Should We Have Cloned Lonesome George?

Related Links

THE GIST

- It is not possible to clone Lonesome George now, but other endangered animals have been successfully cloned.

- In the future, cloning and further studying Lonesome George might be possible, so scientists are focusing on preserving his tissues now.

- Biobanks known as "frozen zoos" hold tissues and other remains of certain endangered animals.

The recent death of Lonesome George, the famed Galapagos tortoise believed to be the last representative of his subspecies, has many experts wondering how we should try to save other endangered and at-risk animals.

Cloning is one option. While cloning methods for reptiles are not as advanced as those for mammals, scientists also say they face other incredible obstacles.

PHOTOS: Lonesome George and Other Animals At Risk

"At the most, I could envision one male turtle of this subspecies cloned in future or maybe two males, but where are you going to get a female?" asked Martha Gomez, a senior scientist with the Audubon Nature Institute, which has one of the world's few "frozen zoos."

Frozen Zoos stockpile biological materials from a wide variety of rare and critically endangered species. The biological material is usually composed of gametes (sperm and egg cells), embryos, tissue samples, serum and other items. Together, they represent a bank vault of irreplaceable genetic information that can be preserved for possibly hundreds of years or more. In most cases, the materials are stored in holding tanks filled with liquid nitrogen.

Oliver Ryder, director of genetics at the San Diego Zoo, spoke to Discovery News as his team was racing to the Galapagos Islands to help preserve the tissues of Lonesome George. The San Diego Zoo operates one of the other few frozen zoos.

"This is an extremely urgent matter," Ryder said. "We had planned to meet in the Galapagos in two weeks to discuss preservation of the tortoises there. It is a bitter irony that Lonesome George died before we could even finish setting up the plans. It underscores the importance of preserving such animals."

"We are facing some logistical problems now, but we don't want to look back with 'what if's,'" he added. "This may be the only chance we'll have to preserve, document and study this tortoise subspecies."

Ryder believes discussions of cloning Lonesome George are premature at this point. Before that takes place, he thinks more must be learned about this particular tortoise's physiology and reproduction. Studying Lonesome George's remains may also help to reveal how tortoises often live to advanced ages, information that could one day lead to breakthroughs in extending human lifespans.

For cloning, researchers are focusing more on "species where we have detailed knowledge of their reproductive biology," Ryder said. That is one reason why cats, dogs and mice were among the first animals to be cloned. Scientists are now working to clone endangered relatives of such animals, in hopes of releasing those individuals into the wild to strengthen natural populations.

Earlier this year, Gomez and her colleagues successfully cloned endangered black-footed cats. An endangered wild ox, called a gaur, and a banteng (wild cattle) have also been successfully cloned. Work is underway to clone and otherwise increase the population of Sumatran rhinos, which presently number only about 200-300 in the wild.

While one healthy clone is an interesting novelty, clones must also be able to reproduce in order to be fully successful. Gomez said that kittens of cloned wild cat parents have died "due to problems with nuclear programing," but some normal kittens have resulted and continue to thrive.

NEWS: Woolly Mammoth To Be Cloned

Both she and Ryder say that there is no international policy calling for cloning and preservation of highly endangered species. Instead, isolated facilities and the work of dedicated individuals are responsible for the successes.

"The effort needs to be more widespread and organized," Gomez said.

Through published papers and talks, Ryder and his colleagues have repeatedly called for an organized global effort. It would need an "overarching international body" on par with UNESCO, he believes.

"The first step is saving tissue samples, as we're in the process of doing for Lonesome George," he said. "But we who are among the forefront would like to train others to establish frozen zoo biobanks in other countries."

"I am confident that one day such an international structure will come together, bringing in other conservation work, such as preserving habitat," Ryder concluded. "It's poignant to lose a subspecies like that of Lonesome George. People in the future will be looking back at us, wondering why we didn't act sooner."