

So the reality of using a choker often does not match the expectations which dog owners acquire from dog trainers. It is simply not good enough to say that such owners are hopeless or incompetent, or that there are right and wrong ways to use chokers. The best way to capture the interest and enthusiasm of ordinary pet owners in dog training is to devise techniques which are pleasant to operate and which work in practice.

There is no doubt that one can train a dog that is wearing a choke chain; it is simply that they are cruel and unnecessary. And since one design of choker is little better than another (they all choke!) the best place to put your choker is in the waste basket!

## Animal Welfare Science Essay Competition

**Deadline: December 31, 1981**

**Two \$500 Prizes**

### Competition Rules:

- All enrolled veterinary students in the U.S. (including those who have graduated within six months of the deadline) are eligible to compete.
- The two best essays, selected by a panel of judges comprised of veterinarians, philosophers, ethologists and other relevant scientists, will be awarded a cash prize of \$500 and a Certificate of Appreciation. Judging criteria will include quality of writing, the accuracy of the supporting data and the extent to which opposing viewpoints have been taken into consideration and/or refuted.
- Essays should be between 4,000-5,000 words in length and may be based on literature and analyses, data gathering projects or personal viewpoints. All essays should be thoroughly documented with appropriate citations and references using the JAVMA format.
- The winners will be welcome to submit their essays to the International Journal for the Study of Animal Problems for consideration of publication.
- Copyright of the winning entries will be transferred to the Institute for the Study of Animal Problems as a condition of receiving the award. The author's rights will be reserved.
- Candidates who are in doubt about the suitability of proposed topics are invited to contact Dr. Michael W. Fox for advice. Examples of subjects from which essay topics (either broader or more specific) may be selected include:

Trapping

Predator Control

Farm Animal Husbandry and Welfare

Use of Animals in Teaching

Humaneness and Veterinary Ethics

Ethical and Legal Aspects

of Animal "Rights"

Euthanasia Techniques

Laboratory Animal Welfare

Zoo Animal Behavior Problems

Welfare of Circus Animals

Rodeo Animals/Race Horses

"Pet" Welfare and Owner/Breeder

Responsibilities

Sponsored by: The Institute for the Study of Animal Problems

2100 L Street, N.W., Washington, D.C. 20037

Send Essays or Enquiries to the Attention of: Dr. Michael W. Fox

# The Coyote (*Canis latrans*) in Panama

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and Demetrio Miranda<sup>2</sup>

*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 Chiriquí Province, western Panamá, has been deposited in the Gorgas Memorial Laboratory Vertebrate Collection. Other coyotes have been observed in Alanje, Boquete and Boquerón, 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*.

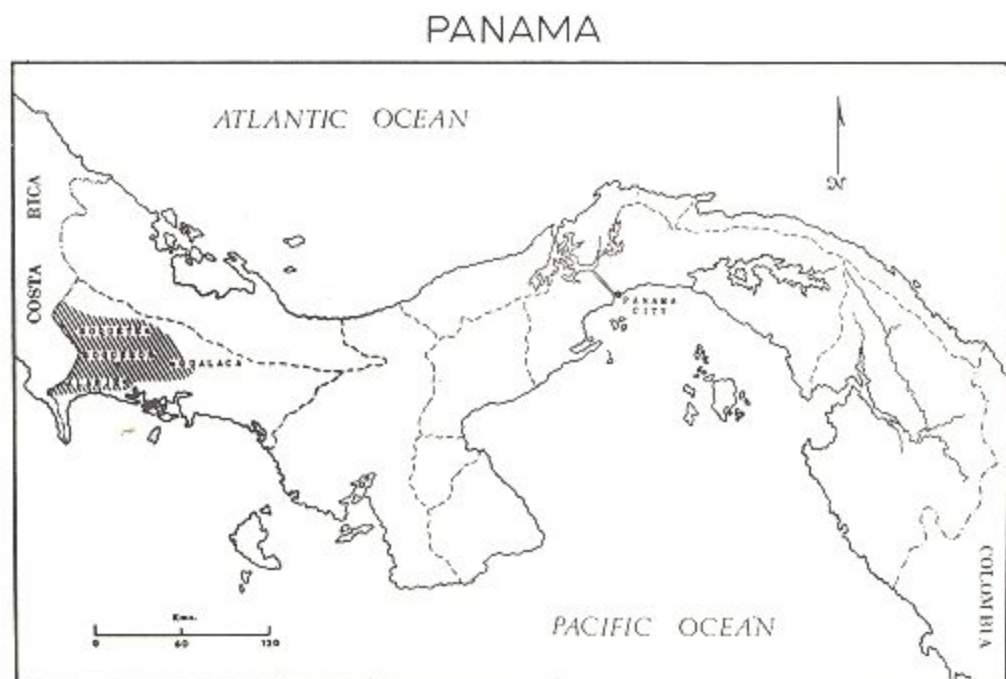


Figure 2 Probable range of the coyote in Panamá, showing localities of Chiriquí Province, where individuals have been observed.

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 (*Galictis 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.

### Acknowledgements

We are grateful to professors Elva Nelly de Guerra and Crescencio Lezcano, of the Gualaca public school, Chiriquí Province, for donating to the Gorgas Memorial Laboratory Vertebrate Collection the female coyote specimen that was killed at Finca Los Pirales.

Our thanks are also expressed to Mr. Robert Harrington, photographer with the Department of Natural Resources, Michigan, U.S.A., who supplied the coyote photograph used in this paper.

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# One Answer to the Confinement Pig Problem

Arthur Nehring

*A new design for an intensive hog finishing operation is presented. The "maze deconfinement" system consists of a series of 4-walled concrete pens arranged in a T-maze within a confinement building that is designed to utilize solar energy. In addition to low cost and efficient use of energy, the system has the following advantages: higher feed conversion rate; less fighting among and injuries to hogs; some freedom for hogs to exercise and explore; decreased labor. The system has been in use on the author's farm since the end of 1976.*

## *Introduction*

Scientists all over the world have shown that animals cannot be confined without undergoing changes in behavior. Animals become frustrated and aggression builds up with detrimental effects. Zoo curators have already discovered the negative effects of confinement within bare cages and walls. They found that they could not maintain wild animals in a healthy state and capable of reproduction in close confinement. They are now starting to provide environments for their animals which resemble the natural habitats as closely as possible. I believe that hogs, possessing some of the same genetic endowment as wild animals, also cannot tolerate being shut up in cage-like pens.

I have, therefore, developed a new system for finishing hogs which is a modification of present intensive confinement systems. The concept involves a simple adjustment in the layout of the pen walls, but this adjustment creates a radically different environment which can be called 'deconfinement.' The whole idea is to create a more 'natural' living space for the hogs without the frills and expense involved in producing such environments for zoo animals.

## *The Maze Deconfinement System*

The system I have developed employs a simple maze that requires no more concrete than a unit of plain four-walled pens. (The patent for the design is pending.) Figure 1 shows the basic unit and the dimensions. This design is, in fact, a going hog finishing operation. It was poured into concrete in 1976 and has been in use since December of that year. It has been so successful that we have now built two more like it. The building itself makes maximum use of sunshine in winter and air and shade in summer.

The building is both a passive and active solar collector. The whole south side is one big window of translucent plastic. In addition, all the concrete partitions are tinted coal black, making the entire mass of concrete inside a solar collector. The sun floods the entire inside of the building with sunshine for the whole day. The hogs enjoy basking in the sun and, at the same time, the heated concrete in the building creates a reservoir of heat for the night. Automated louvers controlled by temperature sensors regulate the ventilation and temperature. Heavy insulation with an R factor of 50 is placed in the side walls, and insulation with an R factor of 47 in the ceiling. The south walls are completely automated, insulated and hinged at

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