

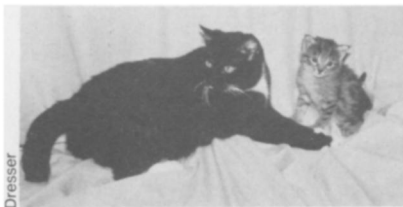
Domestic cat bears exotic kitten

At the Cincinnati Zoo, a domestic cat has given birth to an endangered Indian desert cat derived from an artificially fertilized embryo. The Feb. 7 birth, announced March 1, marks the first interspecies birth of a cat and the first birth of an exotic cat from a test-tube-fertilized egg, says Cincinnati Zoo researcher Betsy L. Dresser, who co-developed the *in vitro* technique.

Scientists at the zoo, the only U.S. facility housing this exotic cat species, *Felis sylvestris*, had failed to breed the Indian desert cat naturally. Dresser says she and her co-workers are now "trying to develop the domestic cat as a universal surrogate for quite a number of small endangered exotic cats."

Last week, the researchers began a repeat experiment when they transferred eight more embryos into a domestic cat. Dresser says she also plans to try another species, and then another genus, of exotic cat. "Every step gets us that much closer to [understanding] how the domestic model needs to be changed slightly for the next species," says cat specialist Laurie Marker-Kraus of the National Zoo in Washington, D.C., where the first successful *in vitro* fertilization technique for domestic cats was developed in 1987.

To function as a surrogate, the domestic cat requires hormonal treatment so that its uterus is synchronized with the developmental state of the fertilized embryo. Dresser says she and her co-workers are now working with the embryos from



exotic cats to learn how to freeze them along with exotic cat sperm. "Once they're frozen, [we] can keep a species from going extinct," she explains.

The successful pregnancy confirmed that the Indian desert cat is closely related to the domestic cat, *F. catus*, Dresser adds.

Honey hunters follow birds to reach bees

When the Boran people of Kenya find a bees' nest full of honey, they say a little bird told them about it. For years these nomadic people have claimed that the African honeyguide, *Indicator indicator*, uses flight patterns and calls to guide them to bees' nests. The bird then gets to eat a bit of the otherwise inaccessible honey.

Now, for the first time, ornithologists have confirmed these claims. H.A. Isack of the National Museum of Kenya and H.-U. Reyher of the Max-Planck Institute in Seewiesen, West Germany, watched Boran honey hunters work with honeyguides for three years. They report their observations in the March 10 SCIENCE.

The researchers note that the tribesmen take, on average, 8.9 hours to find honey without the bird and only 3.2 hours with it. When they are ready for honey hunting, the Boran whistle to summon the bird. Likewise, the bird gets the people's attention by fluttering around and calling "tirr-tirr-tirr."

Next the bird flies off for several minutes, possibly to reconfirm the nest location. Then it starts a series of short flights, calling along the way to keep the humans on the right track, and stopping more frequently and flying lower as it nears the honey. Once there, the honeyguide informs its followers by uttering a different call. The researchers also spied the bird busily staking out bees' nests in the late hours of the night.

According to ornithologist William Shields of Syracuse (N.Y.) University, honeyguides have been guiding honey badgers even longer than they have been guiding humans. Badgers tear up the bees' nests, leaving behind plenty of honey for the birds. The Boran are less sloppy about gathering honey, but traditionally leave a bit on purpose as a reward for their guide.

Death postponed for Landsat satellites

In what amounts to a last-minute stay of execution, a council headed by Vice President Quayle announced that emergency funding would keep alive two aging satellites threatened with shutdown at the end of the month. These satellites, Landsat 4 and 5, provide detailed snapshots of Earth's land surface, highly valued in the scientific and business communities.



Earlier this year, the National Oceanic and Atmospheric Administration (NOAA), which funds Landsat, said it could not continue operations of the satellites after March 31. NOAA announced that if other sources do not support the program, the satellites would be set adrift.

Last week, however, the National Space Council announced a full review of the Landsat program and promised an infusion of funds to keep the satellites alive during the review period. Although the council has not provided full details, some of the additional funding will come from federal departments that use Landsat information. While NOAA says \$9.4 million is needed to continue the program through fiscal year 1989, which ends Sept. 30, the council has not announced how much funding it has gathered.

The threatened shutdown is the latest episode in an ongoing drama. In 1985, the Reagan administration negotiated an agreement to shift the Landsat program into private hands, and the transition is now midway. While the government owns the satellites and pays for their operation, it gives the data to the EOSAT company in Lanham, Md., which sells the images.

Many scientists have criticized the switch, in part because EOSAT quadrupled the price of standard images when it took over. Yet EOSAT does not deserve all the blame for the problems plaguing the Landsat program, argues John J. Egan of the Egan Group, a Washington, D.C.-based consulting firm in the field of remote-sensing. The commercialization "was handled very badly, by all sides," says Egan, who conducted a study for NOAA on the financing of Landsat-like projects.

Landsats 4 and 5, launched in 1982 and 1984, have both lived well beyond their three-year engineered expectancy. With some problems, they continue to function and "there is an excellent chance they will continue to operate through the next year [if funded]," says W. John Hussey from NOAA. In each of the last three years, the President's budget has not requested any money for the aging satellites. Congress has saved Landsats 4 and 5 each time, although this year it has funded operations only through March. The next satellite in the series, Landsat 6, won't enter Earth orbit until mid-1991 at the earliest. The commercialization plan calls for EOSAT to assume operating costs of Landsat 6 after the launch.

Images from Landsat serve scores of different purposes. In the scientific world, they allow geologists to assess damage from volcanic eruptions and ecologists to track the destruction of forests and wetlands. Commercially, they help commodities businesses estimate crop yields and they play a part in spotting likely mineral and oil deposits.

If funding for Landsats 4 and 5 dries up, EOSAT will lose all access to the Landsat data archives and will not be able to produce any images, says Richard Mroczynski of EOSAT.