

KANSAS HERPETOLOGICAL SOCIETY NEWSLETTER NO. 82

November 1990

ANNOUNCEMENTS

US FISH AND WILDLIFE SERVICE SEEKS YOUR ASSISTANCE

Stephen Busack, U.S. Fish and Wildlife Service Forensic Laboratory, requests assistance in acquiring materials (preserved specimens, frozen carcasses, raw or tanned hides, etc.) from the following taxa: crocodylians (all), sea turtles (all), boid snakes (all), and the following lizards — monitors (genus *Varanus*), tegus (genus *Tupinambis*), and iguanids (all?). These specimens will be used to help law enforcement agents with accurate and court-defensible species-level identifications of such products. Virtually all cases of illegal animal importations and transactions depend heavily on these identifications.

Anyone wishing to assist Dr. Busack in this endeavor should write: S. D. Busack, 1490 E. Main Street, Ashland, Oregon, 97250. U.S.F.W.S. will pay shipping and can assist in determining a fair market value for donations which will be deductible from your federal taxes (what a way to make use of all those old, "worthless" specimens that have been gathering dust in your various closets, garages, basements, etc. for years!).

CALL FOR PAPERS

The Northern California Herpetological Society has issued a call for papers for its fifth annual Conference on Captive Propagation and Husbandry 16-18 February 1990 at the University of California, Davis. Paper lengths should be 20-45 minutes. Submit papers to: Conference Program Committee, Northern California Herpetological Society, P.O. Box 1363, Davis, Calif., 95617-1363. For additional information about the conference contact Rick Staub at (707)553-9739 or Gerold Merker (916)644-6253.

1991 INTERNATIONAL HERPETOLOGICAL SYMPOSIUM

The 1991 International Herpetological Symposium will be held 20-23 June in Seattle, Washington. Featured speakers include Gary Larson (creator of THE FAR SIDE, favorite cartoon of herpetologists), Peter Pritchard, Bob Drewes, John Behler, and many others. Slots still remain open for speakers. Those interested in submitting titles/abstracts for consideration should contact Richard Ross M. D., Institute for Herpetological Research, P.O. Box 2227, Stanford, California, 94305 or call him at (415)941-4596. As it appears that the number of registrants may have to be

limited, those planning to attend should contact Dr. Michael Uricheck, Department of Chemistry, Western Connecticut State University, Danbury, Connecticut, 06810 for program information.

BOOKS OFFERED

Keith Neitman, 8404 South Course, #908, Houston, Texas, 77072 (713)498-8232 offers the following books for sale: **The Amphibians and Reptiles of Botswana** (1987) by R. D. Auerbach and **Reproductive Husbandry of Pythons and Boas** by Richard Ross. The Botswana piece is rare and is one of the only publications on herps in this little-known area of the world. Ross' book is an update of his highly useful Python Breeding Manual. Both books are available from Neitman for \$65. The list price for Ross' book will be \$75.

SSAR PUBLICATION DISCOUNT

Robert Aldridge, Publication Secretary for the Society for the Study of Amphibians and Reptiles announces a one-time discount offer for most of the society's publications. All Contributions to Herpetology, Facsimile Reprints in Herpetology, Herpetological Circulars, and back issues of the Journal of Herpetology and Herpetological Review will be discounted 25% for regional society members. In addition, SSAR's Catalogue of American Amphibians and Reptiles (excluding binders) will be discounted 50%.

The complete list of publications is included as an insert in this issue of the Newsletter. SSAR is requiring a single order with prepayment for these discounted works, so those interested in taking part in this offer should send me their choices along with a check or money order payable to "SSAR" before 1 February 1991. I will then place the combined order, which should take 6-8 weeks to deliver. I will notify all participants when their order has arrived and will mail your publications C.O.D.

This is a tremendous offer by SSAR and I urge all KHS members to take advantage. Many of these works (particularly the Facsimile Reprints) are classics and should be in the library of anyone with an interest in herpetology.

— EMR

KHS BUSINESS

1990 KHS ANNUAL MEETING AN OVERWHELMING SUCCESS

The 17th annual meeting of the Society, held at the Museum of Natural History in Lawrence, was witness to history. One hundred and five registrants (the most ever) gathered to hear an outstanding slate of speakers, the most outstanding of which was Dr. Hobart M. Smith, one of two Distinguished Life Members of the Society and truly one of the giants of herpetology. Dr. Smith delivered a unique and insightful talk on a variety of topics that had their genesis in his native Kansas. Dr. Smith also announced that this would be his last speech before any group or society. We are deeply honored and grateful that Dr. Smith chose to deliver his last lecture to the Kansas Herpetological Society. It was an historical moment for those in attendance.

Jan Perry Richardson, assistant curator of herpetology at the Audubon Park Zoo in New Orleans and the first KHS Editor, was this year's recipient of the 1990 Distinguished Service Award's Bronze Salamander. Jan's many years of service in this oft thankless position more than qualified her.

The Society auction (led, of course, by professional auctioneer and raconteur Joe Collins) also was of historical importance. Three 1/2 hours, 300 + items, and one keg of beer later, Society Treasurer Olin Karch announced that \$1,505 had been begged, borrowed, and persuaded but not quite stolen (although some steals were made by buyers) from those gathered. The amount generated by this auction exceeded the previous record by nearly \$800. With registration fees included, about \$1,690 was added to the Society's coffers at this meeting. The Executive Council offers a heartfelt thanks to all those who so generously contributed to this meeting's success, both monetarily and by gracing us with their presence. The 17th annual meeting of the KHS was without doubt the most successful and memorable in the Society's history.

— EMR

SURVEY FORM ENCLOSED

In this issue of the Newsletter, you will find an insert titled "Amphibian Population Survey" that was designed by George Pisani for use by regional society members. On 7 August of this year, a symposium on declining amphibian populations was held at the joint annual meeting of the Society for the Study of Amphibians and Reptiles and the Herpetologist's League at Tulane University in New Orleans. As many of you are aware, there has been considerable concern recently over what appears to be a trend for significant population declines in various amphibian taxa around the world. For example, it now appears that two of the world's most unique anurans, the Golden Toad (*Bufo*

periglenes) of Costa Rica and the Gastric-brooding Frog (*Rheobatrachus silus*) of Australia have disappeared in a matter of a few years time for no clearly evident reason. This symposium, composed of a variety of distinguished herpetologists around the world, including KHS members William Duellman and George Pisani, convened to examine these trends, determine whether in fact a problem exists, and steps to take to monitor, determine causes of, and control or reverse declines that exist now or may become evident in the future. The consensus of participants was that a serious problem *does* exist, that causes for these declines are multiple and largely unknown at this time, and at present not enough data are available to make concrete recommendations or determine courses of action. However, the group appeared to be highly motivated and certain steps were recommended on potential courses of action. Among these was a proposal to involve regional herpetological societies such as the KHS.

I urge all KHS members, no matter where you live in the state, to use this form (make as many copies as you wish) any time you are in the field and come across any kinds or numbers of amphibians. Although a central collecting and processing site has not been established as yet, I will accept and process completed forms until such time as such a site is created. Please include your complete address and phone number with your forms. Note that one of the variables asked for is pH. pH test strips or kits can be purchased from any quality pet shop (damn, I finally found a use for them) for a few dollars and the data is extremely important, so please try to make this test if possible.

This symposium was certainly the one most herpetologically important this year and could be one of the most important ever. A large number of professionals were as fired up as I have ever seen them. This is an opportunity to get involved for all of you who have ever wanted to "do real science" or make an active contribution to environmental issues. Most certainly, for anyone with any sort of interest in herpetology, this is a great opportunity to get involved. If anyone has additional questions or ideas, please contact me.

— EMR

THANKS TO CONTRIBUTORS

As this is the month of thanksgiving, your editor would like to put in a special word or two for several people who have made contributions to the Society and to the Newsletter.

As regards the former, the financial contributions of Edna and Delbert Bradley, Steve Cox of Cox Machine Company, and Bob Babst helped considerably in the acquisition of the Society's Macintosh SE computer. This little jewel has not only made production of the Newsletter faster and smoother; it has also allowed

considerable expansion of the Newsletter's content without increasing page numbers. In addition, we will now be able to maintain a database for the KHS Herp Counts, Amphibian Counts, and certain other projects the Executive Council is considering. As the Society did not receive an anticipated grant, these folks' donations made up the bulk of the shortfall and helped keep the Society well in the black.

Chief among those who assisted in the production of the Newsletter are Jeff (Stamp-licker) Whipple, Joe (MacJoe) Collins, and Marty (You Want *Another* Illustration?) Capron. Jeff has handled the unpleasant and time-consuming job of the actual physical production of the Newsletter superbly. Joe has served as chief Macintosh consultant for yours truly in his first year discovering the marvels of editing and desktop publishing. Marty has made his usual (and excellent) artistic talents available to enhance the Newsletter's appearance. You all have my thanks and you *will* be called back for continued duty. I couldn't (and wouldn't) have done it without you.

Finally, all those of you who contributed material for the Newsletter get my sincere gratitude. Although there are too many of you to list here, this Newsletter would not exist without you. You people make this Newsletter what it is and I am proud to serve as your keyboard wrangler. Keep those articles coming!

KHS BRINGS YOU GREAT NEWS OF THE WORLD

VANISHING AMPHIBIANS: WHY THEY ARE CROAKING

Scientists this week moved closer to figuring out why certain species of frogs, toads, and salamanders have taken a nose dive in recent years and why some have already sung their swan song. At a National Research Council conference in Irvine, California, researchers presented strong evidence linking acidic rain and snow - usually viewed as an eastern phenomenon - to salamander deaths in the western United States. Others argued that global climatic changes may play a role in the amphibian deaths now plaguing such diverse habitats as the open woodlands of southeastern Australia, the mountain country of Colorado, and the tropical forests of Costa Rica and Brasil. Behind the mysterious decline, which apparently began 10-20 years ago but only recently received unified attention, lies the possibility that the dying animals are an obvious indicator of human-made environmental problems. "There are some things about (amphibians) that make them a very good 'canary in the coal mine'," asserts zoologist Henry Wilbur of Duke University in Durham, North Carolina, referring to the traditional mining practice of detecting toxic gases through their deadly effect on canaries. Amphibian skin readily absorbs chemicals present in soil and water, he says, and the insects these animals eat may harbor other toxic compounds. Moreover, water evaporates quickly from

the porous skin, suggesting amphibians may be especially vulnerable to droughts. Wilbur adds that "frogs naturally have great fluctuations in populations size" — perhaps reflecting an inherent sensitivity to environmental changes. The key to explaining the scattered distribution of decline among various regions and species, he maintains, is that many amphibians, particularly frogs, need access to several interconnected habitats in order to survive, jumping from pond to pond or from tree to tree when the going gets tough. When alternative dwellings are destroyed, often by human activities, frogs may become sitting ducks for other environmental assaults.

Habitat isolation might help explain the demise of the Golden Toads that virtually carpeted a small rain forest reserve near Monte Verde, Costa Rica, as recently as 1983, says biologist Marc Hayes of the University of Miami. These creatures, he notes, have an unusual characteristic: they lay eggs only during a 10-day "window" between rainy and dry seasons. Recent fluctuations in that interval could have disrupted the Golden Toad's life cycle, Hayes suggests. Similarly, rapid melting of acidic snow in the Colorado Rockies can severely damage Tiger Salamander eggs during a critical five-day period in development, reports John Harte of the University of California - Berkeley.

Hayes and others say stocking lakes with game fish that prey on tadpoles has contributed substantially to the decline of frogs in many U.S. lakes. This, he suggests, might help explain why certain frogs species long accustomed to fish-free lakes are the hardest hit in the West.

"The interaction (causing the decline) may differ from region to region, but there is clearly a global problem of some sort — some kind of climatic effect", Hayes adds. Researchers point to several interrelated trends: a worldwide warming, increased atmospheric carbon dioxide and methane, and a slight increase in ultraviolet light due to thinning of atmospheric ozone. But they admit that no one really knows how such trends might affect amphibian survival, or whether several small factors added together can devastate an existing population.

For now, says biologist Harold J. Morowitz of George Mason University in Fairfax, Virginia, the decline may serve as an environmental rallying point for both scientists and public. "Who cares if 1000 arachnids become extinct in an Amazon rain forest? That's dynamite to a scientist", he says, "but the public can relate better to Kermit."

— Science News, Vol. 137
(submitted by Suzanne L. Collins, Lawrence)

WATERSHED DISTRICTS AND KDWP CLASH OVER SPECIES

Local supporters of watershed projects went head-to-head last week with the Kansas Department of Wildlife and Parks (KDWP) over the issue of protecting several endangered and threatened species in Kansas.

The clash came Tuesday, June 19, during a public meeting sponsored by the Marais des Cygnes and Neosho Basin Advisory Committees to discuss how the Kansas Threatened and Endangered Species Law (sic) affects small lake projects in Kansas.

On one side of the issue was KDWP, which is responsible for protecting the habitats of all threatened and endangered species in Kansas, including 18 such species in Bourbon County.

On the other side were the Marmaton and Mill Creek watershed districts in Bourbon County which construct dams and small lakes for flood prevention, water supply and soil conservation, frequently on land that is habitat for endangered species.

According to Bob Wood, acting supervisor of the Environmental Services Section of Wildlife and Parks, tearing out those habitats places a rare species in greater danger of extinction. Therefore, he said, Kansas law requires that a habitat destroyed in one place be replaced with new habitat somewhere else.

As a result of the law, said Paul Pavey, president of the Mill Creek Watershed District, the districts not only must gain access to land for the watershed lake, they must also acquire land to replace wildlife habitat destroyed by the lake.

"The habitat easement should not be a question as to whether the water supply or flood control structure can be built", Pavey said. "No agency of government, state or federal, should have the power to stop the citizens from protecting their lives and property from the natural elements and disasters."

Tom Swan, a wildlife biologist for KDWP in Mound City, said KDWP's approach to protecting the animals is to protect their habitats. "If there is a suitable habitat for an endangered or threatened species, that is significant in itself," he said.

According to Wood, the Department of Wildlife and Parks lists 18 threatened or endangered species "that are known to occur or are likely to occur in Bourbon County."

Among those animals, he said, are the bald eagle, which passes through Bourbon County but does not nest here, and the eskimo curlew, a type of shorebird that has not been seen in Kansas since 1902.

Both of those birds, Wood said, are on the federal endangered species list and, therefore, are automatically on the state endangered list. Other nationally endangered birds listed for Bourbon County, he said, are the least tern and the peregrine falcon.

"When a lake is built", said Wood, "it changes the uplands habitat to a water habitat, affecting (the animals') ability to survive or maintain a population in a given area."

Wood said the Kansas law requiring replacement of habitat has come in conflict with the Kansas Small Lakes Program several times, most recently in the construction of Bone Creek Lake in Crawford County.

Bone Creek Lake just received funding in the last legislative session, and Wood said the site of that lake had to be moved from its original location and size in order to prevent destruction of wildlife habitat.

Wood noted that Bone Creek Lake is not comparable with most watershed lakes in the way it is financed. Bone Creek, he said, is sponsored by a Wholesale Public Water Supply District, a corporation formed by several cities and rural water districts.

Watershed districts, however, are individual taxing units of government whose budgets are limited to the amount they can raise through a mill levy on agricultural land within their boundaries.

"Our number one problem with the Wildlife and Parks," Pavey said, "is their wanting to set aside land for these snakes," including the Northern Redbelly Snake and the Western Earth Snake.

In particular, Pavey said, the law requires the watershed districts to replace the habitat with more acres than were destroyed by building a lake.

But Wood said the two snakes in question are restricted to mature woodland habitats, which often take years to establish. The U. S. Soil Conservation Service, he said, devised a standard procedure years ago to calculate the number of acres that must be rebuilt to offset the acres destroyed by a project such as a watershed lake.

According to that formula, Wood said, a proposed 4 1/2-acre lake in the Mill Creek Watershed District would require the district to build about 6 1/2 acres of new habitat to mitigate the acres lost to the lake.

"We have a certain amount of sympathy for that," Wood said. "We all have to go through these budget processes. But our agency has a certain responsibility toward the wildlife resources of Kansas."

— Fort Scott Tribune, 26 June 1990
(submitted by Larry Zuckerman, Sun City)

AND THEY BOTH SPEAK WITH FORKED TONGUE

Do you think of lawyers as vipers who paralyze their prey? Or do you see them as boa constrictors, squeezing victims to death before gulping them down? Or maybe to you they're simply snakes in the grass. No matter. You can now express your feelings on the subject by calling up the Dallas Zoo, "adopting" a snake - and the naming it after your favorite (or least favorite) member of the bar.

The zoo has had its Adopt an Animal program for some time, with lots of interest in the monkeys, birds, pandas, and the always popular meerkat. But nobody wanted the snakes. Enter the aggressive Dallas law firm of Bickel & Brewer. Last week the firm announced it would underwrite the adoption of all the snakes in the reptile collection - and then offer the public the chance to readopt and rechristen them. "Snakes are unappreciated and misunderstood," says Bill Candee, a B&B lawyer. "We felt an affinity toward them."

Bickel & Brewer plans to get clients and Dallas residents to join efforts to raise \$60,000. That money will ultimately fund a conservation project to save the endangered New Zealand Tuatara, a lizardlike reptile that

has roamed since the dinosaur age but is now threatened by a growing rat population.

Comparisons to the animal kingdom are nothing new for lawyers. At the Los Angeles Zoo, a similar program has been around for several years, through contributors need not pick real-life names for their adoptees. A big draw? A king vulture who answers to "Senior Partner".

—Newsweek

(submitted by Nancy Bradley, Wichita)

DRIVING OUT THE DREAD SERPENT

Were it not for the Opp Jaycee's Rattlesnake Rodeo, which attracts some fifty thousand visitors a year, few Americans would have heard of Opp, Alabama — "The City of OPP-ortunity", population 17,000, deposited, as if by a passing buzzard, on the dry, sandy pinewoods of southern Alabama. "This is what put us on the map", declares Mike Carnley, president of the Opp Jaycees.

Publicity on Opp and its snake show reached me in far-off Yankeeland last winter. But it came from *Audubon* readers Nela and Jim Godwin, two young wildlife biologists from Snook, Texas, and it wasn't the kind of stuff Jaycees were handing out. The Godwins have some pretty aberrant notions about snakes — they love them, even (or especially) rattlesnakes. They seriously urge people who live near rattlesnakes not only to be nice to the serpents they catch — feed and water them for instance — but to desist from cutting off their heads when they finish using them to raise money for charity. The Godwins are *environmentalists*, a word much used these days in rattlesnake rodeo country and pronounced *enn-vie-meddlists*, with the accent on the *enn*.

So there I was on March 3, 1990, at Opp Jaycee headquarters, inspecting all the polyurethaned rattlesnake gewgaws and reading material hanging on the walls. There was the Jaycee Creed: "We believe . . . that Earth's great treasure lies in human personality." (The *enn-vie-meddlists*, of course, would argue that biodiversity is worth more.) And the glass-framed *Opp News* editorial about a four-year-old boy who had been killed by a rattlesnake and, therefore, had received the posthumous honor of having one entire Opp Rattlesnake Rodeo dedicated to him: "During the past few years the hunting of rattlesnakes in south Alabama has come under attack by a number of self-styled ecologists who cry long and loud that the poor rattlesnake is being persecuted . . . Frankly, these people make us sick to our stomachs . . ."

"So strong has their movement become that they have even been successful in introducing legislation in Alabama that would prohibit the hunting of rattlesnakes. Thanks to the clear thinking of our legislators, however, it was defeated — this time."

"The truth is that a rattlesnake is a very deadly, and often a very vicious reptile who will strike and kill anything that happens to irritate him at the moment. He knows nothing of peaceful coexistence nor is he

capable of learning." The piece was dated May 23, 1974.

Presently, Mike Carnley appeared for a quick, pre-rodeo interview. "We get so much flak from these *enn-vie-meddlists*," he lamented. "Most of the people who criticize us have no concept of what it's like to live in an area where rattlesnakes live. They have no concept of what it's like to get out of your car and walk to your front door and know you might get bit by a rattlesnake."

I never have been frightened by the rattlesnakes I live with, which cause significantly fewer injuries to humans throughout their range than do house cats. But my snakes are Timber Rattlers. Carnley's are Eastern Diamondbacks, just as shy and docile but much larger. What, I asked him, was the human death toll from snakebite in Alabama. "There was a little boy that got killed in 1974," he told me. "I've got a little four-year-old myself, and that's how old that boy was. People don't know what it's like to live in an area where your kid could walk up on a snake."

After the interview I wandered back outside and watched the Eastern Diamondbacks in their trailer. Their slanting, bony "eyebrows" made them look very deadly and vicious. Some were stacked on top of each other, and their feces were piling up on the green Astroturf. But there were lights for warmth and plenty of water. They seemed happy enough, if that's the right word for what rattlesnakes feel when they have more or less what they need. Even an environmentalist couldn't claim they were being treated inhumanely.

The six cages were encased in thick glass with a layer of heavy wire beyond that. But still the Jaycees weren't taking any chances. DANGER LIVE RATTLESNAKES warned the sign.

That's the thing about the Opp Jaycees. They stress safety. "We tell what to do if you encounter a rattlesnake," says Carnley. "And we do education — where he stays, what he eats, such as that. You won't see no freak show or daredevil stuff. No one ever got bit [unless you count one nip on the finger, which Carnley did not]. And we're the only rodeo that can claim that."

My conversations with the snake handlers of western rodeos (or "roundups", as they are more commonly called) seemed to confirm what Carnley was saying. Cotton Dillard of Brownwood, Texas, for example, has received twenty-five bites from Western Diamondbacks while on the roundup circuit, and he "doesn't keep up" with the scores of nicks and dry bites. Only three of the venomous bites — on the nose, lip, and foot—were acquired in the "snake pit," where participants (though not Dillard) have been seen to engage in such activities as: "Goin' for a Sixpack" (in which they hold up, between their fingers, three snakes in each hand); "Stackin' Cow Pies" (in which snakes—prodded into the defensive, non-strike position with their heads tucked beneath their bodies—are stacked on one's head, shoulders, knees, arms, and crotch); "The Kung Fu Walk of Death" (in which contestants sashay barefoot through defensively coiled serpents, kicking

them soccer-style against plywood walls); and "Stomping" (in which contestants compete to see who can crush to death the most snakes with their cowboy boots).

Dillard, however, specializes in "Sacking," in which he got his other bites and for which he claims to hold the world record. Amateur and professional sackers (he counts himself among the latter) compete to see how many live rattlers they can stuff into a burlap bag in the shortest time. A trick of the trade is to stay sober: "A lot of these guys get tanked up. That's why they get in there. Seems like the last few years it's got a little worse." Once Dillard sacked five snakes in under three seconds. He also claims to hold the world record for "Lifting" — 25 rattlers in each hand.

Sometimes Cotton Dillard will have as many as ten rattlers on his shirt, in his pockets, and around his neck. "I handle them real liberal," he confides.

One of Dillard's fellow sackers and Brownwood neighbor died after being bitten in a contest. Another sacker was bitten in the hand (for which points are taken off), continued sacking, was bitten in the other hand (for which more points were taken off), continued sacking, observed with chagrin that he had lost the contest, and then was rushed to the hospital. When Dillard is bitten, though, he doesn't even get sick (except once when he "was compromising for a friend and the good Lord didn't go along with it"). It was the Lord, in fact, who sent him on the roundup circuit. As Dillard explains it, every time he survives a bite in public, it demonstrates just what the Lord can do. "I do this as a way of witnessing for the Lord," he told me.

Snakebite is (or at least used to be) such a non-problem in America that the Red Cross saw fit to drop it from its multimedia first-aid course. But as rattlesnake roundups proliferate, more and more contestants are getting bitten. And, with all the new cases of snakebite, there are more calls for roundups as a means of control.

Virtually all the roundups are sponsored by civic groups, mainly the Jaycees. There are twenty-five or thirty events in Texas, five in Oklahoma, one in New Mexico, one in Alabama, four in Georgia, and usually about a dozen in Pennsylvania (although here native snake parts can't be sold and timber rattlers have to released at point of capture within 48 hours).

"God cursed the serpent," says Dillard. "There's no doubt about that, but I disapprove of being cruel to anything." That's why he doesn't go for "the kicking and stomping." In this, at least, has the support of the enn-vie-meddlists. They don't like the kicking or stomping either. Nor do they like the public "Butcher Shop" shows where, for a nominal fee, Moms, Dads, and kiddies get to watch or participate in decapitations, where headless bodies writhe from metal hooks and where severed heads exhibit brain activity — erecting fangs, snapping at heat sources, and dilating pupils in response to light — for over an hour.

The enn-vie-meddlists even object to the practice of sewing shut the mouths of live snakes so you and your kiddies can safely get your pictures taken with them

wrapped around your shoulders. And they fret about the slow starvation and desiccation of snakes when they are stockpiled for months before the roundups in cramped cages. "What they don't sell for skins or meat, they send off to the next roundup," declares Joe Branham, an herpetologist with the Oklahoma City Zoo. "At the end of the year they're in terrible shape. You see a lot of them with mouth rot, big, swollen infected heads. They're jammed into tight corners and agitated, and they bite each other."

Python breeder David Barker of Stevenson, Maryland, claims to have seen roundups in which people: (1) disemboweled live snakes, throwing the mortally wounded animals into their own gut piles; and (2) sliced off the tails of live snakes. However, he suspects that these particular activities aren't happening anymore now that the Jaycees and other civic groups are worried about maintaining their image, such as it is.

Enn-vie-meddlist Jim Seippel of the Greater San Antonio Herpetological Society goes so far as to worry about snake back pain. "Snakes can't cry out," he says. He has it that diamondbacks are so heavy their vertebrae separate and their ribs break when they are held aloft or tossed around.

Always, the complainers get stuffed with the snakes. "Have you hugged a rattlesnake today?" jeered the *Daily Oklahoman* after protesters tried to stop the 51-year-old Jaycee-sponsored roundup at Okeene, Oklahoma.

Rattlesnakes hibernate underground, a problem for roundups until recently. But now when a snake hunter happens on a likely looking hole or crevice he applies gasoline, and the fumes either kill the snake (in which case it is lost) or send it topside. Eastern Diamondbacks winter in the frequently occupied holes of "gophers," which, on the Southeast coastal plain, have shells rather than fur. Actually, they are tortoises — gopher tortoises, to be precise, a species in steep decline throughout its range and listed by the U.S. Fish and Wildlife Service as threatened.

Since gopher tortoises can excavate tunnels that are nine feet deep and 30 feet long, you need a garden hose to apply the gasoline. Be sure to shove it all the way to the end of the burrow or you'll just drive the snake deeper into the earth. First, you hold the hose to your ear, and if you just hear the gopher blowing at you — *poof, poof, poof* — move on to the next hole. But if you hear *poof, poof, . . . buzza-buzza-brrraaap*, fill her up with regular. As the Jaycee announcer put it at the Opp Rattlesnake Rodeo, "that ole gopher, he don't mind that snake being down there any at all." But he does mind the gasoline.

In the West, where there are no gopher tortoises, snake hunters apply gasoline to holes and crevices by means of hand-powered pesticide sprayers and compressed-air fire extinguishers.

Naturally, the enn-vie-meddlists complain about gassing, too. In with the snakes are whole communities of mammals, reptiles, amphibians, and arthropods, some of which are rare [or] endangered, some of which are found nowhere else, and most of

which are inhaling gasoline fumes. Studies in Texas, where gassing is permitted, reveal hideous, irreversible lung damage in a host of burrowing creatures. Another study in Alabama, where gassing is also permitted, shows high mortality among non-poisonous snakes, including the Eastern Indigo Snake, the longest snake in North America, a natural enemy of the Eastern Diamondback, and an endangered species. Unfortunately for the Indigo, it's an "obligate inquiline" — the kind of label biologists dream up to make you ask them what it means. It means an animal that has no choice but to live in another animal's home, in this case the Gopher Tortoise's.

"Wherever there's gassing in the sand hills, we've done research that shows it kills all the Indigo Snakes that come in contact with it," reports Indigo [Snake] recovery plan author Dan Speake of the Alabama Cooperative Wildlife Research Station. "I'm worried that if the roundup stay popular and the kids think it's glamorous to go and dump gas in all the gopher holes, trying to run rattlesnakes out and win prizes, it could be the end of Indigos." Frankly, I suspected that Speake himself was an enn-vie-meddlist, and as we talked, it became clear that I was right. He said rattlesnake roundup people made him so "mad" and he found their shows so "irritating" and "disgusting" that, despite the data to be had, he no longer attended, making his graduate students go in his place. "I hope you give 'em hell for gassin' gopher holes," he told me.

Apparently, gasoline fumes don't kill the Dusky Gopher Frog, another vanishing obligate inquiline of Gopher Tortoise burrows and a candidate for protection under the Federal Endangered Species Act. Instead, they force it above ground, where it dries out and dies if it isn't eaten first by a predator. Gassing is also permitted in Georgia, Oklahoma, and New Mexico.

There even are enn-vie-meddlists who cry about roundups causing localized, and possibly national, extinctions. Rattlesnake parts are used to make belts, hatbands, vests, pants, wallets, paperweights, key rings, key cases, knife sheaths, earrings, handbags, suspenders, guitar straps, rifle slings, barrettes, wristbands, neckties. And, in a fitting memorial of their perceived place in the universe, whole animals are now being molded into clear plastic toilet seats. A two-pound diamondback fetches at least \$45 — \$12 for the meat, \$12 for the skin, \$15 for the head, \$5 for the rattles, and \$1 for the gallbladder, which, when soaked in liquor, is relished by Asians as a health tonic. Therefore, the 11,709 pounds of rattlers weighed at the Jaycee-sponsored Sweetwater (Texas) Roundup in 1988 had a commercial value of \$263,452.50. In Texas alone, roundups kill half a million Western Diamondbacks a year. There is no bag limit in any of the Eastern or Western Diamondback roundup states and no season, save in Oklahoma, where it runs from March 1st through June 30th — the time of year when rattlers can be most efficiently caught.

The Oklahoma Department of Conservation, which

recently attempted to legitimize rattlesnake roundups in its magazine, maintains there's no evidence of stress in Western Diamondback populations. But, say the enn-vie-meddlists, this is because no one has seriously bothered to collect evidence. (EDITOR'S NOTE: KHS members George Pisani and Henry Fitch have worked extensively on Western Diamondback demographics of the Oklahoma rattlesnake roundups over the past few years.)

And they claim that the status of the much rarer Eastern Diamondback is being staunchly ignored as well. One of the foremost authorities on the species, Bruce Means of the Coastal Plains Institute, predicts (albeit with no good data) that within 25 years we will have succeeded in driving this serpent from our nation except, perhaps, where habitat has been protected on public land.

I am not a rattlesnake hugger; but I do have an aversion to reptile viscera, at least in large quantities. So I was glad to have avoided the western roundup scene. The Opp Rodeo, say the Opp Jaycees, is a lot better, and I believe them. Freak show and daredevil stuff indeed was not to be seen. In the double-walled pen, the Diamondbacks buzzed almost contentedly, like grasshoppers in a summer hayfield. Waves of spectators broke against the wire, aiming kids and cameras at the Jaycee handlers who pinned snakes to the ground with modified golf putters, draped snakes around their necks, made snakes strike their boots, and pressed thumbs into snake skulls for open-mouthed mug shots. I witnessed no gross snake abuse. As far as I could tell, all the animals were treated more or less humanely before being privately and discretely butchered.

There were 275 Eastern Diamondbacks turned in this year, but Mike Carnley claims the number isn't important: "We have arts and crafts, greased-pole climbing, buck dancing, live bands, a beauty pageant, car show, road run, stock-car race, and horse show. We could put on the rodeo with two snakes."

And while only two snakes might seriously reduce the suspense in the race to determine "the world's fastest rattler" (various "heats" of which take place during both days), there might be a mechanical solution, which I offer herewith to the Opp Jaycees. When Florida banned Gopher Tortoise races, the organizers went to radio-controlled, "bionic" gophers. Because they are a lot faster and "pop wheelies", fans enjoy them more than the older models. The best thing about them is that when you run out you just order new ones.

All the money brought in by the Opp Jaycees goes to very worthy causes. And this year the Jaycees collected venom "for research," sending it to Ventoxin Laboratories in Frederick, Maryland. "Researchers aren't looking at much of the venom of the Eastern Diamondbacks," says Ventoxin director Glen Womble. "But, at the same time, it's worth taking advantage of." In the past, Womble had avoided venom from roundups because of the poor quality. A lot of snakes have infected venom glands and bloody mouths from being

gassed and slung around. The roundup staffers will be collecting venom, and all of a sudden a snake will "unload a whole fang's worth of bloody infection into the jar."

The pus and blood ruins the whole batch, but they just swirl it around until it blends in. Then they let it all fester in the hot sun for a few hours. And sometimes, says Womble, if there doesn't seem to be enough venom, they top off the jar by urinating into it. (This he has from one of his colleagues — a federal researcher with a PhD.) The venom provided by the Opp Jaycees, however, was in splendid condition and contained no urine at all.

At the 1989 rodeo (which I saw only on videotape), the Opp Jaycee announcer had said: "We are as enn-vie-meddlly minded as anyone, probably more so. And we have not been forced to release snakes back into the wild. We do this [a few, outside Opp] on a voluntary basis, hopefully to avoid any confrontations with the enn-vie-meddlists." Snakes would be released this year, too, Carnley assured me. I asked him if any communities had requested them. "Nooooo," he said.

And the 1989 announcer had explained that the Opp Rodeo would no longer be cooking up 800 pounds of Western Diamondback meat because "we had a lady from *National Geographic* down here last year, and she said we had a very well-organized event. The only thing she didn't like was that we sold snake meat. So rather than have to deal with a potential problem, we decided to head it off at the pass."

The Opp Rodeo is also unique in its policy of not accepting snakes that have been driven out of gopher holes by gasoline "the way the old-timers used to do it . . . a long time ago." The Jaycees can always tell a gassed snake because it's "groggy."

When it came time to pay out the "bounties" on the snakes, Carnley, wearing a rattlesnake-skin vest, thanked the hunters for their charitable work. "These men that go out and hunt snakes, they put their lives on the line every time," he announced. Live rattlers over three feet long fetch \$17, smaller ones, \$10. There is \$200 for the most, \$150 for the second most, and \$100 for the heaviest. There is even a bounty on "other type snakes," provided the Jaycees can find someone to buy them.

After the bounty payments, it was time for me to put my life on the line for *Audubon* magazine. I was going snake hunting with the legendary J. P. Jones, the St. Patrick of Alabama, the man who founded the Opp Rattlesnake Rodeo and who now serves as its official "Granddaddy." As the Jaycees explain in their promo: "Mr. Jones said that he worked for years trying to find an organization that would work with him to rid Covington County of the dreaded menace, the rattlesnake. He couldn't have found a more supportive group."

"Them old snakes is tough as can be," J.P. told me sympathetically as I gnawed on a hunk of deep-fried Western Diamondback I had purchased for a dollar (the *National Geographic* lady apparently hadn't shown up

this year.) It tasted pretty terrible, about like a freezer-burned chicken neck. The trash cans were full of it.

We hauled up into J.P.'s old pickup truck and headed out of town toward the 90,000-acre private tract looked after by his son Jody. It was good to get away from from all the sweaty goggles and spilled food and out into the bright, clean, bluebird-filled Alabama countryside. To extract the snakes from gopher holes, J.P. uses a garden hose with a treble fishhook attached to one end. "It's just like fishin' ", he said. "When I hook a rattler I hope he's the biggest one I ever caught."

I gave up on the snake meat and stuffed it into my shirt pocket. "That there's a mockin' bird," pronounced J.P. "He can mock any bird they are." I thanked him for the information and asked if he'd heard of anyone being killed by rattlesnakes in Alabama. He had indeed. "They was a little white boy got bit sixteen years ago, about four or five miles from here. He was playing with a lil' ole ball. And he was about four year old."

Would he be releasing any snakes today, I inquired? "They don't turn many loose", said J.P. "That's a bunch of shit. That's just for the enn-vie-meddlists." This year they had planned to release four, but Jody had nixed the idea, declaring that he "had to walk in them woods."

The snake covert was dry and sandy and lined with planted slash pine about five inches in diameter. Crickets chirped, black swallowtails fluttered, and the cobalt sky was full of wobbling turkey vultures. I dismounted and inspected J.P.'s snakin' hose in the back of the truck. He'd drilled two small holes on opposite sides about an inch from one end, and through these he'd inserted a length of wire which ran through the eye of the hook and held it in place. J.P.'s snakin' hose reeked of gasoline.

"Everybody uses gas," he admitted when I asked him about it. "We make like we don't, but we do." In fact, he was worried that the 11-pound trophy rattlesnake he had planted in the gopher hole earlier that morning was dead from all the gas. Before inserting the snake, he and Jody had jammed a burlap bag two feet down the hole so the quarry could be quickly caught during the filming of the TV program *The Sportsman's Showcase*. As Jody put it: "We didn't have time to go out on an actual hunt. You know, you might go out all day and not find one sometime. But the snake outfoxed us. He got around the bag and went to the bottom of the hole, and we couldn't get him out. Hawh! Hawh! Hawh!"

"We have to drive a hundred miles from here [on real snake hunts]," lamented J.P. "They a lot scarcer now. When I started we just hunted in the woods around here. We used to get fifteen in a day. You won't get none today."

Over at the gopher hole, Ken Tucker, host of *The Sportsman's Showcase*, was cramming chewing gum into his mouth. "You and I gonna have to go to town and get us some Redman," he said to his video man. "I just have one bag, and they gonna make me start chewing . . . Hey, J.P. you want some Redman?"

Tucker guffawed when J.P. allowed that he never touched the stuff. "That ain't what you supposed to say, J.P."

Jody inserted the hose into the hole, rammed it to the end, and churned around like a plumber unclogging a toilet. Presently, he hooked the snake and hauled back on the hose. But the rattler, who had had enough of humans for one day, wedged its thick, muscular body against the sides of the burrow. I could hear its skin ripping.

Jody kept hooking and pulling, and the snake's skin kept ripping. After about 20 minutes Tucker said: "He's a pretty good-sized snake, isn't he? Whatjathink J.P.?"

"I think he's a good snake," said J.P.

Turning toward the camera, Tucker said: "I'm ready to dig, if that's what it takes. If folks think snake hunting's not work, they just don't realize. Three hours of fooling with him."

Jody fetched a shovel from J.P.'s truck and began excavating the gopher hole. After about ten minutes Tucker said: "I think he's a pretty good snake. Four hours! He better be a good one."

At last we could see the rattles. They were not moving. Gingerly, Jody reached down and grabbed them. Then he held up the trophy for the camera. The deadly, vicious serpent hung motionless, muddy and wet with gasoline and body fluids. Jody laid it in the back of the pickup. After J.P. doused it with water it managed to move its head.

— Audubon Magazine, September 1990
(submitted by Suzanne L. Collins, Lawrence)

GREAT SNAKE MISTAKE IN NEW YORK

About 50 supposedly harmless snakes sold to a chain of pet stores by a wholesaler turned out to be poisonous, but the mistake wasn't noticed until some had been sold to the public. Venomous Asian water snakes known as Redneck Keelbacks were mistakenly labeled as harmless Garter Snakes. Some of the snakes bought by Petland Discounts were distributed among the company's 50 stores in the metropolitan area.

The Health Department issued a public warning 12 October. Afterward, the ASPCA picked up five snakes from pet owners who called for help. Two of them turned out to be Keelbacks. In addition, 14 venomous snakes were removed from stores and taken to the zoo.

— Wichita Eagle, 15 October 1990
(submitted by Loyola Tulane, Wichita)

CITY ERRS WITH SNAKES; STORE OWNER IRATE

The Health Department (of New York City) admitted Tuesday that its citywide alarm was a case of mis-snaken identity.

The owner of a pet store chain said his reputation was besmirched by the distributor's erroneous claim that a distributor accidentally sent his stores vipers (sic) instead of harmless Garter Snakes.

"If you live in a house and have three baby German shepherds in the back yard and a neighbor says you have three baby wolves, does that mean you have three wolves," asked Neil Padron, owner of the Petland Discount chain.

The alarm was first sounded last week after Tom Robertson, Jr., a self-taught snake buff, told the Health Department that one of Petland's stores had poisonous snakes.

Padron said Health Department officials went to the store and removed one of three identical Garter Snakes from a tank. Herndon Dowling, a New York University biology professor, then confirmed Robertson's identification.

On Friday night, the department sent local news media a warning headlined "Pet Snake Alert!" Padron said authorities also began seizing snakes from most of his 25 store throughout the city.

"The Health Department believes that 50 of these venomous snakes were purchased by Petland Discount since Sept. 26, 1990, and some were sold erroneously as redhead garters," the department's Friday statement said. "The venom of the Redneck Keelback is dangerously toxic. . . . There is no known antivenom."

The department called Padron Tuesday morning to admit it had goofed.

It issued a statement Tuesday afternoon that said Edmund Malnate, an herpetologist at the Philadelphia Academy of Natural Sciences, had classified the snake as a non-toxic Buff-striped Keelback — not a venomous Redneck Keelback.

A Buff-striped Keelback is a Garter Snake, Padron said.

"It is clear that Petland Discount has done nothing wrong," said the department's Tuesday statement. "The department never held Petland responsible."

— Hays Daily News, 17 October, 1990
(submitted by Karen Toepfer, Hays)

EDITOR'S NOTE: The snakes mentioned in the previous articles belong to the Asian genus *Rhabdophis*. One species in particular, *Rhabdophis tigrinus*, has been implicated in several deaths in Japan and other species have been involved in very serious envenomations. Even though it appears this species was not the one involved in the New York case, it is obvious that a species of *Rhabdophis* was involved. All *Rhabdophis* are rear-fanged and venomous to some degree and are not Garter Snakes as Mr. Padron stated. Once again, greed, and not the welfare of the public or of the animals being sold, appears to be the motivating factor in at least one section of the exotic animal pet trade.

"EXOTIC" LEATHER TRADE ENDANGERS MANY REPTILES

Peter Brazaitis held up what looked like two Alligator handbags, one green and supple, the other a tawny brown, cracked and peeling. The green bag was indeed Alligator. The inferior brown bag was made from an endangered species of Caiman, a South

American reptile whose skin has bony plates that cannot be softened by tanning.

"Both of these sell for \$600 to \$800," said Brazaitis, an herpetologist and curator of animals at New York City's Central Park Zoo. "Caiman skin breaks, so when the public buys an endangered skin, they're getting ripped off."

Indeed, unwary consumers lose twice: they pay handsome prices for inferior products and their purchases reduce the number of an endangered species.

Trade in so-called exotic leathers made from reptile skins is threatening the survival of the world's 23 species of crocodilians, 19 of which are threatened or endangered. Crocodilians include alligators, crocodiles, and gavials.

Some reptile skins are legal. Among them are the skins of American alligators, which make high-quality leather and are sold for \$350 each. About 375,000 skins were obtained from legal sources last year, Brazaitis said.

"But if you look at how many skins are estimated to be in trade, it's 2 million a year," he said. "Two-thirds of the trade is from an endangered species or an illegal source."

Illegal skins, which may earn their trappers a mere \$5 to \$10 apiece, are "laundered" by mixing them with legal skins before they reach tanneries, Brazaitis said.

Trade in illegal skins is not confined to Asian bazaars or remote tropical outposts. Top department stores and the exclusive boutiques on Manhattan's East Side sell products made of such endangered species as the Yacare Caiman of South America.

"I've just done a circuit of all the major stores surrounding the zoo here, and I've found products from Yacare Caiman," Brazaitis said. A prestigious name on the door is no guarantee of the quality of the reptile skin products inside, he said.

As Brazaitis' survey suggests, trade in illegal skins is flourishing. It is widespread in the United States, despite tight safeguards established by the United States and Congress, under the U.S. Endangered Species Act.

The U.S. Fish and Wildlife Service estimates 2,000 to 3,000 shipments, each containing up to several thousand reptile skins, enter the port of New York each month.

They include skins from Boa Constrictors, Nile Crocodiles, African monitor lizards, Siamese Crocodiles, Anacondas, and Indian Pythons, all shaped into handbags, belts, shoes, and briefcases. Many carry the names of world-famous designers and prestigious retailers.

Only experts like Brazaitis can tell the legal skins from the illegal.

"When you get to the department store, they don't care," said Brazaitis. "They don't know." Nevertheless, sales clerks confidently assure customers that everything the store sells is made from legal skins, Brazaitis said.

The skins of more than 350 animals confiscated in New York by the Fish and Wildlife Service are on display at the Central Park Zoo in an exhibit entitled

"The Illegal Skin Trade."

The exhibit includes a U.S. Customs declaration form attesting to the legality of a wildlife shipment of royal pythons and Boa Constrictors from Africa. Brazaitis chuckled as he pointed it out. "Royal pythons come from Asia and Boa Constrictors come from South America," he said.

Most people find reptiles about as welcome as a Boa Constrictor's embrace. "People say, 'What do you want to save those things for? They eat people'," Brazaitis said.

But their disappearance leads to the loss of tropical wilderness, a problem receiving increasing attention as Americans prepare for the celebration of the 20th Earth Day on April 22.

Crocodilians are predators at the top of the food chain, Brazaitis explained. They regulate the populations of other species.

An experiment to remove aggressive, fearsome Nile Crocodiles from a lake in Egypt showed how balances can tip, he said. "The fish that people couldn't eat — the garbage fish — proliferated. The fish people could eat couldn't compete. They declined."

Caimans eat snails that carry the disease schistosomiasis, deadly to humans.

The concern about trade in reptile skins has echoes of the anti-fur movement, but the situations are not the same.

Opponents of fur are concerned largely about the welfare of the animals that are killed and skinned for their fur. Trade in fur from endangered species has largely been stopped, wildlife officials say.

Trade in reptile skins, on the other hand, is seriously aggravating threats to many of the world's endangered reptiles, Brazaitis said. It is an environmental issue more than an animal welfare issue.

Brazaitis would like to see it become a consumer issue.

"If you elect to buy the Caiman product, it's not going to last."

So how do consumers avoid getting swindled? they can hire an herpetologist, or refuse to buy exotic leather.

"We would prefer that people do not buy exotic leather," said Brazaitis. "The only ones that need reptile skins are reptiles."

—Lawrence Journal-World, 30 March 1990
(submitted by John Simmons, Lawrence)

SNAKES BURNING UP TREADMILLS DASH LIMBLESS EVOLUTION THEORY

Snakes wearing small oxygen masks while (crawling) on treadmills at the University of California - Irvine apparently have refuted conventional wisdom about evolution.

Scientists measuring the amount of oxygen consumed by the snakes have concluded that, contrary to earlier predictions, limbless locomotion does not

conserve energy. The research suggests that snakes spend at least as much energy moving — and in some cases, much more — as legged animals of similar size.

"It's long been an evolutionary puzzle why many vertebrates lose limbs entirely," said Bruce Jayne, an evolutionary biologist at the university and co-author of the research in the journal *Science*. "The suggestion that the loss of limbs conveys an energetic advantage for locomotion is not the case at all."

In 1973, a Harvard University study found that Garter Snakes consumed 30 percent of the energy as that of a legged lizard moving the same distance. The preliminary study was never published but was regularly cited in scientific articles and textbooks to explain that snakes and certain species of legless salamanders and lizards are energy-conserving creatures.

To determine the energy costs required for movement, the California researchers placed tiny breathing masks on Black Racers (*Coluber constrictor*). The snakes were then put on custom-designed motorized treadmills and a number of factors were measured.

The scientists recorded oxygen consumption, speed, and endurance during two types of locomotion.

During lateral undulation, a snake [moves] back and forth along the ground by moving its entire body simultaneously at the same speed. But when confronted with passage through a narrow tunnel, snakes change their strategy for locomotion. Using concertina locomotion, a snake bunches up its body and then extends its head forward while the rear portion of the body remains still. Then the snake bunches up the front section of its body and pulls its rear section forward.

Snakes moving by lateral undulation used virtually the same energy as that of a limbed lizard of identical size, the researchers noted. Moreover, the energy the snake spent was also similar to that predicted for birds and mammals of the same weight.

In contrast, snakes moving by concertina locomotion required several times the energy to move the same distance as during lateral undulation, Jayne said. "It is the starting and stopping during concertina locomotion that is responsible for a higher energetic cost," Jayne said.

Although snakes apparently conserve no energy by [sliding] their bellies along the ground, other reasons may have influenced the loss of limbs during the course of evolution.

"Without legs, snakes— because of their cylindrical shape — can squeeze through very small openings. With legs, that might be impossible," Jayne said.

C. Richard Taylor, a comparative physiologist at Harvard University who conducted the earlier snake studies, said that the new research indicated that "snakes don't optimize for low energy costs, but instead for the flexibility to move across different terrains."

— Wichita Eagle, 5 August 1990
(submitted by Jack Shumard, Wichita)

ABANDONED SNAKES BECOME AN ANIMAL CONTROL HEADACHE

In just two years, an exotic snake abandoned in the wild can grow from a cute pet to raccoon-eating monster, and large snakes are becoming a large animal control problem in southern Florida.

Big pythons and Boa Constrictors have been popping up with unwelcome regularity, but the capture of 15-, 12-, and 10-foot snakes within eight days in June in Palm Beach County were evidence the problem is getting bigger.

"A lot of people think it's nifty to have these snakes as pets," said Ron Magill, assistant curator of Miami's Metrozoo. "Within a few years, that snake can exceed 10 feet . . . They're also escape artists."

But the escapees are only part of the problem in a region that offers an ideal climate for the cold-blooded, cold-wary animals. Wildlife experts believe dozens of snakes have been abandoned in the wild by pet owners after the novelty wears off, the feeding gets too expensive, medical bills get too high, or the snakes become a threat to their owner.

"They release it, evidently unaware or not caring about the impact on the natural environment or the human population in Florida," said Lt. Jim Hoffstodt, spokesman for the state Game and Fresh Water Fish Commission in West Palm Beach.

Last summer, Todd Hardwick, a private trapper of nuisance animals, captured 20-foot, 250-pound Big Mama, a Reticulated Python that landed him and her on "The Tonight Show". A crawl space under a Fort Lauderdale house was the snake's home — apparently for years.

"I get reports all the time of big snakes down on Old Cutler Road," a suburban Miami thoroughfare that borders mangrove swamps, Hardwick said. "Airboaters and hunters see big ones in the Everglades, so there's a lot more out there."

State officials acknowledge they don't have a good grasp on the numbers. But Magill warned, "Keep in mind, I think for every snake that's found, there's 10 of them that are never seen."

In 1987 and 1988, the Port of Miami handled imports of 1.26 million reptiles, including snakes, lizards, turtles, and lizards. A total of 18,150 Ball Pythons, a constrictor known to curl up in a ball, cleared customs.

"People don't realize the sheer amounts of animals moving through this country, the amounts being imported in the United States for the pet trade," said Lt. Tom Quinn of the inspection division in Tallahassee.

And Hardwick said he has found baby constrictors at two locations in Miami's Dade County, indicating the big snakes may be mating in the wild.

But the biggest may be ahead. A python "as big as Big Mama or bigger yet" is being spotted every few months in a rugged, inaccessible area of Dade County, Hardwick said.

— Lawrence Journal-World, 3 September, 1990
(submitted by George Pisani, Lawrence)

FEATURE ARTICLES

COMMON MAP TURTLE REDISCOVERED IN KANSAS

by

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The Common Map Turtle (*Graptemys geographica*), feared to be extirpated from Kansas, has been rediscovered at six sites in Allen, Anderson, Franklin, and Osage Counties. This species was last collected in the state in 1952 by Dr. Robert F. Clarke (Clarke, 1953, KU 187861), at Long Creek, Osage County. However, since that time, it has escaped detection, leading the Kansas Department of Wildlife and Parks (KWDP) to classify it (and any other native species not encountered in at least 35 years) as extirpated in Kansas. This summer, the KDWP, through the Kansas Nongame Improvement Fund, and Emporia State University, via its Faculty Research and Creativity Committee, provided funding to investigate the population status of the Common Map Turtle in Kansas, and to document any areas of occurrence, as well as specific types of habitats utilized by this species.

On 24 June 1990, we captured a single *G. geographica* at the historical site of occurrence at Long Creek, near Melvern, Osage County. The specimen was an adult ♀ and has been deposited in the Museum of Natural History, University of Kansas (KU 217149). On 3 July 1990, we captured two large ♀♀ *G. geographica* at Frog Creek, a tributary to Long Creek, in Osage County. One of these (KU Color Slides 8872-8873) measured 226 mm carapace length, a new maximum size record for this species in Kansas (Collins, 1990). On 11 July 1990, we caught a single ♀ *G. geographica* in the South Fork of Pottawatomie Creek, near Garnett, Anderson County, another site of historical occurrence. The species had last been captured at this site in 1931 (KU 15881-2).

A new Kansas county record for this species was collected from the Marmaton River, southeast of Moran, Allen County on 29 July. The lone specimen was a 213 mm ♀. We captured two ♀♀ and one ♂ *G. geographica* in a single net at a second site in Long Creek, Osage County on 1 August. On 9 August, we collected one ♂ *G. geographica* from north of Pomona on Appanoose Creek, Franklin County.

G. geographica is reported to inhabit large, slow-moving or still rivers and lakes, but, in Kansas at least, also inhabits smaller streams. We caught these specimens in 2.5 foot, 1-in. nylon mesh hoop nets baited with canned creamed corn, fresh mussel, and canned smoked clams, respectively. Analysis of a fecal pellet of one of the Frog Creek animals indicated feeding on mulberries and insects. Individuals held in the laboratory for observations have also fed on crayfish.

We have marked and released these *G. geographica* and, as our study continues, we will attempt to recapture individuals in an effort to estimate population densities and learn more about the species' biology, including growth rate and home range. In addition to monitoring populations of *G. geographica* at localities where we encounter the species, we will investigate other historical sites of occurrence in Kansas, as well as explore the eastern portion of the state for additional populations.

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THE TALE (TAIL?) OF THE \$1,375.92 GARTER SNAKE

by
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I often wonder how I get myself into these messes. It was September 6, 1990 when yet another one of my "close encounters of the Herp kind" (as my husband calls them) was about to begin.

As chapter advisor for one of the sororities at Fort Hays State University, I had commissioned longtime KHS member and photographer Larry Miller to come to Hays and take a group photo of the girls. Several members also wanted individual pictures taken. It was during one of these individual sessions that this story began. It was about 7:30 pm on that evening of the 6th when Larry and I picked up two girls at the sorority house. We noticed the clouds were beginning to build

and the wind was becoming very strong. We abandoned the original plan of photographing the girls in Frontier Park and proceeded to the Student Union on campus. The wind died down and Larry was able to take some good shots of the girls at various locations on campus. After awhile, one of the girls said she knew of a place not far from the campus that would provide ideal background for a good sunset photo. There was a great deal of lightning to the east but the sunset was still visible. We loaded the car with the girls, clothes, and cameras and headed up to the old golf course road.

As I was driving, Larry was entertaining the coeds in the back seat with stories of his tornado chases and all the possibilities for prize-winning photographs that the evening's lightning and thunderstorm would provide. He was truly in his element. Suddenly, ahead in the middle of the road, slithered out a Western Plains Garter Snake (*Thamnophis radix haydenii*) — no doubt out for an evening of foraging. I yelled "Snake!" and slammed on the brakes. I sent Larry back to capture the beast while I fetched my ever-ready snake sack from the trunk and tried to calm the coed's fears. Larry grabbed the snake, and, being the typical garter snake, it then proceeded to bite and smear copious amounts of malodorous fluid all over him. After Larry wiped himself off and I secured the animal safely in the trunk, we finished out the evening photo session and called it a day.

The next morning, Larry headed back to Caldwell and I retrieved the snake from the trunk of my car. Upon examination, I discovered that the animal had an injury to its tail. It had been partially severed and I felt that a trip to the veterinarian was in order. I am notorious at the Hays Veterinary Clinic for requesting their services for the injured herps I find, so no one was surprised to see me walk in with an injured Garter Snake wrapped in a towel.

I had already cleaned the wound with diluted betadine soap and water, so Dr. Jim Hall decided that the initial course of treatment would be to use several drops of surgical glue to hold the tail in place. He then applied two small splints and bandaged the tail. I was instructed to keep the animal four or five days to see if the wound was going to heal. There was no charge for this treatment. When I got home, I placed the snake, wrapped securely in the towel, on the kitchen counter. Soon the phone rang, and I forgot the first and foremost rule of Housewife Herpetology 101: NEVER LEAVE A SNAKE ALONE ON THE KITCHEN COUNTER WRAPPED IN A TOWEL.

By the time I remembered my error, it was too late. The animal had made good his escape, leaving me literally holding the towel. After picking up my 13-year-old son, Russell, from school, we began the search for the snake. My husband, Tom, had been out of town and was due home the following day. I was praying for a quick recapture before his return. Tom is a very devoted husband and father, but he does not share the interest or enthusiasm that my son and I have for herps. At best, he tolerates them when they are caged, but one

on the loose in the house was an entirely different matter.

We started the search by looking in all the logical hiding places such as under the stove and refrigerator, behind the couches, and, of course, the ever popular vacuum cleaner hose. After two days of tearing the house apart room-by-room and finding no snake, a chilling thought crossed my mind. Could the critter have gone down one of the floor vents and was now in the duct work of the house? I shuddered at the thought but it kept creeping through my head. If indeed the animal had flattened itself enough to crawl through a vent, would I be able to find it before it perished in the dark recesses of the basement? Would I be able to retrieve the carcass before cold weather set in, and the furnace was turned on, releasing the stench of decomposed *Thamnophis*? These fleeting thoughts, along with those of possible divorce if the snake was not found, continued.

Sunday morning, while perusing the classified ad section in the *Hays Daily News*, one particular ad caught my eye. It read: AIR DUCT CLEANING — Service Unlimited. This had to be the answer to my prayers! Tom and I had been talking about having the air ducts cleaned because of Russell's asthma and my severe allergies. Now seemed just the perfect time to do it.

On Monday morning, I was able to get in touch with the people who ran the business. I carefully explained the situation concerning the disposition of the harmless Garter Snake, and inquired about the vacuum system they used. I was told that their equipment could "suck out a chunk of cement as big as a man's fist." That was good enough for me — they were hired. Two men and the vacuum truck arrived that afternoon. They cut a piece of hail screen to fit over the fan cover to catch the snake before it hit the fan. I asked them for a rough estimate of cost. It was approximately \$200. I swallowed hard, but rationalized that we did need to have the ducts cleaned. After 45 minutes of setting up the equipment, they were ready to begin. Material was banging against the walls of the ducts as it was being sucked out. The machine was turned off so we could check the trap. No snake. On it went, and again after hearing all kinds of noise go through the hose, they turned it off and checked the trap. Still no snake. This was repeated for about an hour. Each time they checked the trap, only to find it empty except for dirt and debris, my heart would sink a little lower. They finished late that afternoon. We had clean air ducts, but still no snake. Total cost for the air duct cleaning — \$206.42.

The days went by very slowly that week. I had devised an elaborate plan to cut a series of holes in the duct work. By using mirrors and a flashlight, much like a periscope, I hoped to be able to pinpoint the animal's location. This was going to be used only as a last resort.

In my quest to find the beast, I must have done something to the refrigerator while moving it, because by Thursday evening, the ice cream was melting in the

freezer and everything else in the lower section was warm. Luckily, I had room in the basement freezer, and a wonderful neighbor loaned me some shelf space in her refrigerator for the rest.

Friday morning, I called the refrigerator repair man. My luck was now turning in my favor and they told me someone would be out later in the morning to fix it. I spent the rest of the day cleaning and restocking the refrigerator. Cost of repair — \$20.

I was now Sunday, and the snake had been missing for ten days. That evening, after brushing his teeth before bed, Russell discovered it on his bathroom floor, curled up beside the toilet with tail splints and bandage still intact. It was obvious that he had just emerged from the floor vent. We all slept very well that night, secure in the knowledge that the critter was under lock and key.

The following morning, I removed the splints and bandage from the snake's tail. It did not appear to be healing, so I placed the animal in a pillow case, tightly knotted, and off we went to the vet.

Dr. Hall decided that amputation of the injured portion of the tail was necessary. This only required a local anesthetic and three well-placed stitches. Cost of treatment — \$12.50.

After two weeks of rest and rehabilitation, this Western Plains Garter Snake (alias "Stubby"), was released near the Smoky Hill River, none the worse for wear following his ordeal.

One other incident occurred during my exhaustive search for the elusive critter. Because of all the lifting of heavy furniture that I had been doing, I aggravated a previously occurring back problem. After seeing my doctor (Office call—\$32), he suggested that I have a magnetic resonance imaging (MRI) exam done to determine the exact cause of my problem. Cost of MRI — \$999. The diagnosis was a bulging disk and I had to wear a back brace for several weeks. Cost of the brace — \$115.

My large rock turning days are now a thing of the past. However, if any of you are collecting south of Hays and find yourself holding a Western Plains Garter Snake, don't forget to check the tail. You may be holding the world's most expensive Garter Snake.

TOTAL COSTS

Air Duct Cleaning	\$206.42
Refrigerator Repair	\$20.00
Veterinarian Bill	\$12.50
Office Visit	\$32.00
MRI Cost	\$990.00
Back Brace Cost	<u>\$115.00</u>

\$1,375.42

BOOK REVIEW

Turtles and Tortoises of the World, by David Alderton, photographs by Tony Tilford. Facts On File Inc., 191 pp. with black and white photographs, maps, and drawings. Price \$24.95 (hardbound).

This is another volume in the superb natural history series from Facts On File, the same folks who brought you **Snakes of the World**, **Frogs and Toads of the World**, and numerous others. **Turtles and Tortoises of the World** follows the same general style as the other volumes in this series. It is non-technical, yet provides the reader with a wealth of information not generally found in natural history publications for the general public.

The conservation emphasis in this book is strong. The word is first used by the author just four paragraphs into the Preface. Unfortunately, he then proceeds to paint a rosy picture of the future of commercial sea turtle farming, without seeming to understand that eggs for commercial farms are taken from the beach nests of declining wild populations. The sad fact is that despite years of trying, no one has managed to get captive sea turtles to successfully breed and lay fertile eggs.

The first chapter, "Chelonians and Humans", briefly covers turtles in literature, art, myth, and symbolism. There is also a detailed discussion of some cases of individual turtles reaching fairly advanced ages.

"Form and Function" is a fairly lengthy chapter. Alderton does a good job of describing turtle anatomy and physiology, including the special adaptation of many species to deserts, oceans, and other demanding habitats.

"Reproduction" covers all aspects of turtle reproduction, including mating, nesting, hybridization, things that go wrong with developing eggs, and such malformations as two-headed turtles.

Chapter four is "The Evolution and Distribution of Chelonians," followed by "The Chelonian Families," a chapter of accounts by family with distribution maps. Each account covers the appearance, key species, distribution, breeding, and other interesting information about the family. Subspecies are discussed at some length for certain families. For the Cheloniidae, sea turtle conservation, ranching, and human predation are discussed.

The book also contains an appendix listing the common names and scientific names of the chelonians of the world, a short glossary (1 1/2 pages), an equally short "Guide to further Reading," and a good index (four pages).

The photographs are very good with only a few exceptions. Several are stunning (such as the African Mud Turtle on page 171). A few of the photographs are out of focus, but the remainder more than make up for them.

Like the other books in this series, the text is jargon-free, easy to understand, and yet presents a good amount of technical information. This book is not

only an excellent introduction to the biology of turtles, but contains information and photographs which will be of interest to anyone who likes turtles. There are some small errors of fact and misleading statements, but few that detract from the purpose of the book. Considering how difficult it is to do a book like this in which technical information is presented in a lively fashion for the interested reader, a few errors are to be expected. Facts On File has done an admirable job of bringing out another excellent book for people seriously interested in reptiles and amphibians.

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BOOK REVIEW

Bites and Stings, The World of Venomous Animals, by John Nichol. Facts On File Inc., 208 pp. with black and white and color photographs, maps, and drawings. Price \$19.95 (hardbound).

According to the preface, this book had its origins in a BBC television show of the same name. In fact, the book really goes back to a publicity stunt involving an English media personality being locked in a store display of spiders and scorpions while the public gasped and oogled. Despite this beginning, the book sets out to clear up a lot of public misconceptions about venomous animals. Unfortunately, it bogs down in errors and mistakes in an attempt to be cute. In the context of explaining the complex relationships between venomous animals and humans, photos are included of everything from rock star Adam Ant to a series illustrating animal fairy tales.

The book discusses a wide range of venomous animals from mammals to invertebrates, but for the purposes of this review, I will concentrate only on those parts of the text that deal with reptiles and amphibians.

This book is written on a much more general level than the volumes in the Facts On File natural history series. Because of this, such statements as "Baby cobras are really fierce little beasts, and will even strike while they are actually emerging from the egg" appear frequently. It is certainly true that baby cobras will strike while still emerging from an egg (I have seen this myself), but to call them "fierce" is totally unfair — it is a gross, anthropomorphic trivialization of animal behavior. Still, the author does try to dispel many of the myths about just how dangerous most venomous animals really are.

Twenty-four pages are devoted to venomous reptiles, including a short description of reptile biology. Poisonous amphibians are covered in 2 1/2 pages.

There are number of instances where rather dubious information is reported as fact. The caption to a photograph of someone's feet wearing moccasins says that the footwear was "made by the North American Indians

from the skins of Water Moccasins." Anyone who has worked with tanned snake skin knows that it is too thin to hold up as shoe leather. Reptile skin shoes are actually leather shoes covered over with reptile skins. The name "moccasin" comes from an Algonquin Indian word meaning shoe. The snakes probably got their name because of their resemblance to moccasin leather, not because the foot gear was made from their hides. In the list of poisonous frogs used as a source of dart poison, the author includes two species of harlequin frogs (*Atelopus* sp.). This is highly questionable. The toxic secretions of *Atelopus* are not nearly as toxic as those from dendrobatid frogs (*Dendrobates*, *Phylllobates*), and are not chemically similar.

Chapter Two, "Venoms and Antivenoms", begins with a recounting of some of the more infamous folk remedies for treating envenomation, such as ingesting large quantities of alcohol. Here, too, the text is prone to exaggeration: "A spectacular remedy for snakebite that one sees performed in Westerns by macho cowboys is the amputation of the hurt finger with a large, unhygienic-looking machete . . ." Granted that the author is English and probably has not seen as many Westerns as the average American has, but a machete? Perhaps we should check the films being shown in Europe. I am familiar with "spaghetti Westerns", but not machete Westerns.

The author also describes how antivenin is made, the chemical nature of venoms, symptoms of envenomation, and first aid. The old "cut and suck" methods are advised against. Instead, the author recommends the use of a bandage, though not a tourniquet, around the bite, a point many North American physicians do not agree with. American Red Cross currently recommends against the use of any kind of constricting band.

Chapter Three concerns "The Trade in Venomous Animals." This includes everything from selling the animals for medicinal purposes to selling skins and minced Cobra bits to go. He even describes a stuffed Cobra he saw in Jakarta, which had tiny red light bulbs in the eye sockets, connected to a disco system so that the eyes flashed in time with the music.

"Venomous Animals and Religion" and "Venomous Myths and Legends" are the subjects of the next two chapters. The first covers a wide range, from the Mayans and Egyptians up the modern-day snake handlers of Kentucky. The second is a hodge-podge of various myths, mostly about snakes. For trivia buffs, the identity of the real Little Miss Muffet is revealed (her father was a French doctor who often treated his patients with spiders . . .).

An entire chapter is devoted to snake charmers, followed by a discussion of "Venomous Animals in the Modern World." This chapter covers the use of names of venomous animals for commercial purposes, the origin of Spider Man, and anatomically incorrect tattoos. The keeping of venomous animals is briefly treated, and the book ends with short chapters on "Conservation" and "Rattlesnake Roundups and Killer Bees." This latter chapter contains the intriguing line, "Not far from Bombay in India in the 1800's there was a bounty on

Russell's Vipers, and an average of 225,000 Rattlesnakes were brought in every year." If true, it would have meant a lot of rattlesnakes were exported from the Americas to the Asian subcontinent.

There is an appendix with a handy listing of antivenom suppliers worldwide (nine pages), but the addresses of the suppliers are not always listed. There is a four page bibliography and an index. The quality of the photographs varies quite a bit. There are some good color pictures of reptiles and amphibians, a couple of gruesome photos of snake and spider bites, and a lot of marginal or submarginal subjects (was it really necessary to include a photo of someone acting out the Little Miss Muffet episode?).

This book is written on a very general level, and has far too many misstatements, oversimplifications and just plain wrong information to be very highly recommended. If you are interested in venomous animals, it is worth reading for some of the anecdotal and off-the-wall information it includes, but don't expect a lot of useful, factual information.

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BOOK REVIEW

A Guide to Amphibians and Reptiles by Thomas F. Tynning. 1990. Stokes Nature Guides. Little, Brown, and Company, Boston. xiv + 400 pp. USA \$19.95, Canada \$24.95 (hardbound). ISBN 0-316-81719-8.

This is an unusual book, featuring detailed information on 32 species of amphibians and reptiles found in the United States and Canada. Species covered in the book are: American Toad, Eastern Spadefoot, Spring

Peeper, Gray Treefrog, Green Frog, Bullfrog, Northern Leopard Frog, Wood Frog, Mudpuppy, Eastern Newt, Spotted Salamander, Tiger Salamander, Marbled Salamander, Redback Salamander, Painted Turtle, Snapping Turtle, Stinkpot, Spotted Turtle, Wood Turtle, Eastern Box Turtle, Green Anole, Five-lined Skink, Gila Monster, Regal Horned Lizard, American Alligator, Common Garter Snake, Northern Water Snake, Milk Snake, Eastern Hognose Snake, Racer, Copperhead, and Timber Rattlesnake. Each of the species has a lengthy account containing sections on Recognition, How to Find the Species, and What Can be Observed, as well as a Quick Reference Chart at the end with little nuggets of data. The book is well-written, and illustrated with exquisite black-and-white line drawings by Andrew Finch Magee. Range maps are shown for each taxa, but they are too small and imprecise to be of any aid in identification. And identification is the big problem facing this book. There are nearly 500 species of amphibians and reptiles found in the area covered by this guide, and it will be most difficult for anyone other than an experienced herpetologist to use it effectively. The concept of the book, featuring and expanding on the natural history of a few selected species, is interesting, but functionally the book assumes that its readers can identify amphibians and reptiles — and most of them cannot. That is why so many excellent identification guides, such as the Peterson series, are so widely distributed and used throughout North America. So if you plan to buy this book, plan to at least buy a companion identification guide to carry with it. Don't leave home without both, unless you are confident that you can distinguish the 496+ kinds of amphibians and reptiles found in North America.

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SELECTED PUBLICATIONS OF THE SOCIETY FOR THE STUDY OF AMPHIBIANS AND REPTILES

CONTRIBUTIONS TO HERPETOLOGY

Book-length monographs, comprising taxonomic revisions, results of symposia, and other major works.

- No. 1. *Reproductive Biology and Diseases of Captive Reptiles*, by James B. Murphy and Joseph T. Collins (eds.). 1980. 287 pp. Paperbound \$19.50
- No.2. *The Turtles of Venezuela*, by Peter C. H. Pritchard and Pedro Trebbau. 1984. 414 pp., 48 color plates (25 watercolor portraits by Giorgio Voltolina and 165 photographs of turtles and habitats), measuring 8 1/2 X 11 inches, keys, 16 maps. Regular edition, clothbound \$33.75, patron's edition, two leatherbound volumes in cloth-covered box, signed and numbered by authors and artist \$225.00; set of 25 color prints of turtle portraits, on heavy paper stock and in protective wrapper \$22.50.
- No. 3. *Introduction to the Herpetofauna of Costa Rica/ Introduccion a la Herpetofauna de Costa Rica*, by Jay M. Savage and Jaime Villa R. 1986. 220 pp., one color plate, map. Clothbound \$22.50.
- No.4. *Studies on Chinese Salamanders*, Ermi Zhao, Qixiong Hu, Yaoming Jiang, and Yuhua Yang. 1988. 80 pp., 7 plates (including 10 color photographs of salamanders and habitats). Clothbound \$9.00.
- No. 5. *Contributions to the History of Herpetology*, by Kraig Adler, John S. Applegarth, and Ronald Altig. 1989. 202 pp., 148 photographs, 1 color plate. Clothbound \$15.00.
- No. 6. *Snakes of the Agkistrodon Complex: A Monographic Review*, by Howard K. Gloyd and Roger Conant. 1990. 620 pp., 33 color plates (247 photographs of snakes and habitats), 20 uncolored plates, 60 text figures, checklist and keys, 6 charts, 28 maps. Clothbound \$55.25.

FACSIMILE REPRINTS IN HERPETOLOGY

- ANDERSON, J. 1896. *Contribution to the Herpetology of Arabia*. Introduction and new checklist of Arabian amphibians and reptiles by Alan E. Leviton and Michele L. Aldrich. 160 pp, illus. (1 plate in color), map. Clothbound \$14.75.
- BELL, T. 1842-1843. *Herpetology of the "Beagle"*. Part 5 of Charles Darwin's classic, "Zoology of the H.M.S. Beagle". Introduction by Roberto Donoso-Barros. 100 pp., 20 plates, map. Paperbound \$9.75, clothbound \$13.50.
- COPE, E. D. 1864. *Papers on the Higher Classification of Frogs*. 32 pp., Paperbound \$2.25.
- COPE, E. D. 1892. *The Osteology of the Lacertilia*. 44 pp., 6 plates. Paperbound \$3.00.
- COWLES, R. B. and C. M. BOGERT. 1944. *A Preliminary Study of the Thermal Requirements of Desert Reptiles*. Includes extensive review of recent studies by F. Harvey Pough. 52 pp., 11 plates. Paperbound \$4.00.
- DUNN, E. R. 1926. *Salamanders of the Family Plethodontidae*. Introductions by David B. Wake and Arden H. Brame. 480 pp., illus., 3 plates, 86

maps, index. paperbound \$15.00.

- ESPADA, M. JIMENEZ DE LA. 1875. *Vertebrados del Viaje al Pacifico: Batracios*. Introduction by Jay M. Savage. 208 pp., 6 plates, maps. Clothbound \$15.00.
- FITZINGER, L. J. 1943. *Systema Reptilium*. Introduction by Robert Mertens. 128 pp., index. Paperbound \$11.25, clothbound \$15.00.
- GRAY, J. E. 1825. *A Synopsis of the Genera of Reptiles and Amphibia*. 32 pp., Paperbound \$2.25.
- GRAY, J. E. 1831-1844. *Zoological Miscellany*. Introduction by Arnold G. Kluge. 86 pp., 4 plates. Paperbound \$4.50, clothbound \$7.50.
- GUNTHER, A. 1885-1902. *Biologia Centrali-Americana*. Introductions by Hobart M. Smith, A. E. Gunther, and Kraig Adler. 575 pp., 76 full-page plates (12 in color), photographs, maps. Clothbound \$38.50; separate set of the 12 color plates in protective wrapper \$13.50.
- HOLBROOK, J. E. 1842. *North American Herpetology*. Introduction and checklists by Richard and Patricia Worthington. 1032 pp. (5 volumes, 147 plates, 20 in color). Regular edition, clothbound \$45.00.
- LeCONTE, J. E. 1824-1828. *Three Papers on Amphibians*. 16 pp., clothbound \$1.50.
- LOVERIDGE, A. 1946. *Reptiles [and Amphibians] of the Pacific*. 271 pp., 7 plates, 1 map, index. Paperbound \$13.50.
- McILHENNY, E. A. 1935. *The Alligator's Life History*. Introduction by Archie Carr and a review of recent literature by Jeffrey W. Lang. 125 pp., 18 photographs, and a portrait. Clothbound \$15.00.
- McLAIN, R. B. 1899. *Contributions to North American Herpetology*. 28 pp., index. Paperbound \$1.50.
- ORBIGNY, A. d' [and G. BIBRON]. 1847. *Voyage dans l'Amerique Meridionale*. 14 pp., 9 plates. \$2.25.
- SOWERBY, J. DeC., E. LEAR, and J. E. GRAY. 1872. *Tortoises, Terrapins, and Turtles Drawn From Life*. Introduction by Ernest E. Williams. 26 pp., 61 full-page plates. Clothbound \$18.75.
- SPIX, J. B. von and J. G. WAGLER. 1824-1825. *Herpetology of Brazil*. Introduction by P. E. Vanzolini. 400 pp., 98 plates, 1 color, map. clothbound \$29.00.
- TSCHUDI, J. J. von. 1838. *Classification der Batrachier*. Introduction by Robert Mertens. 118 pp., 6 plates. Paperbound \$13.50.
- TSCHUDI, J. J. von. 1845. *Reptilium Conspectus*. 24 pp. Paperbound \$13.50.
- VANDENBURGH, J. 1895-1896. *Herpetology of Lower California*. 101 pp., 11 plates, index. Paperbound \$6.00.
- WRIGHT, A. H. and A. A. WRIGHT. 1962. *Handbook of Snakes of the United States and Canada. Volume 3, Bibliography*. Clothbound \$13.50.

HERPETOLOGICAL CIRCULARS

Miscellaneous publications of general interest to the herpetological community. All numbers are paperbound.

- No. 1. *A Guide to Preservation Techniques for Amphibians and Reptiles* by George R. Pisani. 1973. 22 pp., illus. \$2.25.
- No. 4. *A Brief Outline of Suggested Treatments for Diseases of Captive Reptiles* by James B. Murphy. 1975. 13 pp. \$2.25.
- No. 6. *Longevity of Reptiles and Amphibians in North American Collections* by J. Kevin Bowler. 1977. 32 pp. \$2.25.
- No. 8. *A Brief History of Herpetology in North America Before 1990* by Kraig Adler. 1979. 40 pp., 24 photographs, 1 map. \$2.25.
- No. 9. *A Review of Marking Techniques for Amphibians and Reptiles* by John W. Ferner. 1979. 42 pp., illus. \$2.25.
- No. 10. *Vernacular Names of South American Turtles* by Russell A. Mittermeier, Federico Medem, and Anders Rhodin. 1980. 44 pp. \$2.25.
- No. 11. *Recent Instances of Albinism in North American Amphibians and Reptiles* by Stanley Dyrkacz. 1981. 36 pp. \$2.25.
- No. 13. *Silver Anniversary Membership Directory*. 56 pp., 4 photographs. \$2.25.
- No. 14. *Checklist of the Turtles of the World with English Common Names* by John Iverson. 1985. 14 pp. \$2.25.
- No. 15. *Cannibalism in Reptiles: A World-wide Review* by Joseph C. Mitchell. 1986. 37 pp. \$3.00.
- No. 16. *Herpetological Collecting and Collections Management* by John E. Simmons. 72 pp, 6 photographs. \$4.50.
- No. 17. *An Annotated List and Guide to the Amphibians and Reptiles of Monteverde, Costa Rica* by Marc P. Hayes, J. Alan Pounds, and Walter W. Timmerman. 1989. 70 pp., 32 figures. \$3.75.
- No. 18. *Type Catalogues of Herpetological Collections: An Annotated List of Lists* by Charles R. Crumly. 1990. 50 pp. \$3.75.
- No. 19. *Standard Common and Current Scientific Names for North American Amphibians and Reptiles* (3rd ed.) compiled by Joseph T. Collins. 1990. 45 pp. \$3.75.
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