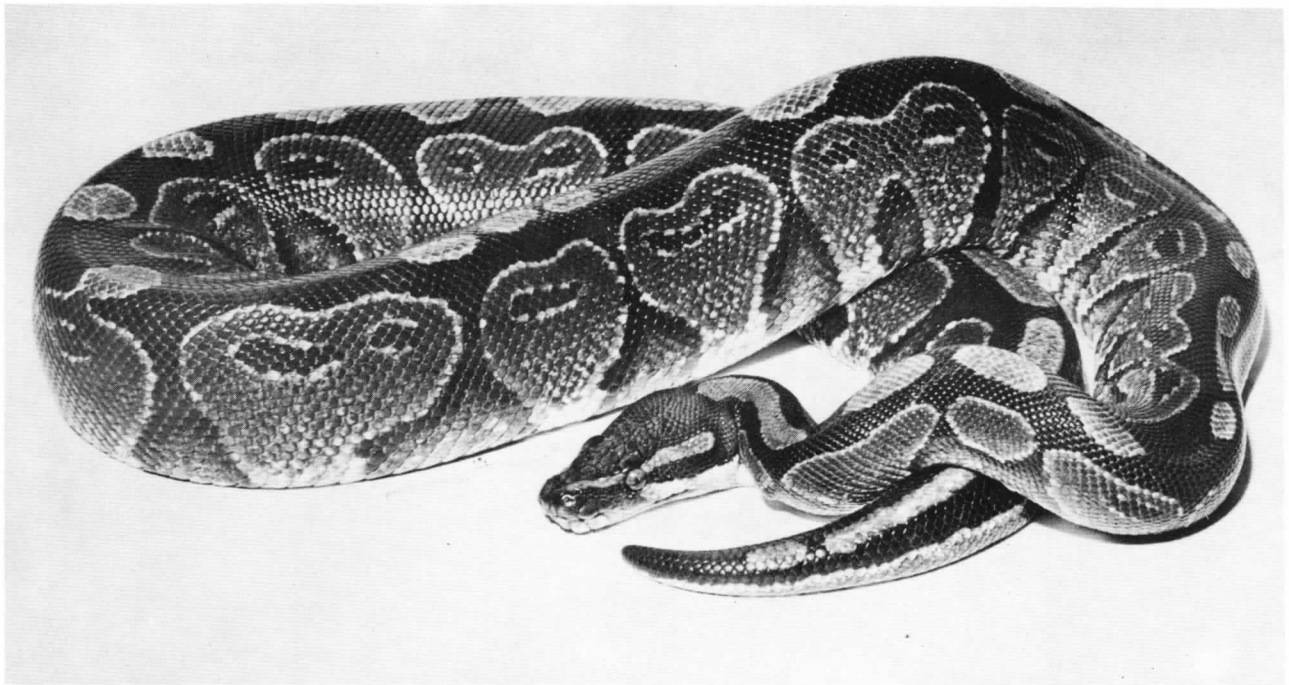


**BULLETIN**  
of the  
**Chicago Herpetological Society**



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April 1993



This male ball python, *Python regius*, died last year at the Philadelphia Zoo after setting the longevity record for a snake of any kind. For more details and an interesting anecdote about this serpent, see Dr. Roger Conant's article in this issue. Photograph by Isabelle Hunt Conant.

# BULLETIN OF THE CHICAGO HERPETOLOGICAL SOCIETY

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## The Oldest Snake

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A male ball python, *Python regius*, recently died of liver disease at the Philadelphia Zoological Garden after setting the longevity record for a snake of any kind. It was a serpent I knew well during my long tenure at the zoo and, in fact, I purchased it myself from Warren E. Buck, an animal dealer of Camden, New Jersey. Buck, who was no relation to the notorious Frank Buck, made more or less periodical trips to West Africa, chiefly to what was then the French Cameroons, to collect mammals, birds, reptiles, and African artifacts for sale in the United States. The snake began its long residence at the Philadelphia Zoo on April 26, 1945. It was on exhibit in the old reptile house until that building was demolished in 1969 to make way for the erection of a much larger state-of-the-art structure on the same site. Thereafter it was held behind the scenes in the new reptile house as an "old age pensioner" until its death on October 7, 1992, after almost 47 and one-half years at the zoo. It was of young adult size when received, and it grew relatively little in length or weight after it was in our possession.

One Saturday in the late 1940s, it disappeared from its cage. When the keepers reported its absence, we made a thorough search of the building, especially the passageways that were sealed off from the public. The assumption was that one of the keepers had left the cage door open by accident. On rare occasions other harmless snakes had escaped and once, during the late 1930s, a rainbow boa, *Epicrates cenchria*, was found after it had been loose in the old reptile house for more than a year. It was in excellent condition and evidently had thrived on the house mice that we tried unsuccessfully to eradicate. We used only traps, because I was firmly opposed to poisons of any kind in a building where valuable livestock resided. So we didn't worry about the ball python. Eventually it would turn up. The old building was honeycombed with pipes and obsolete impedimenta in which a snake could hide indefinitely.

Two or three weeks later, again on a Saturday, a green tree



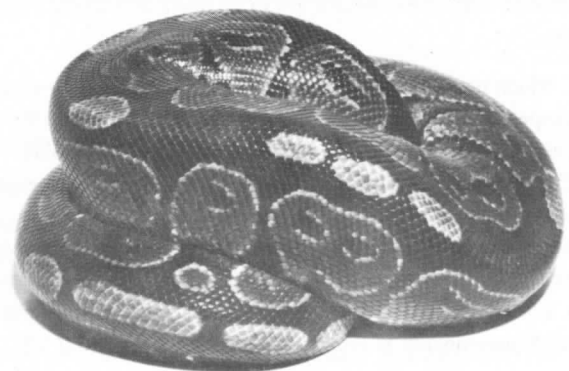
The long-lived *Python regius* as it appeared on October 30, 1965. Photograph by Isabelle Hunt Conant.

boa, *Corallus caninus*, disappeared, and I became suspicious. I telephoned the newspapers and told them I suspected a "snakenapper" was on the loose. The Sunday papers published front-page stories about the missing reptiles, describing them in detail from information I gave them.

When I arrived at work the next day, Monday morning, the two missing snakes, an assortment of native species, a chastened boy, and his stern father were all waiting on the zoo's doorstep, so to speak. I escorted them to the reptile house, turned the livestock over to the keepers, and then took boy and father to my office. The latter was a Baptist minister and the boy, who was under 16 years of age, had lied to him, stating that a friend had given him the two fancy snakes. The father, of course, was very upset and the boy contrite. As punishment his father decreed that he must give up his entire reptile collection.

The lad, of course, had been the "snakenapper," and he had taken the two constrictors home by public transportation, secreted under his windbreaker jacket. Like a professional criminal, he had "cased the joint" in advance and discovered that, right after lunch, the keeper on duty went to the basement to stoke the coal fire with which the ancient structure was heated. So he had at least 15 minutes when zoo employees were not around. He also discovered that the door from the public space into the keepers' room and passageways was unlocked, and he could get behind the scenes with ease. Thus the keepers, in part, were also at fault. They had strict orders to keep that door locked at all times. It was important to our security because, in those days, many of the cages containing nonvenomous snakes had tight catches but no locks.

I explained to the preacher and his son that the story about the missing snakes had become public knowledge, and I was obligated to let the papers know that the reptiles had been



The common name of ball python is quite apt. When alarmed the snake rolled itself into a ball, with its head in the center well protected by the surrounding coils. Photograph by Isabelle Hunt Conant.

returned. In the hope of avoiding embarrassment to them, especially the father, I asked them to accompany me to the various newspapers, of which there were four or five at the time. I drove them downtown in my car, hunted up the city editor in each, and explained the circumstances. They all agreed that, since the boy was under 16, they would not use his name, nor would it be necessary to mention the name of the reverend. The latter was greatly relieved. All the papers published the story and gave it an amusing twist. The cartoon-

ist at one of them portrayed a small boy sitting in an elevated train with a rather large snake under his jacket.

So, all was well. We had our snakes back, including the ball python that was to live for so many additional years. Father and son remained anonymous. But there was a punch line yet to come.

The reverend, a few years later, was the person who united my son and daughter-in-law in holy matrimony.

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## Four Reptiles Newly Recorded from Ouray County, Colorado

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The recorded herpetofauna of Ouray County, southwestern Colorado, now totals a mere seven species: three amphibian and one ophidian noted by Hammerson (1982), and three of lizards recorded by Smith (1991). We here add two more lizard species, and two of snakes, all but one anticipated in the latter report.

1. Mountain short-horned lizard, *Phrynosoma douglasi hernandezi* (Girard). A single subadult (UCM 56608) was taken 4 August 1992, by both of us on a back road along a dry, hot hillside, with a south exposure, 3 mi SW Colona, in a juniper habitat near a dump. The species was expected to occur in the county (Smith, 1991), although its distribution at the altitudes of the group of five high mountain counties from which it was not known (Hammerson, 1982) is very spotty, limited to relatively hot, dry valleys. It probably occurs at favorable sites in the other four counties adjacent to Ouray County: Gunnison, Hinsdale, Mineral and San Juan.

The specific name has been spelled *douglasi* or *douglasii* in most works, but Hammerson and Smith (1991) pointed out that the single s is correct, and that the International Commission on Zoological Nomenclature approves use of but a single terminal j even if the name was originally spelled with two, although certain exceptions are to be made that do not apply here.

Much uncertainty exists about the validity of the several subspecies often recognized of this species. Collins (1990) accepts them, although Hammerson (1982) and Stebbins (1985) do not. If they were recognized, the present specimen would be referable to the subspecies *P. d. hernandezi* on geographic grounds. That name honored Francisco Hernández, however, and should be spelled with a z instead of an s, as it has been spelled in recent decades. The spelling with a z was commonplace as recently as 1911 (Reeve, 1952: 922).

The horned lizard is familiar to residents in Ouray County at least as far upstream in the Uncompahgre River valley as Ridgway; it is unlikely to occur much farther, although it may range eastward along tributary valleys nearly to the county

line, where it is unlikely to cross the Cimarron Ridge, and westward into Montrose and San Miguel counties.

2. Plateau striped lizard, *Cnemidophorus velox* Springer. Somewhat to our surprise, we took three specimens (UCM 56610-2) syntopically on the same date with the preceding species. They were very wary; others observed near the east bank of the Uncompahgre River at Eldridge, 2.5 mi S Colona, could not be captured. This species was not anticipated in Ouray county by Smith (1991), because the nearest records are downstream about 30 miles in Montrose County. The specimens are typical, however, as described and illustrated in Hammerson (1982).

3. Western smooth green snake *Liochlorophis vernalis blanchardi* (Grobman). Three specimens (UCM 56605-7) were found under debris near the east bank of the Uncompahgre River near Eldridge, 2.5 mi S Colona, 3 August 1992, by H. M. Smith. They conform with the diagnostic characters of the subspecies, the male having 134 ventrals, the two females 144 and 146 (the subspecies typically having 131 or more in males, 140 or more in females). The caudals respectively are 84, 72 and 76.

This species, in the past referred usually to *Opheodrys*, along with *O. aestivus* Linnaeus, was placed in a monotypic genus *Liochlorophis* by Oldham and Smith (1992), leaving *Opheodrys* itself as a monotypic genus.

Although subspecies have recently been rejected in *L. vernalis* by some authorities, we do not view their diagnostics as less consistently adaptive over their ranges than are the diagnostics of many other subspecies, as argued in Smith et al. (1991).

Smooth green snakes have been found in Colorado on both sides of the continental divide, at relatively high elevations (Hammerson, 1982), but they are nowhere common and records are widely scattered. Although anticipated by Smith (1991), the nearest records are for northeastern Montrose County near the Gunnison River.

4. Great Basin gopher snake, *Pituophis melanoleucus deserticola* Stejneger. One specimen (UCM 56609) was captured by Dorian Thompson 1 mi SW Colona, 18 May 1992. Another was captured by H. M. Smith at the same locality as the *Liochlorophis*, but released. Occurrence of the species in Ouray County was anticipated (Smith, 1991), although no records exist along the length of the Uncompahgre River; the nearest are along the Gunnison and San Miguel rivers in north-eastern and southwestern Montrose County, respectively.

Some recent authorities place this subspecies, along with five or six other western races, in the species *P. catenifer*, the four eastern ones remaining in *P. melanoleucus*. Because of the evidence of intermediacy between these two exerges (subspecies groups) introduced by Smith and Kennedy (1951) and Conant (1956), we regard it premature to accept species rank for them. They definitely appear to be incipient species, but if their interrelationships are accepted as they stand now, not as they seemingly will become, they should remain viewed as exerges of a single species. In the course of taxonomic evolution, intermediacy between subspecific and specific ranks are

to be expected, even though not all subspecies are incipient species, by any means. Isolation is usually required, as well as time over which diagnostics, whatever they are, become accentuated. Completion of the process should not be anticipated when in reality it is ongoing. In our opinion the process is still ongoing in the case of these two exerges of *Pituophis*. A choice in this case is perhaps psychological, governed by conservative or radical tendencies. Regardless, the choice should be perceived to fit the known or reasonably inferred facts as they stand now, not as they are anticipated to be in the future.

#### Acknowledgements

We are much indebted to our families for their patient tolerance of our eccentricities while vacationing; to Dr. William M. Lewis, Chairman of the University of Colorado Department of EPO Biology, for research facilities; and to Dr. Shi-Kuei Wu, Curator of Zoology, University of Colorado Museum, for providing museum assistance.

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### A Comment on the Status of Endangered Species

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Endangered species are not necessarily what the Endangered Species office and preservation organizations say they are. Data utilized for determining the status of a species are often faulty, or gathered too quickly to be very useful, but used nevertheless. In my opinion, any species threatened by

extinction for any reason, is endangered. It is often difficult to separate fact from fiction when dealing with the issues that surround the placement of a species on the official list of Endangered Species. The issues and facts are frequently complex; adversarial positions are taken by preservationists,

the federal government and state agencies because of economic and political issues; through all of this the objective biologist must discover the facts, and make recommendations for or against protecting the species and monitoring the habitat of the species in question.

Seldom is any thought given to gathering data on potentially threatened habitat and species before the situation becomes critical. Advanced planning for management of habitats and species is the key to reducing future expenditures and reducing confrontations between various political groups. The real issue is economics, and most nongame wildlife has low priority in all state and federal mandated funding policies. It is important that we understand the political issues surrounding the funding policies, and that we practice fiscal responsibility, but never at the expense of habitat or species extinction.

There are few rewards for studying endangered species that have reached critically low population parameters. Data are difficult to obtain because of their low population density. There are restrictive regulations governing your methods of obtaining data. Adversarial positions taken by various agencies affect the final product. Colleagues suspect your integrity if your data support the private sector, and conversely, the private sector is convinced that you are a closet preservationist. The general constraints under which you work include the following: the contractor presses for immediate favorable answers to void the Memorandum of Agreement and eliminate costs. The government seeks immediate favorable facts to support their often faulty data set. The environmentalists constantly call everyone and keep all of the issues hot. Somewhere along the way, the contracting biologist must develop a very thick skin. The only reward you can expect to receive is the pleasure of having aided a habitat or species to survive. Along the way, you hope you have educated non-biologists to the fact that the **little finger** is truly connected to the **rest of the body**, and that you have calmed the fears of the government that all isn't as terrible as it seems.

Because of the Endangered Species Act, certain restrictions are now applicable to the use of herbicides and pesticides upon the land and water, and indeed, upon how the land and water is managed in the presence of an endangered species. Had we the foresight to develop an economic base to gather data on potentially threatened habitats and species, we may have prevented the excessive costs of litigation and of protective measures now in place for the survival of habitats and species. A case in point is the Concho water snake, *Nerodia harteri paucimaculata*.

The Concho water snake is "alive and doing well." From 1987 to 1993, we have discovered that:

- It is primarily a riverine species, but has the ability to survive in impoundments (reservoirs).

- It is short-lived, four to 10 years, depending upon ecological situation.
- Females produce an average of about 11 young from 1 August to about 15 September.
- Only about 20% of each cohort survives to reach sexual maturity.
- Males reach sexual maturity at 38 cm at the end of their first growing season; females at 46 cm, usually during their second growth season.
- Breeding usually occurs from late April to early June.
- The majority of the breeding population consists of first-time females.
- Gravid females show little movement or activity, while nongravid females and males show similar movement and activity patterns.
- Site fidelity is the rule: they usually remain at the riffle complex where they are born, seldom moving more than 800 m in any direction, but with rare movements of up to 19 km over a four-year period; most long movements are upstream.
- They are diurnal, with some crepuscular activity during the hottest months and at low water periods.
- They are piscivorous, with an occasional frog in the diets of juveniles.
- Hibernacula consist of crayfish burrows, decaying leaf-litter piles along river banks, and piles of rocks and boulders with interstitial air spaces.
- During flooding events they move up river banks and into trees rather than downstream.

The Concho water snake is not immediately in danger of extinction, nor is it threatened with extinction. However, any additional impoundments on its present distribution will fracture the populations into smaller units, allowing catastrophic events to occur. Over time, dams prevent flood surges that scour the river bottom and remove silt. Buildup of silt allows vegetation to grow over the riffle systems, eliminating feeding sites, reducing the snake's ability to catch prey, and eventually affecting the snake's population structure and balance.

The Concho water snake problem is akin to the Illinois mud turtle fiasco, the snail darter, etc. However, these isolated cases are only part of the problem. As biologists, we should be the first to recognize a species in difficulty, and we should take the lead in determining its status.

I would hope that the status of all **future** endangered species is properly documented; the costs of saving them are minimal, and we should recognize that every time we lose a species, we are losing a piece of the world.

Each recipient of an award from the CHS Herpetological Grants Program is asked to submit a summary of the project for publication in the Bulletin. This report covers one of the nine projects that received funds in 1992.

## The Ozark Hellbender, *Cryptobranchus bishopi*, in Arkansas: Distributional Survey for 1992

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### Abstract

We searched for Ozark hellbenders, *Cryptobranchus bishopi*, from 17 March 1992 to 10 November 1992, in four major river drainages within its presumed range in Arkansas. Twelve sites were visited at least once; scuba gear was donned on all occasions. Three new localities in the Eleven Point River (Randolph County) were discovered. Anthropogenic causes are suspected in the decline of this species from optimal habitats.

### Introduction

The Ozark hellbender, *Cryptobranchus bishopi* (Figure 1), is a large, long-lived, aquatic salamander endemic to the Ozark Mountains of southern Missouri and northern Arkansas (Conant and Collins, 1991; Dundee, 1971). Dundee (1971) indicated on his distributional map the presence of *C. bishopi* along the Arkansas–Missouri border in Arkansas, but gave no mention of any specific localities other than the Spring River. Prior to impoundment of the White River, the distribution of this species (formerly *C. alleganiensis bishopi*; see Collins, 1991) in Arkansas undoubtedly included most or all of the North Fork of the White River in Baxter County. Both the Spring and Black River drainages in Fulton, Randolph, and Sharp counties should also harbor the salamander (Dundee, 1971; Nickerson and Mays, 1973b). Prior to our field work which began in 1991, the only documented populations of *C. bishopi* in Arkansas that we found in a cursory review of the literature are those that occur in the upper reaches of the Spring River (Dundee and Dundee, 1965; Nickerson and Mays, 1973a & b; Peterson, 1985).

Trauth et al. (1992b) provided a summary of the published information regarding Ozark hellbenders; these include the earliest ecological studies (Dundee and Dundee, 1965; Nickerson and Mays, 1973a), a comparative demographic analysis

(Peterson, 1985), food habits (Peterson et al., 1989a), fecundity and reproductive biology (Ingersol et al., 1991; Topping and Ingersol, 1981), winter breeding (Peterson et al., 1989b), nests and nest site selection (Nickerson and Tohulka, 1986), release of captive animals (Nickerson, 1980), and current management needs (Williams et al., 1981). A new Arkansas county record, reported by Trauth et al. (1992a), is discussed in the present study.

Recent purported declines in amphibian populations worldwide have prompted an increased awareness and concern regarding population trends in native United States species (see Pechmann et al., 1991; Dunson et al., 1992). Williams et al. (1981) reported that hellbender populations in the United States had undergone sharp population declines throughout its range, although they also stated that large populations of *C. bishopi* were still present in the Spring River in Arkansas. Peterson (1985) confirmed the presence of these large aggregates while performing a mark and recapture study on two populations in the Spring River from 1980 to 1982; he captured and tagged 370 animals. However, in recent years, reported sightings of *C. bishopi* in the Spring River have decreased dramatically. In fact, we could find only 20 hellbenders in the Spring River during our study in 1991 (Trauth et al., 1992b).

Our objectives in the present study were to investigate a variety of optimal habitats within the presumed range of *C. bishopi* in Arkansas, assess the habitat use, and identify possible factors affecting the welfare of this species.

### Materials and Methods

Between 17 March 1992 and 10 November 1992, we visited potential collection sites for *C. bishopi* within its presumed range in Arkansas. Scuba diving gear was worn at each site, and individual dives (normally two divers) usually lasted one hour. Optimal habitat situations (rocky riffles, shoals, and falls) were investigated during daylight hours. The standard method of searching the habitat was overturning rocks and logs or reaching beneath large rocks. The captured salamanders were permanently marked (see Figure 1) with a Floy tag in a method similar to that of Nickerson and Mays (1973b), except

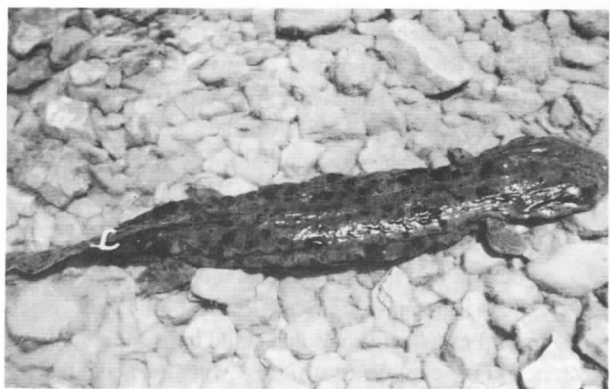
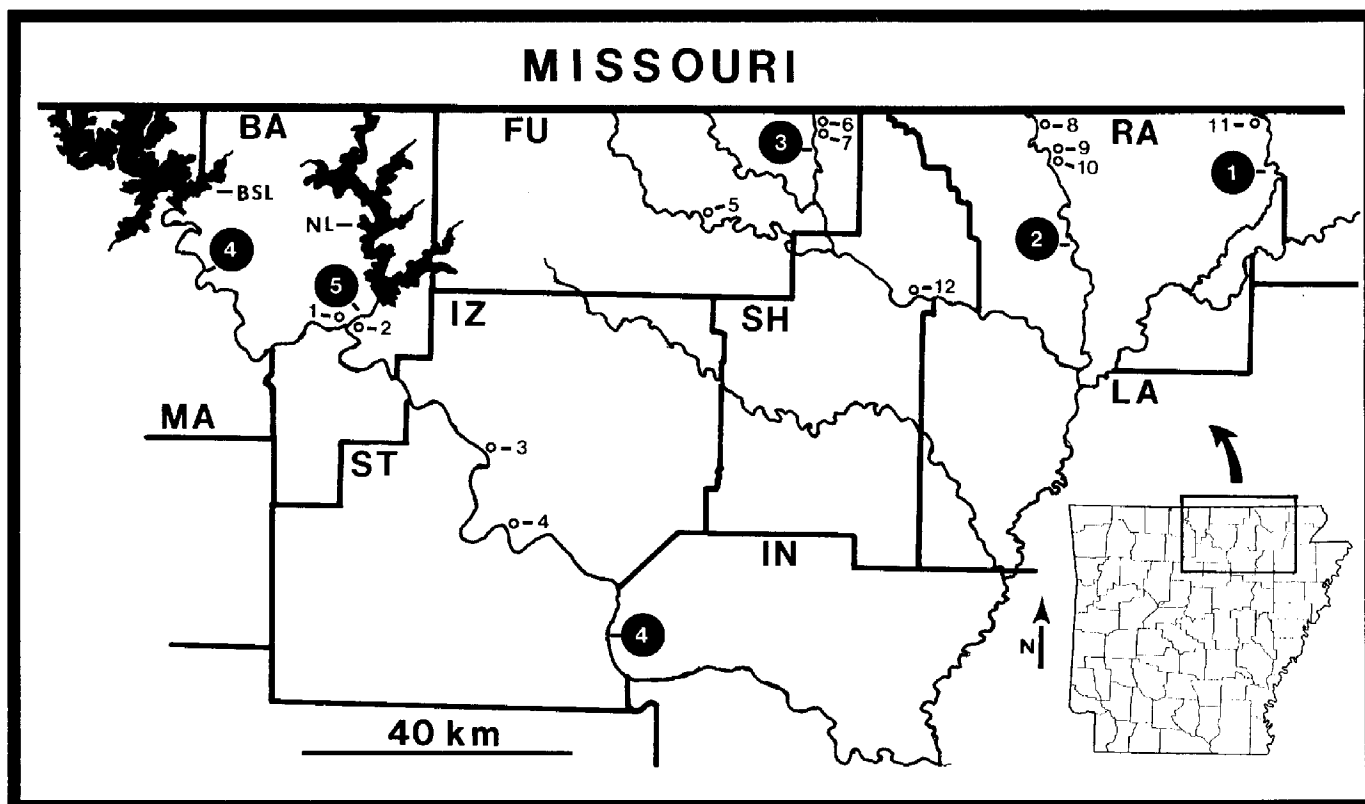


Figure 1. Adult Ozark hellbender, *Cryptobranchus bishopi*, from the Spring River (Dam Site #3), Arkansas. Identification tag is attached through dorsal fin of tail.



**Figure 2.** Map showing survey sites for *Cryptobranchus bishopi* in northern Arkansas during 1992. Numerals within dark circles indicate major rivers (1, Current; 2, Eleven Point; 3, Spring; 4, White; 5, North Fork of White). Abbreviations for counties are: BA (Baxter), FU (Fulton), IN (Independence), IZ (Izard), LA (Lawrence), MA (Marion), RA (Randolph), SH (Sharp), and ST (Stone). BSL = Bull Shoals Lake, and NL = Norfolk Lake. Small numerals assigned to open circles designate access points, collection or tagging sites, and/or stretches of river habitat surveyed; these include the following: 1 – White River (vicinity of St. Highway 341 bridge), 2 – North Fork of White River (Norfolk access), 3 – White River (Piney Mill Creek access), 4 – White River (Guion access), 5 – South Fork of Spring River (Hart access), 6 – Spring River (U.S. Highway 63 access), 7 – Spring River (Dam Site #3 access), 8 – Eleven Point River (vicinity of Mill Dam), 9 – Eleven Point River (1.9 km N Dalton), 10 – Eleven Point River (Dalton access), 11 – Current River (Pitman access), and 12 – Martin's Creek, tributary of Spring River (U.S. Highway 63 access).

that we looped our tags. Salamanders were confined in five gallon buckets of river water during the tagging and mensural procedures. The total length and snout-vent length of each animal were measured to the nearest centimeter on a standard fish board; mass (to the nearest gram) was taken with a spring scale. The animals were photographed and then released at the approximate site of collection.

### Results and Discussion

Ozark hellbenders were found only in the Spring and Eleven Point Rivers; the specific sites will be addressed later in this section. Otherwise, the following includes brief survey summaries for each river system investigated in this study.

**North Fork of White River**—Lake Norfolk inundates most of the North Fork of the White River (hereafter, North Fork) in Arkansas (Figure 2); the lake continues another 15 km or so into Missouri. Thereafter (and upstream from the town of Tecumseh in Missouri), the North Fork narrows to become a small, clear, relatively shallow stream. Hellbender populations have been extensively studied in the upper stretches of this river (see Nickerson and Mays, 1973a & b). We took the opportunity to dive the North Fork in Missouri on two occasions at Dawt Mill (located approximately 4 km above Tecumseh) and observed many *C. bishopi*. Consequently, by search-

ing the North Fork in Arkansas (below Norfolk Dam), we assumed there was a good chance to find populations of this species that had survived impoundment which had occurred in the early 1950s. Because of limited access points, the North Fork immediately below the dam to a point approximately 3 km below the dam was not investigated during the present study. (We plan to search this area in the future.) At the town of Norfolk, at the confluence of the North Fork and the White River at site 2, we searched for hellbenders in a 200 m section of rocky channel with no success.

**White River**—We concentrated most of our field activities in 1992 in the White River area mainly because of several unverified hellbender sightings given to the Arkansas Game and Fish Commission. Site 1 is located approximately 1.5 km upstream from Norfolk. We searched a region of rocky river channel near the St. Highway 341 bridge to no avail.

Several trips were made to site 3, to which access was attained by putting-in on Piney Mill Creek and floating/motoring around 1 km downstream to the river. Piney Mill Creek exhibited several excellent shoals that could have supported hellbenders. At the confluence of Piney Mill Creek and the White River, we searched an optimal river riffle area with no success.



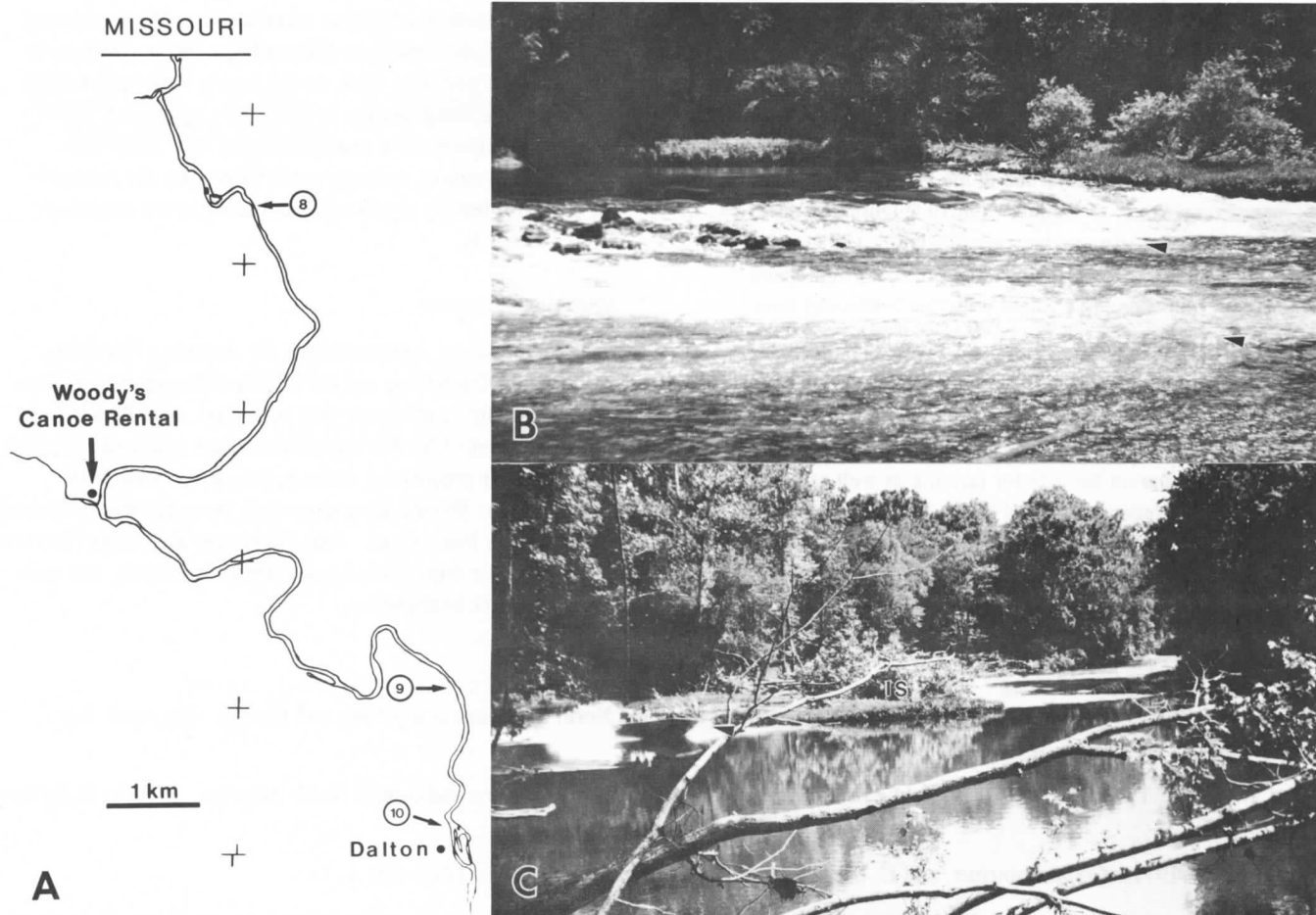
At Guion (site 4) we talked to Mr. Billy Engels and other local fishermen who were able to describe hellbenders and then positively identify *C. bishopi* from Conant and Collins' field guide. They directed us to two areas (above and below the Guion access point). We choose to dive a region of the river 1.5 km upstream. At this point, the White River is wide (around 150 m) and maintains a swift current. A stretch of ideal rocky channel bottom approximately 300 m in length and 3 m in depth was searched on two occasions. This channel habitat consisted of long spans of bedrock broken into slabs which exhibited numerous cracks and crevices; in addition, large boulders from the tall bluffs above were scattered throughout the area. Large logs and rootwads were held by these boulders and provided a variety of microhabitats. The bottom substrate was mainly sand and fine-to-coarse gravels. This habitat description could characterize most of the channel bottoms that we have examined in the White River.

*Current River*—Large populations of *C. bishopi* exist in the Current River in Missouri (Nickerson and Mays, 1973b). One of us (PD) conducted dives in a deep (> 4 m), sluggish section of the river just inside the Missouri border. Most of the river in Arkansas has large mid-channel pools and generally lacks optimal habitat for hellbenders; yet, searching will con-

tinue at more access points in this river in the future.

*Spring River*—The Spring River, fed by one of the largest springs in the Ozarks, originates at the town of Mammoth Spring just inside the Missouri–Arkansas border. In 1991, we conducted a tag and release study of *C. bishopi* (Trauth et al., 1992b) at 10 sites along a 26 km section of the river in Fulton County. Two of these 10 access sites (Figure 3; sites 6 & 7) were revisited in 1992. At site 6, we dove on three different dates, and no hellbenders were observed. By comparison, we found three salamanders here in 1991.

Site 7 (known as Dam Site #3) is located around 6 km downstream from the springhead. A major dam spans the river here; in addition, this is the present site of the Spring River State Fish Hatchery as well as a primary point-of-entry for canoeing activities on the river. The hatchery is built on a large island below the dam. Peterson (1985) marked 310 hellbenders in habitats along the lower end of this island. Furthermore, Peterson et al. (1989a) used this site and another 1.4 km downstream from the springhead to remove 62 hellbenders for reproductive studies. In 1991, we could find only six hellbenders after several visits to habitats just below the island and only 11 animals in the spillway area immediately below the dam (see Trauth et al., 1992b). In 1992, we re-



**Figure 3.** New locality sites for *Cryptobranchus bishopi* in the Eleven Point River, Randolph County. **A.** Map of Eleven Point River north of Dalton; numerals same as in Figure 2. Access to sites 8 and 9 was gained from Woody's Canoe Rental. **B.** Mill Dam (Site 8). Arrowheads point to white-water collection areas for hellbenders just downstream from falls. **C.** Dalton (Site 10). Falls occur on both sides of small island (IS). At left, a motorist in a jet-prop powered boat maneuvers over falls at collection site (arrowhead) for hellbenders.

turned to the island site and found no salamanders; only five were observed below the spillway.

On the South Fork of the Spring River (site 5), we investigated a small stretch (approximately 100 m) of wadeable habitat without success. One other site (12) we inspected is found on Martin's Creek, a small tributary of the Spring River. This site deserved attention because a local fisherman reported to us that he hooked a hellbender while fishing a deep hole. We dove several stretches of the creek with no success.

*Eleven Point River*—Nickerson and Mays (1973b) speculated that because large populations of *C. bishopi* were known from the upper reaches of this river in Missouri, they should also occur in portions of the river in Arkansas. (Max Nickerson told us that he and others had searched the Eleven Point River repeatedly in Arkansas without success). Because no voucher specimens were known from the Arkansas side, we devoted several trips to the upper regions of this river. On 8 July, a fisherman, Mr. Gary Thatch, found a hellbender in his hoop-net which had been set at the bottom of a bluff 1.9 km N of Dalton (Figures 2; 3A, site 9). He brought the specimen to Mr. Woody King; he notified us about the find. (We had previously spoken to King regarding the possible existence of hellbenders in the Eleven Point River.) As a consequence of this new locality record (Trauth et al., 1992a), we made several subsequent trips to the river. On 11 July, we traveled via a jet-prop powered river boat to site 8, a small riffle area commonly called Mill Dam (Figure 3B). The site exhibited a very swift flowing current. Diving here for one hour yielded three *C. bishopi*, which we tagged and released. We then traveled downstream to site 9 and dove an additional 1.5 hr without success. On 8 August we returned to the Eleven Point using an access several km N of Dalton. Site 10 (Figure 3C) consisted of two rapids separated by a small island. Unlike site 8, site 10 was much deeper (3–4 km), swifter, and was clogged with logs and rootwads. We found only one hellbender here.

*Habitat Use*—Ozark rivers and streams provide many recreational opportunities for water enthusiasts. Fishing, boating, and canoeing are, by far, the most common activities. This is especially true for the Spring River. Clearing of the land and development of riparian habitats for farming as well as housing has accelerated in recent years and has indirectly damaged the river by adding an excessive amount of silt. Yet, possibly the most insidious activity is canoeing with its chronic pollution and habitat alteration resulting from the hordes of weekend

escapists that pummel the river's rocky substrate and increase the silt burden. Nickerson and Mays (1973b) mentioned a once common practice by canoe rental services in Missouri of dynamiting large boulders and rocks out of certain stretches of rivers (e.g., Current River) to save canoe damage. Most of the rock shelters for hellbenders available at the end of the island at Dam Site #3 have been buried by silt; this fact alone may have led to the catastrophic decline in hellbenders from their original numbers during the early 1980s.

The Eleven Point River is subjected to an entirely different anthropogenic activity. Because the river has a limited number of public access points, a swift flowing current, and long stretches of very shallow water with few riffle areas, jet-prop powered boats are the only effective means of upstream travel. These engines produce an enormous water spray behind the boats. The turbulence caused by this method of transportation may prevent hellbenders from dwelling in riffles and other favorable habitats.

### Conclusions

During the present study, we surveyed four major river systems in northern Arkansas in an attempt to find new localities for Ozark hellbenders. Because Ozark rivers and streams are typically springfed and, therefore, are swift and cold, our survey technique (i.e., the use of scuba gear) afforded us the best possible method of habitat investigation. We found new localities of *C. bishopi* in the Eleven Point River. This study reinforces our previous work on the Spring River and further dramatizes the sharp decline in hellbender population levels from those existing there nearly a decade ago. Although speculative in nature, anthropogenic causes for the salamander's demise remain provocative and must be the subject of further research.

### Acknowledgements

We express our appreciation to the Arkansas Nongame Preservation Committee and the Chicago Herpetological Society for partially funding our field activities. Mr. Richard Shopen is thanked for his logistic assistance and insight regarding hellbender populations at the Spring River State Fish Hatchery; Mr. Woody King graciously provided transportation on the Eleven Point River. Max Nickerson and Chris Peterson are thanked for their critical assessment, comments, and concerns on Ozark hellbenders.

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## Helpful Herp Hints by Dennis Engler

The following is for those of you who are craving even more information on genetics. Last month's examples concerned inheritance governed by a single pair of genes, either one of which could be present in one of two different forms, one form dominant and one recessive. The most complicated example was the pairing of two heterozygous animals.

Two words we didn't use last month, which will be helpful in a further discussion of genetics, are phenotype and genotype. Phenotype refers to how an animal looks — its physical appearance. Genotype refers to an animal's actual genetic make-up and so gives us more information about offspring that could be produced. In last month's examples we dealt with two different phenotypes, normally colored animals and albino animals. But we had three possible genotypes, AA, Aa and aa. Both the AA and the Aa genotypes showed normal coloration because of the presence of the dominant form of the gene. Only animals possessing the aa genotype were albinos.

Knowing the genotype and not just the phenotype allows us to use the Punnett square as we did last month to get some idea of what offspring might be expected from a specific pairing. This month we will take the concept of the Punnett square one step further and investigate the mating of two doubly heterozygous animals: that is, animals that are heterozygous for the genes governing each of two different traits.

Again using letters to represent an animal's genotype (or genetic make-up) the example will be as follows. The dominant gene for normal coloration is represented by the letter A, the recessive gene for albinism by the letter a; the dominant gene for normal pattern is represented by the letter B, the recessive gene for striped pattern by the letter b. Then the genotype of an animal heterozygous for both coloration and pattern would be represented by the letters AaBb. The example pairs a heterozygous male AaBb (which will show normal color and normal pattern) with a heterozygous female AaBb (also showing normal color and pattern). Again we use the Punnett square, but this time with four columns and four rows, corresponding to the four possible combinations of the two pairs of genes. The results are as shown in the figure.

Looking at the results, we find that there are four different phenotypes but nine different genotypes. The "albino and striped pattern" phenotype results from only one genotype, aabb. The "albino and normal pattern" phenotype results from either the aaBB or the aaBb genotype. The "normal color and striped pattern" phenotype results from either the AAbb or the Aabb genotype. And the "normal color and normal pattern" phenotype could possess any one of four genotypes: AaBb, AaBB, AABb or AABB.

Three last points concerning all the above:

- Again I want to stress that all of the percentages shown are statistical averages. Since many eggs and millions of sperm are involved in the fertilization process, and because each sperm and egg carries only one of the four possible combinations of the two pairs of genes, it is only random

chance (luck) that determines the genetic make-up of the offspring.

- If someone wants a double recessive animal (as in the example of an albino striped animal), it may be better to buy it outright than to try to produce it from the mating of two doubly heterozygous parents.
- This type of pairing produces a lot of animals whose genotype is unknown until they are bred at some future date. Even after breeding, unless a large number of offspring are produced, you still might not be able to ascertain the true genotype of the animal. Possible heterozygous animals are exactly that, *possible*.

I hope this has been informative to some of you. And don't forget that if you'd like to share a bit of knowledge that has helped you in taking care of herps, you can send it to: Chicago Herpetological Society, Helpful Herp Hints, 2001 N. Clark Street, Chicago IL 60614. Happy Herping!

### AaBb x AaBb

A = Normal color  
a = Albino  
B = Normal pattern  
b = Striped pattern

	AB	Ab	aB	ab
AB	AABB	AABb	AaBB	AaBb
Ab	AABb	AAbb	AaBb	Aabb
aB	AaBB	AaBb	aaBB	aaBb
ab	AaBb	Aabb	aaBb	aabb

#### Phenotypes

- Normal color and normal pattern; 9 outcomes, 56.25%
- Normal color and striped pattern; 3 outcomes, 18.75%
- Albino and normal pattern; 3 outcomes, 18.75%
- Albino and striped pattern; 1 outcome, 6.25%

#### Genotypes

- |                               |                               |
|-------------------------------|-------------------------------|
| <b>AABB</b> 1 outcome, 6.25%  | <b>Aabb</b> 2 outcomes, 12.5% |
| <b>AABb</b> 2 outcomes, 12.5% | <b>aaBB</b> 1 outcome, 6.25%  |
| <b>AAbb</b> 1 outcome, 6.25%  | <b>aaBb</b> 2 outcomes, 12.5% |
| <b>AaBB</b> 2 outcomes, 12.5% | <b>aabb</b> 1 outcome, 6.25%  |
| <b>AaBb</b> 4 outcomes, 25%   |                               |

## HerPET-POURRI

by Ellin Beltz

### Don't suggest this to Hillary, ok?

Due to aging hospitals, a ratio of one Western-trained doctor for every 3,100 people, a lack of antibiotics and other medicines, impoverished Vietnamese are turning to traditional cures for illness and injuries. It is a good business for the self-styled "richest snake man of the north," Tran Nhu Ban. He sells the snakes from which are produced various tonics and "cures," including python fat for asthma and python bile for burns. The picture with the article shows Mr. Ban as he "clutches a squirming tangle of deadly banded Kraits at his snake farm near Hanoi as a customer watches from a distance." [Houma, LA, *Times-Picayune*, September 20, 1992, contributed by Ernie Liner]

### A new way to lick cane toads

According to an article in the travel section of the *Chicago Tribune* (March 14, 1993), residents on Magnetic Island in Queensland, Australia, have created a popular event, which may even be broadcast on sports TV soon. They race cane toads. Cane toads were intentionally introduced to Australia and many other spots around the world in the mistaken belief that they would help control cane beetles. Unfortunately, the beetles live on the top of the stalks, and the toads live on the ground. However, the cane toad adapted to Australia and multiplied massively. Most Australians regard the toads as an ugly plague, like rabbits. The toad races began as a fund raiser to buy the island an ambulance. Since Australians reportedly will bet on anything that moves and charitable contributions are regarded as atonement for sins, the toad race hopped off to a good start. The folks on the island now play host to up to 500 bettors for weekly toad races. One half of the proceeds goes to charity; the other half is paid out to winning bettors.

### Reptile people in the news:

CHS Sergeant-at-arms **Chuck Keating** leads a 4-H herpetology class at the Indiana National Guard Armory. He said, "One of the reasons I got into [this] is because, when I was growing up, there was no one to answer my questions." **Selly Strauch**, 11, of Hebron has had her eastern box turtles for nearly a year and plans to show them at the Porter County Fair this summer. She said that the judges at the fair "... look at the turtles' color and see if they're clean. We try to keep ours people-friendly. People say turtles go slow, but they can go really fast." [*Vidette Messenger*, Valparaiso, February 15, 1993, contributed by Jack Schoenfelder]

According to an article in the South Bend (IN) *Tribune*, January 11, 1993, **Rose Mather** has had the same "dime store turtle" for 34 years. She said, "I started out with the traditional plastic turtle bowl, complete with palm tree, bridge and pool of water. I tried all the different types of food, flies, commercial turtle food, worms." The turtle now eats Quaker oat flakes and lettuce. [contributed by Garrett Kazmierski]

**Paul E. Steffen** of Milford, does school presentations on local

Indiana animals. Some students are surprised to find that there are 30 different species of snakes and 300 varieties of birds found in the Hoosier State. [South Bend *Tribune*, February 9, 1993, contributed by Garrett Kazmierski]

**Jack Cover**, the curator of rain forest exhibits at the National Aquarium in Baltimore described the exhibit that opened in March featuring venomous snakes from the rain forests of Costa Rica. He said, "We think that it's important we show people that venomous snakes can be beautiful. They deserve respect. They are part of the ecosystem and have their place in it." [*Baltimore Sun*, February 18, 1993, contributed by Mark T. Witwer]

**Stephen Busack**, the Chief of the Morphology Section at the National Fish and Wildlife Forensics Lab gave two lectures in connection with a new exhibit at the Shedd Aquarium in March. The exhibit, "Silent Witness," introduces visitors to the work of the forensics lab that is used to provide evidence against poachers, smugglers, importers, and other animal exploiters. Busack is known to readers of this column from his efforts to include the amateur community in his work. He seeks donations of deceased herps to add to his reference collection at the lab. An example of how sample material helps nab baddies is that from donated material, Busack has been able to determine the differences in monitor (*Varanus*) skins by the shape and composition of a single scale. If you would like "Fido" or "Slimy" to serve law enforcement after his/her demise, you can contact Busack by writing to him at the National Fish and Wildlife Forensics Lab, 1490 E. Main Street, Ashland, OR 97520 or by calling (503) 482-4191. He will pay shipping and can provide a "tax letter" for your donation. Prepaid anonymous donations are also accepted. [Thanks to Karen Furnweger for the *WaterShedd* issues.]

### Horse-sensitive?

Wyeth-Ayerst Labs and Ophidian Pharmaceuticals have teamed up to make a new antivenom by producing toxin antibodies in egg yolks instead of horse serum. They expect that fewer protein impurities will be passed to the patient, reducing side effects and danger. They say that the final product is about 20 times more pure than horse serum, and it's cheaper, too. [*Daily Local News*, Chester County, PA, February 20, 1993, contributed by Mark Witwer]

### Komodo redux

Keepers at the Cincinnati Zoo's reptile house searched out Komodo dragon eggs laid in a burrow in their exhibit. They measured and weighed the eggs, then sent them to the National Zoo in Washington, D.C., for incubation. This is the second time that the Indonesian dragons have reproduced in the Western Hemisphere. [*The Plain Dealer*, January 20, 1993, contributed by Jim Zimmerman]

### Olfactory cues for pond selection

Researchers from Harvard and the Queen's University of Belfast have found that frogs learn the unique odor of algae

and rotting vegetation in their natal pond as embryos. In an experiment, researchers dipped eggs into lemon or orange extract and found that tadpoles preferred to swim in water flavored with the same odor to which they were exposed as embryos. Adult frogs persisted in the behavior. According to one researcher, the frogs may feel "if it's good enough for me to survive, then it's probably good enough for my offspring." [DVM, February, 1993, contributed by Sue Black.]

**Gee Toto, this doesn't look like the Atlantic!**

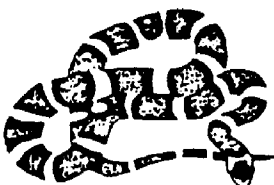
Researchers who use satellites to track ocean going sea turtles were confused when their signals definitely pinpointed one of the giant reptiles in Salina, Kansas! An on-the-ground search for the turtle turned up just the transmitter in a farmer's back yard. He had found the device while on vacation in Texas and taken it home. [Destination Discovery, February 1993, contributed by P. L. Beltz]

**Animal rights activists protest at Epcot Center**

Known for cute rodents, Walt Disney World recently penned up dozens of gopher tortoises and bulldozed their dens for development. Some tortoises may be resettled elsewhere on Disney's 30,000 acres, some may be given to the University of Florida, and some may be euthanized. The trade-off of all this is that Disney is giving \$20 million to buy and protect the 8,500-acre Walker Ranch, 17 miles to the south in Osceola County. In exchange, wildlife officials gave Disney the right to wipe out up to 2,300 tortoises during the next 20 years. Disney executives say they will donate the tortoises to the University of Florida along with \$700,000 to study upper respiratory disease. Central Florida's largest environmental groups gave the deal support in a new approach to making amends for ecological damage by protecting large areas of land instead of setting aside small parcels that can't sustain a species. Holly Jensen, a Gainesville environmentalist and animal rights activist said, "Disney has made billions off the commercialization of wildlife and nature. They have a moral obligation to go beyond the letter of the law." [Orlando, FL Sentinel, February 1, 1993, contributed by Bill Burnett]

**Desert tortoise news**

In a 5-1 vote, the Clark County commissioners approved acquisition of grazing rights for the last 93,000 acres of federal land to be included in a desert tortoise sanctuary near Searchlight, Nevada. The grazing rights were obtained for \$400,000



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from a willing seller. Cattle grazing and off road driving will be prevented on the land. In a legal decision the same day, a judge ruled that ranchers may continue to graze federal land while their case is considered by higher authorities in the U.S. Department of the Interior. [Las Vegas Review-Journal, March 3, 1993, contributed by Bob Pierson]

**Correction:**

The Ontario Herpetological Society wrote, "We at the OHS enjoy your column very much and it was interesting seeing the article 'Results of Python's Fatal Squeeze' in Vol. 27(12): 259-260, 1992. We would like a correction in that Mr. Nevilles was not a member of the OHS. The incident was unfortunate and the backlash from the event affects all responsible owners of the OHS to some extent, no to mention the Public Relations job the club is facing. Best Regards, OHS Secretary."

Thanks to everyone who contributed this month and to people who sent duplicates of items previously used including: Sue Black, Jack Schoenfelder, Bill Burnett, Brian Bankowski, Rick Reifsnyder, Michael Burger, Anonymous, and P. L. Beltz. A special thanks to Bob Pierson for the desert tortoise adoption booklet from the Tortoise Group, (702) 739-7113. You, too, can be a highly appreciated contributor. Merely send clippings about herps with the publication name, date of publication, and your name (firmly attached) to: Ellin Beltz, 1647 N. Clybourn Avenue, Chicago, IL 60614-5507.

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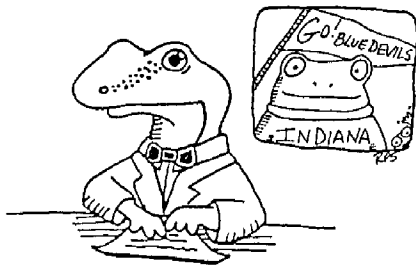
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NEWLINE

Braving a Chicago snow-storm, 124 members and guests attended the CHS meeting on February 24, 1993, at the James Simpson Theatre at the Field



Museum. President **Ron Humbert** welcomed everyone and explained the upcoming program.

The meeting began with a long list of announcements. Ron announced that, for the sake of nostalgia, the next CHS board meeting would be held at the home of **Michael Dloogatch**. The nostalgia comes in because the custom in past years was for all CHS board meetings to take place at the homes of members. Ron announced that copies of Mike Dloogatch's proposed amendment to the CHS Bylaws regarding elections would be available in the lobby.

As treasurer, **Gary Fogel** announced that he will post CHS Treasury Reports on the bulletin board in the lobby during monthly meetings.

**Steve Spitzer** addressed the group and encouraged those who were not members to see him in the lobby.

Due to the illness of adoption chairperson **Ben Entwisle**, the sergeant-at-arms, **Chuck Keating**, volunteered to forward adoption requests to him. Chuck announced that a list of animals in need of adoption would be posted on the bulletin board as well.

Member-at-large **Anthony Rattin** released details for the society's chartered bus trip to the St. Louis Zoo on April 3, 1993. Anthony raved about the many exhibits of the zoo, including the Herpetarium, "... which contains more than 100 displays of various reptiles and amphibians including crocodilians and giant tortoises." The behind-the-scenes tour will feature a look at the tuatara (*Sphenodon punctatus*). Available in the lobby was an itinerary and photocopies of the Sunday, February 14, 1993, article appearing on Page 12 of the *Chicago Tribune's* Travel section describing the zoo's magnificent features. Entertainment on the long bus ride will include several nature documentaries shown on the bus's six television monitors. The entire trip will be videotaped and presented at a later date in a "shorts" program.

**Joan Moore** announced merchandise specials and provided gratis copies of federal § 1240.62 *Turtles Intrastate and Interstate Requirements*, commonly known as the "four-inch" regulation of commercial sale or public distribution of all chelonians with a carapace of less than 4 inches in length.

CHS librarian **Lisa Koester** announced that printed guidelines of the new library policy regarding loan periods, renewals, and fines would also be available in the lobby. She thanked **Rich Koester**, **Aaron Ruther** and **Steve Spitzer** for

their help in setting up the new library system. The library consists of approximately 200 books and 2 videotapes and is in need of donations. Anyone with questions or donations of books was welcomed to see Lisa during the break.

**Karen Furnweger**, who is on staff at the Shedd Aquarium, presented a brochure and reservation form from the Massachusetts Audubon Society's trip to Costa Rica entitled, "Turtles of Tortuguero: A Volunteer Research Program." Participants help tag green turtles and count eggs. The brochure was available in the lobby along with the aquarium's newsletter, *WaterShedd*.

**Scott Michaels, D.V.M.**, presented the "shorts" program on his collection of Indian pythons, Colombian boas, Peruvian Amazonian redtail boas and Argentine boas. His slides illustrated the differentiation of head markings and coloring of the snakes. He has been quite successful in breeding his snakes and discussed methods in which he stimulates their reproductive cycles. He recommended keeping data cards recording feeding, shedding, defecation and any medical problems of a snake.

**HERPETO - SCAM GROUP INSURANCE, INC.**

**REPTILE & AMPHIBIAN HEALTH INSURANCE APPLICATION FORM**

Common Name	<i>Scarlet O'Hara Kingsnake</i>		
Scientific Name	<i>(Lampropeltis triangulum elapsoides)</i>		
Address	Hillsborough County, Florida		
Date of Birth	07/11/88	Live Birth or Hatched	Hatched
Sex	Female	Marital Status	Separated
Employer	B Horror Movies		
Eligible for Medi - Cage Coverage?	NO		
Other Insurance Coverage?	NO		
Do you smoke?	No	Do you drink?	No
Do you listen to loud music?	Yes		

**History of Illness or Injuries**

Date	Description	Veterinarian's Diagnosis
06/01/89	Itching, open sores	mites, ticks
04/12/90	mouth rot, mucus	Stomatitis
05/12/90	blowing bubbles	respiratory infection
08/05/91	egg bound	surgery
09/17/92	loose stool	gastroenteric disease

I hereby certify that the information furnished by me is true and correct. I hereby authorize any insurance company, organization, employer, hospital, veterinarian, surgeon, pharmacist, educational institution or other herp to release any information requested with respect to this application to Herpeto-Scam Group Insurance, Inc.

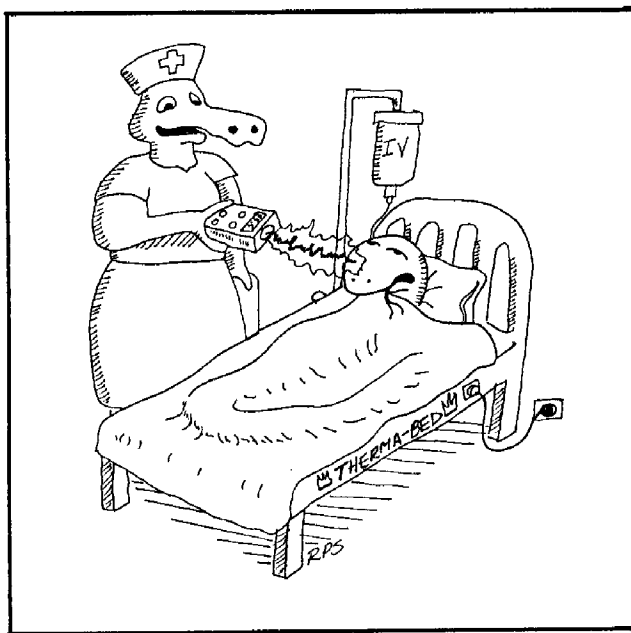
Signed *Scarlett O. Kingsnake* Date *2/24/93*

After a short break, **Stacy Miller** raffled off a Neodesha cage, reptile heaters, t-shirts, posters, toys, and canned herp food.

The featured presentation, "Herp Happenings at the Indianapolis Zoo" was presented by **Jeff Wines**. Jeff is quite a photographer. He admitted that some of his photography has

appeared in the zoo's calendar. The zoo is a member of the International Species Survival Program (ISSP). The program is designed to increase breeding for genetic diversity and integrity. The program seems to be quite successful as most of the reptiles and amphibians at the zoo appear to be breeding abundantly. His stunning slides depicted female radiated tortoises laying and burying their eggs, hatching spiny softshell turtle eggs, crocodiles hatching from eggs, and an anaconda giving live birth. Spiny-tail lizards with live young and bearded dragons with eggs were shown. The zoo is the second institution to breed an Egyptian spiny-tailed agama.

The zoo's herp habitat is a domed terrarium housing many botanical species. The habitat is equipped with up-to-date technology. Custom designed LED digital monitors regulate the temperature of heat rocks. The monitors can be controlled from behind the scenes. Basking rocks were set between 110 and 115°F. In addition, body temperature of an animal or an egg is determined by an electrician's tool called a 3M Scotch Trak™ Heat Tracer. The device resembles a science fiction-like weapon that fires an infrared beam which transmits to a digital read out in fractions of a second. The device causes no harm to the animal. Surprisingly, the animal is completely unaware it is being monitored. The retail cost is approximately \$1300.



Of course, one of the highlights of the presentation was the amphibian segment. In the zoo's new frog exhibit, White's treefrogs were in amplexus, and smoky jungle frogs and poison-arrow frogs were shown with their eggs. A pair of blue bullfrogs were donated at separate times to the zoo by local Indiana residents. The bullfrogs were soon discovered to be from the same pond in Indiana. After a few months in the zoo, their blue coloring disappeared. Albeit, it made me wonder if other animals in the pond might be blue also.

Jeff showed slides of Cuban ground iguanas, Ricord's ground iguanas from the Dominican Republic, desert iguanas and the endangered rhinoceros iguanas which have been of special research interest at the zoo.

As a special note, Jeff suggested that UV light not be used on animals housed in plastic containers. The light will eventually cause the plastic to become brittle.

Newt sends best wishes for a speedy recovery to **Claus Sutor**, who is recuperating from his sextuple cardiac bypass surgery. Best wishes also go to Newt's alma mater, Plainfield High School and to **John Murphy**, CHS vice-president and a biology instructor at the school. The newly resurrected school was demolished by an infamous tornado on Tuesday, August 28, 1990.

We stay in touch, so you stay in touch.

Respectfully yours,

**NEWT**

## HERP-ACROSTIC CONTEST

February's winner: Joe Dinardo

### ANSWERS TO THE MARCH PUZZLE

The quotation in last month's Herp-Acrostic was taken from page 147 of *The Book of the Toad* by R[obert] M. DeGraaff: "Bufophiles may rejoice: not only have centuries of abuse failed to wipe out the toad, but there are even signs in modern times of a trend to clear his good name. Meanwhile, it is surprising to see how long it has taken science to supplant superstition . . ."

- |                 |                        |
|-----------------|------------------------|
| A. Ruthven      | N. Barba amarilla      |
| B. Mussurana    | O. Ophiophile          |
| C. Dunn         | P. Oustalet's          |
| D. Ecdysis      | Q. King brown          |
| E. Ghost        | R. One toe             |
| F. Rosy         | S. Fiji                |
| G. Asp          | T. Two toes            |
| H. Ammonites    | U. Hopping             |
| I. Fer-de-lance | V. Ernie               |
| J. Fence swift  | W. Three toes          |
| K. Terciopelo   | X. Osteo               |
| L. Helmeted     | Y. Antivenin Institute |
| M. Eosuchia     | Z. Dugite              |



## Herpetology 1993

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 editors assume full responsibility for any errors or misleading statements regarding the results of the abstracted research. JCM

### GECKO AGGRESSION IN SEXUAL AND NONSEXUAL SPECIES

D. T. Bolger and T. J. Case [1992, *Animal Behavior* 44: 21-30] examine the level of inter- and intraspecific aggression between three species of gekkonid lizards in the laboratory with contests between pairs of individuals. Two of these species, *Lepidodactylus lugubris* and *Hemidactylus garnoti*, are asexual parthenogens. The third species, *Hemidactylus frenatus*, is sexual and has been implicated in an apparent competitive exclusion of the asexual species in the urban "house gecko" niche on tropical Pacific islands. *H. frenatus* males were more likely to approach and bite an asexual female and less likely to be spatially displaced by the approach of an asexual female than vice versa, suggesting that competitive exclusion is at least partially caused by behavioral interactions. Sexual males are more aggressive than sexual females in interspecific encounters with asexual females, so the presence of males in the sexual population increases the competitive advantage of the sexual population over that of the asexual population. Recent studies of aggression in *Cnemidophorus* lizards have shown reduced aggression in asexual species compared with that of closely related sexual species, and reduced aggression intra-clonally versus inter-clonally in the asexual species. As in *Cnemidophorus*, sexual *H. frenatus* females were more aggressive towards each other than were asexual *H. garnoti* females belonging to a single clone. However, no difference was found between intra- and interclonal aggression in the two genetic clones of *L. lugubris*. The potential for interspecific predation of juveniles as an interference mechanism was also evaluated experimentally. *H. frenatus* was capable of preying upon *L. lugubris* hatchlings but the reverse was not true. This is also consistent with the observed competitive superiority of *H. frenatus* in the field.

### GARTER SNAKE PREY PREFERENCE AND GEOGRAPHY

S. J. Arnold [1992, *Animal Behavior* 44:705-719] studies diets and congenital reactions to prey in the garter snakes *Thamnophis elegans* and *T. sirtalis* at three sites where they occur in sympatry in northern California and Washington. Recently ingested prey retrieved from the stomachs of wild-caught snakes indicated that *T. sirtalis* was primarily an anuran predator at all three sites. In contrast, *T. elegans* was primarily a slug predator at two sites; but at a third site leeches, anurans and fish dominated the diet. Congenital reactions to prey were studied by measuring chemoreception responses to prey odors by naive, newborn snakes. Within each species, chemoreception scores showed litter differences within localities as well as geographical variation. Geographical differences in chemoreceptive responses generally coincide with geographical differences in diet, suggesting evolutionary responses to selection.

### SLEEPY LIZARD DIET AND HOME RANGE

G. Dubas and C. M. Bull [1992, *Herpetologica* 48(3):301-306] studied the Australian sleepy lizard or shingleback, *Tiliqua rugosa* (= *Trachydosaurus rugosus*), a large, mainly herbivorous skink. Individuals have overlapping home ranges. Four experiments were conducted at Tickera, South Australia, in different seasons over four years. Individuals were located daily on two plots over 20 days to estimate short term home ranges and mean daily distances between locations. In the second half of each experiment, abundant food was added to one of the plots while the other was left as a control. Home ranges were significantly influenced by season, being larger in the spring than in the summer or autumn. There was no difference between the sexes. The change in home range size between the first and second halves of the experiments was no different on the experimental plots where food was added than on the controls. Food levels did not appear to influence home range size during the experiments.

### A NEW FOSSIL VARANOID

M. Norell et al. [1992, *American Museum Novitates* 3045: 1-24] describe *Estesia mongoliensis*, a new lizard from the Late Cretaceous Barun Goyot Formation which was collected during the 1990 joint Mongolian American paleontological expedition to the Gobi Desert, Mongolia. The new species is referable to a clade containing the extant genera *Lanthanotus*, *Heloderma* and *Varanus*, as well as several poorly known extinct taxa including *Cherminotus* and *Saniwa*. Although the phylogenetic relationships among these taxa are uncertain, preliminary analysis suggests that the new taxon is the sister group to *Lanthanotus* and *Varanus*. Further, it displays the unusual feature of longitudinal grooves on the teeth, identical to the grooves used for venom conduction in *Heloderma*.

### HABITAT USE BY THE MASSASAUGA

P. J. Weatherhead and K. A. Prior [1992, *J. Herpetology* 26(4):447-452] used radiotelemetry to monitor 12 eastern massasauga rattlesnakes, *Sistrurus c. catenatus*, within Bruce Peninsula National Park (Ontario) for 419 days. The snakes exhibited nonrandom use of habitat, strongly associating with wetlands and coniferous forest, and avoiding open areas (roads, trails), open water, and mixed forest. Hibernation sites also occurred in wetland and coniferous forest habitat. By contrast, snakes were disproportionately captured in open areas, presumably because they are much more easily detected there. Daily movements by transmitter-equipped snakes were frequent (60% of the time), averaging 56 m per episode (N = 11). Activity ranges averaged 0.25 km<sup>2</sup> (N = 11), with females covering significantly smaller areas than males. Based on habitat use and movement data, the authors make preliminary management recommendations.

## GOPHER TORTOISES MAY BE WORSE OFF THAN THOUGHT

E. D. McCoy and H. R. Mushinsky [1992, *Herpetologica* 48(4):402-407] note that the numbers of gopher tortoises, *Gopherus polyphemus*, are declining throughout the southeastern United States because of loss of habitat. Widespread monitoring of population sizes for gopher tortoises is usually done indirectly, by examining the burrows that tortoises construct. Indirect monitoring requires use of a correlation factor to relate numbers of burrows to numbers of tortoises. The authors demonstrate that the standard correlation factor overestimates the numbers of tortoises in 22 of the 26 cases in their sample and that the relationship between numbers of burrows and number of tortoises differs among types of habitats. Using both published data and data from their own studies, they suggest that an accurate assessment of active burrows is a reliable way to relate numbers of burrows to numbers of tortoises.

## MARKING SOFTSHELL TURTLES

S. A. Johnson et al. [1991, *Proc. Indiana Academy of Sci.* 100:151-153] propose a method for marking softshell turtles that offers significant advantages over the previous method of notching the carapace. Self-locking nylon ties are used as tags and are marked in a binary code. The tags are easily attached through a small hole drilled in the posterior margin of the carapace of both hard shelled and soft shelled species. Reading tags from a template at the time of attachment or recapture is fast and accurate. Basking turtles can be surveyed from a distance for tags using binoculars or a spotting scope. Tag loss among hard shelled species is rare within the first field season but frequent within one year. Tag loss was not observed in softshell turtles during three field seasons.

## UNDERGROUND PREDATORS OF PINE SNAKES

J. Burger et al. [1992, *J. Herpetology* 26(3):259-263] examined subterranean predation rates on the pine snake, *Pituophis melanoleucus*, in the New Jersey Pine Barrens. The authors examined 40 hibernacula containing 412 snakes. Snakes were killed by red fox, striped skunk, and short-tailed shrews. Two hundred one snake nests were examined; 42 were dug up by foxes, 7 were dug up by skunks, and in one nest a scarlet snake was eating an egg. Over three years humans illegally removed the eggs in 23 of 80 pine snake nests. The inactivity and aggregations of snakes during the winter make them more susceptible to predation.

## A NEW CUBAN SNAKE

S. B. Hedges and O. H. Garrido [1992, *Copeia* (3):820-825] describe *Tropidophis fuscus* from native pine forest in eastern Cuba. It is a very dark brown species with a gracile habitus, suggesting it may be arboreal. The holotype is a female that contains four or five well developed young. In some aspects of scalation and coloration it resembles species in the *maculatus* group, whereas in habitus it resembles members of the *semicinctus* group. The genus *Tropidophis* currently holds 15 species of small, boidlike snakes, ten of which occur on Cuba.

## WHERE IS THE GOLDEN TOAD?

M. L. Crump et al. [1992, *Copeia* (2):413-420] studied *Bufo periglenes*, the golden toad, an endangered species endemic to Costa Rica. Every year from the early 1970s through 1987 golden toads have been observed emerging from retreats to breed during April-June. The most recent known breeding episode occurred during April-May 1987; more than 1500 adults were observed at five breeding pools, but a maximum of 29 tadpoles metamorphosed from these sites. During April-May 1988-1990, the authors found only 11 toads during surveys of the breeding habitat. To examine the species' apparent decline, they analyzed data on rainfall, water temperature and pH of the breeding pools. The authors' baseline data on weather patterns and characteristics of the breeding habitat suggest that warmer water temperatures and less advective precipitation during dry seasons post-1987 may have produced adverse breeding conditions. The toads may be alive and hiding in retreats awaiting appropriate weather conditions. The apparent scarcity of toads may reflect a normal population response to an unpredictable environment. On the other hand, because other anurans with different breeding specializations also seem to be declining in the area, it could be that warmer temperatures and dry conditions are responsible for real population declines. Because the habitat is protected and pristine, potential causes of anuran declines such as habitat destruction, introduced predators and collecting seem unlikely. Measurements of pH of the breeding pools, cloud water and precipitation do not suggest acid rain effects, although the possibility of environmental degradation some time prior to the measurements cannot be ruled out. Long-term monitoring programs combined with carefully controlled field experiments are needed to address factors responsible for declining amphibians.

## TWO NEW CUBAN GECKOS

R. Thomas et al. [1992, *Herpetologica* 48(3):358-367] describe *Sphaerodactylus schwartzi* and *S. cricoderus* from eastern Cuba. *S. schwartzi* is a dwarf species; adults are 18-20 mm SVL, and it is the smallest known Cuban species. It is known from xeric woodland and occurs in leaf litter, rotten wood and fallen bromeliads. *S. cricoderus* is a moderate-sized species; two adults are 25 mm SVL. It is known from the foothills and southern slopes of the central part of the Sierra Maestra range. This species was captured in the leaf litter of mesic woods, including coffee groves, in a region with karst topography.

## FROGS ON ST. BARTHS INTRODUCED BY HUMANS

H. Kaiser [1992, *J. Herpetology* 26(3):264-273] finds three topographically isolated populations of whistling frogs on the island of St. Barthélemy in the French Antilles. They are the first amphibians reported from the island and all three populations are members of the highly variable species, *Eleutherodactylus martinicensis*. Morphology, protein structure and calls suggest these populations are most similar to populations on Guadeloupe, a geographically distant, but commercially close, island. Thus, these frogs appear to have been introduced to the island by trade-mediated human introductions.

## Unofficial Minutes of the CHS Board Meeting, March 12, 1993

The meeting, held at the home of Mike Dloogatch, was called to order by President Ron Humbert at 8:04 P.M. Board members Chuck Keating, John Murphy and Claus Sutor were absent.

### Officers' Reports:

The minutes of the February board meeting were read and approved as corrected.

**Treasury:** The treasurer's report was approved as read by Gary Fogel. The combined balance was \$21,842.49 as of February 28, 1993.

**Membership:** Steve Spitzer reported membership to stand at 1997 as of March 5, 1993. Dr. H. A. Lederer, an honorary member, has retired and moved; anyone knowing his whereabouts, please contact Steve.

### Director of Sales' Report:

Joan Moore reported an increase in sales. She thanked Brian Jones and Gary Fogel for their assistance in shipping orders. Volunteers are always welcome and appreciated; contact Joan.

### Standing Committee Reports:

**Programs:** 124 people attended the February general meeting.

**Grants in Herpetology:** Tom Anton stated that 25-27 grant applications were received; recipients will be chosen in April and announced in the *May Bulletin*. Tom asked the Board to consider a continuance of the grants at the current level.

**Shows:** Jack Schoenfelder presented a 1993 show schedule: April 18—Stacy Miller is looking for members to display native Illinois herps at Volo Bog's EcoFest; contact Stacy at (815) 344-1294.

April 24—Porter County Conservation Club Earth Day needs speaker(s) and a display of native animals; contact Jack.

May 7—CHS will be represented at FMNH Member's Night, Friday, May 7, from 5 to 10 P.M., live animals are welcome; contact Jack.

May 21—Willow Bend School show still needs volunteers; contact Ron.

September 18 & 19—HerPETological Weekend at the Chicago Academy of Sciences has been changed to this date.

The potential involvement of the CHS in local and state fairs was discussed. Jack asked to be kept informed in writing of any shows done on behalf of the CHS. Insurance for shows expired March 1, 1993; new policy will cost \$133 per show day with a minimum of \$500 annually through our current agent, Leonard Franks Assoc. Jack Schoenfelder moved that the CHS buy insurance for five show days at a cost of \$665. Stacy Miller seconded and the motion passed unanimously.

**Raffle:** The February raffle yielded \$139.50 gross. Donations of items are always welcome.

**Adoption:** Ben Entwisle reported activity to be brisk. He will present a formal report at the April Board meeting.

**Library:** Lisa Koester reported that the CHS library contains

217 volumes representing 197 titles. A personal computer based catalog system is being developed. Lisa will propose new titles for acquisition. Donations are always welcome.

### Ad Hoc Committee Reports:

**Facility:** Storage space within the Field Museum will soon be available for CHS merchandise.

### Old Business:

**Proposed election amendment to CHS Bylaws:** After discussion, Mike Dloogatch agreed to revise his proposed amendment, which had been presented at the February Board meeting. He will present the revised version at the April Board meeting. If approved, it will go to the membership for a vote.

**Books due to FMNH:** Delivery has been arranged.

**Field Trips:** The April 3 St. Louis Zoo Trip has 27 people registered; 17 more participants are needed.

**Amphibian populations monitoring:** Mike Redmer has been appointed to head up an Amphibian Populations Monitoring project.

**Salamander Outing:** Jack Schoenfelder moved to allocate \$35 for refreshments for the Salamander Outing. Brian Jones seconded and the motion passed unanimously.

**Care in Captivity:** Stacy requested that all input for Care in Captivity be submitted in writing by March 31.

**Stationery:** Brian will have new letterhead made up. It will not contain the fax number.

**Insurance of Merchandise:** Ron is working on quotes.

**Membership Categories and Fund-Raising:** Discussion was tabled. Jim Gaspar will obtain figures of membership costs.

### New Business:

**Aruba Island rattlesnake funds request:** A letter requesting funding assistance has been forwarded to the grants committee.

**Charles Darwin Foundation funds request:** Jack Schoenfelder moved to allocate \$100 to the Charles Darwin Foundation. Brian Jones seconded and the motion passed with Stacy Miller abstaining.

### Round Table:

Lisa Koester asked Chicago resident CHS members to show support of the Chicago Public Library System, perhaps with a show at their local branch.

**Membership Renewal Forms:** Stacy will work with Steve on making stand-by membership renewal forms.

**Next Board Meeting:** Friday, April 16, 8:00 P.M. at the Field Museum.

The meeting adjourned at 10:20 P.M.

*Respectfully submitted, Stacy L. Miller, Recording Secretary*

## Advertisements

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For sale: **HIGH QUALITY FEEDER ANIMALS PRODUCED FROM THE BEST LAB DIETS AVAILABLE**. Tenth year of production and supply of frozen feeder animals. All feeders can be removed one at a time from the bag; they are not frozen together. All orders **will arrive frozen**. Now offering *seven* sizes of mice: small newborn pinks, medium size pinks, large fuzzy pinks, extra large fuzzies/small hoppers, juvenile mice, young adults, and large adults. Also available are pinkie rats, baby chicks, and quail chicks. Orders sent special delivery, postage extra. **Free pricelist**. Kelly Haller, 4236 SE 25th Street, Topeka KS 66605, (913) 234-3358, after 6 P.M. Central Time on weekdays, all day Saturday and Sunday.

For sale: **THE GOURMET RODENT**: rats and mice—pinkies, fuzzies and adults. Quantity discounts. Please send a SASE for pricelist or call Bill Brant, 6115 SW 137th Avenue, Archer FL 32618, (904) 495-9024.

For sale: top quality mice, rats and Chinese dwarf hamsters. All sizes at competitive prices. Gary W. Allison, 919 Wyandotte Street, Bethlehem PA 18015, (215) 974-8975.

For sale: murine-pathogen-free rats and mice available in all sizes, live or frozen: pinkies, fuzzies, crawlers, small, medium and large. Frozen crawler mice in lots of 2000, \$.17 each. Also available, full grown hairless mice. FOB shipping point. Master Card accepted. Call (518) 537-2000 between 8:00 A.M. and 5:00 P.M. or write SAS Corporation, 273 Hover Avenue, Germantown NY 12526 for prices and additional information.

For sale: **THE RAT SHACK**: all colors, sizes & quantities of domestic rats. Call Keith or Shannon Allen in Alabama, (205) 536-3081, evenings.

For sale: **MISSISSIPPI MICE**: frozen mice, fuzzies, pinkies—quantity discounts. Rob Screws, 130 Calhoun Ave., Yazoo City MS 39194, (601) 746-8336.

For sale: high quality feeder mice. Shipped UPS Next Day Air. All mice are properly processed to insure a quality product. Fourth year of production and supply of frozen feeder mice. Prices: pinks, \$20/100; fuzzies, \$25/100; weanlings, \$30/100. Also available are 4 oz. + rats, \$100/100. The Mouse Factory, P.O. Box 85, Alpine TX 79831, (915) 837-7100, Ray Queen.

For sale: quality frozen mice, pinks through adults. Libby & Darrin Reed, Carolina Mouse Farm, P.O. Box 382, Salem SC 29676, (803) 654-0116.

For sale: top quality live mice for pickup or delivery in Chicagoland area only. Pinkies to adults, \$.50 each. Call (708) 867-1078, ask for Garry or leave a message.

For sale: live mice, Dallas-Ft. Worth Metroplex. Adults, hoppers, fuzzies & pinkies. J.R.'s Cowtown Critters, (817) 465-4188 or (817) 465-2026, Arlington TX.

For sale: live or frozen feeder mice and rats, all sizes available, from pinkies to adults. Quantity discounts. Lowe Labs, (708) 749-RATS.

For sale: We've grown and we've got a name! **SERPENT CITY, INC.** Celebrating 25 years of snake husbandry, c.b. snakes, supplies and expert husbandry advice. **Minimum 30-day guarantee** on all surplus. Introducing our new **disposable cage liners!** See our display ad this issue. Finally an affordable, functional, ready-to-use disposable liner. Herpetoculture has been asking for them—we believe there's nothing else like it on the market. Call to discuss custom cutting and bulk discounting. **FLEX-WATT® HEAT TAPE**—again an excellent product—3" wide: 1-20', \$2.50/foot; 21-49', \$2.25/foot; 50'+, \$2.00/foot—11" wide: 1-10', \$3.50/foot; 11-49', \$3.25/foot; 50'+, \$3.00/foot—clip sets: 1-20, \$2.00 each; 21+, \$1.50 each. Assembled units available. **Frozen rodents** always available. Mice: pinks—weanlings, 3/\$1; subadult, 40¢; adults, 50¢. Rats: small, 60-80¢; medium, \$1-1.50; large, \$2; jumbo, \$3. Call on quantity discounts [note: discount on orders picked up at CHS meetings]. Live rodents available at a higher price. Send SASE for 1993 stock and supply list. Scott J. Michaels, D.V.M., P.O. Box 657, Island Lake IL 60042, (815) 363-0290.

For sale: Mealworms: 50 ct. units, 55¢ each; 100 ct. units, \$1.00 each. Superworms: 25 ct. units, \$1.55 each; 50 ct. units, \$2.75 each. Crickets: 500 for \$9; 1000 for \$15.50. Cricket/superworm feed: 2½ lbs for \$1. Send SASE for price list and shipping chart. Cheri Hosley, 23872 Brownstown Square, #1A-101, Brownstown MI 48174.

For sale: Flexwatt Heat Tape—3", \$2.25/ft; 11", \$3.75/ft; clip sets \$1.50. Wholesale and bulk prices available. Write or call for a complete catalog of dry goods, books, shoe boxes, Vita-lites, blacklights, red incandescent bulbs, feeding tubes, probes, heat packs. The Bean Farm, 32514 NE 77th, Carnation WA 98014-6701, (206) 861-7964 voice, (206) 333-4205 fax.

For sale: large selection of captive born reptiles and amphibians, books and supplies. Send S.A.S. business-size envelope for complimentary price list or \$5 for a 1 year subscription (bi-monthly), to Twin Cities Reptiles, 540 Winnetka Avenue North, Golden Valley MN 55427, (612) 593-0298.

For sale: books. *Reptiles of the World* (Schmidt and Inger), \$75; *Reptiles and Amphibians of Western North America* (Stebbins), \$60; *Reptiles and Amphibians of North America* (Leviton), \$35; *Reptiles and Amphibians* (Thomas Barbour, 1926) \$35; *The Giant Snakes* (Pope), \$25; *Giant Reptiles* (Minton), \$27.50; *High Jungle* (Beebe), \$24.50; *Snakes of the World* (Ditmars), \$12.50; *Field Book of Snakes* (Schmidt and Davis), \$17.50. All books in good to mint condition. Postage extra. Jim McDougal, (516) 676-6792. [NY]

For sale: books on reptiles and amphibians, used, out of print and rare. Over 3400 titles listed. List sent free upon request. Herpetological Search Service & Exchange, 117 E. Santa Barbara Road, Lindenhurst NY 11757.

For sale: 1993 HERPETOLOGICAL DIRECTORY. A valuable information source containing private and commercial breeders, foreign exporters, U.S. and foreign herp societies, wholesalers, and sources for rodents & other food items, supplies & equipment and publications. Send \$15 to FAUNA, 2379 Maggio Circle Unit C, Lodi CA 95240.

For sale: *Rattlesnake Hunting*, a 60-minute video by a 30-year veteran collector. Don't miss this one! It's as close to being in the field as you can get. (Not a slick commercial production.) Send check or money order for \$19.95 plus \$3 postage & handling to: D. Wheeler, 2705 Sunset Trail, Riverwoods IL 60015. Allow 4-6 weeks for delivery.

## Advertisements (cont'd)

For sale: Tired of getting bitten while collecting, feeding or maneuvering animals? Try my Whitney tongs -- 10% discount to herp society members -- 2', \$65 each; 2½', \$66 each; 3', \$67 each; 3½', \$68 each; 4', \$69 each; 5', \$85 each; 6', \$90 each. Will ship U.P.S. extra. Send money order or cashier's check to Don Lunsford, 5661 Walkerton Drive, Cincinnati OH 45238.

For sale: 6' female water monitor, *Varanus salvador*, healthy, long-term captive. Mike Wood, 1025 Shady Lane, Warsaw IN 46580, (219) 269-7664.

For sale: green basilisks, *Basiliscus plumifrons*, c.b. 3 mos. old, approx. 10", \$80 each; bearded dragons, *Pogona vitticeps*, started hatchlings, \$75 each; beautiful 17" male Solomon Islands iridescent skink, *Eugongylus albofasciatus*, chocolate brown with gold spots, rare species, long-term captive, \$200. Peter and Phyllis Weis, Rt. 4, Box 468, Tallahassee FL 32304, (904) 574-1037.

For sale: c.b. '92 geckos: giant day geckos, *Phelsuma madagascariensis grandis*, \$35; gold dust day geckos, *P. laticauda*, \$30; lined day geckos, *P. lineata*, \$25. Chicago pick-up only. Jim, (312) 583-1931, leave message.

For sale: rhinoceros iguanas; Cuban iguanas; green iguanas; *Geochelone sulcata*; *G. elephantopus* (Florida sales only). D. J. or Sam, (305) 680-8492. [FL]

For sale: hatchlings—two male and one female red rat snakes, \$15 each; three male and two female red rat snakes, \$20 each; two male and one female banded California kingsnakes, chocolate and yellow, \$25 each; one male and one female Pueblan milksnakes, lots of black, \$40 each; one male and one female albino Sonoran gopher snakes, \$60 each; two male and one female Honduran milksnakes, \$100 each. Also, 2' male Sonoran gopher snake, \$25; 3' female grey rat snake, \$50; 2' female mole kingsnake, \$50; 3½' male eastern kingsnake, \$40; 5' male Florida kingsnake, \$40. Bernie Kean, (312) 777-8241 after 4:30 P.M. please.

For sale: c.b. picks—snakes. '91s—one male and one female tangerine Honduran milksnakes, \$275/pair; one male Pueblan milksnake, \$125; one male and one female snow corns, \$150/pair; one male and one female heterozygous corns, \$100/pair. '92s—one male and one female heterozygous speckled kingsnakes, \$60/pair; one male and one female albino speckled kingsnakes, \$120/pair; two male and two female Pueblan milksnakes, \$200/pair; two female tangerine Honduran milksnakes, \$125 each; one male and one female albino prairie kingsnakes, \$150/pair; one male and one female desert, wideband kingsnakes, \$120/pair. All animals are well established, feeding live/dead. Precise records on all. Bill, (714) 366-0208. [CA]

For sale: due in May. Burmese pythons, \$85; leucistic Texas rat snakes, \$125, heteros, \$60. Also, supplies: plastic shoe boxes, Vita-lites, crock bowls, water bottles, aspen bedding, lab blocks, wafer thermostats, etc. Let me know your needs! Coming in '94: eastern milksnakes, boa constrictors, ball pythons, Burmese python mutants—albinos het. green, greens het. albino and albino greens! Keith, Land Snakes, (313) 728-5619. [MI]

For sale: one male and one female desert rosy boas, *Lichanura trivirgata gracia*, c.b. '89, proven breeders, \$450/pair; three desert rosy boas, c.b. '92, \$125 each; one male and two female Mexican rosy boas, *L. t. trivirgata*, male unrelated, c.b. '91, \$150 each; male coastal rosy boa, *L. t. roseofusca*, c.b. '91, \$100; one male and one female Texas *bairdi*, c.b. '91, \$150/pair; one male and one female Mexican *bairdi*, c.b. '91 & '92, \$150/pair; one male and one female blood red corns, c.b. '91, \$225/pair; two female Guyanan redtails (long-term captives), \$275 each; male Surinam redtail (long-term captive), \$300. Tim or Janice, (903) 454-1312. [TX]

For sale: male Mexican rosy boa, *Lichanura t. trivirgata*, "delicate feeder," approx. 26", 14 yrs. old, \$125; two Sinaloan milks, c.b. '92, severely deformed, suitable for pets, education, maybe even breeding, \$15 each or both for \$25. Still available—'92 c.b. Baird's rats, \$45 each—ask for quantity discount. Henry Cohen, 24 St. Johns Place, Buffalo NY 14201, (716) 881-6724 or (716) 684-2472.

For sale: two male and seven female Colombian boas, have bred, 4-6', \$175, 7-9', \$225, or \$1200 takes all. Will consider trades for Children's pythons. Also, adult male Colombian rainbow boa, \$200. All snakes are c.b. and raised by us. Also, two custom 6' x 3' x 3' cages, ¾" wood, ¼" glass, with mar-lite interior, \$250 each. Renae and John Kleinedler, 1013 Marshall Street, McMechen WV 26040, (304) 232-0147.

For sale: one male and one female Malaysian blood pythons, c.b. '90. Female is gold, approx. 6'-35 lbs., and extremely tame. Male is red, approx. 5' and tame. Animals are completely unrelated, flawless, superfeeders. \$1800/pair. All trades and partial trades considered, especially for *Chondropython*, baby *intermedia* or any other baby boas and pythons. Gary Schiavino, (908) 225-4268 evenings or (212) 210-7706 days. [NJ]

For sale: one male and two female Macklot's pythons, c.b. '92, \$200 each; two male and one female Venezuelan red-tail boas, c.b. '92, \$350 each; two female common Colombian x red-tail boas, c.b. '91, \$250 each; 8' male yellow/green amethystine python, tame, \$250; female Costa Rican milksnake (*stuarti*), c.b. '92, \$300; two female albino northern pine snakes, c.b. '92, \$140 each; two male Louisiana pine snakes, c.b. '92, \$450 each; two female desert kingsnakes (exceptional *splendida*), c.b. '92, \$50 each; three male Pueblan milksnakes, c.b. '92, \$75 each; female Pueblan milksnake (exceptional), c.b. '92, \$125. If you have changed your address within the last year and would like to remain on my mailing list, or if you are a new customer, please contact Terry L. Vandeventer, 1016 Andover Street, Clinton MS 39056, (601) 924-1409.

For sale: **BRAZILIAN RAINBOW BOAS**, 1993 babies from iridescent "Lamar strain" orange adults, \$225 each; **PUEBLAN MILKSNAKES**, breeding colony hand picked from many breeders around the country; excellent banding, brilliant colors and selectively bred. Grades A, B & C (\$95, \$75 & \$55). 20% deposit assures best selection. Send SASE for 1993 price list. Scott P. Schuett, 1820 Bigelow St., Toledo OH 43613, (419) 473-0518.

For sale: Argentine boas, *Boa constrictor occidentalis*, born 6/23/92, from unrelated parents, \$1500/pair. Bill Brant, (904) 495-9024. [FL]

Wanted: Did anyone make a videotape of a two-headed snake that appeared on TV recently? I would like to make a duplicate. William D. Joy, (214) 369-2625. [TX]

Wanted: to buy used macro lens with a screw-on mount, compatible for use with a Yashica 35mm camera body. Chicagoland area replies. Gary Fogel, (312) 935-6938.

Wanted: aberrant garter snakes, any species. Scott Felzer, 19376 Merriman Road, Livonia MI 48152, (313) 442-2216.

Wanted: male Surinam redtail boa, prefer 1½ years or older; male Cal. king, b&w striped phase, prefer 1 year or older. Jim, (714) 870-5795. [CA]

Wanted: one male and one female *Varanus prasinus*, at least 2' long. Victor Silmon, (312) 928-3901.

Wanted: adult or subadult: female pallid milksnake, *Lampropeltis triangulum multistrata*, female cape gopher snake, *Pituophis melanoleucus vertebralis*, male northern cat-eye, *Leptodeira s. septentrionalis*. Henry Cohen, 24 St. Johns Place, Buffalo NY 14201, (716) 881-6724 or (716) 684-2472.

Wanted: looking for Texas sliders, Texas maps and Cagle's maps. R. Bugeya, 192 A Mountain Drive, Peekskill NY 10566, (914) 739-5067.

Wanted: the CHS Book Service is always in need of styrofoam "peanuts" for packaging shipments. Don't discard them; recycle by bringing them to Joan Moore at any monthly meeting.

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, (312) 588-0728.

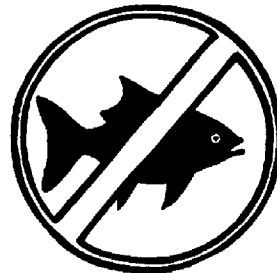
## News and Announcements

### MID-ATLANTIC REPTILE SHOW

The Maryland Herpetological Society will sponsor the Mid-Atlantic Reptile Show, 25-26 September 1993, at Marriott's Hunt Valley Inn off of I-83 just north of Baltimore, Maryland. For sale at the show will be captive born reptiles (only), accessories and books. This is a not-for-profit venture; proceeds will be given to the Eco-System Survival Plan for the purchase of rainforest in Costa Rica. Saturday evening's keynote speaker will be Dr. Roger Conant. Also speaking will be Jack Cover, Wayne Hill, Alan Zulich and others to be announced. For information and vendor reservations contact the Maryland Herp Society, 2643 N. Charles Street, Baltimore MD 21218; telephone (410) 235-6116 Wednesdays 9-5 only *or* show coordinator Tim Hoen, (410) 557-6879 anytime.

### NEW HERPETOLOGICAL PUBLICATION

The International Herpetological Symposium, Inc., intends to begin publication of *Herpetological Natural History*, a peer-reviewed journal devoted to all aspects of natural history of amphibians and reptiles. The editorial staff seeks original manuscripts that provide new theoretical and/or empirical insights within the broad topics of behavior, ecology, evolution, and life history. Both field and laboratory studies, as well as review papers will be considered. Papers will be published as either feature articles or notes. A book review section will appear in forthcoming issues. *Herpetological Natural History* will be published semiannually. Authors should expect accepted papers to be published within 6 to 12 months. Manuscripts and requests for information should be directed to: Gordon W. Schuett, General Editor, Herpetological Natural History, Department of Zoology and Physiology, University of Wyoming, Laramie WY 82071, USA. Subscriptions are \$20 per year. International surface postage is included; air mail quotes provided upon request. Make checks payable to: International Herpetological Symposium, Inc., and direct them to: David Hulmes, Treasurer, IHS, Inc., 361 Van Winkle Avenue, Hawthorne NJ 07506, USA.



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## UPCOMING MEETINGS

The next meeting of the Chicago Herpetological Society will be held at 7:30 P.M., Wednesday, April 28, at the **Field Museum of Natural History**, Roosevelt Road at Lake Shore Drive, in Chicago. Merel Cox, author of *Snakes of Thailand and Their Husbandry*, will present a program on the same topic as his book. Mr. Cox has many interesting anecdotes and slides dealing with southeast Asian snakes. If you are interested in snakes, you won't want to miss this meeting.

Dr. Harold Heatwole of the University of North Carolina's Zoology Department will present a program entitled "Diving with Sea Snakes" at the May 1993 meeting.

We are required to use the entrance on the west side of the museum. The main entrances at the north and south ends of the building will not be open. We have permission to use the staff parking lot to the west of the museum. Entrance to this lot is from McFetridge Drive, the wide street just to the south which lies between the museum and Soldier Field. There is also ample free parking available in the lot to the north of the museum.

Those of you who use public transportation can take the #146 bus directly to the museum. Unfortunately, this bus does not operate after 9:00 P.M. However, after the program anyone needing a ride to a bus or rapid transit stop will have no trouble finding one—just ask any board member.

## Turtle Club

The Chicago Turtle Club will meet Sunday, April 25, 1:00–3:30 P.M., at the Emmerson Park Fieldhouse, 1820 W. Granville Avenue, Chicago.

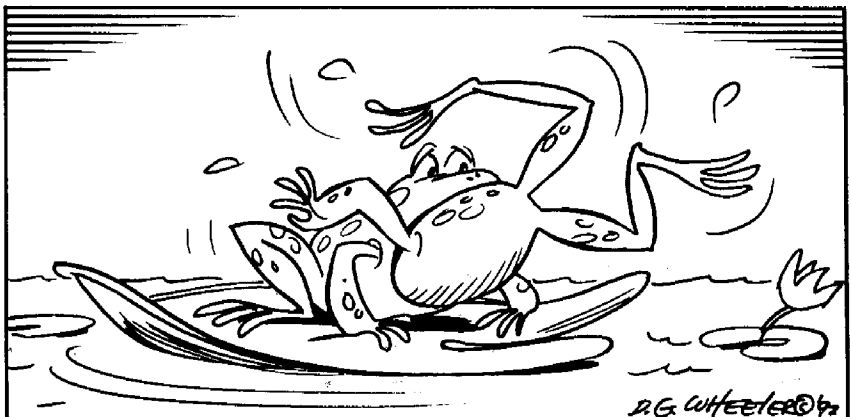
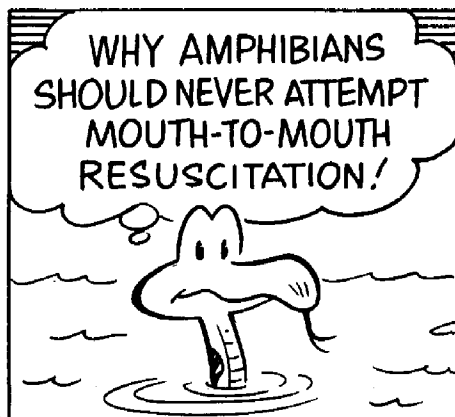
## FIRST ANNUAL TURTLE CONSERVATION POSTER CONTEST

The New York Turtle and Tortoise Society has announced its First Annual Turtle Poster Contest for children of all ages. Of the more than 250 species of turtles in the world, almost 100 are in trouble. The contest was formed to help educate children and spread the word about the plight of turtles. Since there already exists some awareness of the danger to sea turtles, contestants are asked to focus their attention on freshwater and land turtles. Posters may be no larger than 24" x 36". All mediums, including paint, magic markers, and colored pencils are acceptable. **NO NINJA TURTLES ALLOWED.** There are three different entry levels: kindergarten to 3rd grade; 4th to 8th grade; 9th to 12th grade and other. Entries will be judged by a panel of conservationists, artists and teachers using the following criteria: content, originality and artistic merit. Prizes include: Turtle Society t-shirts, books and a one-year membership to the New York Turtle and Tortoise Society. Winning posters will be exhibited at the 22nd Annual Turtle and Tortoise Show in New York City on 6 June 1993. Entries must be postmarked by 15 May 1993. Send entries to Ms. Lorri Cramer, 750 Columbus Avenue, Apt. 4W, New York, NY 10025. If you have any questions on appropriate subject matter and rules, call Ms. Cramer at (212) 663-2415. All posters become the property of the New York Turtle and Tortoise Society. Free educational packets are available for nonprofit organizations and school groups that participate in the contest.

## REPTILE BREEDERS' EXPO

This year's Reptile Breeders' Expo will be held 13-15 August at the Twin Towers Hotel and Convention Center, Orlando, Florida. For details call the Central Florida Herpetological Society, (813) 294-2235.

## THE ADVENTURES OF SPOT



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