DOMESTIC CATS AND DOGS—A DANGER TO THE AUSTRALIAN FAUNA

(by M. Archer, W.A. Museum)

It is a sad but well-known fact (Rolls, 1969) that introduced animals in Australia have caused extensive damage to ecological diversity and habitats. Most of this awareness has focussed on the damage caused by eutherian herbivores such as rabbits, water buffalo and sheep. These animals are responsible for habitat destruction (e.g. Stocker, 1971) and compete with native herbivores for food. Less attention has been given to the effects of the introduced eutherian carnivores. Marshall (1966) suggested that the "astonishing prevalence" of feral cats was the probable reason for the few small mammals sighted during a trip into north-west Australia in 1965. Other authors have mentioned the havoc created by the introduction of the cat (Ride, 1970). But there is an additional aspect to the problem of introduced eutherian carnivores, which has escaped notice, perhaps because we are too close to the problem.

Natural predator-prey cycles are maintained by the fact that when prey becomes scarce the predator's numbers are reduced. The basic factors that theoretically control the numbers of a prey species at any one time include the availability of food, shelter and other essentials; the reproductive rate of the prey; and the amount of predation by carnivores. The population size of prey species may cycle in response to seasonal availability of food or achieve a homeostatic balance determined by the resources available and the amount of predation. This means that under natural conditions, a predator's population size is determined directly by the size of the prey's population and indirectly by the amount of food, shelter and other essentials available to the prey species. Take for example a feral population of eutherian cats. During a good season small vertebrates and birds would be abundant and the cat population size would not be controled by a lack of food. Accordingly, more of its young survive to eat more prey. As the good season ends, the prey species decline in availability and if the cats' numbers are too high, some will die of starvation. An equilibrium will be reached so that there are only as many cats during the poor season as can be maintained by the available prey. This means that from the prey's point of view, cat predation does not intensify in the poor seasons and there is no real danger that the prey's numbers will fall low enough to risk extinction. This balance will persist until the next good season. This is theoretically how a natural predator-prey cycle works.

Man, and his domesticated carnivores, violate this system. Domestic dogs and cats forage near and far from home, obeying instincts to kill, without in fact depending for an existence on the animals they kill. They return home for a meal which may be minced whale from a tin. They are not dependent on the immediate bush environment in which they move. Consequently they are not controlled by its limitations. If a prey species' population size is low during a poor season, it may not be able to sustain the artificially high predation pressure brought about by too many well-fed domestic cats and dogs. That this does happen is testified by the following observation by Rolls (1969), referring to a domestic cat and feral mice: "At the beginning of one mouse plague she (the cat) snatched all of fourteen mice that ran from beneath a sheet of corrugated iron on bare ground.

Kimberley Planigale. An adult individual caught by the Western Australian Museum team in the Ord River area in January, 1972. The first individual known to science since the species was described, in 1913, was killed by a domestic cat in 1949 at the Kimberley Research Station.

The mice followed each other down her throat head to tail. Then she walked off into the grass, vomited them all up, made sure they were dead, and came back to catch more." Similarly, many small dasyurid (native marsupials) specimens brought into the Western Australian Museum arrive with information such as "brought in by cat". These are often found as dead animals left uneaten in the kitchen or on the back porch. Certainly it is true that feral cats, foxes, dogs, stoats, etc., wreak considerable damage on the native fauna through competition with native carnivores and perhaps direct predation. But it is clear that domestic animals can be a danger. This is particularly important because domestic cats and dogs surround most woodlands

and reserves. The danger they present should be considered when faunal reserves are created and maintained near human habitation. For example, Kings Park in Perth is totally surrounded by urban and suburban development. At its widest point it is only about two miles long, barely a morning's walk for a cat. It is therefore reasonable to suppose that over-predation by cats could have been at least in part responsible for the absence of virtually all small native mammals from this once "virgin" woodland.

Perhaps it is impracticable to erect adequate fencing around reserves. Cats would be very difficult animals to fence out. In that case the pet owner should assume more responsibility in the situation by restricting the movement of the cat or dog. If it were possible to keep carnivorous pets entirely at home this would be a satisfactory way of dealing with the problem. Another satisfactory way of dealing with the problem might be to make pets of non-carnivorous indigenous animals such as kangaroos or possums instead of carnivorous cats and dogs. On the other hand, if nothing at all is done to control the activities of domestic cats and dogs, the pet owner must be prepared to assume part of the responsibility for severe and perhaps irrevocable damage which is now being done to Australia's native fauna.

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