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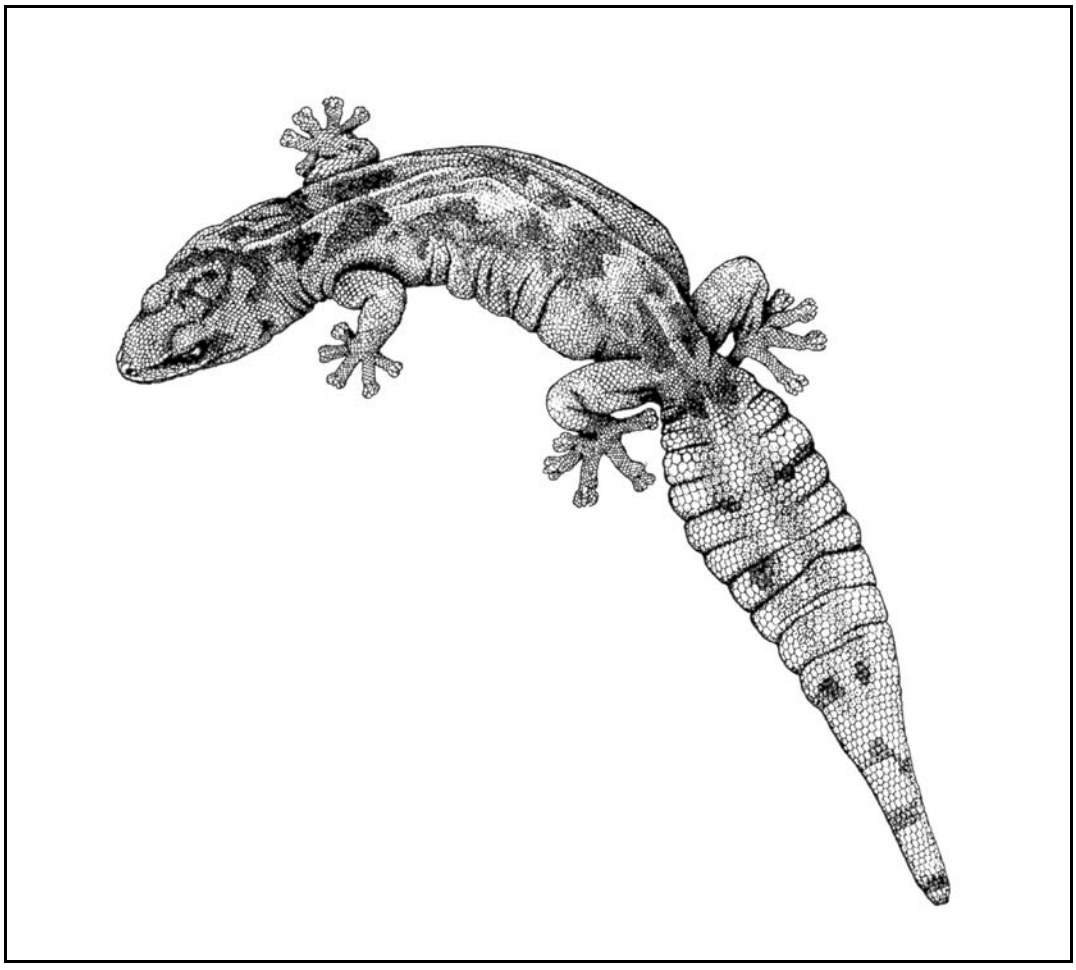

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Cover: Bogert's rock gecko, *Afroedura bogerti*. Drawing (as *Afroedura karroica bogerti*) from *New Geckos of the Genera* Afroedura, *New Genus, and* Pachydactylus *from Angola* by Arthur Loveridge, American Museum Novitates Number 1254, April 8, 1944.

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In fond remembrance of Ilene Sievert, who died December 16, 2012, this year we will reprint several of the essays that Ilene wrote for these pages between 1988 and 1993 under the rubric "Frog City." This one is from June 1988.

Frog City
by Ilene Sievert

I. *Xenopus* leave-us

The high school biology teacher got himself a kit from some supply house. It included a pair of *Xenopus laevis*, food, instructions, and other materials for breeding these aquatic frogs in captivity. My daughter Carolyn reported that injections were used to bring the pair of adults to readiness. She did not see the mating but observed eggs and tadpoles. Metamorphosis occurred and close observation indicated extreme cuteness as an important young frog characteristic. Parental authorization was requested for further study at home. What could I say?

Years ago a "dwarf" clawed frog was purchased from a local aquarium shop. It was to live in a housekeeping position with some sedate and elderly newts. The newt habitat was a large plastic bubble terrarium with roughly hemispherical bottom, lid the same, with the top resting on a lip on the base. A hole on top of the lid let in air without giving up too much humidity. Inside, a layer of sand and gravel was covered with a few inches of water. Protruding rocks provided haul-out and sturdy semi-aquatic dracaenas often held a newt or two perched above the water. It was a quiet and peaceful Eden. A vigorous, energetic, or large animal would have pushed off the lid or jumped out the hole. Not newts.

An unkind person might say that, in respect to feeding, newts are slow and stupid. Much food was dropped, lost, drowned. Clawed frogs, on the other hand, seemed most assiduous in seeking and devouring. What I had seen in shop aquaria were tiny frogs, swimming nervously, fearfully, seeking food and looking harmless as guppies. In fact, there were some guppies in with the newts, but not for long. When first in the bowl Claudia kept well hidden, darting out for worms, brine shrimp, insect pieces, fish food. It was hard to find her in the rock crevices or under plants. Months passed and Claudia seemed much larger, suspiciously larger, and there seemed to be no more baby guppies. Off to the reference books we went to discover that there are distinctly non-dwarf *Xenopus* and they will and do try to eat anything that fits. Their voracity and toughness apparently make them a menace in non-native waters. Would Claudia know that newts can be indigestible? Were the poor old slow newts in danger?

She was no longer as secretive and could be seen lurking near the surface showing shallow pop-eyes shining with false innocence. The larger guppies had disappeared coinciding with a decided growth spurt for Claudia.

Although the newts seemed unconcerned, we moved Claudia to a separate aquarium, noting at the same time that (a) clawed frogs can jump very well and (b) they can travel quickly out of water. Soon a ten-gallon tank with lid was necessary. Water was kept shallow for her ease in breathing and our ease in changing. She liked to hide in a broken flower pot. A large smooth stone provided the entertainment of seeing her swoop terrestrial prey off the top. She always stuffed items in her mouth with splayed fingers, scoop . . . stuff, scoop . . . stuff. Long and recalcitrant nightcrawlers required a lot of palming. Small items just disappeared. We never saw her tongue at all. A slight touch of one of her fingers to a moving insect or fish caused a hair-trigger devouring reaction (scoop . . . stuff) but a strong stimulus or surprise caused a dramatic backward propulsion, often with a splash to the face. In a natural setting silt or mud must be stirred to obscure the frog's location. I would love to see a slow-motion film of that backward leap.

The book said that clawed frogs are easy to breed in captivity, so we looked about for a mate for Claudia. Because of some folds around the cloaca we concluded Claudia was a female. An ad in the CHS newsletter received a response from a member with a large adult, sex unknown. (It is the sex of the frog, not the member, that concerns us here. The accurate sexing and propagation of CHS members is too problematic and controversial a topic for treatment in this essay. We know that in certain seasons and times they can appear in large numbers, as if from nowhere. Certainly a great deal more research is necessary both in the lab and in the field.)

Thus arrived Claude. He was about one-quarter longer than Claudia. It is difficult to measure a live *Xenopus*. Imagine a frightened bar of wet soap.

Confusion! He also had cloacal folds, though somewhat different in appearance. Several semi-mavens then told us that sexing by cloacal appearance was iffy. We figured the frogs would know so we put them together and watched. They ignored each other for months. To avoid food wars they were well fed simultaneously. It seemed to me that Claudia tended to move away when Claude came near her, but at other times they were together like two drifting sticks, apparently mutually indifferent.

After a year Claudia died. She was found dead with no visible trauma or sign of disease, no previous unusual behavior observed. If only she'd sent a note. "*Dear Ilene, I try not to let it show but I really hate him. I think it's giving me an ulcer. See if you can find him a place of his own. Gratefully, Claudia*" We should have opened her up to find her real gender but were deterred by guilt and a certain smell.

Claude now lives alone in the ten-gallon tank. His appetite is good. When he arrived he had a curious truncation of some of his fingers. They looked bitten half off. They never regenerated but it seems not to impair sensitivity. He is my metaphor for slimy devouring monster. He truly appears to have no interests besides feeding and lurking. We never see any change of behavior by season or time of day. Great hunger brings some boldness. Do shy creatures in long solitary captivity simplify their

repertoire for lack of stimulus? They do not starve, compete, encounter predators, mate, dry out, chill or overheat. They cannot migrate. Is it hobo heaven or life sentence in solitary?

I don't think Claude misses Claudia. A smaller creature would be eaten. A much larger creature probably would be stressing. Perhaps he'd like a larger area than a ten-gallon tank in which to lurk. Security in the lurk place.

Carolyn brought home two little frogs. They hang in the water, stuffed doll arms outstretched, hind feet like tiny umbrellas. They locate the bits of crumbled Trout Chow. Scoop - stuff. Usually they keep toward opposite sides of the tank, skittering away if they accidently collide. I sense little sibling affection. The search for food is intense.

How many slimy devouring monsters does a household need?

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Brown Snakes (*Storeria dekayi*) in South Central Iowa

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We first became familiar with brown snakes (*Storeria dekayi*) in the late 1990s as we first encountered about a dozen spread over what is called the Volksweg, a paved biking and hiking trail near Pella, Iowa and skirting the only local feature viewable from near Earth orbit, Lake Red Rock Reservoir. In autumn, snakes came out to bask on the sun-warmed pavement. Back then when the snakes were more common we could walk the trail and see six to ten of them and if temperatures were just coming into the upper 40s we could pick up the snakes, as stiff as spaghetti noodles, place them into our hands and visibly see them "melt." As it soon turned out we had to visit the trails early to save these cold-inactivated snakes from harm from bicyclists and pedestrians.

During warmer periods in autumn when snakes were active we could document the differences in snake reactions to our presence. Most snakes retreated at our approach. About 30% struck defensive poses coiling while flattening and flaring their bodies to reveal stark white and red-gray checkerboard patterns. About 5% of snakes actually opened their mouths and lunged at us. This variability of behavioral response is in keeping with Darwinian variability as an underpinning of evolution. King (1997) in an investigation of variable parameters of snake morphological and small scale geographic ranges also suggests that another parameter of variability for *S. dekayi* may be behavioral.

Aside from viewing and photographing the snakes we also attempted to assist snakes off the pavement and edify passersby who might see the snakes and all too often, either through inattention or malice, killed many snakes. One morning we arrived too late and found five snakes crushed by shoes or bicycle tires. To enhance the education of the public about these (and hence other) snakes we collected two subadult snakes from the Volksweg in early autumn 2001. I (SRJ) kept them in a small aquarium so that we might observe some intricacies of their behavior. We were struck immediately by how these snakes basked twined together as if they enjoyed each other's touch. A 1936 article by H. J. Clausen relates how *S. dekayi* form aggregations when frightened but also form them due to other unspecified environmental stimuli. If these snakes were frightened they did not show it when presented with slugs.

At other times the snakes were hidden. We noticed one in a curled cottonwood leaf where much of the snake's body was hidden but two sections of snake extended from two openings in the curled leaf so that the whole image was one of a spoutless teapot with two handles.

Brown snakes are noted for their fondness for slugs and for worms as primary or secondary prey items (Christensen, 1990; Johnson, 2000; Tenant and Bartlett, 2000). An interesting small study of stomach contents of *S. dekayi* in Ontario (Judd, 1954) showed that snakes consumed three species of slugs (*Deroceras reticulatum*, *Arion hortensis* and *A. circumscriptus*), worms and also small Hemiptera. Our captive snakes were very fond of garden slugs (*Deroceras* sp. and *Arion* sp.) but paid absolutely no attention to worms no matter how small. I (SRJ) wondered if this categorical rejection of worms extended to the whole Red Rock Reservoir population of *S. dekayi*.

I (SRJ) used one of the snakes in my herpetology class in an effort to duplicate the teaching efforts of Whit Gibbons (1977), but hopefully with fewer memorable mishaps. Even though the snake was small the students gathered around the aquarium with obvious trepidation in their eyes. I had a 35 mm film canister

containing about three small garden slugs. While I told the students about the snake and its fondness for slugs I placed a small slug on my index finger intending to put it into the aquarium where the snake would find it and hopefully where students could observe it. While I talked and the slug wriggled I saw the students eyes get even wider. The snake saw the action of the slug, extended itself as much as possible and plucked the slug right off of my finger. The students were speechless! I like to think that they remember the harmless little snake from this close-up encounter.

The following spring, as soon as nighttime temperatures reached a constant of approximately 40°F or slightly higher, we released the snakes back to where we found them on the margins of the Volksweg trail.

South-central Iowa sits somewhat west of a borderline delineation of the distributions of two *S. dekayi* subspecies. In extreme eastern Iowa the dominant form is the midland brown snake (*S. dekayi wrightorum*) and in central Iowa the Texas brown snake (*S. dekayi texanum*) supposedly is dominant.

Tenant and Bartlett (2000) go on to suggest that in the gradient between these two distributions the populations intergrade while Christensen (1990) suggests that the differences in the two subspecies are not distinct and King (1997) documents much variation in scalation in Great Lakes populations of *S. dekayi* as well as variability in appearance. Though Lake Red Rock Reservoir should be well within the range of Texas brown snakes we saw nothing resembling a true Texas form. Instead these snakes look very much like midland brown snakes with only some suggestion of Texas brown snake intergradation. Chiefly some of the nominal midland snakes display more reddish pigmentation when they coil and flare and also have a more distinct middorsal stripe.

Since 2001 brown snakes have been harder to find. The apparent population decline may have many root causes. The killing of snakes by humans probably has some role, but recent weather patterns—particularly the most recent severe drought beginning in the summer of 2011—must have decimated their slug prey supply. Henry Fitch (2006) suggests that *S. dekayi* may have natural population cycles. On the University of Kansas Natural History Reservation outside of Lawrence, Kansas, *S. dekayi* was most common in the 1960s and steadily declined thereafter. The decline at Red Rock Reservoir seems a bit more sudden. Since 2001 I (SRJ) observed a single adult in a reasonably intact forest about a half-mile away from the place on the Volksweg where most snakes were encountered. In 2009 we rescued a subadult from the stretch of the Volksweg by that same remnant forest. We saw no snakes in 2010 and early spring 2011. In fact during the floods of 2008, 2010 and spring 2011 much of the Volksweg was closed—many areas underwater. Drought in summer 2011 and extending to the present must have affected these snakes. A little bit of late good news; we saw a single subadult with midland and Texas brown snake attributes on the stretch of the Volksweg in mid-October 2012.

Literature Cited

Christiansen, J. L., and R. M. Bailey. 1990. The snakes of Iowa. Des Moines: Iowa Department of Natural Resources, Nongame Technical Series no. 1.

Clausen, H. J. 1936. The effect of aggregation on the respiratory metabolism of the brown snake *Storeria dekayi*. Journal of Cellular and Comparative Physiology 8(3):367-386.

Fitch, H. S. 2006. Ecological succession on a natural area in northeastern Kansas from 1948 to 2006. Herpetological Conservation and Biology 1(1):1-5.

Gibbons, J. W. 1977. Their blood runs cold, adventures with reptiles and amphibians. Tuscaloosa: University of Alabama Press.

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

Judd, W. W. 1954. Observations on the food of the little brownsnake, *Storeria dekayi*, at London, Ontario. Copeia 1954 (1):62-64.

King, R. B. 1997. Variation in brown snake (*Storeria dekayi*) morphology and scalation: Sex, family, and microgeographic differences. J. Herpetology 31(3):335-346.

Tennant, A., and R. D. Bartlett. 2000. Snakes of North America, eastern and central regions. Houston, Texas: Gulf Publishing Company.

Notes on Reproduction of Granite Spiny Lizards, *Sceloporus orcutti* (Squamata: Phrynosomatidae), from California

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Abstract

The reproductive cycle of *Sceloporus orcutti* from California was examined utilizing a histological analysis of museum specimens. Males were reproductively active from March into June. Females were reproductively active in spring and early summer. There was no indication that *S. orcutti* females produce multiple clutches in the same reproductive season. Mean clutch size for 3 females was 8.7 ± 4.5 SD, range = 4–13. The timing of the *S. orcutti* reproductive cycle is similar to that of other North American lizards which also reproduce during the spring. New minimum sizes for male (83 mm SVL) and female (78 mm SVL) reproduction of *S. orcutti* in California are reported. A new minimum clutch size of 4 eggs is reported for *S. orcutti*.

The granite spiny lizard, *Sceloporus orcutti* Stejneger, 1893, ranges from the north side of the San Gorgonio Pass (between the San Bernardino and San Jacinto mountain ranges of Southern California) southward on the Peninsula Ranges to near the tip of Baja California, Mexico (Stebbins and McGinnis, 2012). The biology of *S. orcutti* is summarized in Weintraub (1980). The definitive works on reproduction of *S. orcutti* are by Mayhew (1963a, b). Anecdotal information on *S. orcutti* reproduction is in Shaw (1952); Stebbins (1954, 2003); Behler and King (1979); Lemm (2006); Dugan (2009); Stebbins and McGinnis (2012). Goldberg (2011) reported minimum sizes for reproductive maturity of *S. orcutti* from Baja California Sur, Mexico. The purpose of this paper is to provide additional information on the reproductive cycle of *S. orcutti*. A new minimum clutch size for *S. orcutti* and new minimum sizes for male and female reproduction in California are reported.

Methods

A sample of 62 *S. orcutti* consisting of 19 adult males, (mean snout–vent length, SVL = 93.2 mm ± 6.6 SD, range = 83–110 mm), 24 adult females (mean SVL = 87.1 mm ± 4.7 SD, range = 78–98 mm), 19 juveniles (mean SVL = 48.9 mm ± 13.2 SD, range = 34–76 mm) from California was examined from the herpetology collection of the Natural History Museum of Los Angeles County (LACM), Los Angeles, California, USA. *Sceloporus orcutti* were collected 1947–1968. Specimens examined by California county are in the appendix.

A small incision was made in the lower part of the abdomen and the left gonad was removed for histological examination. Enlarged ovarian follicles (> 5 mm) or oviductal eggs were counted. Gonads were embedded in paraffin, sections were cut at 5μm, and stained with Harris hematoxylin followed by eosin counterstain (Presnell and Schreibman, 1997). Histology slides were deposited in LACM. An unpaired *t*-test was used to test for differences between male and female SVLs using Instat 3 (Graphpad, San Diego, CA).

Table 1. Monthly stages in testicular cycle of 19 *Sceloporus orcutti* from California.

Month	n	Regressed	Recrudescence	Spermiogenesis
February	1	0	1	0
March	1	0	0	1
April	7	0	0	7
May	5	0	0	5
June	1	0	0	1
July	1	1	0	0
August	1	1	0	0
September	2	1	1	0

Results

The mean body size (SVL) of my male sample was significantly larger than the mean of my female sample (unpaired *t* test, $t = 3.6$, $df = 41$, $P = 0.001$). Monthly stages in the testicular cycle are in Table 1. Three stages in the testicular cycle were present: (1) regressed, seminiferous tubules are at their smallest sizes and contain spermatogonia and interspersed Sertoli cells; (2) recrudescence, a proliferation of germ cells for the next period of spermiogenesis is evident, as primary and secondary spermatocytes are present; (3) spermiogenesis, lumina of the seminiferous tubules are lined by sperm or clusters of metamorphosing spermatids. The period of spermiogenesis encompassed March through June (Table 1). Testicular recrudescence commenced in September and continued into February (Table 1). The smallest reproductively active male (spermiogenesis in progress) measured 83 mm SVL (LACM 182409) and was collected in Riverside County in April.

Four stages were present in the ovarian cycle (Table 2): (1) quiescent, no yolk deposition in progress; (2) early yolk deposition; (3) enlarged ovarian follicles (> 5 mm); (4) oviductal eggs. Females were reproductively active from April into July (Table

Table 2. Monthly stages in the ovarian cycle of 24 *Sceloporus orcutti* from California. * = one July female with an incomplete clutch of oviductal eggs.

Month	n	Quiescent	Early yolk deposition	Follicles > 5 mm	Oviductal eggs
March	3	3	0	0	0
April	12	10	2	0	0
May	3	0	1	1	1
June	3	1	1	1	0
July	2	0	1	0	1*
August	1	1	0	0	0

2). Mean clutch size for 3 females was 8.7 ± 4.5 SD, range = 4–13. Clutch sizes were 4, 9 and 13 eggs. There was no suggestion (oviductal eggs and concurrent yolk deposition) in the same female to suggest more than one clutch was produced in the same reproductive season. The smallest reproductively active female measured 78 mm SVL (LACM 52927) and was collected in June in Riverside County.

Discussion

It is not known if the one *S. orcutti* female from July with early yolk deposition would have produced a clutch of eggs. Females which commence yolk deposition late in the reproductive season may not complete the process, with eggs undergoing atresia (degeneration with reabsorption of yolk) (Goldberg, 1973). Highest incidences of follicular atresia were noted near the end of breeding in July for *S. vandenburgianus* (as *Sceloporus graciosus*) (Goldberg, 1975).

My data support the findings of Mayhew (1963a) that *S. orcutti* is a spring breeder that produces one clutch of eggs. Timing of reproduction in *S. orcutti* is similar to numerous other phrynosomatid lizards from western North America that also reproduce during spring, see for example, *Dipsosaurus dorsalis* (Mayhew, 1971), *Sceloporus occidentalis* (Goldberg, 1974), *Sceloporus vandenburgianus* (Goldberg, 1975). However, both *S. occidentalis* and *S. vandenburgianus* may produce 2 egg clutches in the same reproductive season. The large number (10/12, 83%) of reproductively inactive female *S. orcutti* from April likely indicates most females commence reproduction in May. Mayhew (1963a) reported female *S. orcutti* began yolk deposition in late April. There are differences in the minimum sizes for reproduction for *S. orcutti* in Mayhew (1963a) (females, 85 mm SVL, males 90 mm SVL) versus (78 mm SVL for females, 83 mm SVL for males) reported herein. Goldberg (2011) reported even smaller *S. orcutti* from Baja California Sur, Mexico were reproductively active (70 mm SVL for females, 68 mm SVL for males). Both Stebbins (2003) and Stebbins and McGinnis, (2012) reported a minimum clutch size of 6 produced by *S. orcutti*. My findings of a clutch of 4 eggs (LACM 182406) represents a new minimum clutch size for *S. orcutti*.

Acknowledgment

I thank G. Pauley (LACM) for permission to examine *S. orcutti*.

Literature Cited

Behler, J. L., and F. W. King. 1979. National Audubon Society field guide to North American reptiles and amphibians. New York: Alfred A. Knopf.

Dugan, E. A. 2009. Granite spiny lizard *Sceloporus orcutti* Stejneger, 1893. Pp. 242-245. *In*: L. L. C. Jones and R. E. Lovich, editors, Lizards of the American Southwest A photographic field guide. Tucson, Arizona: Rio Nuevo Publishers.

Goldberg, S. R. 1973. Ovarian cycle of the western fence lizard, *Sceloporus occidentalis*. Herpetologica 29(3):284-289.

————. 1974. Reproduction in mountain and lowland populations of the lizard *Sceloporus occidentalis*. Copeia 1974(1):176-182.

————. 1975. Reproduction in the sagebrush lizard, *Sceloporus graciosus*. American Midland Naturalist 93(1):177-187.

————. 2011. *Sceloporus orcutti* (Granite Spiny Lizard). Minimum size at reproduction. Herpetological Review 42(2):278-279.

Lemm, J. M. 2006. Field guide to amphibians and reptiles of the San Diego Region. Berkeley: University of California Press.

Mayhew, W. W. 1963a. Reproduction in the granite spiny lizard, *Sceloporus orcutti*. Copeia 1963(1):144-152.

————. 1963b. Biology of the granite spiny lizard, *Sceloporus orcutti*. American Midland Naturalist 69(2):310-327.

————. 1971. Reproduction in the desert lizard, *Dipsosaurus dorsalis*. Herpetologica 27(1):57-77.

Presnell, J. K., and M. P. Schreibman. 1997. Humason's animal tissue techniques, 5th edit. Baltimore: The Johns Hopkins University Press.

Shaw, C. E. 1952. Notes on the eggs and young of some United States and Mexican lizards, I. Herpetologica 8(3):71-79.

Stebbins, R. C. 1954. Amphibians and reptiles of western North America. New York: McGraw-Hill Book Company.

————. 2003. A field guide to western reptiles and amphibians. Boston: Houghton Mifflin.

Stebbins, R. C., and S. M. McGinnis. 2012. Field guide to amphibians and reptiles of California. Berkeley: University of California Press.

Weintraub, J. D. 1980. *Sceloporus orcutti* Stejneger, Granite spiny lizard. Cat. Amer. Amphib. Rept.: 265.1-265.2.

Appendix

Specimens of *Sceloporus orcutti* from California (by county) examined from the Natural History Museum (LACM) of Los Angeles, California.

Orange: LACM 27195, 27196, 97221-97227; **Riverside**: LACM 18792-18794, 18797, 18799, 18801, 18802, 18804-18806, 18809, 18810, 18812, 18814, 18817, 18819, 18823, 18825, 18828, 27193, 27194, 52918, 52921-52923, 52925-52929, 73584, 73585, 73697-73699, 182406, 182408-182410, 182412-182415, 182417, 182418; **San Diego:** LACM 4687, 18877, 52917, 97323-97326, 97328.

Bull. Chicago Herp. Soc. 48(1):6, 2012

Herpetology 2012

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.

NIGHTSNAKE PREY CHEMICAL DISCRIMINATION

R. E. Weaver et al. [2012, J. Herpetology 46(4):523-526] investigated responses of adult and juvenile desert nightsnakes (*Hypsiglena chlorophaea*) to odor extracts of potential invertebrate and vertebrate prey. Snakes were collected during 2009 from three localities in Washington State. Odors were obtained from three potential invertebrate prey—spider (*Tegenaria* spp.), scorpion (*Paruroctonus boreus*) and field cricket (*Gryllus* spp.). Responses were compared with response to a vertebrate prey item, a western terrestrial gartersnake (*Thamnophis elegans*). All potential prey items were collected at the same site as *H. chlorophaea*. Odors were presented on 15-cm cotton swabs held 2.5 cm in front of the snake's snout. Recorded in each trial were the number of tongue flicks in 60 sec, the latency to first tongue flick, and whether the stimulus elicited an attack. No significant difference was observed in latency of responses between spider, scorpion, cricket, or snake odors. However, both adult and juvenile *H. chlorophaea* responded with higher tongue-flick rates to snake odor. Juveniles showed an increase in tongue-flick rate toward crickets. Attacks were made against snake odor with no difference between adult and juvenile responses. The results indicate that adults and juveniles of *H. chlorophaea* do not feed on invertebrates, and in some cases invertebrates may pose a threat to small snakes such as *H. chlorophaea*. However, the diet of *H. chlorophaea* may vary geographically, and populations of *H. chlorophaea* with a more southerly distribution may feed on invertebrates. Whether such differences in diet exist between populations will remain unresolved until additional studies of the diet of southern populations of *H. chlorophaea* are compared with those of northern populations.

FOXSNAKE HABITAT USE

J. J. Shew et al.[2012, J. Herpetology 46(4):539-548] note that knowledge of movements, habitat use and resource requirements is critical to designing management strategies for species with a conservation status. For snakes, basic research needed to derive this information is often lacking or insufficient. The spatial ecology and habitat use of 21 adult western foxsnakes (*Pantherophis vulpinus*) were investigated using radio telemetry during a single activity season at Squaw Creek National Wildlife Refuge in northwest Missouri, near the species' southern range limit. At the landscape level, monitored snakes located their home ranges in lowland areas in association with wet prairies and managed wetlands but avoided agricultural plots and were not observed to occupy upland areas. Snakes were not selective of macrohabitat within their home ranges but selected microhabitats with denser herbaceous vegetation than typically available at random sites, suggesting that snakes were responding mainly to microhabitat features at the home-range level. Unlike many other temperate snake species, *P. vulpinus* did not exhibit any sexual differences in selection of microhabitats because all snakes appeared to prefer dense vegetative structure. Home-range sizes were relatively large in comparison to many other terrestrial temperate colubrids and seemed to be explained by resource distribution patterns, such as the proximity of hibernacula and oviposition sites to foraging habitat. Movement patterns varied seasonally among sexes with males demonstrating peak movement distances in May and females in July, respectively. Management decisions to minimize habitat manipulations during the snake activity season and protect embankments used for hibernacula and oviposition will likely benefit foxsnake conservation.

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Review: *The Tortoise* and *The Batagur*: Two Periodicals for Turtle Enthusiasts

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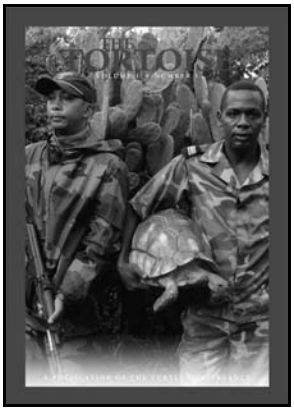
In the last year, two new chelonian journals have appeared, and while quite different in focus and scope, each fills a needed niche. Despite any number of long-standing English language scientific journals dedicated to reptiles and amphibians and a few specializing in just turtles, accurate and up-to-date published information that is accessible to those who are not primarily research-oriented has remained limited. There are, of course, newsletters and periodical publications produced by local herpetological societies and regional turtle clubs, but their content is typically a hodgepodge of information regarding meetings, notices of events, abstracts of scientific papers published elsewhere, annual elections of officers, and other news items. Turtle hobbyists also have publication outlets but the English language ones are limited to those offering articles very elementary in nature and are used primarily to promote products being offered by advertisers. The European community addressed these issues years ago and they produce a number of high quality journals and magazines that appeal to educated audiences of turtle enthusiasts, conservationists, and hobbyists. And while these new US-based publications will also clearly be of interest to the academic research community, their value lies in their broad appeal to anyone with a passion for turtles.



The inaugural issue of *The Tortoise* is 160 pages in length and comprises 14 original, individually authored articles. All the articles in this issue are conservation oriented, and most address endangered and critically endangered species. Two are about the Turtle Conservancy and The Behler Conservation Center, and two discuss the trade in wild-caught turtles. Most of the others are about specific species (over 10 in this first issue) or places-- with geographic coverage including the United States and Mexico, Madagascar, South Africa, Southeast Asia and the Galápagos. The journal's pages are loaded with high quality color photographs that complement the text. Many of the authors' names will be recognized by anyone with even a casual interest in turtles, while others appear to be new to the community. I was particularly surprised and pleased to see an article co-authored by David and Lida Burney. I had met them years back when we were both working for state government in North Carolina. David was a naturalist for the state park system and I was curator of birds for the state museum. None of us would have guessed that 35 years later we would be working with turtles.

The Burneys are two of four authors on a most interesting article that describes a rather back-handed conservation program. They are using orphaned sulcata tortoises (*Centrochelys sulcata*) to control invasive exotic plants in Hawaii. Hawaii faces any number of conservation issues that lead to extinctions of island endemics, and well-established exotic plants that prevent re-growth of native forest continue to be a major problem. As it turns out the authors' understanding Hawaii's fossil record enabled them to demonstrate that there were once non--mammalian grazing creatures and over time Hawaii's native vegetation developed chemical protective mechanisms against them. Conversely, the introduced continental plants coevolved with grazing mammals and developed defenses against goats, sheep, and cows and these are the plants that tend to take over in human controlled landscapes. Because of this the tortoises can be safely used as living weed eaters, ignoring the native species and eating the introduced ones. This in turn eliminates the need for the staff members and volunteers at nature reserves to devote countless hours to weed control. With the help of the tortoises the natural forest is regenerating. The article reports on an experiment that appears to be working, and shows promise for use in exotic plant control on other oceanic islands. It is refreshing to see that here is at least one case where an ongoing ecological disaster is brought under control through the unscrupulous marketing by the pet trade. Until now the only redeeming value of pet trade sulcatas was that they at least reduced the demand for wild-caught tortoises, and families purchasing one would never ever again be interested in purchasing a pet tortoise of any species. It is informative to see that how the global experiences from a number of seemingly unrelated disciplines came together to generate this program.

The authors go into depth in explaining the overall background of the story to the reader. The distribution of these tortoises and their long-term protection resulting from food taboos under an Islamic culture and Sharia Law, the recent in-range conservation program initiated by Bernard Devaux, and the history of sulcatas in the pet trade with their induction into a market where buyers naive to their rapid growth and adult size created a scenario where large numbers of these tortoises are available for adoption are all part of the story line. In addition the Burneys are paleontologists, and in explaining the success of the program they weave a number of biological concepts into the text. This is typical of this issue's other articles as well; the presentations are well thought out, and not simply strings of science facts crammed into paragraphs.

It's refreshing to see that biologists are willing to step outside the security of academic peer-reviewed journals and present information in a readable format. These are well-written, well-illustrated articles presenting timely and new information. The publication bridges the gap between journal and magazine

formats. Its first rate science, but the pages are not bogged down with traditional references to figures, tables of data, sections devoted to results and methods, acronyms, and endless literature citations. This is good journalism, the articles are comprehensive and each written by people who personally are involved with their subject. The only other popular turtle publication that comes close to *The Tortoise* in content and style is the French *La Tortue*. It, too, carries a strong conservation component and highlights regional cultural aspects relating to turtles and tortoises.

As Eric Goode states in his introductory remarks in the first volume "The conservation community cannot continue to conduct business as usual. Many of the traditional conservation strategies for turtles and tortoises are not working." With no other order of vertebrates currently facing such a vast total percentage of extinction risk something needs to be done and this will involve working with the private sector. This journal has set the stage for this to happen.

The Batagur, while focusing on the husbandry and breeding of captive tortoises and freshwater turtles, has an overriding theme of turtle conservation. Indeed, if we are to be successful in our conservation efforts all available options need to be kept open, and captive breeding is clearly a means to insure that various species do not disappear, and the existence of captive colonies leaves open our options for repatriation. Actually this publication appeared earlier—in the late 1990s—but its format and style were entirely different.The current installment of *The Batagur*, issued in the spring of 2011, is 63 pages in length. The 13 articles in this issue cover a variety of topics that are presented from a number of perspectives. Four address the husbandry and breeding of three little known species and three are on general husbandry and health-related topics that will be of interest to anyone maintaining captive collections of turtles and tortoises. One article provides historical perspectives on how the private sector has through captive breeding contributed to saving various mammals and birds from extinction. One article directly addresses turtle conservation issues, and another provides information on a grant funded by the Turtle and Tortoise Preservation Group to study both wild and captive diets of Egyptian tortoises. This issue also contains a nice photo essay showing successful captive breeding of 17 various turtle and tortoise species, most of which are species of major conservation concern. In addition there are messages from Russ Gurley, the founder of the TTPG, and another from Nigel Marven. Dennis Uhrig is recognized as a member of the organization who recently had a subspecies of *Trachemys* named after him and there is a two-page species profile on *Leucocephalon yuwonoi*.

By far the first issue's most comprehensive article is one by Harald Artner on the first successful breeding of the Pantanal swamp turtle, *Acanthochelys macrocephala*. The species was just recently described and the article reviews the turtle's description, and what is known of its distribution and natural and taxonomic history. The remainder of the well illustrated, 12-page article discusses maintenance in captivity, the reproductive biology of the turtle and information regarding the tricky incubation protocol Artner developed. Artner is a well-known European turtle keeper. The other authors are also mostly from the private sector but there are ones who are recognized professional biologists and zoo curators.

While this first issue was published in 2011, I did not actually see a copy until 18 months after it appeared, when I was asked to review it. To my surprise I discovered that I had authored one of the articles and coauthored another. These were both ones previously appearing in other publications, and while I have no problem with this, it is not clear how many of the articles in this first issue are original. My only criticism of *The Batagur* is the number of advertisements that appear throughout the pages, but all are of recently published books or ones for products that should be of interest to the members of the organization. And the economics of this are understandable; the ads make possible the publication as well as help to keep the subscription cost reasonable. As a true testament to the organization's commitment to turtle conservation, at their last board meeting (November 2012) it was decided to come to the finical rescue of the African Chelonian Institute in Senegal. They agreed to help complete funding of one of the Institute's projects. The TTPG board voted for its organization to make up the difference previously promised from another organization so that the project could continue. The TTPG is a 501(c)3 nonprofit that has been in existence since 1996, and despite the fact that it is composed primarily of private sector hobbyists, collectively their membership has bred, and are breeding, more individuals and species of turtles than all the world's zoos and similar organizations combined. A great many of the species in this collective holding represent some of world's most endangered species. It is gratifying that they are willing to share their knowledge. Perhaps because of this publication the conservation community will begin to appreciate the potential contribution this private sector community can make to future and ongoing conservation programs.

Radiata, a German publication, and *Cheloniens* and *Manouria*, both successful French journals, all focus on providing information to turtle hobbyist, the only current US publication that comes close to doing this is *Reptiles* magazine. Of course it is more generalized and covers all species of reptiles and amphibians. *Reptiles*, however, is a commercial trade magazine, and its mission is to support advertisers and the articles it publishes are directed toward children and families who purchase animals from pet stores. Conservation and natural history information is all but lacking and the articles are consistently broken up with paid advertising. While it is totally unfair to *The Batagur* to compare it to *Reptiles* magazine, I bring this up because it illustrates the large void that the TTPG can fill.

The Tortoise and *The Batagur* are each welcome publications to those of us with more than a passing interest in chelo-

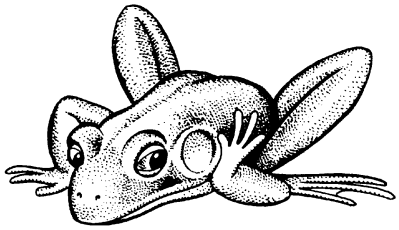
nians. I expect that most subscribers will quickly attain new levels of appreciation of modern day turtle conservation efforts as well as a better understanding of the pioneering methodologies being developed by the serious members of the herpetoculture community. Even a quick scanning of these journals shows that despite quite different approaches there is much overlap and shared interest. As can be seen in first issue of *The Tortoise* one of the key strategies of the Turtle Conservancy is the establishment of assurance colonies of rare turtles. The fact that they share this common interest with the hobbyist was demonstrated by their participation in the third annual meeting of the Turtle and Tortoise Preservation Group. *The Tortoise* and *The Batagur* are not scientific journals. They are publications that share important information on turtles and tortoises and the people who have the passion to help them.

Both publications defy classification. They are periodicals published by organizations and available to their respective members. In many ways they have magazine formats, with *The Tortoise* perhaps closely resembling *National Geographic* in style, and the editors refer to the publication as a magazine. The editors of *The Batagur* are calling their publication a newsletter, but the format of the articles mostly follow a style one would expect to see in scientific journals, while the glossy pages and incorporation of photographs and ads make it magazine-like in overall appearance. Whatever terminology one uses for these periodicals is irrelevant, as these two publications should do much to advance our knowledge of turtles and we all wish them success.

The Tortoise and *The Batagur* are available to members of the organizations that publish the respective journals. Membership in the Turtle Conservancy is $100 a year and in addition to the journal dues includes a monthly e-mail newsletter, and copies of Turtle Conservancy films. The bulk of the membership cost provides a direct contribution to meaningful conservation efforts. For membership, write to The Turtle Conservancy, 49 Bleecker St, Suite 601, New York, NY 10012, or email them at membership@turtleconservancy.org. Membership in the Turtle and Tortoise Preservation Group is $30 a year. In addition to publishing *The Batagur* this group also sponsors a web site, provides e-mail updates and surplus lists for members, supports conservation programs, and hosts an annual fall meeting each November in Phoenix, Arizona. See www.ttpg.org.

Bull. Chicago Herp. Soc. 48(1):9, 2013

The Tympanum



We are writing to express our sincere thanks for the Chicago Herpetological Society's contribution of US$ 1,000.00 to support the global coordination of the Amphibian Ark. Amphibians are a critical part of healthy ecosystems and your contribution will help us protect those in danger of extinction. We are very grateful for your support.

As a joint effort of the World Association of Zoos and Aquariums, the IUCN/SSC Conservation Breeding Specialist Group, and the JUCN/SSC Amphibian Survival Alliance, the Amphibian Ark is working to facilitate the response of the zoo and aquarium community to the current amphibian extinction crisis. As you know, more than a third of amphibian species are threatened, with many facing imminent extinction if no actions are taken. For those amphibian species that cannot currently be saved in nature, the Amphibian Ark is coordinating with zoos, aquariums, and other institutions around the world to place these animals in biosecure facilities for safekeeping and breeding until the threats to the wild populations can be controlled. We help to provide the needed coordination of these efforts, along with training, technical assistance, and publicity that will help all organizations to conduct effective and efficient amphibian conservation programs. Since 2006, we have assessed 38% of all amphibian species (52% of the threatened amphibian species) for their conservation needs. We are currently tracking over 100 priority amphibian species in captivity.

Our ultimate vision is *the world's amphibians safe in nature*. You can find out more about our activities, by visiting our web-site www.amphibianark.org.

We have been able to respond appropriately and quickly to this high profile conservation crisis because we have support from organizations such as yours. With your help and commitment, the Amphibian Ark will continue to help the *ex situ* community use their considerable expertise to help amphibians. Thank you again for your valued contribution.

Most sincerely,

Lena M. Lindén, World Association of Zoos and Aquariums
Phil Bishop, Amphibian Survival Alliance
Onnie Byers, Conservation Breeding Specialist Group

Happy Holidays! Thank you, thank you for your donation of US$ 1,000 to the Wider Caribbean Sea Turtle Conservation Network (WIDECAST)! Your gift is deeply appreciated, as it enables us to continue our important conservation work. Truly, what would we do without you guys?! The donation will be allocated in its entirety to assisting local Caribbean sea turtle conservationists in attending the 2013 Annual Meeting of WIDECAST and the 2013 International Symposium on Sea Turtle Biology and Conservation that will follow it in February.

The funds have arrived just in time!

With sincere gratitude,

Karen Eckert, WIDECAST, Inc.

Unofficial Minutes of the CHS Board Meeting, December 14, 2012

The meeting was called to order at 8:25 P.M. at the home of Linda and Andy Malawy. Board members Lawrence Huddleston, Deb Krohn and Cindy Rampacek were absent.

Officers' Reports

Recording Secretary: The minutes of the November 16, 2012, board meeting were read and accepted.

Treasurer: The November financial report was presented, discussed and accepted.

Membership Secretary: Membership numbers are holding steady around 500. A list of newly expired memberships was read.

Publications Secretary: The remaining *Bulletin*s from 2006, and the one from September 2012 have been added to the website. Stephanie's email has been set up. Aaron needs info for the Junior Herpers' page. Jason and Stephanie will send him content.

Sergeant-at-arms:Attendance at the November general meeting was 38.

Committee Reports

Shows:
• Notebaert, first full weekend of each month. Josh Chernoff is coordinator.
• Great Lakes Pet Expo, Wisconsin Exposition Center, Milwaukee, February 2, 2013.
• Chicagoland Family Pet Expo, Arlington Park Racecourse, March 15–17, 2013.

Old Business

Junior Herpers club: There were 30 at the first meeting. The January speaker will be Stephanie Cappiello.

New Business

Grants: Applications have been arriving. Stephanie Cappiello and Jim Foster asked to be included in the committee.

Book sales: Our October speaker left us some of his books and would like us to sell them and keep half of the proceeds. Mike Dloogatch suggested it would simplify record keeping to send him a check now. Mike moved to send the check, Andy seconded. After discussion, the motion passed unanimously.

Round Table

.Mike Scott would like to have decals made with the CHS logo, and is asking for board approval to use the logo. He will have samples made for approval.

Jason Hood has a source for keychains, and wanted to know if we should have some made for 'Fest as giveaways.

Mike Dloogatch pointed out that now have a new rattlesnake in the Southwest due to splitting of the black-tailed rattlesnakes into two species

Stephanie reported that Barb made her a cute turtle for Christmas.

Nancy said that Barb made her a cute Christmas present, too.

Jason and Barb are hoping to buy a house soon.

The meeting was adjourned at 9:27 P.M.

Respectfully submitted by recording secretary Jenny Vollman

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*, PO Box 430, Newberry, FL 32669-0430, 352-472-9189, E-mail: GrmtRodent@aol.com.

For sale: **highest quality frozen rodents**. I have been raising rodents for over 30 years and can supply you with the highest quality mice available in the U.S. These are always exceptionally clean and healthy with no urine odor or mixed in bedding. I feed these to my own reptile collection exclusively and so make sure they are the best available. All rodents are produced from my personal breeding colony and are fed exceptional high protein, low fat rodent diets; no dog food is ever used. Additionally, all mice are flash frozen and are separate in the bag, not frozen together. I also have ultra low shipping prices to most areas of the U.S. and can beat others shipping prices considerably. I specialize in the smaller mice sizes and currently have the following four sizes available: Small pink mice (1 day old—1 gm) , $25 /100; Large pink mice (4 to 5 days old—2 to 3 gm), $27.50 /100; Small fuzzy mice (7 to 8 days old—5 to 6 gm) , $30/100; Large fuzzy mice / hoppers (10 to 12 days old—8 to 10 gm), $35/100 Contact Kelly Haller at 785-234-3358 or by e-mail at kelhal56@hotmail.com

For sale: High quality, all locally captive-hatched tortoises, all bred and hatched here in the upper midwest. Baby leopards, Sri Lankan stars, and pancakes usually available, and are all well-started and feeding great! Leopards are $125 ea., Sri Lankans (2012 hatched) $475 ea. And Pancakes are $195 ea. Leopards for out of state sale/shipping require a veterinary health certificate (inquire for cost). E-mail at KKranz1@wi.rr.com or call Jim or Kirsten at 262 654 6303.

Herp tours: **Costa Rica herping adventures**. Join a small group of fellow herpers for 7 herp-filled days. We find all types of herps, mammals, birds,and insects, but our target is snakes. We average 52 per trip, and this is our 10th year doing it. If you would like to enjoy finding herps in the wild and sleep in a bed at night with air-conditioning, hot water and only unpack your suitcase once, instead of daily, then this is the place to do it. Go to our web-site http://hiss-n-things.com and read the highlights of our trips. Read the statistics of each trip and visit the link showing photos of the 40 different species we have found along the way. E-mail at jim.kavney@gmail.com or call Jim Kavney, 305-664-2881.

Herpetological Researcher/Educator Internships: Research 4 Reptiles, LLC. is seeking two volunteer interns, ages 18 years and older, for the Summer 2013 season to assist in all aspects of herpetological research and educational classes. Our mission is to provide challenging, hands-on, field-based programs for participants ages 12 years and older to inspire enthusiasm for and understanding of native Illinois reptile and amphibian species. All educational programs are taught entirely outdoors at Midewin National Tallgrass Prairie in Wilmington, Illinois, and are limited to 8 participants. Internship details can be found on our website at: http://www.research4reptiles.biz. Email Holly Zak at research4reptiles@comcast.net or call 630-337-0757 for questions.

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 mdloogatch@chicagoherp.org.

Chicago Herpetological Society
Income Statement: January 1 – December 31, 2012

Income		Expense	
Adoptions	$ 1,015.00	Adoptions	$ 369.86
Grants	40.00	Grants	8,500.00
Membership dues	12,286.50	Bulletin printing / mailing	13,402.16
ReptileFest	48,559.40	ReptileFest	19,324.14
Merchandise sales	702.00	Cost of merchandise	487.50
Other CHS shows	50.00	Bank / PayPal fees	103.35
Interest	36.38	Junior Herpers club	464.81
Donations (unrestricted)	632.00	Donations (conservation)	5,000.00
Bulletin back issues	142.50	Liability Insurance	3,066.00
Bulletin ads	456.00	Equipment and supplies	67.96
Raffle	1275.00	Licenses and Permits	441.89
		Postage	2,111.68
		Membership related	1,138.80
		Speaker reimbursement	2,130.48
		Telephone	150.00
Total Income	$65,194.78	Total Expense	$56,758.63

Net Income $8,436.15

Chicago Herpetological Society
Balance Sheet: December 31, 2012

Assets	
Checking	$ 5,283.80
Money market	51,489.93
PayPal	977.13
Postage on deposit	384.82
Total Assets	$58,135.68
Equity	
Restricted – Adoptions	$ 5,833.85
Restricted – Grants	5,000.00
Retained Earnings	38,865.68
Net Income	8,436.15
Total Equity	$58,135.68

UPCOMING MEETINGS

The next meeting of the Chicago Herpetological Society will be held at 7:30 P.M., Wednesday, January 30, at the Peggy Notebaert Nature Museum, Cannon Drive and Fullerton Parkway, in Chicago. **Ray Pawley** will speak at this meeting. Ray is a retired curator of reptiles at Brookfield Zoo, who now makes his home near Hondo, New Mexico. Ray's talk will cover "Brookfield Zoo Reptile House Techniques and Strategies That You Might Not Have Known About." This will be a report on techniques, methods and management protocols that Ray developed over the years at the Lincoln Park and Brookfield Zoos for captive herps.

Speaking at the February 27 meeting will be **Dustin Rhoads**, author of *The Complete Suboc*. Dusty will speak about his favorite topic, trans-Pecos ratsnakes.

The regular monthly meetings of the Chicago Herpetological Society take place at Chicago's newest museum—the **Peggy Notebaert Nature Museum**. This beautiful 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.

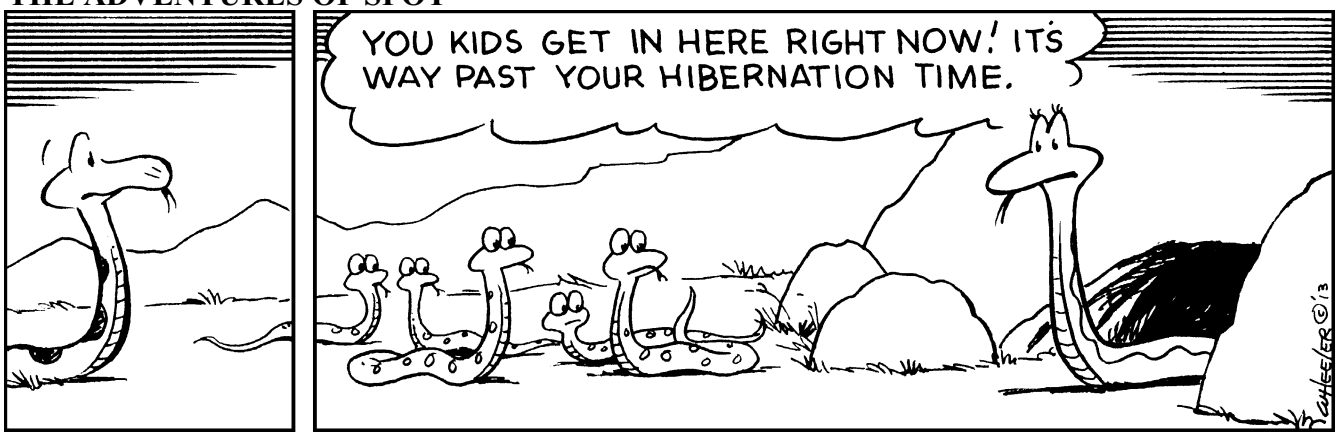
Board of Directors Meeting

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 next board meeting, to be held at 7:30 P.M., February 15, in the adult meeting room on the second floor of the Schaumburg Township District Library, 130 S. Roselle Road, Schaumburg..

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 visit the group's Facebook page.

THE ADVENTURES OF SPOT



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