The Coyote (*Canis latrans*) in Panama

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This report reveals that the coyote, Canis latrans, has recently extended its southern range to Panamá. The skin of one adult female coyote killed by hunters at Los Pirales, a farm near Gualaca in Chiriqui Province, western Panamá, has been deposited in the Gorgas Memorial Laboratory Vertebrate Collection. Other coyotes have been observed in Alanje, Boquete and Boquéron, other localities of the same province. The probable range of the coyote in Panamá is indicated, and the need for an urgent management strategy for this canid in the Republic is also expressed.

Among the predators that are hunted by man, the coyote, *Canis latrans* (Fig. 1), surpasses the two species of living wolves (*Canis lupus* and *C. rufus*) in its ability to survive.

Intensive and careful investigations, conducted primarily in the United States and Canada during the last two decades, have demonstrated that the coyote preys to a large extent on small and medium size wild vertebrates, particularly rodents. It has been reported also to feed on vegetation, insects, crustaceans and carrion (Gier, 1975). Indeed, only a small proportion of its food may consist of livestock and poultry (Bekoff and Wells, 1980). This fact, added to other significant ecological factors, seems to be contributing to a change of man's attitude toward the extermination of this animal, a situation similar to that of the changing image of the wolf.

Despite the recognition by many people in the northern part of America of the important role that the coyote plays in maintaining the faunal balance in nature, the extermination campaign against this animal has gradually increased in Mexico and other territories of Central America.

Until recently, the distribution of the coyote included a great part of Canada, Alaska and most of the remaining continental United States and the Central American Isthmus (Bekoff, 1977, 1978). Our report confirms the southern extension of this canid's range to western Panamá.

On June 10, 1980, an adult female coyote was killed by the hunters Juan A. Moreno and Luis A. Ortega in Los Pirales, a farm belonging to Gualaca, about 70 kms from the border with Costa Rica, and some 360 kms from Panamá City. The animal apparently was a member of a pack of four individuals that had been involved in the killing of calves on ranches near the collecting site. The corresponding measurements of the specimen, expressed in millimeters, are as follows: total length, 1128; tail, 336; hind foot, 65; ear, 95. There is no record of its weight, and the skull, unfortunately, was not saved. It is interesting to note that the animal was apparently free of ectoparasites; however, a number of specimens of the psoroptid mite, *Otodectes cynotis* Hering, a species typical of canids and felids, were recorded from both of the ear cavities. The preserved skin is now deposited in the collection of the Gorgas Memorial Laboratory in Panamá City.

Coyotes have also been seen in the following localities in Panamá: Alanje, Boquete, and Boquerón, all within the Province of Chiriquí. With the exception of

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Figure 1 The coyote, *Canis latrans.*

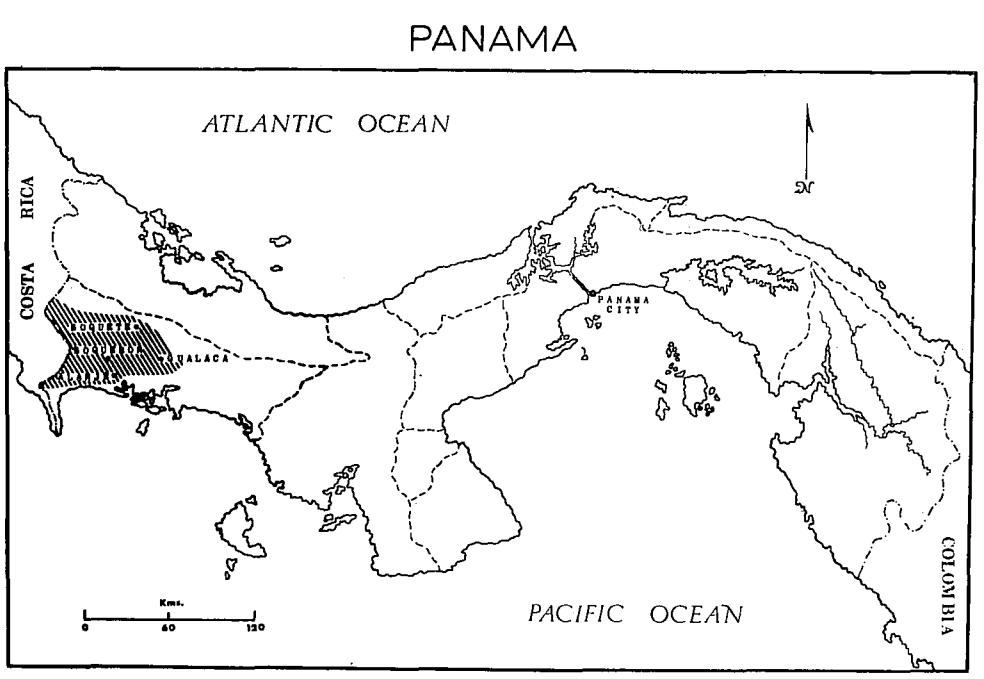

Figure 2 Probable range of the coyote in Panamá, showing localities of Chiriquí Province, where indiv duals have been observed.

Alanje, classified as Tropical Wet Forest, the other localities are in the Premontane Wet Forest, in accordance with Panamá life zones described by Tosi (1971). Both zones are territories with a high annual precipitation estimated to be over 3000 mm.

According to Jackson (1951) and Hall and Kelson (1959) there are about ten subspecies of *C. latrans* in Central America. The Panamanian coyote seems to represent the race *C. l. dickeyi* Nelson, which is also found in El Salvador, Honduras, Nicaragua and Costa Rica.

In the light of our findings, we have roughly estimated the present range of the coyote in this country as illustrated in Figure 2. The Central Cordillera dividing the western provinces of Chiriquí and Bocas del Toro perhaps will represent a temporary barrier not likely to be readily occupied by coyotes. However, some semi-open second growth forests and agricultural areas, particularly in northern Bocas del Toro, adjacent to Costa Rica, contain more suitable hunting grounds and habitats for the "prairie wolf."

The presence of the coyote in western Panamá, its elusive habits, constant mobility and facility of adaptation to a variety of habitats, indicates the probable further expansion of its range on the Isthmus. If this animal becomes widespread, as it probably will, it would represent the dominant predator in this land. It would compete only to a limited extent with other terrestrial or semi arboreal carnivores. Perhaps its principal competitors would be the gray fox (*Urocyon cinereoargenteus*), the hog-nosed skunk (*Conepatus semistriatus*), the grison (*Galyctis allamandi*), the coati (*Nasua nasua*), the raccoons *Procyon lotor* and *P. cancrivorus*, as well as wild cats.

However, with the exception of the jaguarundi (*Felis yagouaroundi*) and the ocelot (*F. pardalis*), which are more common and widespread, the other Panamanian felines, such as the jaguar (*F. onca*), the cougar (*F. concolor*), and the smaller species *F. wiedii* and *F. tigrina* are scarce and do not represent significant competitors. The bush dog (*Speothos venaticus*), another native canid, is a rare species which is apparently represented by few individuals with a distribution restricted to certain virgin forests (Méndez, 1970).

In Panamá the importance of establishing a management program for the coyote, as well as an educational effort for the appreciation of the canid's aesthetic and ecological attributes should be undertaken. The public should know that the coyote is intelligent and social, having an organized family life in addition to taking extended care of its young. This animal is more beneficial than detrimental since it keeps rodents and rabbits under control and does not appear to affect drastically the populations of deer and other ungulates. However, since the coyote occasionally preys on domestic animals, particularly in areas where livestock is raised, it would be impossible to expect that ranchers and farmers would tolerate this predation.

It is important that control of coyotes be done selectively on local sites where the predatory damage really exists. According to the circumstances, a trapping and hunting program should be undertaken by trained biologists of RENARE (Renewable Natural Resources), the Panamanian government agency responsible for wildlife management. Drastic methods such as the use of poisoned baits should be avoided inasmuch as they represent a tremendous hazard not only to other predators, but also to human health.

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