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CONSERVATION AND NATURAL HISTORY

NEWSBRIEFS

Species in the Southeastern U.S. Move Toward Protection under the Endangered Species Act

In response to a 2010 scientific petition from the Center for Biological Diversity and other groups, the U.S. Fish and Wildlife Service found that protection of 374 freshwater species in twelve southeastern states might be warranted under the Endangered Species Act. The decision was made in accordance with a settlement agreement reached this past summer between the Center and the government to push 757 of the country's least protected, but most imperiled, species toward Endangered Species Act protection.

"With today's finding that 374 southeastern freshwater species will be considered for Endangered Species Act protection, it's clear the Fish and Wildlife Service is finally taking action to help hundreds of American species that desperately need a lifeline," said Noah Greenwald, endangered species director with the Center. "Like so many species in our evermore crowded world, these 374 species face a multitude of threats to their survival — habitat destruction, pollution, climate change, and pressure from invasive species."

The 374 include 89 species of crayfish and other crustaceans, 81 plants, 78 mollusks, 51 insects, 43 fish, 13 amphibians, 12 reptiles, four mammals, and three birds found in twelve states: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia.

"The Southeast is home to more freshwater species than anywhere else in the world. Tragically, the region has already lost many of them to extinction," Greenwald said.

Streamside Salamanders (*Ambystoma barbouri*) are vulnerable to deforestation in riparian zones and are rarely found in and around streams where surrounding forests have been harvested. This is one of 374 freshwater species from the southeastern United States that will be considered for protection under the Endangered Species Act. Photograph © 2010 Todd Pierson.

Alabama Map Turtles (*Graptemys pulchra*) are distributed throughout the Alabama River system of Alabama, northeastern Mississippi, and northwestern Georgia, where they inhabit relatively large, swift-flowing creeks and rivers, preferably with abundant basking sites in the form of fallen trees and brush piles. Males and juveniles feed predominantly on insects, whereas mature females feed predominantly on freshwater mussels and other molluscs. Photograph by W. VanDevender/Tortoise Reserve.

"Endangered Species Act protection for these remaining species will help stem the tide of extinction and herald the beginning of a new era of species protection in the Southeast."

As documented in the petition, southeastern freshwater species are threatened by many forces that have altered, and continue to alter, the region's waterways. These include dams, pollution, sprawl, poor agricultural practices, invasive species, and a warming climate.

"Protecting these species will also protect rivers and streams that are a source of drinking water and recreation for Southeast communities," said Greenwald. "Endangered Species Act protection will not just save these species from extinction but benefit millions of people."

Groups that joined the Center on the petition included Alabama Rivers Alliance, Clinch Coalition, Dogwood Alliance, Gulf Restoration Network, Tennessee Forests Council, and West Virginia Highlands Conservancy.

Reward Offered for Sighting of a South Florida Rainbow Snake

The Center for Biological Diversity and the Center for Snake Conservation announced today that they are offering a $500.00 reward for the first person to document the existence of the South Florida Rainbow Snake (*Farancia erytrogramma seminola*). Both conservation organizations believe

The holotype of the South Florida Rainbow Snake (*Farancia erytrogramma seminola*) is one of only three known specimens. Declared extinct by the U.S. Fish and Wildlife Service, it is not eligible for protection under the Endangered Species Act. Photograph © Kenneth Krysko.

that the U.S. Fish and Wildlife Service in October 2011 prematurely declared the species extinct without conducting targeted surveys and despite several unconfirmed sightings. "Declaring the South Florida Rainbow Snake extinct without adequate search effort is scientifically irresponsible," said Cameron Young, executive director of the Center for Snake Conservation. "We hope that by offering a reward, we can rediscover this amazing reptile and implement conservation measures to ensure its survival into the future."

The South Florida Rainbow Snake is a harmless aquatic snake that feeds exclusively on the American Eel. It is known from just three specimens, the last of which was collected in 1952 near Fisheating Creek in Glades County, Florida. In early October, the Service declared the snake extinct, thereby denying it protections under the Endangered Species Act. The Service made its determination without conducting any focused surveys for the reclusive reptile and despite anecdotal evidence of snakes eating eels in the Fisheating Creek area.

"It's heart-wrenching to think the South Florida Rainbow Snake could be lost forever," said Collette Adkins Giese, a Center for Biological Diversity attorney focused on the protection of imperiled reptiles and amphibians. "But if we can find these snakes, they'd be very likely to get protection under the Endangered Species Act — the most powerful tool in the country for saving plants and animals from extinction."

The Service announced the extinction of the South Florida Rainbow Snake in response to a petition filed by the Center for Biological Diversity seeking Endangered Species Act protection for the snake and more than 400 other aquatic species in the southeastern United States. If rediscovered, the Rainbow Snake would receive an in-depth scientific review along with 374 species from the petition (including 114 in Florida), which the Service found may warrant protection under the Act.

The South Florida Rainbow Snake (*Farancia erytrogramma seminola*) is a subspecies of Rainbow Snake known only from a single population in Fisheating Creek, which flows into the western side of Lake Okeechobee. Fisheating Creek remains relatively pristine and could still support the snakes, but potential habitat in other parts of Florida has been severely degraded by channelization and pollution, especially agricultural runoff. The snake is believed to be nearly entirely aquatic and active only at night, making detection difficult without extensive and specialized survey effort, although multiple unconfirmed sightings were recorded in the late 1980s. In life, three red stripes highlight an iridescent bluish-black back and the belly is yellow and red with black spots on each scale. Adults can be over four feet long.

Killing Rare Serpent[1]

This letter intends to bring to light the appalling killing of a rare snake found in our country. Villagers recently shot an Asiatic Rock Python (*Python molurus*), which measured over 10 feet, in Sakmaal village of Shakar Garh, Narowal District. The Asiatic Rock Python is a non-venomous snake. It is on the list of threatened species as "near threatened" (i.e., indicating that it might be considered threatened with extinction in the near future). This serpent is very rare in Pakistan and is

[1] Adapted from a letter to the editor, *The News*, 31 October 2011, by Muhammad Rais, Lecturer, Wildlife Management, PMAS Arid Agriculture University Rawalpindi (sahil@uaar.edu.pk).

An Asiatic Rock Python (*Python molurus*) was recently killed in Pakistan despite its rarity in that nation. Fearful local people frequently kill even non-venomous snakes. Photograph by Muhammad Sharif Khan.

found only in a few localities along the River Indus. Snakes are killed whenever encountered despite the fact that less than 20 percent of terrestrial snakes in Pakistan are venomous. Several valuable ecological services of pythons are generally unappreciated. Pythons prey upon herbivorous animals, mostly those that are weak and unhealthy thereby ensuring a balanced community of plants and animals and prosperousness of the ecosystem.

More importantly, pythons control the rodent population, which in turn helps cut down on the use of pesticides and their environmental hazards. Upon encounter, efforts should be made to tranquilize the snake, if possible, or to at least quarantine it. The relevant department should be immediately contacted so that the snake can be transferred safely to *ex-situ* conservation sites such as zoos or wildlife parks.

"Extinct" Frog Hops Back into Northern Israel[1]

A species of frog believed to be extinct has hopped back into sight in northern Israel. Omri Gal of Israel's Nature and Parks Authority said that the Hula Painted Frog (*Discoglossus nigriventer*) was seen for the first time in 50 years. Noting that it had been declared extinct, Gal said, "It's an amazing find, now we have a second chance to preserve the species."

The frog is native to the Hula Valley, where it originally went missing when the Jewish National Fund drained marshlands around the Hula Valley in the 1950s to control malaria. Unfortunately, the operation led to numerous unintended consequences — the reclaimed land was useless for agriculture, toxins invaded the river, and dumped peat routinely caught fire. The disastrous operation also led to the destruction of ecosystems, wiping out aquatic plants and at least two species of fish. In the 1990s, intense flooding caused areas of the Hula Valley to become flooded again, re-hydrating the parched swamplands. This time, the Society for the Protection of Nature in Israel decided to leave it alone. Still, until now, the Hula Painted Frog was thought to have been among the lost species.

A Nature and Parks Authority warden recently found a male Hula Painted Frog, a species of frog that is unique to Israel and was thought to have become extinct more than 50 years ago. Subsequently, Hula Nature Reserve warden Yoram Malka found a female in the same area. "The discovery of the first frog hinted at the general area and hours of activity for this species," said Malka, who invested considerable effort searching for other frogs of this species.

The second Hula Painted Frog was found in swampy weeds, 20 cm deep, and at 13 g weighed only half as much as her male counterpart. Nature and Parks Authority staff will be conducting tests in the days to come to try to learn more about these rare frogs before they are rereleased into the wild.

Malka's initial discovery shocked conservationists and scientists in Israel. The Hula Painted Frog had been one of the primary symbols of natural extinction in Israel after it had disappeared following the drying of Lake Hula in the 1950s.

"I saw something jump that didn't look familiar," said Malka. "I rushed over and caught a frog, and when I turned it over I saw that it had a black belly with white spots, the identifying mark of the Painted Frog. I immediately returned [with it] to the reserve's office, took out the animal handbook, and saw that what I had found look exactly like the Painted Frog that appears in the handbook."

Dr. Sarig Gafni of Ruppin Academic Center's School of Marine Sciences, an expert in amphibians, was immediately summoned to the reserve, and he arrived with the original scientific paper from 1940 in which the Hula painted frog was described. "We went through the article, sign by sign, and checked all the indicators, including the distance between the eyes, and it is indeed a Hula Painted Frog," said Gafni. "It's very exciting; to me it's like finding the Dead Sea Scrolls of nature conservation in Israel. We must remember that in the past, only three adult samples of this species had ever been found."

Israeli researchers have been trying to locate the frog for years, searching in and around every spring and streambed in the area where the Hula marshes had been — but without success. Consequently, everyone assumed that the act of drying up the Hula and the destruction of other natural habitats through pollution and development had sealed the fate of this unique species.

Aquatic ecologist Dana Milstein believes that the frog's discovery is linked to environmental improvements in the Hula reserve. "In recent years, the water quality has improved, after they started to pour water from fish ponds and nearby springs into the reserve," she said.

[1] Adapted from news reports at www.haaretz.com.

Aquatic ecologist Dana Milstein noted that the frog was rare even before its habitat was drained, and little is known about it. In the 1940s, one individual ate a second frog, leading to speculation that the species is cannibalistic. Photograph by Oz Rittner, Tel Aviv University.

World's First Captive-Breeding of Ozark Hellbenders

The Saint Louis Zoo's Ron Goellner Center for Hellbender Conservation and the Missouri Department of Conservation announced that Ozark Hellbenders (*Cryptobranchus alleganiensis bishopi*) have been bred in captivity — a first for either of the two subspecies of Hellbender. This decade-long collaboration has yielded 63 baby Hellbenders.

The first Hellbender hatched on 15 November 2011. The eggs are maintained in climate- and water quality-controlled trays behind the scenes in the Zoo's Herpetarium. For 45 to 60 days after emerging, the tiny larvae will retain their yolk sack for nutrients and move very little as they continue their development. As the larvae continue to grow, they will develop legs and eventually lose their external gills by the time they reach 1.5 to 2 years of age. At sexual maturity, at 5 to 8 years of age, adult lengths can approach two feet. Both parents are wild bred, the male has been at the Zoo for the past two years and the female arrived this past September.

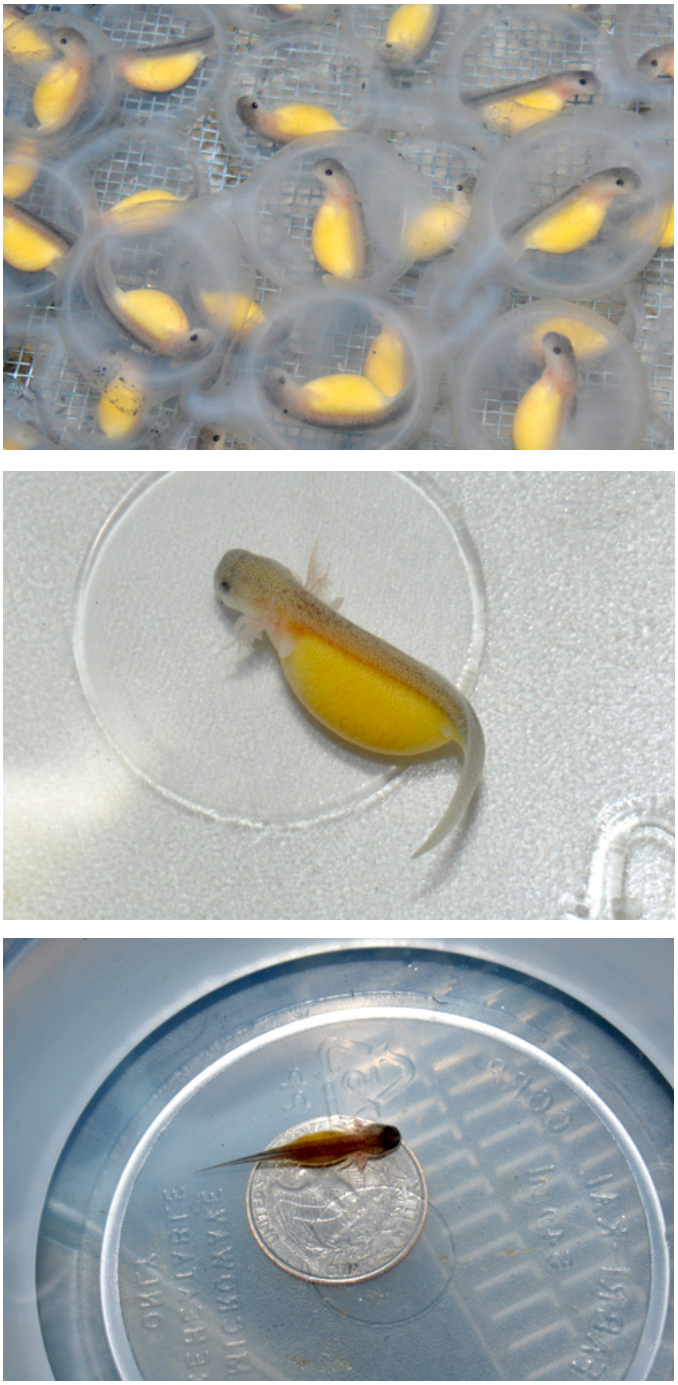
Rivers in south-central Missouri and adjacent Arkansas once supported up to 8,000 Ozark Hellbenders. Today, fewer than 600 exist in the world — so few that the amphibian was added in October 2011 to the federal endangered species list. Due to these drastic declines, captive propagation became a priority in the long-term recovery of the species. Once the captive-bred larvae are 3 to 8 years old, they can be released into their natural habitat — the Ozark aquatic ecosystem.

Also known by the colloquial names of "snot otter" and "old lasagna sides," the adult Hellbender is one of the largest species of salamanders in North America, with its closest relatives being the Giant Salamanders of China and Japan, which can reach five feet in length.

With skin that is brown with black splotches, the Ozark Hellbender has a slippery, flattened body that moves easily through water and can squeeze under rocks on the bottom of streams.

Like a Canary in a Coal Mine

Requiring cool, clean running water, the Ozark Hellbender is also an important barometer of the overall health of that ecosystem — an aquatic "canary in a coal mine." "Capillaries near the surface of the Hellbender's skin absorb oxygen directly from the water — as well as hormones, heavy metals, and pesticides," said Jeff Ettling, Saint Louis Zoo curator of herpetology and aquatics. "If there is something in the water that is causing the Hellbender population to decline, it can also be affecting the citizens who call the area home." "We have a 15- to 20-year window to reverse this decline," added Missouri Department of Conservation Herpetologist Jeff Briggler, who cited a number of reasons for that decline from loss of habitat to pollution to disease to illegal capture and overseas sale of the Hellbender for pets. "We don't want the animal disappearing on our watch."



Ozark Hellbender (*Cryptobranchus alleganiensis bishopi*) larvae developing in the egg (top), after hatching (middle), and after two weeks (bottom). Photograph by Mark Wanner.

Reversing a Decline

In 2001, the Ozark Hellbender Working Group of scientists from government agencies, public universities, and zoos in Missouri and Arkansas launched a number of projects to staunch that decline. These included egg searches, disease sampling, and behavioral studies. In 2004, funding from private donors, the Missouri Department of Conservation, the

Adult Ozark Hellbender (*Cryptobranchus alleganiensis bishopi*) in a stream at the Saint Louis Zoo's Ron Goellner Center for Hellbender Conservation. Photograph by Jeff Briggler.

United States Fish & Wildlife Services, and the Zoo covered the cost of building sophisticated facilities including climate-controlled streams to breed the Hellbender.

The Hellbender propagation facilities include two outdoor streams that are 40 feet long and six feet deep. The area is landscaped with natural gravel, large rocks for hiding, and artificial nest boxes, where the fertilized eggs were discovered. A nearby building houses state-of-the-art life support equipment used to filter the water and maintain the streams at the proper temperature.

In addition, two large climate-controlled rooms in the basement of the Zoo's Charles H. Hoessle Herpetarium are the headquarters for the program. The facilities recreate Hellbender habitat with closely monitored temperatures, pumps to move purified water, sprinklers synced to mimic the exact precipitation, and lights that flick on or dim to account for brightness and shade. The largest room includes a 32-foot simulated stream, complete with native gravel and large rocks for hiding. It houses a breeding group of adult Ozark Hellbenders from the North Fork of the White River in Missouri. Offspring from these Hellbenders will eventually be released back into the wild.

Rare Iguanas Breed Again at Durrell

For the first time in eleven years, the rare Lesser Antillean Iguanas (*Iguana delicatissima*) at Durrell Wildlife Park have successfully bred, producing two young hatchlings. Increasingly endangered in its wild habitat and held by only a handful of zoological institutions worldwide, Durrell Wildlife Conservation Trust remains the only place to successfully breed this species.

Commenting on this exciting news, Mark Brayshaw, Head of Durrell's animal collection, said: "We are delighted by the arrival of these new hatchlings. They are feeding and growing well, and we are continuing to monitor them carefully at our herpetology department. We will continue our efforts to breed the iguanas and are encouraged by this recent success."

Durrell's first successful breeding of this species was a single offspring in 1997, followed by eight juveniles in 2000. Between 2000 and 2011, despite efforts to get the most recent offspring to produce viable eggs, the annual clutches laid were all unfertilized eggs. Finally, in September 2011, one of the females, which had been paired with an unrelated male that arrived at Durrell in 2003, produced the fertile eggs that hatched after an incubation period of 75 days.

The vibrant green juveniles are quite different in appearance than adults. In a couple of years, the young iguanas will lose their green color and become gray with cream heads, like their parents. They have begun feeding on a varied diet of greens and flowers, and thanks to great efforts by many Durrell staff and volunteers, the last remaining rose and hibiscus flowers on the island were collected and offered to the hatchlings, as well as produce from Durrell's own organic garden.

The Lesser Antillean Iguana is an increasingly endangered cousin of the better known common Green Iguana (*I. iguana*), and its decline in numbers has been caused by a combination of problems, including habitat loss, interbreeding with introduced non-native Green Iguanas, and the introduction of predators.

So little is known about the iguana's behavior in the wild that Durrell's previous breeding successes have led to a better understanding of the environment and conditions they need in order to reproduce. Some of the original nine Jersey-bred iguanas have since been moved to other institutions as part of a wider conservation breeding effort. Durrell hopes to continue to gain enough experience to help other institutions breed Lesser Antillean Iguanas, which will help establish a sustainable "safety net" breeding population.

Durrell Wildlife Conservation Trust
25 January 2012
(adapted from a news release)

A hatchling Lesser Antillean Iguana (*Iguana delicatissima*) at the Durrell Wildlife Park. Photograph courtesy of the Durrell Wildlife Conservation Trust.