C. subspinosus, I presume?


Santos/World Wildlife Fund

An unusual animal has been rediscovered in the tropical forests of eastern Brazil, after being "lost" for more than 30 years. The thin-spined porcupine, *Chaetomys subspinosus*, had not been sighted by scientists for decades and was feared extinct until a Brazilian biologist sighted it in December.

A local hunter led the biologist, Ilmar Bastos Santos, to a tree containing two of the nocturnal porcupines, according to a report by the World Wildlife Fund. Santos's photos are only the second set ever taken of a live thin-spined porcupine. The first was taken in 1952.

In addition to proving the species is not extinct, rediscovery of the animal gives scientists more opportunity to solve some mysteries surrounding *C. subspinosus*. With hairs more like bristles than spines, the thin-spined porcupine may not even be a porcupine, but a member of the spiny rat family instead. Or it may have a unique niche between the porcupine and spiny rat families, says a report by Santos and others.

World Wildlife Fund officials caution that the fact that the animal is not extinct is no guarantee it will escape the spreading destruction of the tropical forest region where it lives. According to World Wildlife Fund Vice-President Russell A. Mittermeier, "the species will require special attention if it is to survive." The endangered forested area also is the only home of species like the maned sloth and golden-headed lion tamarin monkey.

Enzyme structure to help drug design

Using an innovative X-ray machine coupled to a computer, a group of scientists has determined the structure of an enzyme important in the development of anticancer drugs. Because the enzyme, thymidylate synthetase, plays a crucial role in the DNA synthesis of rapidly growing cells, many anticancer agents are designed to block its activity, thereby inhibiting tumor growth. Researchers from the University of California at San Francisco report in the Jan. 23 SCIENCE that their description of the enzyme's precise three-dimensional structure will lead to improved cancer therapy. Presumably, those drugs could be designed to recognize the enzyme and fasten to it more tightly than the current drugs.

Gene defect may cause some cataracts

The discovery of a link between a specific genetic profile and one type of hereditary cataract could mean that some forms of human cataracts are due to defective genes, according to a report in the January PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES (Vol. 84, No. 2). In the report, Canadian, Dutch and British scientists describe a genetic profile unique to people suffering from the so-called Coppock-like cataract, a disease present at birth and characterized by opaque eye lenses.

The characteristic gene profile involves genes coding for crystallin, the water-soluble protein found in the eye lens and thought to be involved in lens transparency. Although the study did not prove there actually is a mutant crystallin gene present, it suggests that genes for Coppock-like cataract are located near those for crystallin. The researchers hypothesize in the report that a mutant crystallin gene might lead to distorted protein folding, causing clouding of the lens.

Two bottlenecks for cheetahs?

In 1983, scientists found that the south African cheetah's genetic makeup had a potential flaw. The animal's lack of genetic variation, even more pronounced than that found in deliberately inbred mice or livestock, is striking. Thought to be caused by a population contraction, or "bottleneck," in the past – followed by excessive inbreeding – the genetic homogeneity has been blamed for this cheetah's poor reproductive performance. A recent look at the other subspecies in Africa, the east African cheetah, reveals the same story.

The genetic profile of the eastern cheetah is "only slightly more variable" than that of the southern subspecies, according to a report in the January PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES (Vol. 84, No. 2) from researchers in Kenya, the United States and Great Britain. The east African results suggest that two major population bottlenecks occurred in the cheetah population.

On the basis of recent data, the authors postulate that the primary bottleneck happened 10,000 to 12,000 years ago during the late Pleistocene period, and the second happened during the last century. These dates appear consistent with reports that large numbers of mammals became extinct, or nearly so, about 10,000 years ago, and that the cheetah was hunted heavily at the turn of the 20th century.

The current study found sperm abnormalities in the east African cheetah to be as severe as those earlier found in its southern relative. Similar abnormalities in other species "would almost invariably be associated with infertility," according to the report. If the double bottleneck hypothesis is correct, captive crossbreeding programs using east African and south African animals together might improve the cheetah's genetic profile and chances for survival.

Big elms from little cells grow?

Forcing nature to do the unnatural may save groves of American elms from devastating Dutch elm disease. Subhash C. Domir, with the Agriculture Department's Agricultural Research Service in Delaware, Ohio, has succeeded in growing Pioneer elm trees from protoplasts (single cells with their walls removed). The Pioneer elm is a new European-Asian hybrid that is resistant to Dutch elm disease.

Domir plans to fuse protoplasts from the Pioneer elm and the more susceptible American elm, in a procedure that would combine the genes of two species that would not breed by normal means.

The process of growing takes four to six months to produce a tiny elm plant with roots. But results have been promising: The four Pioneer elm trees, now about three feet tall, may be the first woody plants grown using the protoplast method, according to the January AGRICULTURAL RESEARCH.

Here a funding, there a funding

• In order to encourage interdisciplinary research, the National Science Foundation is funding an $8 million biological centers program in fiscal year 1987 for research affiliated with biotechnology development. Smaller facilities will be given about $500,000 to support interdepartmental research; larger centers will get up to $2 million. Nonprofit and academic institutions are eligible.

• The Australian government has approved additional funds to build a plant-genetic resource center for tropical crops in central Queensland. About $1.52 million (Australian) had already been allocated by the government in the past three years to upgrade plant-genetic resource facilities. Part of a global gene-center network in 91 countries, the Australian project includes maintenance of local plant collections and special seed storage facilities.