

## NEWSBRIEFS

**Sand Skinks are Elusive Creatures**

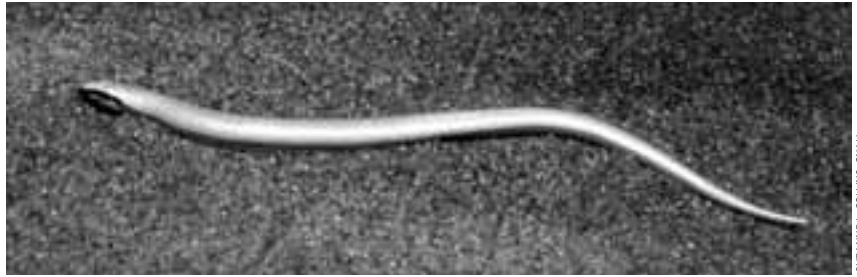
They leave S-shaped designs in the sand. Federal and state wildlife officials classify them as threatened. They live on the sand ridges of Central Florida. That sums up what most people know about Sand Skinks (*Neoseps reynoldsi*), if they've heard of them at all. Sand Skinks are among the creatures that live on the Lake Wales Ridge, a chain of prehistoric islands that comprised all of the dry real estate in what once was peninsular Florida.

Like better-known species such as Gopher Tortoises (*Gopherus polyphemus*), their habitat is often bulldozed to make way for new development. This is the time of year when biologists try to learn more about these elusive reptiles because the skinks become more active and easier to detect as temperatures rise. The survey method is fairly low-tech. It involves placing a 2 x 2 piece of plywood on bare ground and going back every week or so and looking for tracks. Sand Skinks forage in the sand beneath the board, leaving trails in the sand that can look like anything from a winding riverbed to a plateful of macaroni.

Data collection is simple. Either tracks are there or they aren't. In fact, it's good to stop here and mention that one of the important aspects in wildlife surveys is the ability to collect information along fixed routes, which are marked with flags, metal poles, wooden stakes or some other method. If you see these markers or the boards, that's what they're for. Don't disturb them or you could screw up someone's research project.

As wild creatures go, Sand Skinks are a relatively recent addition to the scientific list of creatures. The Sand Skink was officially described in the scientific literature as a separate species in 1910 by Leonard Stejneger (1851–1943), who was head curator of reptiles and amphibians at the Smithsonian Institution.

Sand Skinks look like small snakes — they're only about 5 inches long — with tiny legs. They belong to a group of reptiles known as "sand-swimmers." That means they move around just under the ground's surface looking for something to eat. Termites make up a major part of their diet. Mole Skinks (*Eumeces egregius*) and some species of snakes, such as



Florida Sand Skinks (*Neoseps reynoldsi*) are among a select group of lizards known as "sand-swimmers," most of which have reduced or missing limbs.

Southeastern Crowned Snakes (*Tantilla coronata*), also are in this category.

Because of their secretive habits, Sand Skinks are rarely seen and scientists are still trying to learn more about what they need to survive. Surveys at various wildlife preserves are part of that research because they provide a baseline, a basis for comparison to spot population trends (used here in a generic sense, population estimates for Sand Skinks don't exist).

What do exist are lists that give the number of locations where Sand Skinks are found, but it's unclear how big a territory each Sand Skink occupies or where the young go after they hatch. One small step in Sand Skink research occurred when a University of Florida student named Byrum Cooper set out on a quest to figure out how to capture these elusive creatures. This short 1953 account, published in the Florida Academy of Sciences quarterly journal, concluded that a potato rake and quick hands were the best tools for collecting specimens. Some of you may know this young student as Buck Cooper, the retired B-52 navigator who served as naturalist at the Street Nature Center in Winter Haven for several years.

By the way, nowadays it is illegal to collect Sand Skinks or any other protected species without a permit from state and federal wildlife officials.

One interesting side benefit of Sand Skink surveys is learning about other creatures that inhabit the scrub. Researchers have reported finding millipedes, centipedes, ants, termites, spiders, and various other even smaller beetles and other invertebrates. Sometimes other reptiles are using the board as a temporary shelter. They include Scrub Lizards (*Sceloporus woodi*), a type of lizard called

a Six-lined Racerunner (*Aspidoscelis sexlineatus*), and various species of snakes. One researcher even found a baby rattlesnake. I guess it's a good idea to lift the boards carefully.

*The Ledger*

Lakeland, Florida; 11 May 2005

**Snake Sanctuary:  
Rattlesnakes Roost in  
Rocky Stretch of Western Iowa**

Just north of here, Prairie Rattlesnakes (*Crotalus viridis*) slither among rocks and yucca plants in a stretch of Loess Hills that is Iowa's little slice of the West. Across the Missouri River, the Prairie Rattlesnake is common in Nebraska, but these 15 acres in Plymouth County are thought to be the species' only home in Iowa.

The Nature Conservancy, a private, nonprofit preservation group hoping to protect the species in Iowa, recently added the snake's hibernating area to its 3,050-acre Broken Kettle Grasslands, which is an important bird sanctuary. This rocky stretch of the silty-soil Loess Hills offers hiding places the snakes need for hibernation. The conservancy bought the land to prevent housing development, traffic, mowing, and, eventually, farming in the area, all of which could harm the snake, said Susanne Hickey, the group's Loess Hills project director. The area is open to the public. "It's a western species that gets into the Loess Hills because it's a drier habitat," Hickey said.

The Broken Kettle area has an estimated 110 adult rattlesnakes, said Conservancy herpetologist Dan Fogell. Fifty of the snakes have been tagged with microchips, which are injected under their skin with a syringe. The \$6.50 chips

carry a 10-digit code that can be read by passing the scanner over the snake. They are similar to the microchips that veterinarians use in pets. On a recent day, Fogell and crew bet they could find a rattler within five minutes along a ridge a quarter-mile from Iowa Highway 12. They scored.

Fogell, who lives in Omaha and teaches at Southeast Community College in Lincoln, Nebraska, passed an electronic reader over the snake, and immediately saw an identification number in the display. A repeat customer, this snake. Fogell's colleague grabbed the snake with a gizmo similar to those some people use to pick things off the floor. Pulling a trigger operates a clamping device on the end. Fogell then grabbed a long plastic tube — picture a bigger and sturdier version of the ones they put on single roses at the floral shops — and pushed the snake's head inside. With the snake unable to bite, Fogell passed the rattler to a colleague, who weighed and measured it.



SUZANNE L. COLLINS, CINH

Prairie Rattlesnakes (*Crotalus viridis*) range widely across the Great Plains and barely into extreme western Iowa.

The first of five rattlers found was a female, 31 inches long. These snakes mate in spring and late summer but often keep the sperm for a year before they become pregnant. They give birth to live snakes, often a dozen or more at a time, and hope the Blue Racers (*Coluber constrictor*), another snake species, don't eat them. Fogell is tracking the snake population for the Nature Conservancy. Earlier, he used radio transmitters to track the snakes' movements for the Iowa Department of Natural Resources. During that study, he discovered that the snakes slither up to two miles from their rocky homes.

Later, Fogell mentioned that the snakes roam the countryside for two reasons: Sex and food. One of the apparently nervous visitors asked Fogell if there is a time that the venomous snakes are aggressive. "Every day," Fogell replied. Especially if they've just given birth. Judging by the varying volume and frequency of the snakes' rattle-shaking, these snakes were in various stages of agitation.

But the snakes aren't normally aggressive toward humans. There is no record of anyone being bit by a rattlesnake on this land, Fogell said. Most people will find a way to get away from the snake when they hear its warning rattle. Landowners nearby, however, have reported that the snakes have bitten their dogs and cattle.

In Iowa's slice of the West, the rattlers rule.

Perry Beeman  
*Des Moines Register*

### Endangered Bog Turtle Holding up Highway Project

A turtle is slowing down a Route 7 highway bypass project in Brookfield (Connecticut), despite a push by Gov. M. Jodi Rell to speed things up. The state Department of Environmental Protection is withholding permits for work until a report is done on whether Bog Turtles (*Glyptemys muhlenbergii*) might live in the area of the bypass. In November, Rell had said there would be no holdup to planned construction on the bypass. The \$98-million project was scheduled to go out to bid this month.

Chris Cooper, a spokesman with the Department of Transportation, said that, without permits from the DEP, the project cannot go out to bid. But Cooper said, even if the Bog Turtle is present, the road could still be built. "We will work with environmental experts because it is



SUZANNE L. COLLINS, CINH

Bog Turtles (*Glyptemys muhlenbergii*) are listed as "threatened" under the Endangered Species Act and as "endangered" by agencies in states with extant populations.

an endangered species," Cooper said. "The state is committed to the project as part of its regional transportation improvement plan."

Tom Harley, manager of the consulting design unit for the DOT, said a report on whether Bog Turtles are living in the area is expected in June and will be turned over to the DEP.

Julie Victoria, a wildlife biologist with the DEP, said the proposed bypass area might be a historic habitat for the Bog Turtle, which was listed as federally threatened in November 1997. The turtle grows to about 3 inches in length and has orange splotches on either side of its neck.

*Boston Globe* (Massachusetts), 18 May 2005

### European Wall Lizards in British Columbia

Lizard Invasion: Scientists ponder the implications, as a species native to Europe appears to be thriving on South Vancouver Island. They're sunning themselves at the Saanich Fairground and scampering on the walls of Wilkinson Road jail. They're scurrying past Stelly's Cross Road and scaling Triangle Mountain.

Thousands of European Wall Lizards (*Podarcis muralis*), a non-native species, are making this part of the world their home. Biologists are wondering what effects they are having on BC's native Alligator Lizard (*Elgaria coerulea*). "We have great and grave concerns over exotic species," said Richard Hebda, curator of botany and Earth history at the Royal BC Museum. "Exotic species are poised to take over the niche abandoned by native species."

European Wall Lizards were introduced into Greater Victoria in the late 1970s, when Rudy's Pet Park Zoo on Durrance Road closed. A few Wall Lizards either escaped or were released into the wilds of Central Saanich. The reptiles survived, living in rock walls, and slowly spreading through the gardens and forests of the Saanich Peninsula. Hebda remembers spotting a few tiny green and black-flecked creatures in a broken concrete wall on his property about 1988. A few years later, they were quite abundant. "They're delightful creatures, but there were never as many as we see now. Their numbers have gone way up. At first they



SUZANNE L. COLLINS, OVAH

European Wall Lizards (*Podarcis muralis*) have been repeatedly introduced into North American cities, where they frequently thrive in habitats dramatically altered by humans.

were a curiosity, now they're just everywhere," he said. The lizards — which are about 10 cm long, not including their tail — no longer inhabit just the warm cracks in rock walls at his home, they also dash around the garden.

University of Victoria biology professor Pat Gregory first heard about the European Wall Lizards in 1990 and immediately went to see them. "I was impressed by their numbers," said the herpetologist. "I don't know how many we saw that day." He thought about the possibilities they offered for future research studies. "Any introduced species is interesting and you have to take them quite seriously," said Gregory. "It's interesting to see how they fit into an entirely different system from their native one. It's interesting to know whether they pose a threat to native species."

A study by a master's student on the interaction between the European Wall Lizard and Alligator Lizard shows they didn't get along too badly, said Gregory. "The student found the Alligator Lizards were reluctant to go under the same cover as the wall lizards. But she didn't find any aggressive behavior." However, more research needs to be done on the population ecology of Alligator Lizards in places where wall lizards have been introduced, said Gregory. "Just because we haven't observed a depressing effect on the population of the Alligator Lizard doesn't mean it isn't happening. There's nothing really obvious in terms of their negative effects, but there might be some less obvious effects."

Hebda has already heard tales of people who grew up in Central Saanich capturing Wall Lizards and releasing them in their suburban neighborhoods — a practice he frowns on. "I think biologically we have enough challenges already." Getting rid of them would be impossible because there are far too many of them, said Gregory, and gardeners would probably object. "They're small and numerous and people seem to like them," he said.

Louise Dickson  
*Times Colonist*, Victoria, British Columbia

### European Wall Lizards in Ohio River Park

State wildlife staffers are putting out traps at the Falls of the Ohio State Park in an effort to exterminate an exotic lizard that has been found there. The Common Wall Lizard (*Podarcis muralis*) is native to parts of Europe and can grow to more than eight inches. It has no known predators in North America and can survive midwestern winters. How the lizards got to the park just north of Louisville, Kentucky is not known. They were introduced to the Midwest in 1951, when a Cincinnati resident brought some back from Italy and released them. Indiana Department of Natural Resources (DNR) herpetologist Zack Walker has designed special traps to capture Wall Lizards, while sparing native species. "I've constructed the traps to target Wall Lizards and to exclude other species of wildlife. If a non-target species

is caught, it will be released without harm," he said. Once the Wall Lizards are caught, they will be exterminated.

WKYT, Lexington, Kentucky

### The Island Snake Lady

Not many young women would take pride in being called "the island snake lady," but Kristin Stanford does. Based at Ohio State University's Stone Laboratory on Gibraltar Island in Lake Erie, Stanford acquired the nickname shortly after beginning a research project on the endangered Lake Erie Water Snake (*Nerodia sipedon insularum*). It lives only on the rocky shores of western Lake Erie islands, and, until Stanford arrived five years ago, it enjoyed a lousy reputation among island residents and visitors.

Water Snakes make poor neighbors. They bask innocently near docks, jetties, and piers, and curious travelers, especially children, try to catch them. That's a big mistake because, though they're harmless, they're mean, ill-tempered, and quick to bite. Combine their nasty personality with most people's innate fear of snakes and you've got a conservation education nightmare.

Enter Stanford. Five years ago, after completing her master's degree at Northern Illinois University, where she studied the Plains Garter Snake (*Thamnophis radix*), Stanford jumped at the chance to do her doctoral research on the Lake Erie Water Snake. She understood that a key to the unpopular species' survival was convincing the islands' human population that, if left alone, water snakes are harmless and even ecologically beneficial.

Over the course of four years, Stanford captured water snakes on South Bass, Gibraltar, Middle Bass, North Bass, and Kelley's islands. Her work included surgically implanting radio transmitters into 61 snakes so she could track their movements and locate their winter dens. The fieldwork is complete, and Stanford is writing her dissertation — but that was the easy part. Convincing people to appreciate water snakes was the greater challenge. Having just spent a week at Stone Lab teaching an ornithology class, I observed firsthand that Stanford's people skills are among her greatest assets.



SUZANNE L. COLLINS, CVAH

Endangered Lake Erie Water Snakes (*Nerodia sipedon insularum*) have become the subject of research for the island snake lady.

Last year, she taught a popular and successful one-week herpetology class. She obviously excelled because she was recognized last week as one of 2004's outstanding summer instructors at the Stone Lab. This year she's co-teaching a five-week herpetology class. Although the class covers all types of reptiles and amphibians, snakes are her passion. One day she turned her class loose on six-acre Gibraltar Island. The assignment was to catch snakes. Ninety minutes later the students returned, each with a pillowcase filled with three or four writhing snakes. On a break, I wandered into the herp lab and found Stanford holding an absolutely beautiful Fox Snake (*Elaphe vulpina*). "Fox Snakes live in wetlands along Lake Erie in northwestern Ohio, and I'm studying their abundance and habitat requirements," she said. She's hoping to determine the effects of habitat fragmentation on these boldly patterned constrictors.

With her background, it's only natural that Stanford has acquired the "island snake lady" nickname. But her reputation is largely due to the outreach programs she does throughout a multi-county area. She provides educational programs to schools and other groups and writes a monthly newspaper column in which she answers reader questions about snakes and other herps. In fact, if you have any snake questions, contact her at "theislandsnakelady@yahoo.com."

During my week at Stone Lab, I discovered two additional tangible indications of Stanford's influence. Many drive-ways on the islands now sport signs provided by the U.S. Fish and Wildlife Service and the Ohio DNR that read, "Water Snakes Welcome Here." I doubt there were any of those before Kristin arrived. And finally, there's Arthur Wolf, Stanford's 9-year old protégé, who lives

on Middle Bass Island. "I call him 'My little snake man,'" she said. "He's caught many water snakes for me on Middle Bass." His father, who captains one of Stone Lab's research boats, told me he's now catching Fox Snakes for Stanford. Wolf's extraordinary exploits are featured in the current issue of "Wild Ohio for Kids Magazine." Kristin Stanford does it all — researcher, teacher, mentor, community relations expert. Not a bad resume for the "island snake lady."

Scott Shalaway  
*Pittsburgh Post-Gazette*

### Spiny Softshell Scoped

Thirteen-year-old Steve Glen thought he was battling a big catfish in River Canard until he reeled in one strange looking turtle. A bit of research on the internet confirmed that he'd landed a threatened species, an Eastern Spiny Softshell (*Apalone spinifer*). The turtle had swallowed the worm and hook and needed medical attention.

A Spiny Softshell is a rare sight, said Tammy Dobbie, Point Pelee National Park's ecosystem management coordinator. "We usually have on average one valid sighting a year in and around Point Pelee National Park," she said, adding that 2002 was the last time live ones were spotted at the park. "You don't get many sightings. They are around but they're a shy and secretive turtle."

Dobbie said the Spiny Softshell, the only turtle like it in the country, is found in southern Ontario and southern Quebec. They're hard to spot because they're rare and the speedy swimmers spend most of their time underwater in lakes. Sometimes only their nostrils stick out of the water.

Erie Wildlife Rescue drove the turtle to a Windsor veterinarian who

planned to anesthetize it and put a scope down its neck to find the hook Wednesday. The scope will help the vet see what damage has been done and, if all goes well, the turtle will be put on antibiotics and later released back in River Canard, she said.

The turtle is a female that is estimated by its size to be more than twenty years old, she said. The 2.4-kg turtle is 32 cm long and 26.5 cm wide. Males are usually up to 23 cm long.

Dobbie said the Glens did the right thing and the turtle is worth saving because females don't reproduce until they're more than twelve years old. She said losing even one female of the threatened species would hurt the population.

Sharon Hill  
*Windsor (Ontario) Star*

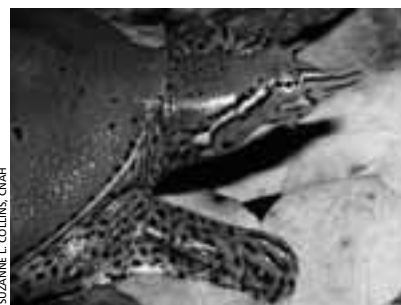
### Turtle Saved from Soup

They're calling him "the lucky Royal Turtle" — an endangered reptile that was saved from a likely fate in a Chinese soup pot by keen-eyed wildlife officials and a microchip.

Poachers snatched the animal, a species called the Royal Turtle in Cambodia because the eggs were once fed to kings, from a Cambodian river two months ago and toted it across the Vietnamese border with a stash of more common turtles.

Conservationists said that at 33 pounds, the animal was sure to have fetched a good price when it reached the smuggler's destination — the food markets of China, where turtle meat is a delicacy often made into soup.

A raid on the smuggler's house in southern Vietnam's Tay Ninh province was the turtle's first stroke of good luck. About 30 turtles were confiscated and transported to a wildlife inspection center.



SUZANNE L. COLLINS, CVAH

Spiny Softshell Turtles (*Apalone spinifer*) range widely across eastern North America and as far north as southern Ontario and Quebec.



CHRIS TABACKA, DVH

A giant River Terrapin (*Batagur baska*) was saved from the soup pot by a keen-eyed wildlife official and a microchip.

“My staff said they had never seen a turtle that big,” said Ta Van Dao, head of the forest control bureau in Tay Ninh. “Its head and eyes were also different from the regular turtles.”

The Vietnamese wildlife officials consulted an endangered species book and then called Doug Hendrie, an Asian turtle specialist based in Hanoi for the New York-based World Conservation Society. They confirmed that it was a *Batagur baska*, or Asian River Terrapin. Officials then found a microchip implanted under its wrinkly skin, pinpointing its exact home on the Sre Ambel River in southern Cambodia.

Hendrie said there were only about two to eight females remaining there, making the return of this adult male even more vital. It had been tagged in Cambodia for research two years ago but not seen again until its discovery in Vietnam.

The turtle was shipped back to Cambodia last week.

*The Associated Press*

### Save Rattlesnakes in New York Park

The ponytailed environmentalist hiked down the ridge, over the gray rocks and matted brown leaves, stopped among the hardwoods, and said, “Right down the side, it’s prime country here.”

The warm, southeast-facing rock cliffs overlooking Lake Champlain mark the northern limit of the Timber Rattlesnake’s habitat. Jaime Ethier, in boots and jeans, was bushwhacking from Champlain Palisades down to the pebbled shores of the lake — through terrain where he wouldn’t see a coiled dark snake unless he nearly stepped on it. The Adirondack Council conservation director appeared unconcerned. He kept going off the trail to peer into crevices likely to hold a den of poisonous reptiles, whose spiky tails make the telltale rattle or buzzing sound when disturbed. He’d met a rattlesnake almost two years earlier in this forest 110 miles north of Albany and wanted to see another. Ethier was out of luck on a day of overcast skies and temperatures in the mid-50s, probably still too cool for the snakes.

Ethier’s group wants to undo state conservation plans to allow mountain bikes in this neck of the 6-million-acre Adirondack Park, afraid cyclists will kill



RICHARD SAUDAK

Populations of Timber Rattlesnakes (*Crotalus horridus*) near the species’ northern-most limits remain vulnerable to human contact. A New York conservation group wants to undo state conservation plans to allow mountain bikes into portions of the 6-million-acre Adirondack Park, afraid cyclists will kill rattlers.

Protected by state law, rattlers are considered a threatened species in New York, where bounties that led to their widespread killing were outlawed in 1971. State wildlife officials estimate New York has 3,000 to 6,000 rattlesnakes left, mostly around the Hudson Highlands and a dozen Adirondack dens.

But the U.S. Fish & Wildlife Service has declined to list them under the federal Endangered Species Act. “There are so few statewide, we feel that losing one or two to a mountain bike would be a tragedy,” explained John Sheehan, the council’s spokesman. With more than 1,000 miles of trails and primitive roads already open to mountain bikes in the park, the group sees no need to add “recreational conflicts” to the rattlesnake’s diminishing range.

Cyclists counter that riding on 5 miles of trails in the Split Rock Mountain Wild Forest will do little harm. “It’s a low probability that a biker’s going to run a snake over,” said Paul Capone, trail coordinator for the Adirondack Park Mountain Biking Initiative. “I’m sure there are rattlesnakes in that area, but for the most part I would say they prefer the habitat on the rocky open areas where bikes will not be riding.” Bikes are allowed in 1.3 million acres of Adirondack wild forest and excluded from 1 million acres of more primitive wilderness areas. But as state officials issue new forest conservation plans, cyclists are losing ground. At Split Rock Mountain, they’re being kept off trails down to the shoreline. “The reason people like to go there is access to Lake

Champlain,” Capone said. “It’s kind of a critical time for mountain biking.”

Wildlife biologists say it’s also a critical time for Timber Rattlesnakes, whose bite is seldom fatal to humans (they don’t always inject venom). Fear, misunderstanding, development sprawl and their attraction as dead curios or live pets have shrunk numbers, habitat and prospects. Timber Rattlesnakes are found in rugged terrain and hardwood forests from east Texas to southern Wisconsin, and from north Florida to a spot in New Hampshire. Believed gone entirely from Maine and Rhode Island, they are considered threatened or endangered in the Northeast except Pennsylvania, which has licensed hunting.

Rattlers hibernate in winter and are active from about May through September. In New York, females start reproducing at age 8 or 9, giving birth to litters of five to 12 every few years. They mate in late August. “Given their low reproductive rate along with a high mortality rate of young, as well as being killed or captured by humans, the Timber Rattlesnake is in serious trouble in the Northeast,” James Beemer, a civilian Defense Department biologist, wrote in a 2001 study.

With no reports of snake-cyclist incidents in the Tongue Mountain Range above Lake George, where mountain biking is allowed on certain trails away from the dens, the state Department of Environmental Conservation says it expects none above Lake Champlain either but will monitor it. Rattlers have not been responsible for any fatalities in New York for decades. Unless you try to pick up or harass one, you stand a better chance of being struck by lightning than bitten, Beemer said.

After studying Timber Rattlesnakes for more than a decade on the U.S. Military Academy’s reserve in the Hudson Highlands, he notes that the ambush hunters are deadly to mice, chipmunks and squirrels but are “extremely shy” of humans and will hide or try to leave unnoticed.

*Red Nova* (Dallas, Texas)

### Arizona Roadkill:

#### Huge Toll on Park-Area Highways

More than 50,000 wild animals are run over on roads in and around Saguaro

National Park each year. Taking a fresh look at old data, researchers have concluded that an earlier survey of park-area roadkills understated by roughly seven times the true casualty figures for toads, snakes, rabbits, lizards, javelina, and other critters.

After five years of weekly surveys of 50 miles of roads that ended in 1999, National Park Service officials determined that about 7,100 animals were killed annually in and around the east and west units of the park. However, researchers decided the original count was too low after reanalyzing the data to account for surveyor error, for animals that get taken off the road after they're killed, and for the limitations of hunting for roadkills by car. "We weren't seeing everything," said Natasha Kline, who has worked as a Saguaro Park biologist nearly 13 years.

While more animals are apparently dying on park roads than originally had been thought, some changes in road design are slowly occurring to make these and other thoroughfares more wildlife-friendly. The changes will be aimed not just at preventing roadkills, but also at preserving connections for wild animals crossing roads from one large block of desert to another. As much as \$10 million would be spent over the next 20 years on making roads safer for wildlife under a plan that appears to be headed to the May 2006 ballot. The Regional Transportation Authority's 20-year plan would require voter approval of a half-cent sales tax increase to raise \$1.9 billion for a host of other transportation improvements, including widened roads, transit, sidewalks, and bike paths. Pima County and state highway planners are looking for other ways to better design roads for wildlife, and the Park Service and county last year collaborated on a large \$78,000 culvert project to provide more space for javelina and other animals crossing Sandario Road in Saguaro National Park West.

A major concern stemming from the roadkill study is the effect of the kills on populations of toads and larger animals, including Desert Tortoises, Gila Monsters, badgers, and rattlesnakes, said Kline, who worked on the roadkill study. The park is experiencing "massive" roadkill of three amphibian species — the

Red-spotted Toad (*Bufo punctatus*), Sonoran Green Toad (*B. debilis*), and Couch's Spadefoot (*Scaphiopus couchii*), she said. Researchers have, for instance, found that Sonoran Green Toads taken from East Speedway north of the park were significantly smaller than those taken from loop roads within the park that close after dark. "This is very suggestive" that the toads' populations are affected by roadkill — not just individual toads, Kline said.

Although no statistics exist directly linking roadkills to declines of larger animals, biologists are concerned about them because they have both low reproductive rates and low adult mortality rates. Because they have low adult mortality rates, those creatures tend to live long lives, but because their birthrates are low, "once you start taking adults out of the population, you'll affect it very quickly," said Kline, who has emerged as Saguaro Park's spokeswoman for a study that involves many researchers and volunteers.

The operator of a wildlife rescue and rehabilitation center just north of Saguaro National Park East said that she's not surprised by the Park Service study's conclusions, because she regularly sees live wild animals in her center that were brought in after somebody found them lying on the road. "It's our No. 1 problem with animals that come in — that

they're hit by cars," said Lisa Bates, who gets 300–350 injured animals each year at her Tucson Wildlife Center, just north of Saguaro Park East. "I would guess that a majority of animals admitted here were hit by cars." When center volunteers go out to rescue wild animals, they're all over the highways every day. Volunteers see a huge amount of roadkill, Bates said.

The sight of wild animals sprawled dead along roads or shoulders makes Rincon Valley Farmers Market executive director Molly Eglin truly sad, she said last week. But while she sees roadkill regularly on the roads, the 50,000-a-year figure shocked her, she said. "I go to town practically every day, and I usually see something practically every day off to the side of the road. But I never imagined it was that many," said Eglin, whose market lies about one mile south of the park's southern border. "What's worse is the people who drive down Old Spanish Trail like a maniac," Eglin said. "They drive really fast around the curves, the double lines. It's really, really dangerous." One morning last week, as she drove down Freeman Road and then Speedway abutting Saguaro Park East, Kline said that she had already seen six dead animals along park-area roads: a Longnose Snake (*Rhinocheilus lecontei*) and a Coachwhip (*Masticophis flagellum*), two ground squirrels, a Curved-bill Thrasher, and a rabbit. Then she stopped at a large wash along Speedway, about 16 miles east of Downtown Tucson, where she said she hopes to get grant money for a series of culverts to accommodate the toads and other animals so they can cross under Speedway instead of into the path of cars. Two years ago, the Park Service and the Pima County Department of Transportation applied for a \$500,000 state grant to install two large box culverts and several smaller ones that would accommodate toads. The application failed, but Kline said she expects to seek the grant again. The area along Speedway where the culvert system would go had heavy concentrations of roadkills, ranging 85 to 1,000 in a small area, during the five-year study period ending in 1999, according to a Park Service map of the area.

A County Transportation Department official said he has not heard yet from the service about any effort to try



TOM WIEWANDT

Roadkills have a huge impact on populations of Arizona amphibians and reptiles. Species affected include particularly vulnerable species like Desert Tortoises (*Gopherus agassizii*) and Gila Monsters (*Heloderma suspectum*).

again for the grant. But the department now has a written policy calling for more environmentally sensitive roads in areas known for their wildlife populations, said Rick Ellis, the department's engineering division manager. The county has had the policy since December 2003 and has used it twice. One project, connected with the county's Thornydale Road widening, was to build a higher, wider shoulder with taller trees along Thornydale to accommodate endangered Cactus Ferruginous Pigmy Owls (*Glaucidium brasilianum cactorum*) trying to cross the road. The second project was the Sandario Road culvert.

Four major state highways in Southern Arizona could also be in line for new, wildlife-friendly design in the next few years because of a grant just obtained by a Flagstaff researcher. That study will focus on how to make those and other roads in the state more hospitable to birds and mammals.

The tally — estimated annual wildlife roadkills in and around Saguaro National Park East and West (Source: National Park Service): Reptiles, 27,000; amphibians, 17,000; mammals, 6,000; and birds, 1,000.

A. E. Araiza  
*Arizona Daily Star* (Tucson) 16 May 2005

### Diversity in Darwin's Tortoises

The giant tortoises of the Galápagos Islands inspired Charles Darwin to formulate his theory of natural selection to describe the evolutionary diversity of species. Now those tortoises have been found to be even more diverse than Darwin knew.

Nearly 150 years after Darwin's most important work, scientists have found the tortoise *Geochelone nigra*, found on the Galápagos island of Santa Cruz, is not one species but three.

The discovery, announced today, was led by Yale University scientists Michael Russello, Adalgisa Caccone, and Jeffrey Powell and is reported in the Royal Society of London's journal *Biology Letters*. Darwin and others identified the single taxon, or species, based on visible characteristics such as shell shape. The new research employed DNA analysis. Altogether, 11 taxa of tortoises are on the islands.



TOM WHEWANDT

Galápagos Tortoises in the genus *Geochelone* may be considerably more diverse than once thought. Application of sophisticated modern technologies revealed three distinct species on Santa Cruz, where only one (*G. nigra*) was previously thought to occur.

Between 2000 and 4000 individual tortoises remain on Santa Cruz, and as few as 100 individuals in each of the new taxa may exist, the scientists said in arguing for conservation of the habitat.

"It is ironic that, while Santa Cruz has the largest population of tortoises, it also has the largest human population — projected to double in the next eight years — which is their greatest source of endangerment," Russello said. "Since accurate taxonomy is crucial for effective conservation policy, these results have fundamental importance for preserving the genetic and taxonomic diversity of these historically significant reptiles."

Robert Roy Britt  
*LiveScience*, 27 July 2005

### Sale of Red-eared Sliders Skids to a Stop

Small turtles were being sold at kiosks in Tallahassee's two shopping malls on Monday despite a federal ban against their sale. Federal law prohibits the sale of turtles under four inches as pets. Their sale has been banned since 1970 because of concerns that they transmit *Salmonella*, a potentially deadly bacterium.

A Governor's Square mall spokeswoman said the lease for the Turtle World kiosk, where the little Red-eared Sliders (*Trachemys scripta elegans*) were being sold Monday, was being terminated this week. She declined to name the owner of the kiosk because of the mall's privacy policies. "I cannot stress enough that our main concern was the customers," said Eileen Walsh, marketing

manager for Governor's Square. "Had we known this in advance, we would not have leased to him. And when we found out, we took action."

A worker at the Turtle World kiosk at Governor's Square Mall referred questions to the kiosk owner at Tallahassee Mall. A worker at the Tallahassee Mall kiosk told the *Democrat* that he wasn't authorized to comment and he hung up.

The U.S. Food and Drug Administration is sending out notices to malls, schools, and the news media about the ban, said Stewart Watson, public affairs specialist in the FDA's Florida district office in Maitland. "For a long time when the law went into effect people weren't selling the turtles as much," Watson said. "It seems in the past year it has exploded a lot." *Salmonella* can be found on the outer skin and shell surfaces of many turtles. Turtles under four inches are considered more of a risk because they're small enough for children to put them in their mouths, according to the FDA. Watson and a Florida Department of Health spokesman said they were not aware of any contaminations in Florida caused by turtle sales. However, six cases of illnesses in Wisconsin and Wyoming last year were traced to the sale of turtles.

The illegal sale of small turtles carries a possible fine of up to \$1,000 and up to a year in prison, according to the FDA. Federal law allows the sale of small turtles for "bona fide scientific, educational, or exhibitional purposes, other than use as pets." Both kiosks at malls in Tallahassee had signs saying the turtles were being sold for educational purposes only. Watson said he couldn't comment on whether the signs mean the sales are allowed because he said it's a legal question.

At Governor's Square mall, the lease for the Turtle World kiosk was being terminated because of the apparent violation, Walsh said. "Having a vendor say, 'this is a good learning experience' is not the same thing as having them sold through an educational institution," she said.

Steven Darby, interim general manager of Tallahassee Mall, said he had spoken with FDA officials about the ban as well as turtle experts. "We have spoken with several people and are trying to make an informed decision with regard to the turtles," Darby said.



Turtle biologist Dale Jackson of Tallahassee said Monday he had contacted mall managers about the turtle sales. He's concerned that the Red-eared Sliders have been released into the wild and will harm native turtles. Jackson said he and biologist Matt Aresco are filing a petition with the state to ban the sale of any Red-eared Sliders, which live primarily in the Mississippi River valley and as close to Florida as Alabama. They are related to the Yellowbelly Slider (*Trachemys scripta scripta*), which lives in Florida. Once released in Florida, they can breed with the Yellowbelly Slider to create a hybrid subspecies, Jackson said. Red-eared Sliders also grow larger than the Yellowbelly Slider and can out-compete them for food and basking areas on logs, he said. "I think there is some value in people raising little turtles if it gets them interested in reptiles," Jackson said. "But we don't need them raising Red-eared Sliders if they are subsequently released in nature."

Bruce Ritchie  
Democrat (Florida)

### Red-eared Sliders Quietly Become a Threat

Red-eared Sliders for generations have been the most popular turtles sold in pet stores, and they also have been frequently dumped into the wild — so much so they have become common in some Hawaiian watersheds.

That's both illegal and a potential threat to native stream animals, but people who have brought the turtles home as pets have few options as the animals outgrow their aquariums. "They don't get sweeter as they get older. They can get snappy," said Christy Martin, public information officer for the Coordinating Group on Alien Pest Species. Martin recommended that unwanted turtles be taken to a humane society, where they have at least a chance of being adopted. "There's really nothing else you can do with them. That's the most responsible thing to do," she said.

In years past, the animals were sold as juveniles not much bigger than a silver dollar, but after the turtles were linked to the bacterial disease salmonella, the U.S. Food and Drug Administration in 1975 banned the sale of Red-eared Sliders less



JOHN S. PARMERLEE JR.

Because of their popularity in the pet trade, Red-eared Sliders (*Trachemys scripta elegans*) have been introduced in many areas where they are not native, often with dire implications for native species.

than 4 inches across. Officials thought the bigger size would make them less appealing to buyers and prevent children from putting the baby reptiles in their mouths, reducing the occurrence of salmonella.

Pet stores in Hawai'i and elsewhere still legally sell the sliders, which can reach nearly a foot in shell length. Since that's more turtle than most folks can handle, and since there is little demand for the larger animals, many have been released into the Hawaiian environment. "That's not a good idea because of the impacts they could have on native species," said Philip Thomas of Hawaiian Ecosystems At Risk, a government-funded organization that supports alien pest control efforts. The state has listed them an "injurious species" because young turtles could feed on 'o'opu, native freshwater gobies that live in Hawaiian streams.

The turtles, whose scientific name is *Trachemys scripta elegans*, have a green to brown shell, and their green heads have a characteristic red stripe behind the eye from which they get their name. They are known to be in Kawa'i Nui marsh and surrounding streams on O'ahu, have been found in at least two parts of Maui, and are in the Hanalei and Wailua river basins on Kaua'i. But they're probably in many other waterways as well. "I've had reports from all over the island," said Don Heacock, aquatic biologist with the state Division of Aquatic Resources on Kaua'i.

Horticulturist Keith Robinson recently found a 7-inch turtle walking on a road in Wainiha Valley this week, sug-

gesting they also may be in that valley's stream on Kaua'i's north shore. He said people who saw that turtle recalled having seen others in the Hule'ia River near Lihu'e and in a drainage ditch near Kekaha.

Red-eared Sliders are primarily meat-eaters when young and eat a mixture of meat and vegetation as adults, according to Sean McKeown's book, *Reptiles and Amphibians in the Hawaiian Islands*. Young Red-eared Sliders can become carriers of salmonella if they eat tainted meat. Humans can contract the disease from handling the turtles. These turtles can live for up to 25 years. They require fresh water, a place to get out of the water to bask, and proper food. As they grow older, they need considerably more room than the average home aquarium provides.

When the FDA banned the sale of the smallest turtles, it found that 14 percent of all cases of salmonella poisoning in the United States were associated with the handling of pet turtles. Most of the victims were young children.

The organization Tortoise Trust urges people not to buy them in the first place, since little thought generally is given to providing care into their adulthood, if they survive. "There is a massive surplus of unwanted adult turtles looking for good homes, yet thousands of tiny hatchlings continue to be bred each year, making an already desperate humanitarian situation even worse," the organization said on its Web site (<http://tortoisetrust.org>).

Jan TenBruggencate  
Honolulu Advertiser (Hawaii)