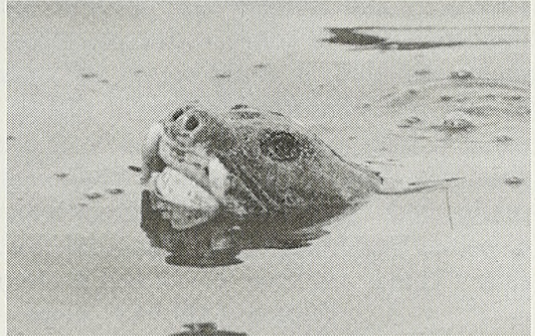


symbol of Hanoi. Some experts fear pollution at Hoan Kiem Lake is killing the giant turtle, which has a soft shell the size of a desk. It is one of the world's most-endangered species, with only four known to be alive. Teams of people are cleaning debris, pumping fresh water into the lake and using sandbags to expand a tiny island to serve as a "turtle hospital."

The Hoan Kiem turtle (*Rafetus leloii*) is rooted in Vietnamese folklore, and some even believe the animal that lives in the lake today is the same mythical creature that helped a Vietnamese king fend off the Chinese nearly six centuries ago. In the past, it has been glimpsed only rarely sticking its neck out of the water. But it has recently surfaced much more frequently, alarming the public with open wounds on its head, legs and shell. Meetings were called and 10 government agencies were put to work to try to save it.

Vietnamese have flocked to the lake in hopes of spotting the turtle -- a sign of good luck -- as newspapers run daily articles about its plight. "For the Vietnamese, the Hoan Kiem Lake turtle is the most sacred thing," said retired state employee Nguyen Thi Xuan, 63, who traveled from a suburban Hanoi district to try to get a glimpse of the animal. "He has helped the Vietnamese to defeat foreign invaders and also helped the country to have peace."



The Hoan Kiem turtle is considered a mythical creature by some. (Photo: Brian D. Horne/WCS)

The small lake is a city landmark for its curved red bridge leading to a temple on a tiny island. Weeping willows and other leafy trees shade a sidewalk that rings the water, a popular site for tourists and Hanoians to exercise and relax. But the lake has been trashed with everything from bricks to plastic bags and raw sewage. It is not uncommon to see men urinating into the murky water. The pollution is slowly killing the Hoan Kiem turtle, a Vietnamese biologist warned. "I believe the injuries were caused by sharp edges from debris in the lake," said Ha Dinh Duc, who has studied the lone turtle for 20 years and considers himself its caretaker. "The poor quality of water also makes the conditions unbearable for the turtle."

A rescue team hopes to coax the turtle onto land so they can treat the wounds. Sandbags have been built up to expand the small island for it to emerge. But if it does not crawl onto the platform by itself, a net will be used to capture it. Veterinarians will then take skin and shell samples to determine how to treat the turtle. No one knows the turtle's age or gender, but turtle experts estimate it is probably between 80 and 100-plus years old. The experts believe it is probably the most endangered freshwater turtle species in the world. It weighs about 440 pounds and its massive shell stretches 6 feet long and 4 feet wide. *Source: Associated Press, Tran Van Minh, 5 March 2011*

**DNA Better Than Eyes When Counting Endangered Species** - Using genetic methods to count endangered eagles, a group of scientists showed that traditional counting methods can lead to significantly incorrect totals that they believe could adversely affect conservation efforts. Andrew DeWoody, a professor of genetics at Purdue University; Jamie Ivy, population manager at the San Diego Zoo; and Todd Katzner, a research assistant professor at the University of West Virginia, found that visual counts of imperial (*Aquila heliaca*) and white-tailed (*Haliaeetus albicilla*) sea eagles in the Narzum National Nature Reserve of Kazakhstan significantly underestimated the imperial eagle population there. Using DNA from eagle feathers gathered in the area, the researchers were able to identify individual DNA fingerprints for each bird. The technique showed that there were 414 eagles, more than three times as many as had been visually observed, and more than two and a half times more than modeling suggested would be there.

"A biologist doesn't always see them coming and going," said DeWoody, whose findings were published in the early online version of the journal *Animal Conservation*. "Eagles are difficult to capture, mark and resight. Biologists in the field can't differentiate individuals, whereas by a genetic fingerprint geneticists can differentiate among individuals that have visited a site."

DeWoody, Ivy and Katzner, with collaborator Evgeny Bragin of the Narzum Natural Nature



Reserve collected thousands of eagle feathers around roosts and nesting sites. DeWoody's team at Purdue was able to extract DNA from those feathers and determine that there were hundreds of eagles that had recently visited the site. "Generally we say 'what you see is what you get,' but in this case it's the complete opposite," said Katzner, who used the data to model more accurate estimates of eagle populations. "When your field data are off by that much, it's difficult to build accurate models because your starting point is just so far off."



Eastern Imperial Eagle

(Photo: AngMoKio/German Raptor Research Centre)

DeWoody and Katzner said accurate animal counts are an important part of conservation practices. If populations are underestimated, it could signal to decision makers that a habitat isn't important when, in reality, more animals are using it than thought. Conversely, if a population is more abundant than once thought, resources may need to be reallocated. "We don't want to spend a lot of effort protecting a species that doesn't need that much protection," DeWoody said. "This is a science-based approach to conservation."

In the case of eagles in Kazakhstan, Katzner said the new population estimates show that the Narzum National Nature Reserve is a more important site than previously thought.

"We knew it was an important site for eagles, but we seriously underestimated its importance," Katzner said. "We used to think this was only an important site for breeders, but now we know this is an important site for birds from several life stages."

The data will be used to begin discussions about managing resources for eagles in Kazakhstan. DeWoody hopes that the findings will increase funding to use the technique on other threatened or endangered species. He said of particular interest to him is the Steller's sea eagle (*Haliaeetus pelagicus*), a bird native to northeast Asia and thought to have a population of only a few thousand. A National Science Foundation fellowship, the National Geographic Society, National Birds of Prey Trust and Wildlife Conservation Society funded the study. *Source: Purdue University, Brian Wallheimer, 7 March 2011*

### **Announcing the Felid TAG Husbandry Course and Mid-Year Meeting May 2011 – Hosted by Omaha's Henry Doorly Zoo, Omaha, NE**

The Fifth Annual Felid Husbandry Course will be held May 1-4, 2011

SSP® Meetings will be held May 3-4, 2011

AZA FTAG Mid-year Meeting will be held May 5-7, 2011

**Husbandry Course:** Students completing the course will cover all aspects of felid husbandry, including safety, nutrition, behavior, reproduction, veterinary issues, and introductions. They will be provided a variety of resources (both electronic and paper) and personalized assistance with problem solving tasks, as well as the opportunity to discuss challenges and goals in their own institution's program.

The ideal student attending the husbandry course will:

- Have at least one [1] year of experience working with felids
- Currently work in a position at your facility where they are involved in the daily care of felids (keepers, leads, front-line supervisors, etc.)
- Have institutional support to attend the three-day workshop, including pre-work and follow-up after their return
- Be willing to actively participate in course discussions during class and offer feedback to instructors after the course.

Once again the Denver Zoo is generously offering a scholarship to aid a student in attending the Felid Husbandry Course. Scholarship applications may be found at the FTAG website or by contacting Bonnie Breitbeil [bonnieb@centralfloridazoo.org](mailto:bonnieb@centralfloridazoo.org) For more detailed information including hotel or contacts please visit the Felid TAG [website www.felidtag.org](http://www.felidtag.org)





2011. "Conservation/Legislative Update: DNA Better Than Eyes When Counting Endangered Species." *Animal keepers' forum* 38(4), 183–184.

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