# KANSAS HERPETOLOGICAL SOCIETY NEWSLETTER NO. 84

*MAY 1991*

## ANNOUNCEMENTS

### SSAR/HL ANNUAL MEETING

The annual meeting of the Society for the Study of Amphibians and Reptiles and the Herpetologist's League will be held at Pennsylvania State University, State College, Pennsylvania from 6-11 August 1991. Events of interest this year include the following: SSAR auction led by the incomparable Joseph T. Collins of KHS notoriety, a live exhibit of Pennsylvania herps (such as they are), the wonderful David Dennis/Eric Juterbock slide show(s), a special session on women in herpetology, a symposium on habitat acidity and amphibian decline, and another symposium on captive management and conservation of amphibians and reptiles in honor of Dr. Roger Conant for his lifelong contributions to herpetology. Registration fees are $65 per person. Write Dr. Linda R. Maxson, Department of Biology, 208 Mueller Lab, University Park, Pennsylvania, 16802 for registration forms.

### HUSBANDRY OF PYTHONS AND BOAS

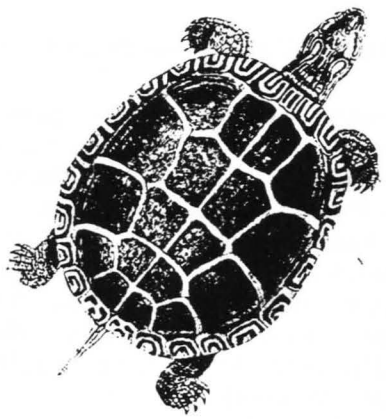
The long-awaited revision of Dick Ross' *Python Breeding Manual* is now available. Entitled **The Reproductive Husbandry of Pythons and Boas**, this 270 page book includes two sections and over 260 color photographs. Subjects such as breeding strategies, photoperiod, fat cycle and follicular maturation cycles, artificial insemination, husbandry of gravid females, artificial incubation, perinatal management of neonates, and many others are covered in Section I. Section II covers specifics of pythons and boas from specified geographic areas such as Australasia, Africa, and Central and South America. Although the $75.00 price tag may seem to be a bit steep, this book appears to be the most comprehensive available on the subject covered. The book may be ordered directly from Dr. Richard Ross, Institute for Herpetological Research, P.O. Box 2227, Stanford, California, 94305. The book is discounted to $50.00 for those employed by zoos.

### NEW SOCIETIES LOOKING FOR MEMBERS

For those of you looking to expand your regional herpetological societies horizons, two new foreign societies are looking for members. They are: the Asociación de Amigos de la Herpetologia (which translates as the Association of Friends of Herpetology) and the Herpetological Society of Cyprus (which translates as...oh, yeah, you already read English). The former society is based in Spain. Both countries have unique herpetofaunas and significant numbers of threatened taxa. If you are interested in obtaining more information about these groups, contact the following: for Spain – Rafael Guerrero Garcia, Jesus de la Vera Cruz, 9 prim.dcha., 4100, Sevilla, España; for Cyprus – Dr. Andreas Jacovides, P.O. Box 2133, Paphos, Cyprus.


**ADVERTISEMENT**

Holbrook Travel, Inc. is offering at trip to the Amazon basin led by the noted herpetologist Dr. William Lamar. The trip is scheduled to leave Miami 7July, 1991 and return 14 July, 1991. The price per person, which is all inclusive for double occupancy, is $1,277.00. For information about this trip, call Holbrook Travel at (904) 377-7111.

# KHS BUSINESS

## NEW FREEBIES

I imagine that many of you were surprised to receive a copy of Joseph T. and Suzanne L. Collins' opus, *Amphibians and Reptiles of the Cimarron National Grasslands* in early January. This publication is a freebie to all KHS members because your Executive Council decided to contribute a fair chunk of change towards its printing costs and the authors were kind enough to secure copies for all KHS members. No, you don't have to send J. T. and Suzanne money, as some folks have inquired about doing. This is one of the benefits that the Society tries to provide its membership. Along those lines, I should mention that KHS has obtained publishing rights to Edward H. Taylor's masters thesis, *The Lizards of Kansas*. The manuscript itself has been typeset and the final product will include forewords by Hobart M. Smith and Joseph T. Collins. I can say at this time that this publication will have a unique and important impact upon the understanding and interpretation of Edward Taylor's life and work. It, too, will be provided free to all KHS members; I hope before the end of this year. This does not mean, however, that we cannot use financial contributions that any member might be willing to give. We already have funds committed by various and sundry sources that will ease the bite, the treasury is in good shape, and with luck we may secure a small grant. Anyone submitting amounts towards the publication of this manuscript will be fully credited and the money given is tax-deductible. Send checks to the KHS Secretary/Treasurer, Olin Karch, not me, and make sure that a note accompanies the funds so that I can give credit where it is due.

— EMR

## UPDATE ON CHIRICAHUA MINING PROPOSAL

Since the appeal for letters that appeared in the last Newsletter, I have received communications from several persons listed in that appeal and it appears that the effort has, at this time, been at least partially successful. Newmont Mining has written that they have declared a 12-month moratorium on any mineral exploration at their proposed sites in the Cave Creek Cañon area of the Chiricahua Mountains near Portal, Arizona. During this period, they will assess public reaction to their proposed activity and may or may not proceed with the exploration at that time. The Portal Mining Coalition has received support from Congressman Kolbe of Arizona in drafting legislation to withdraw this area from mineral exploration and mining. They have also appealed the District Ranger's decision to allow this exploration activity. In short, it does not appear that this mineral exploration will proceed at this time. If you have already written letters outlining your concerns about possible environmental destruction in this area, congratulations. If you haven't, please try to take a little time to do so. The more letters received by all the official parties involved against this activity the better. Just because Newmont says they are going to take a break to assess the situation, does not mean that they *won't* go ahead with the exploration. *WRITE!*, dammit.

— EMR

## EDITORIAL

Well, it appears that the forces of herpetological havoc are at it again. If the reader recalls the near-catastrophe this state experienced with the Bone Creek Reservoir mess of last year, I refer you to the first two articles in the *NEWS OF THE WORLD* section of this Newsletter. Yes, indeed, many of the same actors from that imbroglio are at it again and once again are threatening the health and welfare of not only non-game species in this state but that of the human inhabitants of a large part of Kansas. Although touted as a source of drinking water and recreation for approximately 14,000 residents of environmentally devastated southeastern Kansas, Bone Creek Reservoir turned out to be neither. This was a cynical attempt by certain moneyed interests to build an impoundment with public funds after convincing the public that it was in their interest to do so, when in fact only these interests would be lining their pockets with the profits gained from the use of this so-called drinking water.

I find it ironic that certain groups with "conservation" as part of their monikers are currently behind these attempts to subvert an act of conservation law that is the express will of the people of this state. It is quite obvious to me that the only conservation that is being attempted by these groups is that of their own cash outlay to build these environmentally damaging projects. Yes, folks, it costs money to mitigate damage. That's what the whole act is about. One has to replace what one destroys. Habitat destruction is the primary force behind this whole endangered species mess we have gotten ourselves into and it has to stop somewhere. I can think of no better place than home. We have fouled our nest for far too long, because it was cheap to do so, and we are now having to deal with the economic consequences, which are not cheap. Remember that Wildlife and Parks did not say that these projects could *not* be built. They merely said you cannot build unless you replace.

One last thought or two: it is interesting that the Kansas Farm Bureau wants to "help broaden the Wildlife

and Parks secretary's perspective on the issues." Such statements are the height of cynicism. How can a business whose business is promoting the creation of monocultures have a broad perspective with such a narrow view? The central mission of the secretary of the Department of Wildlife and Parks is nothing less than the protection and conservation of the natural resources of this state. How much broader perspective can one have?

— EMR

**Postscript:** See the excellent testimony of KHS President-Elect Dwight Platt before the Kansas House of Representatives for further information on this odious bill. The testimony is the lead article in the Feature Articles section of this Newsletter.

# KHS BRINGS YOU GREAT NEWS OF THE WORLD

## SENATE BILL ANGERS SOME ENVIRONMENTALISTS

Somewhere in the hardwood forest of southeastern Kansas, a chunky-bodied Broadhead Skink [*Eumeces laticeps*]is going about its business. Each day is filled with the search for food as it mucks about in tree cavities and other dark, musty places among the decaying branches of the 200-year old forest it calls home.

Little does the reclusive 7-inch reptile know that somewhere out there are folks wearing baseball hats that say, "Sink the Skink, We Want to Drink."

The controversy that created the hats also let fly a thing called Senate Bill 341. The bill would establish an endangered and threatened species and habitat advisory committee to advise the the secretary of the Kansas Department of Wildlife and Parks.

The bill was put together by the Kansas Farm Bureau, Mill Creek/Marmaton Watershed Districts of Crawford County, Kansas Association of Conservation Districts, and the Resource Conservation and Development Board of Southeast Kansas.

Sounds simple on the surface, but such a committee already exists within Wildlife and Parks. And many in the natural resources community feel the bill is an attempt by developers to circumvent the Kansas Threatened and Endangered Species Law, which protects everything from the Neosho madtom to the Broadhead Skink.

"I'm very, very upset that such a bill was introduced," said Joe Collins, author of several books on Kansas wildlife. "It is simply an end run by people who do not care enough about the environment to want to protect it."

Collins believes the proposed advisory committee is akin to "having the Common Snapping Turtle guarding the minnows."

Doyle Rahjes, president of the Kansas Farm Bureau, said he sees the advisory committee as a method to help broaden the Wildlife and Parks secretary's perspective on issues.

Jack Lacey, acting secretary of Wildife and Parks, spoke against the bill before the Senate Energy and Natural Resources committee. He believes that it would add another bureaucratic step and slow down the permit process.

"One of the complaints we hear is that it takes too much time to get one of these permits through," said Lacey, whose department reviewed 1,575 development projects in 1988-1989. "If we have to go through another oversight committee, that's going to add a lot more time and expense to the process."

If the advisory committee is approved, Lacey said, it would have to meet often at a minimum expense of $6,000 a year. He said there is no money in the Wildlife and Parks budget to cover those meetings.

The bill had its genesis because the skink lives in forests where developers want to create watershed dams by cutting down mature trees and altering habitat. If the developers want to build their project with public money, they are required to get a permit from the environmental services section of Wildlife and Parks.

Once the agency receives the permit application, it sends experts to the proposed site. There, they turn over rocks, locate and count animals and do surveys to make a determination on the impact the project will have on the habitat and the species that live there.

If the project will upset the balance of nature, Wildlife and Parks will require mitigation from the developers or landowners.

According to Bob Woods, a terrestrial ecologist with Wildlife and Parks, mitigation means to either lessen or replace the impact of an action.

In this case, the action is the development of watershed projects in the Mill Creek/Marmaton Watershed District. Woods said 15 acres of mature hardwood forests would be destroyed by one of the projects.

Using a complex formula, members of the environmental services section determined that it would take 75 acres of mature hardwood forest to replace the impact of losing 15 acres for the proposed watershed project.

"What we're talking about is the loss of high-quality

habitat," Woods said. "What we are trying to do is increase the carrying capacity of that 75 acres so, when the project is completed, the total impact on the population of the threatened species has not resulted in any change. Maintaining the population of threatened species is our goal, and it is the whole theory behind mitigation."

Several watershed districts in Crawford and Bourbon counties will require mitigation because tracts of mature hardwood forests would be destroyed and the animals that live there will be displaced. Mitigation means money and time lost to developers, so they talked to the Kansas Farm Bureau, which in turn convinced the Senate Energy and Natural Resources committee to introduce the bill.

Rahjes agreed that the advisory committee might have originated because of the mitigation issue but doesn't believe it will try to weaken the law.

Bob Meinen, a Topeka-based natural resources consultant and the former secretary of Wildlife and Parks, sees the bill as special interest legislation designed to gain control of the Kansas Threatened and Endangered Species Law.

"They got the Farm Bureau behind them to put together this bill that creates an advisory board heavily loaded to the departmental side," Meinen said. "There's a lot of people out there who feel they should be able to develop whatever they want, irrespective of the habitat impact on threatened species in the state."

— Wichita Eagle, 24 March 1991
(submitted by Suzanne L. Collins, Lawrence)

## KEEP FARM INTEREST 'FOXES' OUT OF ENDANGERED SPECIES 'HENHOUSE'

Evidently the Northern Redbelly Snake [*Storeria o. occipitomaculata*] and the Broadhead Skink [*Eumeces laticeps*], a lizard, came between some folks in Bourbon County and a pork-barrel water project. Landowners had to grant easements on 100 acres surrounding the 14-acre project because the wooded area is regarded as critical habitat for the two species. The two are listed as threatened in Kansas, and therefore come under the protection of the landmark Non-game and Endangered Species Conservation Act of 1975.

Kansas Farm Bureau Insurance did what human beings have been doing since the first [non-native American] settlers began the exploitation of this country: when the interests of wildlife and humans collide, try to find a way around the wildlife interests. That may have worked pretty well for the first 200 years or so of the country's existence, but it doesn't work now, with shrinking wildlife habitat and disappearing native species.

The vehicle the Farm Bureau chose for getting around the non-game and endangered [species] act was Senate Bill 341, amending the act to create the Endangered and Threatened Species and Habitat Advisory Committee. Six of the nine organizations or public bodies represented would have agricultural connections, and only one is regarded as a wildlife and conservation advocate, the Kansas Natural Resource Council. Even the council's expertise doesn't necessarily extend to endangered species.

Currently, the secretary of wildlife and parks has the responsibility of identifying those species needing protection and developing measures for their conservation. He does this in concert with an existing public comment and review process, and on the advice of an existing Kansas Non-game and Wildlife Advisory Council, on which a Farm Bureau representative sits.

The Farm Bureau and the rest of the farm lobby want more, however. They want an agricultural-interest-packed advisory committee that can dictate to the wildlife secretary the decisions he will make.

This means the agriculture-dominated advisers would help decide on the listing — and delisting — of species on the state protected list. (Would anyone care to guess how long the Northern Redbelly Snake and the Broadhead Skink would remain?). Not only the endangered species effort but the state's entire non-game wildlife program, funded by voluntary contributions through the popular Chickadee Checkoff, would be subject to the agricultural interests.

House members shouldn't be the patsies their Senate counterparts were when the latter passed the bill (on Kansas Wildlife Appreciation Day) with little thought or debate. It never should emerge from the committee on the House side, and, given the finer environmental sensibilities of House members, it well might not.

Agricultural interests should know they win no friends when they seek to tamper with the people's wildlife heritage. The state's precious non-game, endangered and threatened species are a part of the Kansas patrimony, and that's where they should stay forever.

— Wichita Eagle, 24 March 1991
(submitted by Edward the Tailor, Wichita)

## WHEN THE GOING GETS COLD

A desolate December landscape lies frostbitten under a somber sky. Icebound lakes crack and moan, and bitter air rattles the trees. Life itself seems to grind to a standstill in the icy dead of winter.

Yet this picture of lifelessness is an illusion, for behind the frosted façade is a world teeming with vitality. Bird feeders bustle with finches, titmice, and chickadees. Woodpeckers splinter dead wood in search of dozing insect larvae. Mice and shrews scurry through passageways under the snow. Frost rimes breathing holes near burrow en-

trances of hibernating animals. Turtles haunt lake shallows. And on nights too cold for most insects, furry owlet moths thud against windows aglow with the lights of menorahs and Christmas trees.

"Winter is so alive," declares Peter J. Marchand, author of the book *Life in the Cold*. "There's plenty going on in terms of animal activity." Marchand is among the growing army of scientists who brave blizzards and bone-numbing chill to study how nature's inhabitants cope with winter's bitter punishment. In recent years, these researchers have made some remarkable new discoveries about the abilities of animals to survive when the mercury takes a nosedive.

Of course, there are those creatures that simply head south and avoid the issue entirely. But many others linger and live to see spring. Some that stick it out stay warm by keeping their internal engines at high rev, a process known as shivering. Others go underground or even underwater. A number of resourceful species flood their bodies with natural antifreeze or mysteriously stave off formation of ice in their tissues even when the thermometer says they should be frozen. And then there are the amphibians, reptiles, and insects that simply freeze solid and wait out the winter as living popsicles.

Like people, most animals cannot tolerate icy intrusions in their tissues. Normally, when the temperature drops low enough, ice forms in delicate blood vessels and either bursts them or stretches them beyond a point where they can rebound. The main problem with freezing, though, is dehydration: All that water bound up in ice becomes unavailable to cells, which can actually die of thirst.

A popular defensive mechanism among some creatures, particularly insects, is what scientists call supercooling. This is the seemingly impossible ability to maintain a temperature below the freezing point without actually turning to ice. Some hardy insects in Alaska can resist freezing in temperatures as low as 70° below zero Fahrenheit by ridding their bodies of "seed crystals" like dust and bacteria around which ice can grow.

Of all nature's supercoolers, only one, the arctic ground squirrel, is a mammal. Research by Brian M. Barnes, a zoologist at the University of Alaska, has revealed that, during hibernation, the creature's body temperature can drop several degrees below freezing without harm to its tissues. So far, however, the mechanism behind the trick remains a mystery.

Recently, scientists have discovered that some animals — including Wood Frogs [*Rana sylvatica*], Box Turtles [*Terrapene* sp.], and Garter Snakes [*Thamnophis* sp.] — perform even greater magic. "They freeze solid," says Richard E. Lee, Jr., a zoologist at Miami University in Ohio. "If you open them up, you can see chunks of ice interspersed among their organs."

Lee and others have found that when the temperature drops and ice begins to form in the Wood Frog's toes and skin, the animal responds by flooding its body with glucose, a form of sugar that somehow protects the cells from ice damage. Even if we humans were able to pump enough glucose into our tissues, the high sugar levels would trigger diabetic coma and death. In Wood Frogs, the sugar increase also brings on a kind of coma, as the excess glucose slows cellular metabolism to near zero. But mysteriously, these amphibian ice cubes are not harmed by excessive sweetness. When the warm rains of late winter arrive, the creatures thaw out and nonchalantly hop to their breeding ponds, using the sugar to fuel the trek.

En route, some of the de-iced amphibians likely will cross paths with frog-eating Garter Snakes, the last of North America's serpents to retire for the winter and the first to become active when the weather breaks. The reptiles spend the winter in rocky hibernation dens where the temperature stays around 40°. In the den, their heart rate drops to a scant half-dozen beats per minute (it's ten times that on a balmy summer's day).

The demands of [bringing forth a litter] and packing enough calories to make it through next winter's snooze put the snakes on a tight schedule. "They're trying to get a jump on things, and that means they often encounter severe conditions," explains biologist Jon P. Costanzo, also of Miami University. "I've seen Garter Snakes basking on snow banks."

Nighttime temperatures outside the den often drop below freezing, and that can turn the snakes to ice. Luckily, a day or two in the freezer is not necessarily fatal. Though no one is sure what protects the snakes from frost damage, as long as the mercury does not linger too long below 32°, a warm sun can revive them.

Costanzo discovered that Garter Snakes can also escape the cold by hibernating underwater. About a decade ago, on an abandoned farm in central Wisconsin, the biologist stumbled onto a scene that would have made Indiana Jones apoplectic: several hundred slithering serpents coming to in the spring at the bottom of a cistern. "I was terrified of snakes," admits the scientist. Yet the sight fascinated him, so he began to monitor the den. The snakes returned the following autumn, and come winter the cistern filled with water. How did the animals survive?

Costanzo believes they were using their skin as a sort of lung, straining oxygen from the water around them. Most scientists consider this so-called transcutaneous respiration too inefficient to keep the reptiles alive. Yet evidently it supplies all the oxygen a snake needs in 35-40° water. "Its heart rate slows to one beat a minute, and its metabolism drops tremendously," says Costanzo.

As little as a Garter Snake "breathes" underwater, it is practically hyperventilating compared to the respiration rate of adult Painted Turtles (*Chrysemys picta*). Once these common reptiles settle into the shallows for the winter, they may not take a breath for five months. "As long as

they're underwater, they avoid freezing," says Brown University physiologist Donald C. Jackson. "But the turtles pay a price."

That price is lost access to almost all oxygen. Like Garter Snakes, Painted Turtles can strain tiny [portions] of oxygen from the water. For most of their energy needs, though, their cells rely on the chemical breakdown of carbohydrates. When there is no oxygen available, it's a rather inefficient process that also creates an unwanted byproduct: lactic acid, the same chemical that causes cramps in humans. Though lactic acid may not give turtles aches and pains, too much can cause a fatal chemical imbalance called acidosis.

Fortunately, the combination of cold water and low oxygen causes the turtles to shift into low gear. "They're very sluggish," says Jackson. "Their heart rate can be as low as one beat every 10 to 11 minutes; it's 30 to 40 beats per minutes on a summer's day." And because the creature's cells have little to do, they put out very little lactic acid.

Even with the slowdown, lactic acid accumulates in wintering turtles, yet few die from acidosis. That's because over the past 200 million years the creatures have developed the reptilian equivalent of Rolaids. Using calcium carbonate from their shells, they neutralize most of the excess acid. What they can't purge, they tolerate.

Warming water temperatures let the turtles know when it's time to greet the spring.

Researchers are still busily chipping away at the secret defenses of winter's survivors. The more we learn, though, the clearer it becomes that, at least for now, the variety and complexity of nature's exquisite thermal dynamics still vastly exceed our ability to understand them.

— National Wildlife, December-January 1991
(submitted by Karen Toepfer, Hays)

## HOW TO TRACK A TOAD

Toronto fashion designers Joyce Gunhouse and Judy Cornish are accustomed to unusual requests in their business, but even they thought the man who wanted a toad harness was joking. It was no laughing matter for Bob Johnson, curator of amphibians and reptiles at the Metropolitan Toronto Zoo. "He had a box marked 'tarantulas'," recalls Cornish, "and we were skeptical as to what we were going to see!" Inside was a snub-nosed Puerto Rican Crested Toad [*Peltophryne lemur*] with a warty, four-inch-long body.

Johnson asked the duo to design a harness to carry a tiny transmitter for tracking the amphibians in their native Puerto Rico. When not out breeding during the rainy season, the toads hunker down in holes inside limestone. So successful is this vanishing act that no toads were sighted from 1968 to 1980, when several were seen, ending concern that the creatures had gone extinct.

The resurrection of the long-lost amphibians set in motion a captive breeding and release program overseen by Puerto Rico's Department of Natural Resources and carried out by a number of North American breeders, notably the Metropolitan Toronto and Buffalo zoos. Since 1984, more than 3,00 toadlets have been bred and then released in Puerto Rico. One of Johnson's jobs has been to gauge the success of the program. But, as he said from the outset, "How the heck do you track a toad?"

After weeks of trying to keep a prototype harness for holding a radio transmitter on toads that broke free by stretching or inflating, he consulted the designers. With Johnson gently squashing a toad on a piece of paper, Cornish and Gunhouse traced its crucial measurements. "The head and the hips — those are the only two points on the toad that don't move or change or inflate," explains Gunhouse.

The very next day, the toad hopped into the world of fashion sporting a black garment made from the same material as girdles. Underneath, two black straps, drawn under the chin and around the hind legs, joined by a solid piece, looked suspiciously like a miniature G-string.

Johnson tested his equipment by releasing his small backpackers, transmitters included, in a building at the zoo. Armed with his receiver, he tracked them through the halls. Next, he was off to Puerto Rico. Under field conditions, the trial release of 12 toads wearing the backpack proved a success. Meanwhile, back at the studio, the designers got another call that did not exactly thrill them. "Hi. We have these salamanders..."

— International Wildlife, January-February 1991
(submitted by Eminently Red Dunn, Wichita)

## SLAUGHTER BY THE SEA

Turkey vultures circled overhead as we crested a hill and found a break in the dry tropical forest bordering the beautiful Pacific coast of southern México. As we hiked toward the slaughterhouse, a foul odor wafted a half-mile down the beach. Soon we spotted giant turtle heads and flippers floating in the surf.

The closer we got, the more carcasses littered the white sandy shore. When we reached the beach directly behind the slaughterhouse, we discovered one source of the stench: a river of rancid blood and turtle innards, complete with tens of thousands — possibly millions — of crushed and rotting eggs.

Fisherman were mending their nets along the beach. We learned that the previous day had been a good one for turtling — more than 800 endangered Olive Ridley Turtles [*Lepidochelys olivacea*] had been slaughtered. The factory would be closed for the next few days for the Day of the

Dead holiday. On this visit we would not witness the massive legal killing that occurs almost every day. Twenty thousand endangered Olive Ridley Turtles are killed legally each year at this plant alone. This is the largest slaughter of an endangered species occurring in the world right now.

Some of the turtles are much older than the fisherman who stalk them. No one knows how long sea turtles live, but it may take as long as 25 to 50 years for Green Sea Turtles [*Chelonia mydas*] to reach reproductive maturity. A Leatherback Turtle [*Dermochelys coriacea*] that recently drowned in a fishing net off the coast of Wales has been authenticated as the largest turtle ever recorded, measuring 9 ½ feet long and weighing more than 2,000 pounds.

Mexican law requires that all parts of the harvested turtles be used. Local people eat the meat; the oil is used in lotions; the shell and skeleton are ground into fertilizer and chicken feed. But in reality, the gentle Olive Ridley Turtles are being killed for the 18-square-inch patch of skin that can be stripped from their limbs. The skins are tanned and exported, mostly to Japan, to be made into high fashion shoes and purses. The shells of the Hawksbill Turtle [*Eretmochelys imbricata*], illegally collected along the Gulf Coast of México, are made into luxury items like tortoise shell jewelry, combs, and glasses frames.

After a newspaper exposé in México and protests in the United States, the Mexican government agreed earlier this month to outlaw the harvesting of endangered turtles by 1992. Conservationists have responded that the slaughter should stop immediately because by '92, no turtles will be left to protect.

In addition, some environmentalists look with skepticism on promises from the Mexican government. "For more than a decade, the international conservation community has heard empty promises ... that México would join CITES [the Convention on International Trade in Endangered Species] and comply with CITES regulations," said Craig Van Note of MONITOR, a coalition of 35 conservation and animal welfare groups in the United States. "However, it is obvious that vested interests who are massacring the turtles ... are dictating Mexican policy."

Conservationists also have said that México should take steps to end illegal hunting, which kills far more turtles than the legal harvest. Reliable sources estimate that the actual harvest each year is at least three to four times the St. Augustinillo plant's legal quota of 20,000. If true this could bring the death toll at this factory to more than 80,000 a year. U.S. government sources familiar with the situation estimate the kill at 75,000 a year.

In the first four months of the 1989-90 season (which began in August), the San Augustinillo slaughterhouse had already processed more than 35,000 Olive Ridleys, according to Homero Aridjis, president of the Mexican environmental organization, Group of 100. Aridjis recently wrote a five-part exposé on the turtle trade for La Jornada, a major daily newspaper in México City. The Mexican government denies the 35,000 figure.

"Even the legal kill of 20,000 [of which more than 99 percent are adult females who are about to lay their eggs] is unsustainable and will lead to the collapse of the populations," warned a U.S. government sea turtle expert, speaking on the condition of anonymity.

This opinion has been echoed by a number of Mexican and international sea turtle biologists. Kim Cliffton and his colleagues from the Arizona-Sonora Desert Museum studied sea turtles along the Pacific Coast of México in the early '80s. They reported as early as 1982 that the huge populations at beaches in Guerrero, Jalisco, Sinaloa, Michoacán, and Baja California had already collapsed: "There is no biologically sound formula for the continued exploitation of México's Ridleys."

The *arribada* (arrival) — the synchronized nesting of tens of thousands of Ridley Sea Turtles — has been described as the most fantastic natural wonder of the reptile world. Several days before the *arribada*, the turtles begin to congregate offshore. All at once, they emerge from the ocean in wave after wave, filling the entire beach with female turtles — each determined to lay her clutch of about 100 eggs.

Scientists speculate that this evolutionary strategy of "putting all your eggs in one basket" allows the turtles to lay so many eggs that no natural predator could destroy them all — thus allowing some to hatch, grow, and reproduce. This has worked for eons: the graceful creature has abundantly populated the oceans since before the Age of the Dinosaurs. But the strategy can't protect the turtles against human hunters with international markets to feed.

For another species of sea turtle, the Kemp's Ridley [*Lepidochelys kempi*], there is only one beach in the world where the *arribada* is known to occur. It is along the Gulf Coast of México at Rancho Nuevo, México, an area that was harvested of turtles in the '60s. Forty years ago, Rancho Nuevo hosted hundreds of thousands of turtles (45,000 turtles were recorded in a four-hour period during a single *arribada* in the 1940s); this season only 500 female turtles returned to nest on the beach.

The Olive Ridley is known to nest in *arribadas* exceeding 10,000 females at only a dozen beaches worldwide. Of these, four are in México. The populations of three of these have completely collapsed from the overharvesting. The last remaining large population nests at Escobilla. It is this population that is now being "processed" at the slaughterhouse at San Augustinillo.

Although a portion of the beach is protected and nests are transferred to guarded hatcheries to improve their hatching success, illegal poaching of eggs is rampant. According to Aridjis' article, "Sometimes the Marines, out of uniform, in charge of safeguarding the beaches, accom-

pany them [the poachers] while they load the eggs."

Eggs of all species are legally protected, but trade flourishes. Local fisherman report eggs being taken off the beach by the truckload. Considered an aphrodisiac, the eggs are sold openly and eaten raw on the streets and in bars. One knowledgeable U.S. government source estimates that 1 million eggs may be poached each year from the Escobilla beach alone. Aridjis estimates 10 million in all of México.

Turtle fishermen in México's state of Oaxaca are organized into nine cooperatives, each representing about 200 men. These turtle hunters bring their quota of 20,000 Olive Ridleys to the plant at San Augustinillo, by far the largest of three legal turtle slaughterhouses along the Pacific coast of México.

The hunters can legally catch the turtles only at sea, and using nets is prohibited. When turtles are spotted resting on the ocean's surface or mating just off the nesting beaches, fisherman maneuver up to them, jump in the water, and grab them. They are thrown into the boats and left to lie on their backs, confused and immobile, until they are hauled in for slaughter.

The turtles at San Augustinillo are dumped on the slaughterhouse beach and left to lie in the sand until they are carried up the hill. "The turtles are hard to kill," one hunter related. "They used to kill them with wooden clubs, but they would continue to jerk around for a long time. Now they use a .22 pistol."

On our visit, we slipped into the empty [concrete] rooms of the slaughterhouse. The walls were splattered with blood. Down the center of each room was a foot-wide ditch, caked with more blood and entrails. From the ceiling hung scores of nooses. The most eerie sight in the room was a row of strange stone tables looking like sacrificial altars, each with a scooped-out center designed to accept an overturned carapace, the upper shell of these ancient creatures. The sea turtles' bony armor, which evolved over 150 million years to protect them is now used to balance the creatures as they are hacked to pieces.

After only a few minutes, the stench overpowered us, and we headed outside. Looking into a second set of buildings, we could see thousands of turtle skins — piled to the ceiling on one side, waist-high on the other. Workers who became aware of our presence began yelling "*Malo! Malo!*" (Bad! Bad!). The men jumped up quickly, pushed us out, and shut the door. Walking away from the plant, we passed a huge mountain of turtle shells — a disturbing monument for an animal revered for its longevity.

Aside from the San Augustinillo slaughterhouse, the world's sea turtles face myriad threats. At sea, they become ensnared in the nets of shrimp boats and fishing vessels. On land, commercial development along once-isolated coasts threatens their nesting beaches. And there is the general pollution of the oceans: everything from oil-tar balls to floating plastic debris has been found blocking the intestines of dead sea turtles.

To protect sea turtles from extinction, governments and environmental groups have started a worldwide conservation and research program. Seven of the eight species of sea turtles are now listed under the U.S. Endangered Species Act, and all species are protected under CITES. Despite these protective measures, most turtle populations appear to be declining.

Mexican universities operate about 20 conservation projects along the Pacific and Gulf coasts with international support. Although the Mexican government points proudly to these programs, the government actually provides them with little support. The conservation personnel are paid by universities, not the government. And many fisheries inspectors who are supposed to enforce quotas and protect endangered turtles are corrupt, according to Aridjis.

In an attempt to mitigate the slaughter, eggs removed from the dead females are cleaned and incubated in Styrofoam containers in order to return some hatchlings to the sea. The hatching success is extremely low, according to a report done for the U.S Fish and Wildlife Service in 1987.

In the research programs, nesting females are tagged by attaching metal or plastic markers to their flippers. The tags allow researchers to identify and track the animals through their long lives.

Sea turtles are prodigious travelers. Black Sea Turtles [*Chelonia mydas agassizi*] tagged on beaches in the Mexican state of Michoacán have been recaptured along a 3,100-mile stretch from the Gulf of California to the Pacific coast of Colómbia. The most spectacular traveler of the the sea turtles is probably the giant Leatherback, which nests throughout Latin America but migrates as far north as Alaska and Newfoundland in search of jellyfish. Because the sea turtles migrate through international waters, global protection is needed to protect these creatures.

Tagging research indicates that many sea turtles return to the same beaches season after season to lay their eggs. Of 17,000 Green Sea Turtles tagged on the nesting area of Tortuguero, Costa Rica, over a period of 30 years, none has ever been found nesting at another beach. Many biologists believe that sea turtles return to the same beach where they were hatched after absences as long as 50 years.

Fisherman who capture turtles are supposed to return the tags to scientists for a reward. This allows researchers to learn the location and fate of the turtles they have tagged. One fisherman told us that, in an attempt to cover up the magnitude of the sea turtle slaughter in Oaxaca, turtle hunters have been told by slaughterhouse operators and their fishing cooperatives not to return tags for the rewards. Our local contacts gave us tags to return to the appropriate agencies in Costa Rica and México because they were afraid to return them directly. Discarding the tags results in

the loss of important information and wastes hundreds of thousands of dollars spent on tagging programs.

Most fisherman we talked with remained tight-lipped about the sea turtle slaughter, but we did find a few who expressed concern about the continued survival of the turtles. These men demanded anonymity before speaking with us because, as one veteran fisherman put it, "I fear for my safety ... and I wish to live in this community in peace."

The local people have much to lose. In the long run, the extermination of the turtles would destroy their ability to use the sea as they have for generations. Archeological evidence shows that sea turtles have been a source of eggs and food for humans since primitive times.

Even in the short run, the local people gain little from the mass harvesting. The current huge supply of sea turtles has depressed market prices. The fishermen have already accepted a system that pays them less for the turtles that are caught above the legal quota. A fisherman receives 45,000 pesos (approximately $18) for a turtle brought in under the legal quota. Illegally caught turtles are worth only 30,000 pesos ($12).

The Sea Turtle Restoration Program — working with the Group of 100, and with U.S. environmental groups — is mounting a campaign to stop the sea turtle slaughter. The challenge is to devise a program that protects the poor rural people as well as the endangered animals that they have relied one as a resource for generations.

Few models exist. Under one program, which has been tried in Nicaragua and Costa Rica, long-lived adult turtles are completely protected and only the sea turtle eggs are harvested. The mass nesting of the Olive Ridley makes the species ideal for this program. Under natural conditions, only a very small percentage of eggs actually hatch. A controlled harvest of eggs may not even affect the total number of successful hatchlings.

Protection of sea turtles and other creatures depends on providing the poor with alternatives. With no control over their natural resources, the fishermen — and their way of life — are as much a victim of the international trade in exotic reptile skins as are the turtles.

— San Francisco Chronicle, 25 February 1990
(submitted by John Simmons, Lawrence)

## ARE SNAPPING TURTLES DEADLY WEAPONS?

If you posed that question to Domino pizza delivery man Troy Brewer, you would get a resounding YES in reply. In fact, anyone who has come face to face with a large snapping turtle could attest to their ferociousness. The June 8, 1990 edition of the *Chicago Tribune* contained Troy Brewer's encounter with the slashing jaws of two criminal's chelonian accomplice. Brewer was using a pay phone when he was robbed by a pair of thieves armed with a snapping turtle. "Don't move or you're gonna get bit," Brewer said robbers told him. Brewer didn't move and the robbers got away with his money pouch containing about $50. Balch Springs, Texas, Assistant Police Chief B. W. Smith remained skeptical over Brewer's robbery account. "I suppose if he said it happened, I guess it did. Personally, I just can't see somebody holding somebody up with a turtle," he said. Obviously Chief Smith has never gazed into the maw of an irate snapper. Brewer said he was still shaken up a day later: "It was a big, huge, ugly turtle...that sucker was going to bite me."

— Bulletin of the Chicago Herpetological Society, August, 1990
(submitted by Watt A. Putz, Wichita)

## A TURTLE TRAGEDY

Bill Hamm remembers seeing the turtles on his folks' lake when he was a kid.

Winters they'd hibernate on the muddy bottom. But in summer, when the boy rafted or swam, he might spy 20 or 30 sunbathing on logs and boards along the shore. Even the snap of a twig would send the timid creatures diving under water.

Occasionally he'd find a stray, with its characteristic "paisley print" head and legs, out on the road.

Nobody thought the turtles were rare.

The same shy critters — found only on the West Coast — could be spotted easily in southern Puget Sound's lowland lakes, ponds, and marshes, and as nearby as the arboretum in downtown Seattle and Lake Sammamish, east of the city.

"We always knew the turtles were there," says Hamm. "It was neat. But, of course, to me they were just turtles."

Forty years later, the unobtrusive Western Pond Turtle [*Clemmys marmorata*] — a species at least 2 million years old — is in desperate trouble.

The cause isn't wholly known, but predators, the pet turtle trade, and loss of habitat have a lot to do with it.

In the state of Washington, the population had already dwindled to 150. The core groups were in Hamm's lake and the ponds of his neighbor, Dennis Clark.

In June, a mysterious pneumonia started killing turtles at both sites. They couldn't submerge and swam cockeyed on top of the water. Their breathing was audibly distressed.

So far at least 36 turtles have died, about 25% of the known population in Washington.

"It's a classic example of what happens when a species is reduced to small numbers in a few locations and then catastrophe hits," says Harriet Allen, manager of the state's endangered species program.

In response, a massive rescue effort is in full swing.

The project is being managed by the Washington Department of Wildlife and the Center for Wildlife Conser-

vation at the Woodland Park Zoo. The Center for Wildlife Conservation, in turn, is a cooperative effort among Woodland Park Zoo in Seattle; Point Defiance Zoo in Tacoma; the Seattle Aquarium; and Northwest Trek, an animal farm attraction. The price tag, to be shared, approaches $60,000.

All of the turtles that could be caught were moved to the zoos at Woodland Park and Point Defiance.

Now, with a combination of tender loving care and high tech, the strategy is to treat the sick ones, identify the disease and its cause, protect the remaining healthy population and increase their numbers.

The public, too, is being asked to look out for the little guys, which grow to be about as big as the span of a man's hand. People are being told to quit abandoning exotic pet turtles in lakes and streams, because they may carry diseases to which native species have no immunity.

Meanwhile, Bill Hamm and his wife, Wendy, and their neighbors the Clarks are wondering if they'll ever see the turtles on their land again.

"We would like them to be back, but we'd like them to be healthy, too," says Wendy Hamm.

The turtles' tale starts in the '70s when Frank Slavens, then a keeper at the Woodland Park Zoo, was searching for Mountain King Snakes [*Lampropeltis zonata*].

What the zoo keeper discovered were Western Pond Turtles on the Hamms' and Clarks' property. Slavens, who's since become reptile curator, returned year after year to watch the turtles.

About 1985, Slavens learned that the state game department was studying Western Pond Turtles. He tipped them to his find.

Soon after, the state began an annual "mark and recapture" program to learn the age and sex (sic) of the populations and compare them with turtles from Oregon and California.

In the years that followed, mostly old turtles were found in the population, which as a species lives at least 35 years.

So Dan Holland, a turtle expert and doctoral candidate at Southwestern Louisiana State University, was hired to conduct reproductive studies on the turtles last summer.

Holland camped out in his van on Clark's property and began snorkeling in the ponds. He fixed radio transmitters to females in order to follow them to their nests. He took tissue samples of tails for genetic information. It was the first time in the state such a study had been done.

"About halfway through the project, the turtles were exhibiting abnormal behavior ...," recalls Holland.

"Pretty soon it became obvious that a fair number were suffering from some kind of unknown respiratory ailment."

Within three months, 18 turtles were found dead, many of their dark shells scattered along the shore "intact" — evidence they had not been chewed on by predators.

"The animals had just walked out of the pond and died," says Holland.

Many of the remaining turtles were captured. At Woodland Park, veterinarian Janis Joslin and her staff began aggressive treatment. Joslin quarantined the animals, which were lethargic and having difficulty breathing, in a separate building. The Center for Wildlife Conservation hired two people full time to care for them in sterile conditions, wearing special boots, pants, and gloves.

To identify the disease, Joslin took X-rays and, in one turtle's case, a CAT scan at Children's Hospital.

Unusual lung lesions indicated a rare pneumonia and looked similar to lesions found in the endangered Desert Tortoise [*Gopherus agassizi*] in California. Joslin sent tissue samples to a reptile expert in Florida. Other samples were sent to the Armed Forces Institute of Pathology in Maryland.

The tissue has been difficult to grow, but Joslin suspects the cause of the pneumonia is a mycoplasm, a bacteria that lives within the cell, or a virus.

With no treatment protocol to follow, Joslin consulted reptile experts around the country and ended up prescribing antibiotics (tetracycline), heat, fluids as needed, and absolute quiet. Each turtle's weight gain was meticulously charted. A few especially sick turtles were fed by tube, but all of those died. The vet even tried small doses of Valium on one animal to stimulate appetite.

Pond Turtles, particularly alert and sensitive, sometimes will stop eating for weeks just from the upset of a new environment.

"It's been very frustrating. These turtles are extremely slow responders," says Joslin. When she gives them a shot, she has to wait a week to see any effect.

Eventually, 18 more turtles died in captivity either at Woodland Park or at Point Defiance. Another 18 either recovered or never got sick. Four more are still being treated.

It is now thought there are fewer than 100 Western Pond Turtles left in the state. But since turtles in the wild have gone into hibernation, it will be a waiting game until spring.

Since no one knows the cause of the disease outbreak, home still might not be a safe place.

"The pneumonia ... is probably a secondary expression of something else," says Allen.

The turtles could have caught the disease from pet turtles released into the ponds and lake. Last year's cold, wet spring might have lowered their resistance. The area might be contaminated. Or the state's reproductive studies might have stressed them out.

Holland says he's performed such studies on Western Pond Turtles up and down the coast with no problems.

Meanwhile, researchers at Washington State University

also have been asked to use electron microscopy to identify the pathogen and its cause. Toxicologists from Western Washington University plan to analyze the habitat this winter for contamination to determine if the healthy turtles can be returned in the spring.

For the time being, the rehabbed turtles are living at the state's South Puget Sound Wildlife Area near Tacoma in an empty facility.

For about $5,000, the building was insulated and equipped with heat and an elaborate filtering system for the water in the turtle's tubs.

The Center for Wildlife Conservation and the Woodland Park Zoo also have decided to start a captive breeding program. That program, discussed before the turtles got sick, has a grant from the Department of Wildlife and is aimed at increasing the number of Pond Turtles and, it's hoped, reintroducing them to the wild.

Another strategy employed by the state may be to move in healthy adults from Oregon.

The state is reviewing Pond Turtles, listed as threatened, for designation as an endangered species.

"It's a scary situation because the numbers are so low," says Allen. "But we think we can bring the species back."

— Houston Chronicle, 16 December 1990
(submitted by Tim Evans, Lawrence)

## AN AUTHENTIC SNAKE STORY

As the fast express on the Lake Shore stopped at Berea yesterday to take water, the passengers saw in the corner of a rail-fence, sunning itself, a large snake. When the engineer blew off a stream of hissing, hot steam, the snake suddenly coiled itself up as if to jump at the brakeman, who stood with his back towards the reptile. Col. Robert Downes, who was in the parlor-car, saw the dangerous position of the brakeman, and with a cool presence of mind, leaped from the car, grasped a fence-rail, and proceeded to strike at the snake.

By this time the ladies in the car were screaming, and the other male passengers had jumped out the help the Colonel. The snake dodged Col. Downes' first blow by dipping its head, and then suddenly, to the horror of everyone, sprang from its coil, head foremost upon the platform of the car, and, the door being open, glided with fiery eyes and darting tongue, clear into the center of the car. Several ladies nearly fainted, and the screams of the frightened passengers brought Superintendent Newell, who had a revolver, from the rear car. Mr. Newell is a good shot, having served through the Mexican war; but the screams of the lady passengers seemed to unnerve him, and his first shot missed the snake, which now coiled itself up, with head erect, ready to spring in among a half-fainting group of ladies.

Luckily, as soon as Mr. Newell fired, and before the snake could make a deadly spring, Mr. Augustus Schell, of New York, drew a revolver and shot the snake dead. Quivering a moment, its head fell, and the dead body lay lifeless on the carpet of the car.

On measuring the snake, it was found to be 17 feet and seven inches long, and had 14 rattles in its tail, and four rattles around its neck. It was a rare species, or *vicus snakina*, thought heretofore to be an extinct species. Our readers can place the largest credit to this account, as we gained our information from one of the passengers who saw the snake die and afterwards measured it.

— Cleveland Plaindealer, *ca.* 1877
(submitted by Park W. Carter, Eureka)

## ZOOLOGIST LEADS VOLUNTEERS IN KANSAS' SECOND ANNUAL REPTILE, AMPHIBIAN CENSUS

This year's reptile census is complete.

The final results of the second annual Kansas Herp Count were tabulated this month. A total of 48 species and 1,417 specimens were found in the count, a controlled census of amphibians and reptiles compiled by University of Kansas zoologist Joseph Collins.

Counts were conducted in nine counties in April and May by teams of volunteers, Collins said. The teams turned over rocks, observed turtles sunbathing, listened for singing frogs, and counted carcasses and live animals along roads.

"Probably the biggest surprise was when we turned over a rock in Cottonwood Falls and found seven Copperheads [*Agkistrodon contortrix phaeogaster*]. Now that will make you jump," he said. "They haven't been seen that far southwest since the 1960s. I think they were as excited to see us we were to find them."

Collins said the count would be a valuable indication of long-term changes in reptile and amphibian populations.

"You hear a lot of theories about the world's amphibian crisis," he said. "People say that amphibians are disappearing. There are reports that frogs in particular are in trouble worldwide.

"People ask me if there has been a gradual decline around here, and I have to tell them I don't know. I haven't been counting frogs for the past 10 years."

He said the Kansas count was the first attempt in any state to begin to see if there had been a decline in their numbers.

John Simmons, collection manager of the Division of Herpetology at the Museum of Natural History, said the count was modeled after the bird counts the Audubon Society had done for years.

"The bird people have statistics going back for 30

years, so they can actually make some scientific conclusions about changes in bird populations," he said. "We wish we had statistics going back that far, but we don't. But now is a good time to start."

Collins said the count also was a public education tool.

"This is a good way for people to get out of the house in the springtime and participate," he said. "They can make a meaningful contribution and have a good time while they're doing it."

Among the species found during the census this year were the Prairie Ringneck Snake (225), the Great Plains Toad (297), and the Flathead Snake (65). [Venomous] snakes included the Prairie Rattlesnake (4), the Massasauga (3), and the Osage Copperhead (11).

Volunteers counted in Hodgeman, Ellis, Russell, Chase, Cowley, Barber, McPherson, Comanche, and Kiowa Counties.

— University Daily Kansan, 24 September 1990
(submitted by Suzanne L. Collins, Lawrence)

**AMPHIBIANS, REPTILES IN NEED OF CONSERVATION**

The obvious signs of spring are all around us.

Early blooming bulbs are poking their heads through the soil, trees are beginning to bud, and the robin's song once again fills the air.

If you wander past the city limits, keeping your eyes to the ground and turning rocks in your path, the less obvious signs of spring are sure to greet you.

The frogs, toads, turtles, lizards, and snakes that inhabit the prairies, ponds, and rivers are beginning to emerge from their winter retreats. If weather conditions are favorable, and the spring rains begin early, the cacophony of chorusing frogs and toads can be heard as early as March.

Of the 91 known species of amphibians and reptiles native to Kansas, 44 have been documented in Ellis County: one salamander, nine frogs an toads, six turtles, eight lizards, and 20 snakes. Of the snakes, only two species are [venomous] and should be avoided. They are the Prairie Rattlesnake [*Crotalus viridis*] and the Massasauga [*Sistrurus catenatus*] (also a rattlesnake).

Several other species of snakes will put on quite a display when encountered — complete with hissing and a vibrating tail to simulate a rattle — but it is all show and they are quite harmless.

Amphibians and reptiles have been abused and maligned for years. These masters of evolutionary efficiency are not cute or cuddly and therefore have never garnered a public voice. Every year thousands of these animals are killed out of ignorance and fear.

Many people fail to recognize the importance these animals play in our ecological environment. Snakes keep the rodent population in check and frogs, toads, and lizards devour their fair share of insects. In turn, they are preyed upon by other animals. They are an essential link in the ecological chain and deserve our respect.

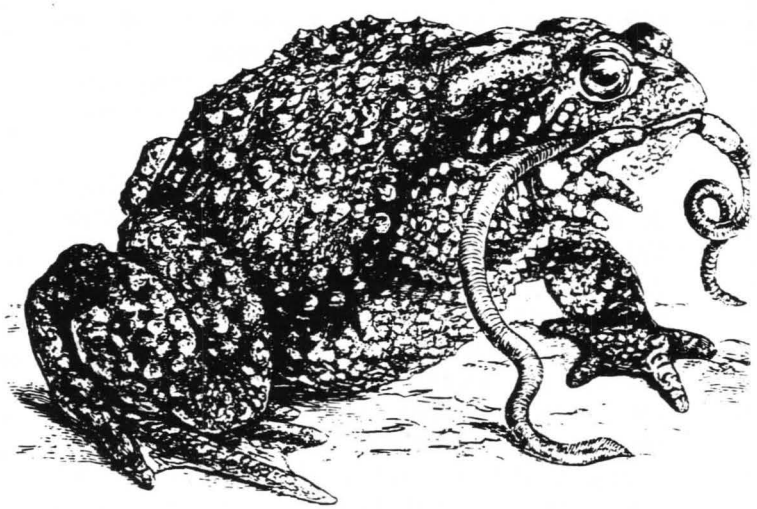
Recently, scientists have become alarmed by the worldwide decline in the amphibian population. Habitat destruction and increased use of pesticides are possible causes. By their very nature, amphibians have been termed the "canary in the coal mine" of the 1990s. As these hearty little creatures begin to disappear, it can be assumed that other animal species will follow.

The Kansas Department of Wildlife and Parks should be commended for recent action taken on behalf of nongame wildlife. The regulation allowing the trapping of amphibians and reptiles for commercial purposes has been dropped.

We have entered the 1990s with a renewed respect for our earth and its resources. If we continue our efforts in the areas of water management, recycling, and conservation, the benefits will be twofold. Not only will we ensure the future of this planet for generations to come, we will also secure a place in the ecosystem for that often feared but fascinating group of animals known as amphibians and reptiles.

— The Hays Daily News, 22 March 1991
(submitted by Travis Taggart, Hays)

**Editor's note:** The preceding article was written by KHS member Karen Toepfer



# FEATURE ARTICLES

## Testimony Presented with Regard To Senate Bill No. 341

*by*

***Dwight R. Platt***
***Professor of Biology***
***North Newton, Kansas***

My name is Dwight Platt. I am a professor of biology at Bethel College where I have bee on the faculty since 1957. I am also President-Elect of the Kansas Herpetological Society and Secretary of the Kansas Ornithological Society. I have had a long-time interest in threatened and endangered species of animals and plants in Kansas. From 1971 to 1975, I was Chair of the Conservation Committee of the Kansas Academy of Science when this committee compiled one of the first scientific lists of rare, endangered, and extirpated species of vertebrate animals in Kansas. These lists were published in the *Transactions of the Kansas Academy of Science* in 1974. From 1980 to 1986, I served on the Kansas Nongame Advisory Council and was the second Chair of the Council, serving in that capacity from 1982 to 1984.

E. O. Wilson, the Harvard biologist, said ten years ago, "The one process ongoing in the 1980s that will take millions of years to correct is the loss of genetic and species diversity by the destruction of natural habitats. This is the folly our descendants are least likely to forgive us." It is a consensus among many scientists that biological impoverishment of our planet by species decline and extinction is one of the most critical problems we face today and in the immediate future. This is a problem that is being addressed by the Kansas Nongame and Endangered Species Conservation Act. I am concerned that Senate Bill No. 341 amending and supplementing this act is not only unnecessary but will complicate the accomplishment of the objectives of the act.

Since the initiation of the nongame wildlife program, the Kansas Nongame Advisory Council has provided consultation to the state wildlife agency in the implementation of this program. This Council has represented the interests of those Kansans who have contributed to the Chickadee Checkoff, a primary source of funding for this program. This Council has been able to operate in a professional manner because of the representation on the council and its committees. It has been able to provide information and advice from those scientists in the state most knowledgeable about these nongame wildlife species.

Senate Bill No. 341 establishes another advisory committee with overlapping responsibilities to the Kansas Nongame Advisory Council. This committee does not have the potential to provide the professional advice and information that has been provided by the council. This is an important concern if the act is to be effective because decisions with regard to the listing and delisting of species must be made on the basis of biological information and biological criteria. Most of the members of the proposed Endangered and Threatened Wildlife Species and Habitat Advisory Committee represent state agencies or organizations that might have projects that would impact the survival of endangered species. Provisions are made in the present legislation for the input of such special interests. The present law mandates that the Secretary [of the Department of Wildlife and Parks] will make determinations on the status of species after appropriate consultations with federal agencies, other interested state agencies, and interested persons and organizations. It also mandates public notice and opportunity for public comment on such determinations. This provides the opportunity for public input from a wide rage of groups, not the very limited groups to represented on the proposed advisory committee.

The agency has operated in a responsible and thorough manner in developing the present list of endangered and threatened species. In the last review of the list, the Nongame Task Force reviewed 183 species and solicited and received information from 102 knowledgeable individuals in order to compile the list of 45 threatened or endangered species. I understand that the agency is beginning a new five-year review of the list and will again be soliciting information from knowledgeable persons throughout the state.

The regulations used by the agency in controlling those actions likely to destroy endangered or threatened species or their habitat are very reasonable. The requirement of mitigating and compensating measures for the damage caused by such actions is a useful way to allow for development projects without unacceptable damage to species and their habitat and is typical of endangered species programs.

This last summer I spent a few weeks in the Amazon region of Brasíl. The diversity and beauty of the tropical

forest captivates most of us and raises our concern about the protection of the diversity of life. However, Brazilians wondered why we were concerned about their Amazonian forest when more than 85% of it is still there. They wondered whether we were equally concerned about the diversity of natural communities and habitats in our own country, where much smaller percentages are left under natural conditions. I think all of us here would agree that it is important to protect our natural heritage in Kansas.

There are many reasons for doing so — ecological reasons, esthetic reasons, historical reasons, ethical reasons, religious reasons, and economic reasons. I hope that we can continue to develop better state programs for protection of our native biological resources. However, I believe that the proposal in Senate Bill No. 341 is a move in the wrong direction and would increase the bureaucratic complications in the way of an effective nongame and endangered species program.

## A Capron Potpourri
## (Miscellaneous Observations And Thoughts From The Assistant Editor)

*by*

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### UNUSUAL FORAGING BEHAVIOR IN WATER SNAKES (*NERODIA*) AROUND DRYING POOLS IN SOUTH-CENTRAL KANSAS

Water snakes are highly opportunistic feeders, using both sight and sense of smell to locate their prey. At times, however, they seem to operate on a level without logic or reason. I once dropped a cigar butt from a bridge onto a sandbar where a Northern Water Snake (*Nerodia s. sipedon*) was lying along the shore. The cigar butt hit the sand near the snake. The snake immediately caught and half swallowed the butt before the reptile realized its error and disgorged the cigar. Yet another time, Kelly Irwin and I were using a 100-foot seine to catch bait fish from a drying impoundment at the Neosho Wildlife Refuge near St. Paul, Kansas for our Alligator Snapping Turtle (*Macroclemys temmincki*) research. As we dragged the huge, heavily laden seine ashore, we found it overflowing with carp (*Cyprinus carpio*), buffalo (*Ictiobus sp.*), and gizzard shad (*Dorosoma cepedianum*), many of which were quite small. We also found it contained three Diamondback Water Snakes (*Nerodia r. rhombifer*) that were busy devouring the fish. The snakes were oblivious to all the activity and entanglement going on around them. So I know Nerodia for what they are: hungry, foul-tempered, and even fouler smelling reptiles which are best observed casually from a distance. Indeed, few herpetologists have cared to tackle the intricacies of *Nerodia* natural history despite their wide-ranging abundance.

During July 1990, I observed an interesting foraging behavior in water snakes in south-central Kansas. Unusually dry conditions prevailed during June and July, which resulted in the drying of many of the sloughs and creeks in the region. As the pools dry up, resident fish and amphibians are concentrated until, just before low oxygen and high heat levels devastate the residents, these pools are teeming with prey.

I visited a drying pool of a prairie stream in early July 1990 and observed some interesting foraging tactics by a large adult Blotched Water Snake (*Nerodia erythrogaster transversa*). I parked a short distance from a culvert and approached quietly on foot, edging up carefully so as not to disturb whatever might be there. I observed the snake on the mud at the water's edge.

The snake was rapidly swallowing a green sunfish (*Lepomis cyanellus*). The water beneath the culvert stirred slightly, revealing fish in the three-inch deep water. As soon as the snake had finished its meal, it slid into the water and began a series of frantic undulations which appeared at first to be random. Further observation revealed quite the opposite, though. The snake repeatedly whipped its body about, making sharp C-shaped maneuvers or, at times, figure eights. The water now appeared to boil with movement and dozens of sunfish, bullheads (*Ictalurus* sp.), and minnows were seen rapidly swimming about and leaping from the water. The motions of the snake appeared to herd fish into the area of the snake's C-shaped body. The snake lashed about with jaws open. As its head came into contact with the coil of its body, its jaws snapped shut upon contact with any fish. In this manner, the snake soon caught a fathead minnow (*Pimephales promelas*), which it carried out of the water and onto the drying mud nearby to swallow.

Over the course of an hour, the snake caught a total of four sunfish and one minnow, whereupon it crawled out of sight into nearby sawgrass, apparently satiated.

Several days later, I observed a subadult Northern Water Snake employ the same strategy to catch mosquito fish (*Gambusia affinis*) in a drying pool along the Arkansas

River. Again the snake used the same circling motion that seemed to both obscure the predator from the fishes' view and also to herd them into areas where they were more easily seized. The snakes seemed to react to touch, snapping when the agitated fish touched the snake's coils.

Gulf Salt Marsh Snakes (*Nerodia fasciata clarki*) have been observed using this same ploy(Rudloe,1977) to catch fish in a drying salt marsh in northern Florida.

Kofron and Dixon (1980) described the same behavior in *N. rhombifer* in Texas and Kelly Irwin (pers. comm.) stated that he had observed the same species at several Kansas localities using this behavior while foraging. Although the action seemed frantic, random thrashing upon first sight, it was executed with precision and was obviously a productive feeding strategy.

Interestingly, Red-sided Garter Snakes (*Thamnophis sirtalis parietalis*) were observed foraging at these same drying puddles but did not use the circling behavior. The Garter Snakes simply watched the water from the shoreline for a moment, then dashed forward into the water with jaws agape, lunging at any movement. I observed the Garter Snakes devour three small green sunfish and a young carp, but, as far as time spent fishing,they did not seem to be as successful as the Water Snakes.

Undoubtedly, the periods of drought, at least relatively short periods, create an abundance of food for these reptiles, as well as for herons, raccoons, and other predators. These snakes gorged themselves upon the trapped fish. The behavior of herding fish would be ineffective in any but the "drying puddle" microhabitat, where prey is concentrated and escape routes are extremely limited.

LITERATURE CITED

Kofron, C. P. ,and J. R. Dixon. 1980. Observations on aquatic colubrid snakes in Texas. The Southwestern Naturalist, 25(1): 107-109.

Rudloe, J. 1977. The Living Dock at Panacea.

## BOYCOTT BOOTS

The article in KHS Newsletter No. 83 concerning the Tonly Lama Company being fined for importing illegal python skins was really a bright spot in a world where much of the herp news is just plain gloomy. All boid snakes, including those cuddly little Ball Pythons (*Python regius*) one can buy down at the pet store, are Convention on International Trade in Endangered Species (CITES) species and the trade in them or their byproducts is technically illegal. Besides, snakeskin boots are the most disgusting and garish fashion statement imaginable. Unlike furs, which are largely commercially farm-raised or at the very least, closely controlled by fur-bearer regulations, reptile skins come from highly exploited wild populations, generally from countries where enforcement of wildlife laws is inadequate or lacking altogether. Interestingly, many of the protestors demonstrating recently against the fur trade at a Wichita fur store were wearing snakeskin boots and were so noted during television news coverage!

I urge all fellow KHS members to speak out against the use of reptile skins for boots, either by turning dealers of these boots over to proper authorities or by outright confrontation of those who wear them. And don't forget, it is illegal to sell any native Kansas reptile or amphibian in a pet shop. So, the next time your local shop has Garter Snakes (*Thamnophis* sp.) or Tiger Salamanders (*Ambystoma tigrinum*) or whatever for sale, tell the owner that it is illegal and that you will be alerting your local Kansas Wildlife and Parks conservation officer about this. Even if nothing actually gets done, you'll scare the hell out of them for awhile and, perhaps they will think twice before selling Collared Lizards (*Crotaphytus collaris*) for $15 each next time.

**Editor's note:** Although Marty is right in stating that all boids have CITES protection of some sort, most are Appendix II species, which means that trade in those species can be conducted. Only Appendix I species are strictly controlled. Trade in Appendix II species is illegal only if export quotas by the trading nation are exceeded. This is not to say that just because quotas have been set that they are reasonable or biologically responsible. Here's an example: Indonesia sets quotas for reptiles as follows: for the live animal trade — 100 Boelen's Python (*Python boeleni*), 100 Crocodile Monitor (*Varanus salvadori*); for the skin trade — 160,000 Blood Python (*Python curtus*), 200,000 Reticulate Python (*Python reticulatus*), 300,000 Water Monitor (*Varanus salvator*), unlimited Cobra (*Naja* sp.) and File Snake (*Achrochordus* sp.).

Personally, my suggestion would be that you not have your local boot seller investigated or prosecuted, as there is very little chance of proving illegality. However, I would suggest that you contact the manager of the store and the makers of the footwear (or any other reptile leather product) and state your concerns forcefully but politely. Make them aware that you intend to boycott their store and/or products until they no longer sell or produce for sale reptile leather products.

## Rebuttal To Capron's *The Problem With Pythons*

by
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As a fairly new Burmese Python owner (*Python molurus bivittatus*), I read the editorial in KHS Newsletter No. 83 by Marty Capron with interest.

I empathize with many of his points. I, too, have becomes, perhaps by default, the "snake expert" in our rural community. I also get bizarre and burdensome phone calls, but as a physician, I am required to be a bit more philosophic about these disruptions.

I agree that we are too often beset by individuals whose enthusiasm and incompetence do seem linked inversely to age, and who would best be spared the responsibility of caring for a potted plant, much less an exotic reptile. Since this is America, however, I am reluctant to place such decisions in the hands of anyone but the individual. Merchants should perhaps be wary, but I cannot fully express my contempt for the hardware dealer who refused to sell me a part, while insisting that (at age 27) I could not appreciate the risks of replacing it. Heaven forbid that such decisions reach the hands of legislators and attorneys, whose record of competence and compassion becomes increasingly dismal. And reporters do universally revert to *National Enquirer* mode when covering snake stories, but I doubt that they will become more rational if assured that all such crawly critters can be safely handled *only* by adults with years of experience.

And I should be positively obsequious in thanking all the friends, merchants, veterinarians, and KHS member who have so patiently fielded my many insightful, succinct (i.e. stupid) questions.

Nonetheless, my stance on the problem with pythons is different, and I offer it for the reader's consideration: the solution is more snakes, not less.

I won't quite suggest that python ownership become mandatory, but I would prefer that to prohibition. The irrational, hostile, and/or stupid reactions to snakes stem from underexposure, not overexposure. In some locales, ten percent of emergency room trauma visits are due to dog and cat bites, yet one could be lynched for suggesting restrictions on such dangerous pets. As a United States public health concern, nonvenomous snake bite ranks below leprosy. I wish the man on the street were so informed.

When the uninitiated ask *why* I would want a snake as a pet, I patiently explain that:

1) Snakes are quiet and usually gentle.
2) Snakes do not require constant care or sitters if you leave town for a few days.
3) Snakes eat relatively little and defecate relatively little. Even a world-class sized python is content with a few chickens a month. (Have you priced cat food lately? Have you *smelled* cat food lately?)
4) Snakes are clean and have virtually no diseases which are transmissible to humans. (Whoever decided that dogs and cats should live with people probably was not a bacteriologist and definitely was not a parasitologist...)
5) Snakes do not contribute to human allergies. (...nor an allergist, nor an immunologist.)
6) Snakes frequently to never bite , depending upon the species and circumstances, as with any other pet. Snake bites are generally less severe, and less likely to cause infection, than cat *scratches*, let alone cat bites (Ask your family doctor about the dangerous germs that infest kitty's mouth).
7) Snakes are consistently among the most harmless and universally beneficial groups of animals in Kansas.

It is true that care of any pet, especially a wild animal, requires above-average skill and commitment. In my youth, our family cared for and rehabilitated — often under the auspices of the local game warden — raccoons, horned owls, hawks, deer, pheasant, ducks, partridges, red foxes, coyotes, and even a bald eagle with a wing fracture. Most reptiles are less complex and less hazardous than any of the above, The most unfortunate experiences with wild pets in our rural area certainly have not involved reptiles.

So, I would beg KHS members to continue to patiently encourage and assist those rookies who have made the decision — perhaps ill-advised — to have a snake pet. This need not be too disruptive. I am sure Mr. Capron has contributed much more to the field of herpetology than I have, but I try to do my part. Even our small library has found texts on pythons when I was considering acquisition, and I refer many questions there; often to books, magazines, and videotapes that I donated to it.

My snakes have been to local grade schools many times. One day last September, Hoxie Grade School had more python lovers per capita than any place west of Burma. Since then, the ill little patients I see rarely fail to enquire as to the health of Berniece Python (yeah, I know. My daughters named her.) and ask "when will she come to school again."

I look forward to the day when an escaped python is recognized to be so mundane and inconsequential that even NewsCam 3 deprecates the dolt who caused the National Guard to find it or when the emergency room's physician's response is, "A python bit you? Thank heaven it wasn't a dog."

## BOOK REVIEW

**The Reproductive Husbandry of Pythons and Boas** by Richard A. Ross and Gerald Marzec. 1990. 270 pp., 251 color photographs, 11 halftones, 62 text figures, 4 tables. Hardbound. Available for $75.00 ($50.00 for zoo personnel) from The Institute for Herpetological Research, P. O. Box 2227, Stanford, California, 94305.

I was delighted several years ago when my good friend, Dick Ross, wrote requesting information for his proposed extensive revision of his popular and valuable *The Python Breeding Manual*. It's about time, I thought. The other book was good but Ross' proposed tome promised to be vastly better and far more useful. He indicated then that the new piece would be out within a year or two. Well, six years and numerous inquiries later, the book is here and it was well worth the wait. **The Reproductive Husbandry of Pythons and Boas** is an herpetocultural classic and should be in the library of anyone working with captive herps.

The book is divided into two sections and nine chapters. Section 1 covers such topics as general husbandry, reproductive husbandry, reproduction/pregnancy disorders, egg husbandry and incubation, husbandry of neonates, and genetics of boid reproduction. Section 2 deals with the specifics of reproduction for Australian, New Guinea and Indonesian, Asian, African, and New World pythons and for Mascarene and African, Central and South American, Pacific, and North American boas.

All topics are covered thoroughly and clearly, although occasional herp jargon is evident. This does not generally detract from the contents, although I found the term "combatting" rather than "fighting" irritating. While Ross' subject is boid snakes, there is a wealth of information here that is applicable to a variety of herpetocultural subjects. I found the the sections on reproductive husbandry, egg husbandry and incubation, and neonate husbandry particularly enlightening. The chapter on genetics is unique and is an aspect of herp husbandry that is rarely addressed or considered by many private breeders. Ross' strong stand against hybridization of any taxon is highly commendable and should be read and seriously considered by anyone attempting a captive breeding program. As the current mess with captive-bred Indian and Burmese pythons shows, there is potential for serious damage to viable breeding programs by thoughtless individuals who are only in the business for the bucks.

The last chapter, Herpetology in the Future, deserves a special comment. The chapter itself is essentially gloomy in its outlook, holding that humans will continue their massive environmental destructions and overbreeding to the detriment of most, if not all, tropical ecosystems. Frankly, I was rather pleased to see Ross and Marzec present such an analysis because I think there is a tendency at this time by certain agencies to ignore or, at the least, downplay the vast environmental problems of most tropical Third World countries. Madagascar and Indonesia, if trends current in those countries continue, could very well be the first large nations to prove T. S. Eliot's prediction that the world will end not with a bang, but a whimper. Environmental triage is coming, folks, and Ross gives a glimpse of how and why.

My quibbles with the book are few and minor. As always, Ross' taxonomy appears to me to be less than adequate in certain cases. The Australasian genera *Morelia*, *Liasis*, and *Python* are once again intermingled. Although there may be some validity in recognizing *Morelia* and including such species of python as Amethystine Pythons in *Liasis*, I have yet to see or find references for such changes and continue to rely on Samuel McDowell's definitive works until then. Ross also recognizes a plethora of *Lichanura* and *Charina* subspecies. The names used for taxa in the former genus are based on a work of dubious validity (Spiteri, 1988) and, as far as I know, no subspecies of *Charina* are currently recognized (Collins, 1990).

The book is heavily dependent on personal communications. Although I find no fault with that practice, I wished that more literature citations were included, particularly for individual species such as *Casarea dussumieri* (Round Island Boa), for which there is an excellent paper (Bloxam, 1983).

Nonetheless, this book is a must for anyone involved in herpetoculture and for many who are not. The production values are consistently excellent, the color photographs are outstanding, and the information contained in the book is unequaled by any similar publication. Although pricey, I highly recommend that all of you save your pennies and dimes and buy this book. Dick Ross and Gerry Marzec have hit a home run with it and I commend them for it.

### Literature Cited


Bloxam, Q. 1983. A preliminary report on the captive management and reproduction of the Round Island boa (*Casarea dussumieri*). *In* Proc. 7th Reptile Sympos. on Capt. Prop. and Husb.: 115-123.

Collins, J. T. 1990. Standard common and current scientific names for North American amphibians and reptiles. Third ed. Soc. Stud. Amphib. and Reptiles Herpetol. Circ. 19: 1–41.

Spiteri, D. E. 1988. The geographic variability of the species *Lichanura trivirgata* and a description of a new subspecies. *In* Proc. Conf. on California Herpetol. (H. D. DeLisle, P. R. Brown, B. Kaufman, B. M. McGurty, eds.): 113-130.



— Eric M Rundquist
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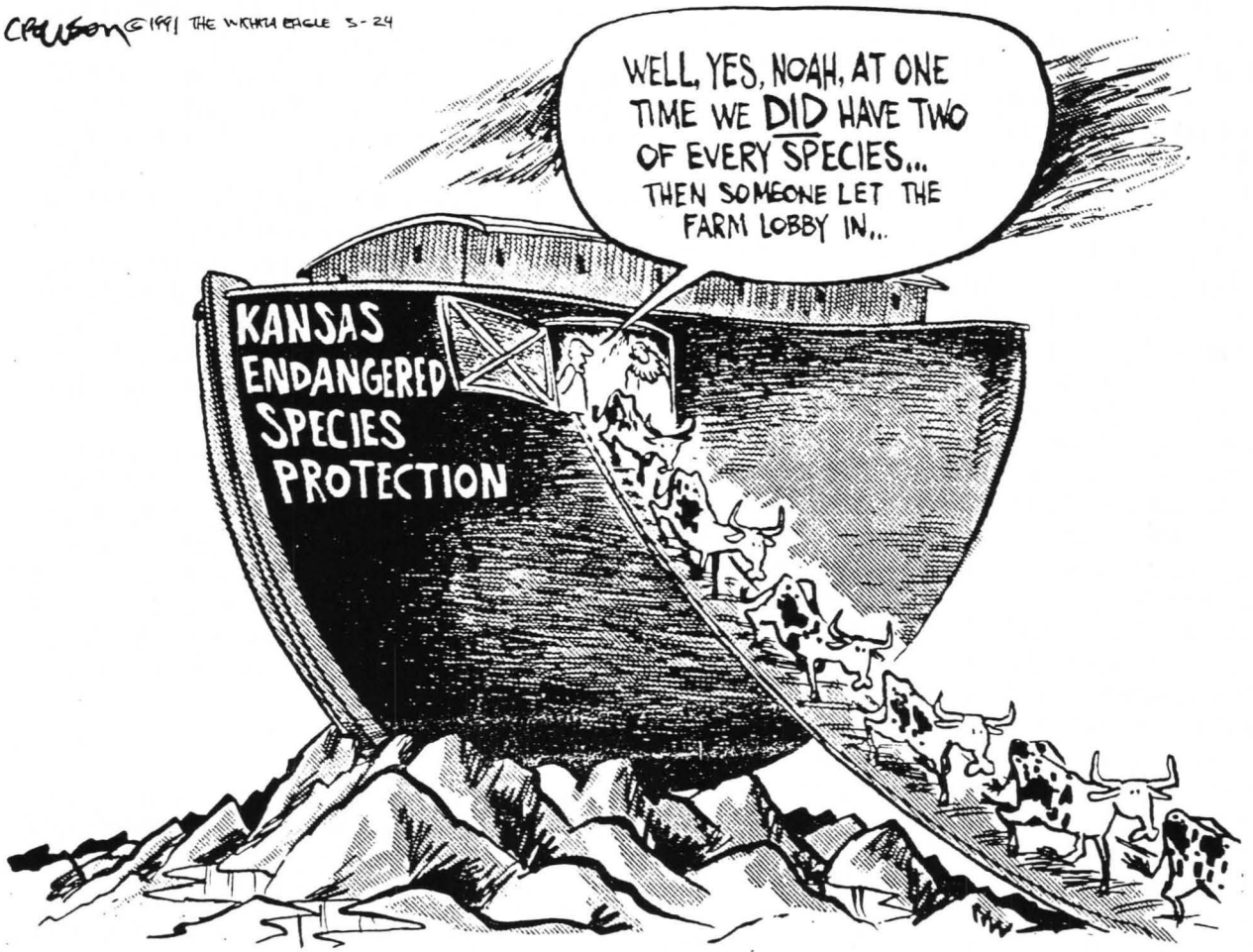

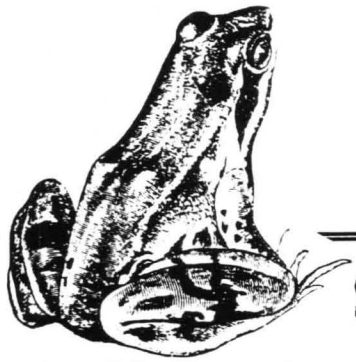

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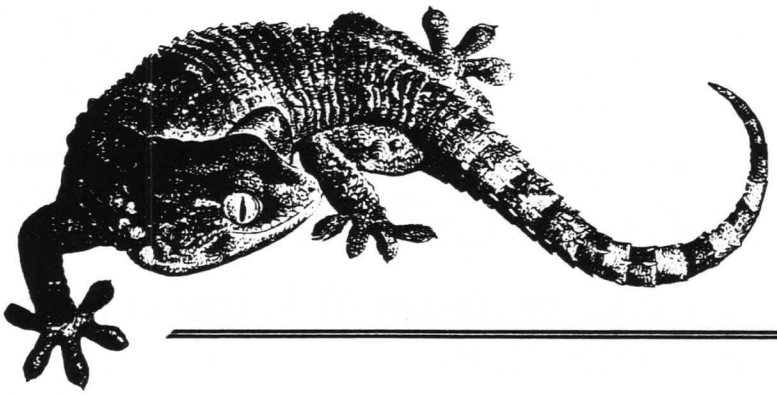


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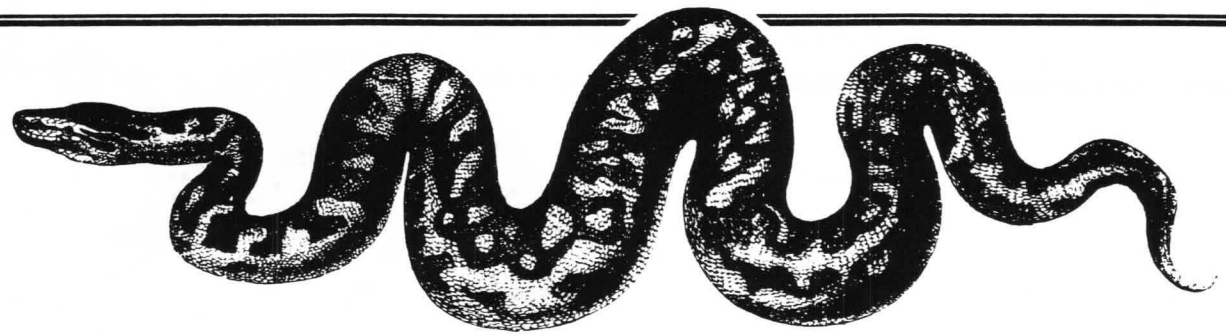

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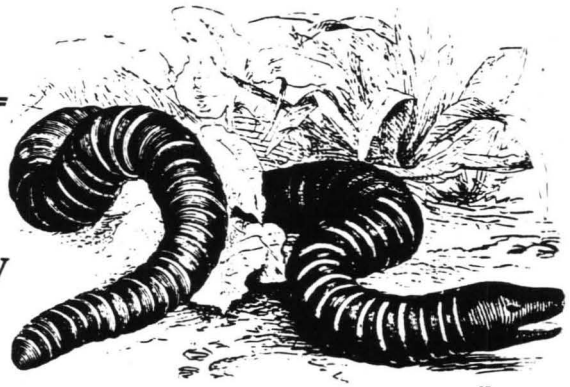

*presents*

# SLITHY TOVES:

## HERPETOLOGICAL BOOKS AT KANSAS

The new exhibition in the Kenneth Spencer Research Library is devoted to books about reptiles and amphibians, and has been arranged in celebration of the publication in April of a new volume in the Peterson Field Guide series: *A Field Guide to Reptiles and Amphibians of Eastern and Central North America,* 3rd edition, by Roger Conant and Joseph T. Collins. The title, "Slithy Toves," is taken from *Through the Looking-Glass,* where Lewis Carroll tells us that "slithy" means "lithe and slimy," while "toves" are "something like badgers ... something like lizards—and ... something like corkscrews."

On display are illustrated herpetological books from the Spencer collections dating from 1588 to 1878 showing herps from around the world, plus a few volumes about herps as symbols. There is also a display devoted to the production of the new book by Conant and Collins.

The exhibition will continue until the end of September 1991. The Spencer Library, situated behind Strong Hall on the University of Kansas campus at Lawrence, is open from 8:00 a.m. until 6:00 p.m., Monday through Friday, during the summer and, starting on August 31st, from 9:00 a.m. until 1:00 p.m. on Saturdays.