



Creating the Nation's first BioPark

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Letter from the Desk of David Challinor
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Zoos have traditionally exhibited large mammals such as elephants, giraffes, lions and tigers to attract generations of visitors. Curators now find that small mammals also have a strong appeal, especially for children. After considerable effort to perfect the husbandry of small mammals, the National Zoo's small mammal house has become one of its most popular exhibits.

Under the expert guidance and care of Curator Bill Xanten and Head Keeper Larry Newman, a few hundred mammals ranging in size from a sloth to a tiny 3" long hairy-footed hamster are exhibited. Some species attract more attention than others. The grey-green sloth, for example, moves so slowly, when it moves at all, that many visitors miss it completely. Zoos, therefore, look for active, diurnal, "cute" animals.

Among the families that best fill these criteria are the vivirrids (civits and mongooses). The best known of these is the latter genera which contain about 30 species. They all evolved in the old world and range from west Africa to Indonesia. One species, the gold-spotted mongoose from eastern India and Sumatra, was introduced to many Caribbean islands to control rats and snakes in the sugar cane fields, but they did not do their job; instead, they promptly extirpated many ground nesting birds--a much easier prey for them.

There are three groups of mongooses on exhibit in the small mammal house: the dwarf mongoose, the meerkat, and the cusimanse. The first two look like slender prairie dogs and live in the open country of southern Africa. All three species interact (touch each other) continuously, and the first two often stand erect on their hind legs using their tails as the third part of a tripod. Their activity makes them very appealing to visitors.

The rust red dwarf mongooses have readily adapted to the artificial termite mounds in their exhibit. This species is particularly interesting to ethologists (scientists who study



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animal behavior) because when wild adults depart their colonies to forage at dawn, the juveniles remain behind under the care of an adult female. Like wolves and some other pack animals, only the alpha (dominant) male and female breed. In the wild, scientists do not know if the "babysitter" is a blood relative of her charges. If she is not, then her behavior could be an example of altruism in mammals other than humans. In humans, altruism is thought to be relatively common. However, it is very rare if nonexistent in wild animals, whose principal breeding strategy is to insure the survival of their own progeny or close blood relatives.

In zoo colonies, altruistic behavior is impossible to measure because all the individual mongooses are related to each other, and what we are looking for is altruism in nonrelated animals. If the animals are related, they all have a stake in the survival of the group.

So far both the dwarf mongooses and the equally inbred meerkats have shown no deleterious effects of their close-relatedness. In fact, the dwarf mongoose group is all descended from a single sibling pair the Zoo received six years ago from the Frankfurt Zoo. It is the only troop in North America, and import restrictions and regulations make it unlikely that other U.S. zoos will have them on exhibit.

The inbreeding of cusimanses is less of a problem as they are a forest dwelling vivirrid from Liberia and are evidently obscure enough to have avoided the attention of the Department of Agriculture and Fish and Wildlife Service regulators, who might prevent their importation. In fact, they are not listed by the Fish and Wildlife Service as requiring special permits and conditions for exhibits. If we can continue to import them and trade progeny with other zoos, inbreeding can be controlled.

Overpopulation in a zoo is always a problem. In the dwarf mongoose troop where only the alpha pair breed, the staff learned that implanting steroid capsules in the alpha female to prevent ovulation does not work. When the alpha female no longer produced a litter on schedule, the other females fought to succeed her, and both she and her alpha male had to be removed from the group. Two new members soon replaced them as the dominant breeders.

In time, when import restrictions are relaxed a bit or artificial insemination or in vitro fertilization techniques are developed for these lively, attractive animals, we may resolve the inbreeding problem. If breeding genetically healthy troops indeed becomes feasible, then overpopulation will become a risk as it already has in many other zoo animals. This ever-present dilemma has one drastic solution, and in a future letter, I will discuss the touchy subject of euthanasia in zoos.