon Drive, directly across Fullerton from the Lincoln Park Zoo. Meetings are held the last Wednesday of each month, from 7:30 P.M. through 9:30 P.M. Parking is free on Cannon Drive. A plethora of CTA buses stop nearby.

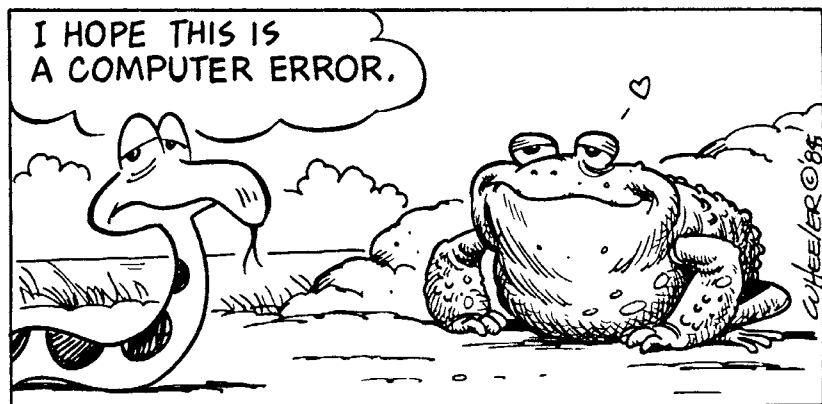
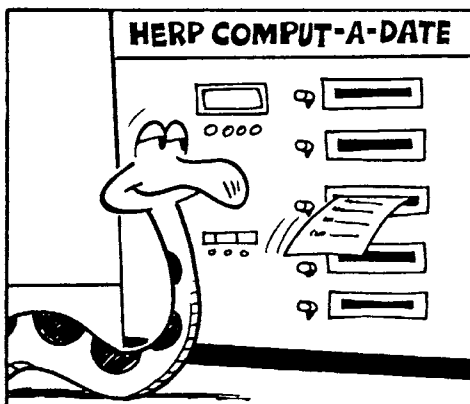
Board of Directors Meeting

Are you interested in how the decisions are made that determine how the Chicago Herpetological Society runs? And would you like to have input into those decisions? If so, mark your calendar for the December 12 board meeting, to be held at the North Park Village Administration Building, 5801 North Pulaski Road, Chicago. To get there take the Edens Expressway, I-94, and exit at Peterson eastbound. Go a mile east to Pulaski, turn right and go south to the first traffic light. Turn left at the light into the North Park Village complex. At the entrance is a stop sign and a guardhouse. When you come to a second stop sign, the administration building is the large building ahead and to your left. There is a free parking lot behind the building.

The Chicago Turtle Club

The monthly meetings of the Chicago Turtle Club are informal; questions, children and animals are welcome. Meetings normally take place at the North Park Village Nature Center, 5801 N. Pulaski, in Chicago. Parking is free. For more info call Lisa Koester, (773) 508-0034, or visit the CTC website: <http://www.geocities.com/~chicagoturtle>.

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