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ENDANGERED SPECIES

Technical Bulletin Reprint

Wildland Management Center
School of Natural Resources
The University of Michigan

Trapping Poachers Who Prey on Endangered Wildlife

by Clara Germani

An eagle, an elk, a bighorn sheep, a grizzly bear — if you were willing to pay enough, poacher Loren Ellison would shoot it for you or guide you to it. This spring Ellison was handed the stiffest penalty ever meted out for killing and selling protected wildlife species — 15 years in federal prison.

Ellison himself succinctly described the results of poaching when he bargained with an undercover United States Fish and Wildlife agent over the price of a grizzly bear hide.

"Well, they're gonna be extinct, you know," he told the agent during a secretly taped conversation, justifying his $5,000 asking price.

Ellison's stiff sentence reflects a new public attitude toward wildlife protection, federal wildlife officials say. It's a viewpoint that trails by several years the congressional effort to make the exploitation of wildlife a crime — a felony with the same penalties as bank robbery.

This new trend is embraced not just by environmentalists and wildlife officials, but also by conservative Westerners who have hunted in the back country of the Rocky Mountains for generations. Local residents are well aware that the habitats of threatened species are so remote there are seldom witnesses to illegal hunting. And they are beginning to recognize that valuable species may be detroyed by poaching.

"I don't think the public would have sanctioned this sentence 10 or 15 years ago," says Joel Scrafford, senior resident agent of the US Fish and Wildlife Service for four Western states. "They believed in the Robin Hood-type poachers taking the king's game to feed the family.

"But when you can take a rural, conservative Montana jury, and they sanction a 15-year prison sentence, well, this is a bright spot reflecting the general attitude of the people," he says of Montana, where the ubiquitous pickup truck inevitably carries a hunting rifle in the back window.

Mr. Scrafford's nine agents, who cover 400,000 square miles of wilderness in Wyoming, Montana, Utah, and Colorado, began their summer grizzly-protection patrols last week. Scrafford says his men went into the field greatly encouraged by the recent court action, after a decade in which they felt their enforcement efforts received little public or judicial support.

According to government estimates, illicit wildlife trade in the United States nets $50 million to $100 million a year. As various species are singled out for protection, their scarcity makes them more valuable — providing incentive for increased illicit trade. Today, the biggest customers for poachers in the Rocky Mountain states are sport hunters seeking rare trophies and buyers for Asian medicine producers who use organic materials such as teeth, claws, and antlers in folk medicines.

The crackdown on poaching began in 1981 with amendments to the Lacey Act, a federal wildlife law dating back to 1900. The amendments put teeth in the law, establishing felony punishments for commercial violators and international traffickers.

Because cases take two or three years to develop, they are just beginning to show up in the courts. In eight major undercover operations since 1982, officials have won more than 360 convictions.

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Cincinnati Zoo

The rarity of animals like this Bald Eagle provides incentive for poaching and illicit trade.

Poachers continued

Scrafford's agents, like those in other undercover wildlife units around the country, are also involved in "sting" operations. Agents have used fake storefronts and false identities to infiltrate commercial poaching rings.

The Ellison case, called Operation Trophy Kill, focused on poaching in Yellowstone National Park. Special agent John Gavitt, posing as a taxidermist, was able to win the confidence of Ellison and his trading partners. The sting took three years to pull off and has been criticized by defendants as a case of entrapment — but the 33 convictions in the case still stand.

"Before, this had a low priority in the courts. And it disturbs me, because some of the weak sentencing we've had has encouraged these [commercial hunters]," says Scrafford. He says a typical $250 fine for a wildlife violation was not a deterrent to poachers, who can make big money in illicit trade.

He recounts statistics from recent undercover cases to underline his point:

- Big-game trophy collectors pay thousands of dollars for a "guaranteed hunt," in which guides take them on unlicensed, out-of-season hunts.
- Buyers for the Asian medicinal market pay as much as $5,000 for a black bear carcass and $60 to $70 a pound for elk antlers in velvet, the soft fur that covers growing antlers. (A rack of antlers weighs 15 pounds.)
- Wealthy Arabs have paid up to $100,000 for a live white gyrfalcon for sporting use.
- One bighorn sheep carcass was sold three times — first for $350, then $1,200, and finally $6,000.

Further, he adds, one hunter last year paid $33,000 for a license to hunt bighorn sheep in Utah, a fact that underscores the animals' value. Scrafford says the hunters have become more and more sophisticated. He notes they use automatic weapons, silencers, airplanes, and even explosives in their work.

In his office, between investigations in the field, he flips through piles of photos taken during undercover operations to illustrate what he calls the "mass carnage" taking place in the wild. In the pictures, the hunters are smiling broadly next to dead mountain lions, coyotes, bears, elk, antelope, mountain goats, mule deer, eagles, and beaver.

"We're dealing with a finite resource, and these animals are becoming more valuable every year," says Mr. Gavitt, now in charge of special operations for the US Fish and Wildlife Service in Washington.

"The Wild West is not what it used to be. The wide-open spaces are not as wide-open as they used to be," Gavitt says. Even in the last strongholds of Western-style independence, people are recognizing that their natural resources need to be protected, he says.

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A forum for information exchange on endangered species from

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Resources. . .

The International Centre for Conservation Education was established in 1984 to consolidate and expand the work carried out since 1975 by WWF/IUCN International Education Project. Great emphasis is placed on the production of simple, low-cost educational materials. In addition to audiovisual production, technical services include slide duplication, graphic design and offset-litho printing. For a free illustrated AV catalogue (Please enclose SASE), write to: ICCE, Greenfield House, Guiting Power, Glos. GL54 5TZ UK. ■

The American Horticulture Society's 1986 Endangered Wildlfowers Calendar will be available in August. The wall calendar is 8½ by 23 inches when open and contains full-color photographs of 16 American wildlfowers that are threatened and endangered. It can be ordered for $6.95 (including postage and handling) from: American Horticultural Society, Endangered Wildlflowers Calendar, P.O. Box 0105, Mount Vernon, VA 22121. ■

September 27-28. "Diversity and Conservation of Tropical Rainforests", hosted by the California Academy of Sciences, will focus on the New World tropics, Costa Rican parks, and OTS' role in education, research and conservation related to La Zona Protectora La Selva. For details contact: Frank Almeda or Cathy Pringle, Dept. of Botany, California Academy of Sciences, Golden Gate Park, San Francisco, CA 94118.■

Defenders of Wildlife have issued a report, *Saving Endangered Species: Implementation of the U.S. Endangered Species Act in 1984,* and is available free by writing: ESA Report, Defenders of Wildlife, 1244 Nineteenth Street, N.W., Washington, D.C. 20036.■

The New York Botanical Garden now has available copies of the Council on Botanical and Horticultural Libraries Plant Bibliography No. 6: *Endangered Plant Species of the World and Their Endangered Habitats: A Compilation of the Literature.* 153 p. 1985. This bibliography is available for $5.00 (U.S. orders) and $6.00 (orders outside U.S.) including postage from: Mrs. Elaine DiLorenzo, The Library, New York Botanical Garden, Bronx, New York 10458-5126.■

Frozen Zoo: Frigid Frontier of Conservation

By Karen Wachs

The idea of a "Frozen Zoo" conjures up some interesting images in most folks' minds: visions of animal-shaped ice carvings, or perhaps a collection of local fauna on the North Pole. But, in Cincinnati, Ohio, "Frozen Zoo" has a completely different meaning — it is the colloquial expression for the Cincinnati Zoo's cryopreservation unit where presently dozens of frozen embryos and frozen semen samples collected from exotic species are being stored in a state of suspended animation for future use.

Fresh embryos only remain viable for a few hours so it was important to develop the technology needed to maintain viable embryos in a frozen state over an extended period of time. Embryo cryogenics has been successfully applied in the commercial cattle industry for some time now. Future exotic embryo transfer work in the field will depend upon this same technology applied to non-domestic animals. To be able to successfully freeze and thaw embryos adds a much needed luxury to the field of reproductive research: time. Frozen zoos could become crucial to the survival of animals that are currently threatened by extinction, becoming repositories where the irreplaceable genetic material of these endangered animals can be placed in storage.

The Cincinnati Wildlife Research Federation (CWRF) is a cooperative research effort formed in 1981 by the Cincinnati Zoo, Kings Island Wild Animal Habitat, and the University of Cincinnati College of Medicine with the goal of furthering zoological reseach through the development of programs to assist in the propagation of endangered species. The Federation has been a pioneer in the application of cryogenics to the embryos of exotic animals. On October 14, 1984 an eland calf was born at the Cincinnati Zoo to a surrogate eland mother who was the recipient of an embryo which had been stored in the Frozen Zoo for 1 1/2 years prior to its thaw and transfer. This was the first-ever live birth from a frozen embryo transfer in an exotic species.

Frozen embryos are stored in heat-sealed straws immersed in liquid nitrogen at a temperature of -383°F. Each straw contains one embryo. The embryos are at a specific stage of development, approximately seven days post-fertilization, when they are frozen. The freezing process is very gradual and controlled. Prior to freezing, the embryo is dehydrated and mixed into a solution containing nutrients and cryoprotectants.

When a frozen embryo is selected for transferring, the straw is carefully removed with forceps from the liquid nitrogen tank where it has been stored, and immediately plunged into a room temperature waterbath for thawing. Next, the end of the straw is clipped and the contents are expelled into a petri dish. The embryo is then viewed under a microscope to see if it has been damaged by the freeze and thaw which it has undergone. After the embryo is evaluated, it is placed in a sucrose-nutrient solution and kept warm on a slide warmer tray until the transfer is ready to begin.

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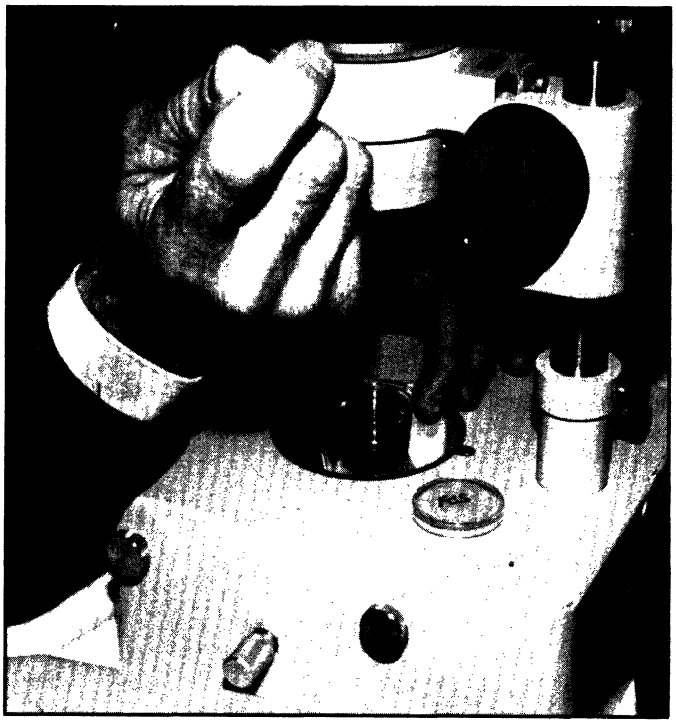
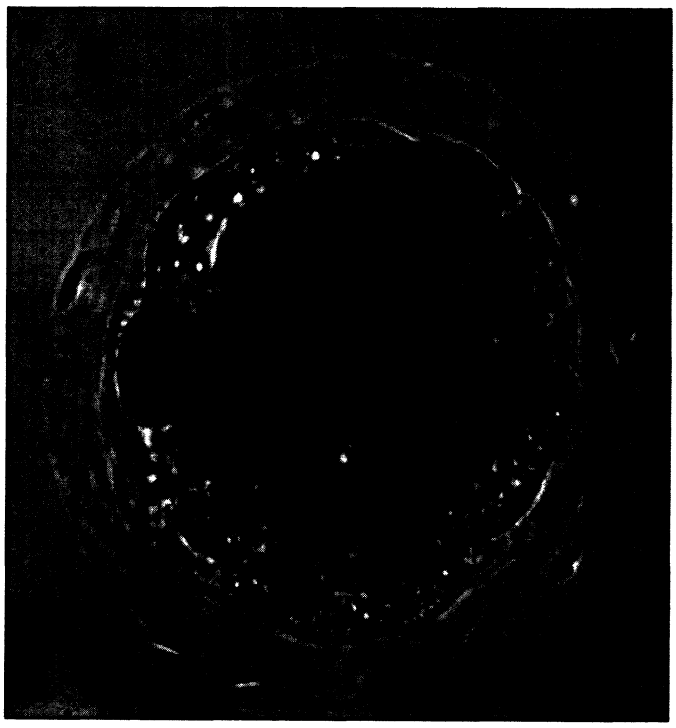


After a straw is thawed, its contents are expelled into a petri dish so that the embryo can be viewed and evaluated under a microscope.



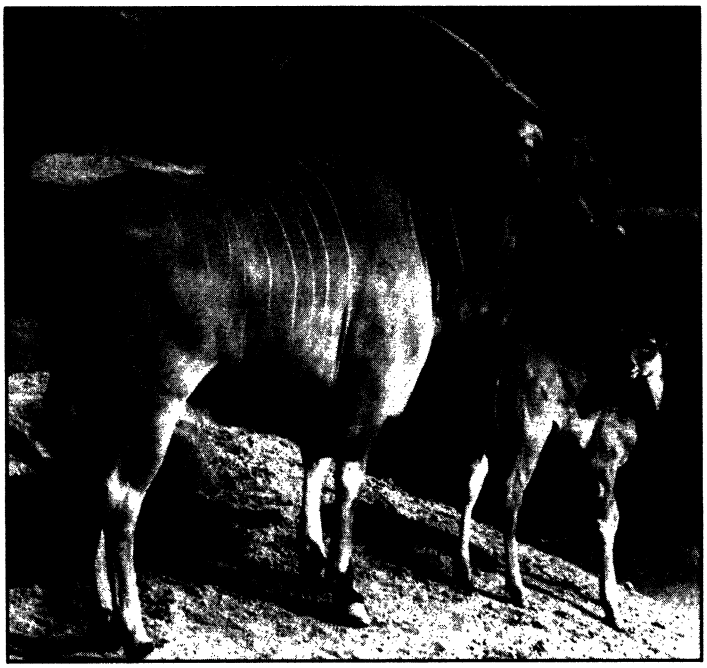
This thawed eland embryo was successfully transferred and produced a female eland calf after 1½ years in a deep freeze.

Photos courtesy of Cincinnati Zoo

Frozen Zoo Continued

A recipient's estrous cycle must be regulated through hormone injections so that the uterus is prepared to receive an embryo at the time the transfer is scheduled. Just prior to transfer, the recipient is immobilized by anesthetic and placed on her chest in a bed of straw. Once the vulvular and rectal areas are scrubbed with a germicidal agent and rinsed, the animal is ready to receive the embryo. At this time the embryo is drawn into a syringe-like instrument called a Cassou gun. This instrument is then passed through the cervix of the recipient and the embryo is deposited into one of the animal's two uterine horns. The correct positioning of the Cassou gun in the reproductive tract is determined through rectal palpation. An eland's reproductive tract lies adjacent to the lower rectal wall, so the tract may be examined by touch through the rectal wall. The length of gestation for an eland fetus is approximately nine months; however, pregnancy can be determined 100 days following a transfer by rectal palpation of the uterus.

It seems clear that the use of reproductive tools such as embryo transfer and cryogenic preservation will have far reaching ramifications in the future, not only for captive zoo animals, but also for animals in the wild. Donor animals can be superovulated, or hormonally-induced to ovulate a much larger than normal number of eggs at one time. The donor can then be inseminated, either naturally or artificially, to bring about fertilization of the eggs. These fertilized eggs, or embryos, can be collected, frozen, and stored until suitable surrogate mothers can be identified and readied for use as recipients for embryo transfer. Once embryos are in a frozen state they can be easily transported, thereby allowing new bloodlines to be contributed to existing gene pools without the risk and expense of transporting adult animals for breeding purposes. With this technology at our fingertips, both the quality and quantity of captive populations will improve, and zoos can legitimately take up their roles as true conservators of wildlife.



Cincinnati Zoo

Female eland calf produced from frozen embryo with surrogate mother.

Karen Wachs is a volunteer research assistant with the Cincinnati Wildlife Research Federation under the direction of Dr. Betsy Dresser.

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