Breeding behind bars

Saving species requires new scientific strategies

By Margie Patlak
Special to The News

The male gorilla was over 20 years old, and he had been celibate his entire life. Although raised with female gorillas at his home zoo in Buffalo, he apparently hadn't found a suitable mate.

Then he went to the Brookfield Zoo in Chicago where zoo officials introduced him to two new female gorillas. The lonely gorilla was lonely no more.

"He now has a nice family of two females and three infants," says Benjamin Beck, a primatologist at the National Zoo in Washington, D.C.

The gorilla exchange is just one of many tactics zoologists use to arouse the spirit of romance among the rare animals they are trying to breed in captivity. And some of these strategies can be rather extreme. Avian biologist George Archibald, for example, spent many a spring night dancing with a whooping crane named Tex. And at the National Zoo, potential mates have come from as far away as Germany.

Whatever the method, hours of research and effort have been devoted to multiplying the numbers of endangered species while they are kept in cages. For some animals, whose populations have dwindled dangerously in the wild, breeding behind bars may be the only way of saving them from extinction.

"Captive breeding is an 'Ark' approach to ensuring an animal's survival," says avian biologist Robert Gabel of the Patuxent Wildlife Research Center in Laurel, Md. "When an animal's population declines excessively, we will often remove some animals from the wild and breed them in captivity. The eventual goal of our program is to return the animals to their natural habitat once the problems

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forcing them toward extinction have been solved."

But getting an animal to breed in the confines of cages isn't easy. In the case of the gorillas, the problem was that familiarity breeds contempt instead of baby gorillas. Field studies have shown that a gorilla in the wild will leave its troop when it reaches sexual maturity and seek a mate from another group of animals. Gorillas in zoos obviously cannot do this, which may be why they often remain stubbornly celibate in cages, according to Beck.

Beck and other zoo curators have begun exchanging gorillas, with encouraging results. At the International Crane Foundation in Baraboo, Wis., biologists have gone to great lengths to understand the conditions that put the rare birds in the mood to breed. Brolga cranes that mate during the monsoons, they discovered, need to be sprinkled daily to feel sexy. And floodlights have to be flicked on at night for Siberian cranes that are used to mating under the midnight sun.

For the whooping crane called Tex, more unusual measures had to be taken. Tex was born in the San Antonio Zoo, and because of her poor health, was reared by hand in a zookeeper's living room. Never having met another crane until she was an adolescent, Tex apparently considered herself more human than bird and so was sexually attracted only to people, not cranes. So George Archibald, director of the International Crane Foundation, set out to "woo" her himself.

"Not only were there less than 150 whooping cranes left in the world, but Tex was a particularly valuable bird genetically, which made it crucial to prompt her to generate offspring," Archibald says.

He induced Tex to lay an egg by following all the rules of crane courtship. "My main duty entailed just being with her. I was by her side 15 hours a day for seven weeks," he says.

Archibald would also occasionally dance with Tex, flapping his arms up and down and jumping, much as a male crane would dance during courtship.

His attentions paid off. After artificial insemination, Tex laid an egg and a whooping crane hatched 29 days later.

To avoid the mistaken identity problem that Tex had, crane chicks hand-reared at the foundation are fed with puppets that resemble crane heads. Further precautions are taken at the Patuxent Wildlife Research Center. Whooping cranes hatched there are often raised by their cousins, sandhill cranes. Scientists used such cross-species adoption techniques to re-establish a wild whooping crane flock at Grays Lake National Wildlife Refuge in Idaho.

"The sandhill cranes pass on wild traits to the whooping crane chicks," says Gabel. "These birds are spooked by people, like they should be, and know enough to probe a field for food rather than go to a feeder."

The Research Center has increased its own flocks of whooping cranes, bald eagles, and condors by continually robbing nests of the birds they have in captivity. This prompts the birds to mate again and lay additional eggs. The eggs removed are slipped into the nests of chickens or sandhill cranes who incubate them as if they were their own young, even though the eggs may be 10 times the size or a totally different color.

"Basically, if you give a chicken anything that's oval shaped, she'll sit on it," Gabel says.

But some animals are more discriminating, particularly when it comes to choosing a mate. Animals grouped together at the whims of a zookeeper will often be incompatible. Such was the case with cuban crocodiles housed at the National Zoo.

Although a virile male crocodile was surrounded by a harem of four female crocodiles, no young were produced for nine years. As a last-ditch effort, a female crocodile from a German zoo was flown in and placed with the group. Apparently the male crocodile took to her because she later hatched seven young.

"Perhaps the male was incompatible with the other females or just needed the novelty of a new mate in order to breed successfully," says zoologist Dale Marcellini, curator of herpetology at the National Zoo.

For the zoo's infamous giant pandas, incompatibility was only temporary and was brought on by a difference in sexual maturity between male and female. Although Hsing-Hsing, the male, was popularly looked upon as lacking the machismo necessary for mating, he eventually caught up to the sexually precocious Ling-Ling.

The panda couple now mate on a regular basis although they have yet to produce any long-lived cubs, much to the public's dismay. Zoo officials are optimistic, however, that the animals will someday be proud parents.

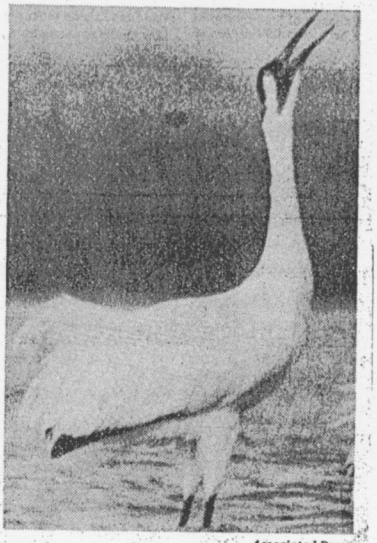
As with gorillas, a family separation is needed to breed the cotton-top tamarin, a squirrel-sized monkey native to Colombia. Scientists raising the animals at the University of Wisconsin-Madison discovered that a female will not undergo puberty and ovulate unless she is removed from her mother and placed among strange tamarins.

"We're not sure how the mother physically prevents her daughters from being sexually active," says Charles Snowdon, a primatologist at the university, "but I bet there are a lot of human mothers who wished they had that power over their teen-age daughters."

The National Zoo has had success in breeding the golden-haired cousin of the cotton-top, allowing the return of some golden lion tamarins to Brazil, their native home.

Associated Press

Despite a variety of breeding strategies, cubs born to Ling-Ling, a giant panda at the National Zoo in Washington, D.C., have not survived.



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Scientists have tried various strategies to breed more whooping cranes like the ones at the Aransas Wildlife Refuge in Texas.