



With beautiful shells, fascinating behavior and long life spans, turtles and tortoises can make wonderful pets. But they're in trouble. All over the world, turtles and tortoises are disappearing from the wild. Many are at risk of extinction.

"Turtles are under enormous pressure," said Rick Hudson, president of the Turtle Survival Alliance, a global partnership to prevent turtle extinctions headquartered in Fort Worth, Texas. "All wildlife is, but turtles are especially vulnerable because they're so easy to catch."

The trouble for turtles started in China, according to the TSA. Turtles and tortoises have long been a favorite source of food and medicine there. Almost every part of a turtle is considered a cure for a range of illnesses, and turtle soup is a delicacy.

According to Hudson, Asian appetite is the No. 1 threat to turtles. "Far and away it's consumption, especially in Asia. The Chinese taste for eating turtles is fueling this enormous collection pressure all throughout Southeast Asia, and now throughout the world."

That includes the United States. Between 2002 and 2005, more than 250,000 wild-caught turtles were exported to China from one Texas airport alone, according to the World Chelonian Trust, a nonprofit conservation organization based in Vacaville, Calif. Many states have passed laws to protect turtles, but hundreds of thousands are still taken out of the wild and shipped to China every year, according to the TSA.

The popularity of pet turtles is another part of the problem, say conservationists. "It's a double-edged sword," said Hudson. "Many times people who really love turtles and want to help them are contributing to the problem because they're buying a turtle that's taken out of the wild when they could instead buy a turtle bred in captivity."

It isn't only conservation organizations that want to ensure the next generation will be able to enjoy turtles and tortoises both in the wild and in captivity. "One reason we support the TSA is because of their commitment to work with private individuals and organizations," said Shane Bagnall of Zoo Med Laboratories Inc. (San Luis Obispo, Calif.), a TSA

To protect endangered populations, conservationists, private breeders and many others are working together to better manage and harvest turtles.

By Jennifer Pinkley

SAVING ENDANGERED TURTLES

conference sponsor since 2005. "While the efforts of zoos, aquariums, and other institutions are critical to the success of the TSA and turtle conservation, the TSA also recognizes and embraces the important role of private breeders in turtle conservation."

Here's a look at ongoing efforts to conserve turtle populations and find better ways to manage and harvest turtles.

Worldwide Turtle Conservation

Founded to help address the Asian turtle crisis, the TSA works with individuals and organizations around the world. "We focus on where threats to turtles are and where the highest turtle diversity is," said Hudson. "We look at species that are critically endangered, countries with a high diversity of turtles, and where we can establish partnerships. A lot of what we do is capacity building, finding local people who are really interested in turtle conservation and helping them get better."

Because a spike in its turtle exports made Myanmar "ground zero" for the Asian turtle crisis, TSA is working on a variety of projects there to establish captive breeding programs, turtle rescue and recovery programs. Considered a turtle biodiversity hotspot, Myanmar has 28 species, seven of which are found nowhere else on earth, according to Hudson.

Another of TSA's priority programs is in India. It involves community education, headstarting (hatching eggs in captivity, then releasing young turtles into the wild), captive breeding and guarding nesting areas in the wild. "Our program in India is one of our better programs in terms of how comprehensive it is," said Hudson.

Other organizations also are working to help take the pressure off wild populations, including in the United States. For example, Lynn De Vries, director of Testudo International, a tortoise sanctuary in Iowa, started a captive breeding program for snapping turtles 15 years ago. Today, breeding farms in the program supply 100,000 turtles to China every year, reducing demand to harvest native populations in the United States.

"We've developed such a customer base in China that they don't want anyone else's turtles," De Vries said.



Testudo International, a tortoise sanctuary in Iowa, supplies 100,000 snapping turtles to China every year. The captive breeding program, initiated 15 years ago, reduces demand on native U.S. populations.

The Gulf Oil Spill and Turtles

EVERYONE WHO'S BEEN following the Gulf oil spill is aware that all sea life living near the site of the accident suffered, including sea turtles. But what about terrestrial turtles?

One species, the diamondback terrapin, makes its living in the saltwater marshes that line the Gulf coast.

"Diamondback terrapins are like a canary in a coal mine for saltwater marshes," said Thane Wibbels, a biology professor at the University of Alabama at Birmingham. "Unlike birds, the turtles don't migrate, so the health of the species really reflects on the overall health of the saltwater marsh."

Even before the oil spill, Wibbels was working to conserve this species, concentrating on an important nesting beach along the Alabama coast. The population has long been in decline, and predators feasting on turtle eggs have made the problem worse. To protect eggs from predators, Wibbels' team collects eggs from the wild, takes them to a lab to hatch, then releases the turtles back into the wild.



Diamondback terrapins hatched in captivity are being released into the wild in the Gulf of Mexico as part of a university-led conservation project. The April Gulf oil spill temporarily delayed release of the hatchlings to the saltwater marshes they call home.

The April BP oil spill in the Gulf of Mexico prevented the planned release of 150 hatchlings this spring. After the well was capped in August, however, 18 yearling terrapins were released. The remaining yearlings are slated for return to the wild in the near future.

—Jennifer Pinkley



This female Yangtze giant softshell turtle and her male partner, the only two known to exist, live at China's Suzhou Zoo where they are the focus of intense conservation efforts to propagate the species. To date, clutches of eggs have failed to hatch.

The World's Rarest Turtle

One of the most exciting projects TSA is working on in China involves the world's rarest turtle. Only one male and one female Yangtze giant softshell turtle are known to exist anywhere in the world, making it a turtle species on the very brink of extinction. Both turtles are currently in captivity at China's Suzhou Zoo. Since 2007, the TSA has worked with the zoo to try to breed the turtles—and hopefully begin the very long process of saving the species.

The female laid multiple clutches of eggs in both 2008 and 2009 but no turtles hatched. "Getting the turtles to breed and getting the female to lay eggs has not been a problem," said Hudson. The problem is, the turtle's diet hasn't contained the correct calcium-to-phosphorus ratio. As fertile eggs began to develop and demand calcium, there was never enough calcium. The embryos died.

This year, the zoo agreed to change the female's diet, so Hudson and his team are hopeful for a better outcome. "She's on supplements and she's getting a better diet," explains Hudson. "We're hoping her eggs will hatch this time."

The Russian Tortoise Trade

Another issue that concerns conservation organizations is the trade in

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Terms You Should Know

- **Ex situ conservation.** Conservation that takes place outside a species' native range. Captive breeding of Asian turtles in the United States is an example of ex situ conservation.
- **Headstarting.** A conservation practice that involves raising hatchlings in captivity until they are large enough that they are less vulnerable to predation or other risks, at which time they are released.
- **In situ conservation.** Conservation that takes place in a species' range country or native habitat.
- **Range country.** The country in which a species naturally occurs, or the location of its home range.

Source: Turtle Survival Alliance

Russian tortoises. Although many species like box turtles and sliders are popular pets, Russian tortoises are especially popular because they are inexpensive to acquire and remain small throughout their lives.

Good data on the numbers of Russian tortoises taken out of the wild every year do not exist, according to Dr. Jamie Reaser, vice president of environmental policy and communications for the Pet Industry Joint Advisory Council (Washington).

However, according to Hudson, an unsustainable number of Russian tortoises are removed every year to supply the worldwide pet trade.

According to De Vries, Uzbekistan exports around 100,000 Russian tortoises annually—24,000 of which are imported into the states each year as pets. He also claims 25 percent of them die in transit.

De Vries is in the early stages of developing a sustainable harvesting program for Russian tortoises and a program to reduce high mortality rates during and after shipping. He also is working with people in Uzbekistan to develop a captive breeding program.

One experimental program is designed to reduce mortality rates after transport to the United States by allowing the tortoises to acclimate before they become pets. The plan calls for a few Russian tortoises to be shipped to De Vries in Iowa and released into a prairie pen. According to De Vries,

the climate in Iowa is very similar to the tortoise's native habitat, allowing the animals to be active for the same amount of time as in the wild. "Iowa has enough native vegetation and rain to support a thousand tortoises per acre," De Vries said.

If the tortoises do well, De Vries will repeat the experiment with a hundred tortoises. The eventual goal is to support 30,000 sustainably harvested tortoises a


year for the U.S. pet trade and reduce the mortality rate as much as possible.

"In three years we'd like to bring you a better product to market," said De Vries. "If you can marry conservation and commerce together, everybody wins." ■

Jennifer Pinkley is a freelance writer based in Ardmore, Tenn. She frequently writes on environmental and science topics.


30% of the world's 300 tortoise and turtle species are at risk of becoming extinct within 20 years. At least 10 species are now extinct in the wild and exist only in captive breeding programs.

Source: Turtle Survival Alliance



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