UAM 92 Index Page

Wildlife Conservation in the Urban Environment: are Pets a Threat?

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ABSTRACT

If the maintenance of natural biodiversity is the key to a sustainable, healthy environment, then wildlife conservation is as important in the urban and peri-urban environment as it is anywhere else. Whilst "wildlife" in its best meaning includes all life forms in both the plant and animal kingdoms, in reality it is the vertebrates which attract the most attention. Recently there has been a greatly increased concern about the threat to vertebrate wildlife from domestic pets, in particular predation by domestic cats and dogs. Whilst predation by cats and dogs is shown here to be reasonably widespread both in terms of species and numbers, this study tends to indicate that, from a strictly conservation point of view, the predatory effect of cats and dogs is of less significance than has previously been portrayed. It also seems likely that land management practices necessary for the keeping of pet horses constitutes a far greater threat to wildlife conservation than the more obvious toll extracted by the behaviour of the essentially carnivorous cat and dog. Aside from this largely academic consideration of species conservation however, there is the equally legitimate issue of wildlife welfare and from this point of view any reasonable measures designed to reduce or eliminate wildlife predation by domestic dogs and cats must be encouraged.

INTRODUCTION

Despite massive changes to the original landscape of pre-European times, the Greater Brisbane Area still records a remarkable richness of vertebrate wildlife. Less than ten years ago the checklist of birds of this area totalled 345 with a further 33 species considered as vagrants; the number of mammal species was 59 and 93 species of reptiles were also listed. (Davies 1983). At the same time Davies (1983) also contended that the two domestic pets which "most damage the wildlife of the Brisbane region" were the cat (Felis catus) and the dog (Canis familiaris), although no quantitative data were supplied to support this view.

More recently it has been shown that domestic cats in the urban environment take a wide variety of native and introduced wildlife species, and in large numbers (Paton 1991), but whether predation by domestic cats, of itself, constitutes a significant threat to species survival is somewhat unclear. Data presented here tend to suggest that cat predation in the urban environment is probably of little consequence to wildlife conservation when compared with other more serious negative influences.

So far as the predatory effects of domestic dogs is concerned, it can be shown that, in the case of the koala (Phascolarctus cinereus), larger breeds of dogs are in fact a major contributor to premature mortality in koalas. Again, however it will be shown that the taking of koalas by domestic dogs is by no means the major cause of koala loss. Apart from the koala, dogs are implicated in premature mortality of a number of other native and introduced species, but, like the long term threat to species survival presumed of the cat, data presented here challenges that view.

WILDLIFE RECORDS

Since July 1988, records have been kept of all after hours emergency calls directed to trained volunteers and full time wildlife staff at the Moggill office of the Queensland National Parks and Wildlife Service. To July 1992 the total number of these calls was 6 138. The koala has always generated a great deal of public contact and all koala calls are recorded on a separate file. From 1986 to 1990 inclusive, the total number of reports was 3 204. In addition to these files, a total of 482 cases of casualties received by one wildlife shelter during 1991/92 have been analysed for this study.

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WILDLIFE CASUALTIES (EXCLUDING KOALAS): ALL CAUSES

From Table 1 it can be seen that by far the greatest proportion of wildlife reported as suffering illness, injury or death is birds (82.4%), but it can also be seen that only a little over 20% of all bird casualties have been attributed to the effects of dogs and cats. Additionally it is often overlooked that a significant number of birds known to be caught by cats were suffering some form of incompetence prior to being taken. Lorikeets appear particularly susceptible to the effects of Psittacine beak and feather disease. Often referred to by the public as "runners", these birds frequently fall prey to cats and may constitute a large proportion of those caught by them.

So far as mammals are concerned it appears that motor traffic and other human-based causes outweigh predation by domestic pets (44.6% cf 32.4% combined cat and dog). Reptiles in this study are poorly represented but it can be seen that pets here lead the causes of trauma in this group. It will be argued by some that we simply do not know how many reptiles are taken by domestic pets. This is true but it is also very difficult to calculate the effects of motor traffic, lawn mowing and slashing on this group. Road killed lizards and snakes are rarely reported by the public and from January to April each year the numbers of hatchling skinks and snakes obliterated by backyard lawn-mowers is simply inestimable. Ehrmann and Cogger (1985) suggest that a conservative figure for losses of reptiles and amphibians to motor traffic in Australia, was about five and a half million annually.

In most studies critical of cats, authors have tended to provide lists of wildlife species taken and in some have attempted to estimate numbers involved. Table 2 shows the numbers of species, grouped by status affected by cats and dogs and other causes. Species status is drawn from Davies (1983).

Table 1. Wildlife Casualties (number of cases) by Zoological Class and Cause (received by wildlife shelter)

All reports						
Birds		Mammals		Reptiles		Total
397		65		20		482
82.4%		13.5%		4.1%		100.0%
Birds						
Cats	Dogs	Traffic	'Human'	Natural	Other*	Total
71%	10	32	17	46	221	397
17.9%	2.5%	8.1%	4.3%	11.6%	55.6%	100.0%
Mammals						
Cats	Dogs	Traffic	'Human'	Natural	Other*	Total
6	15	22	7	1	14	65
9.2%	23.2%	33.8%	10.8%	1.5%	21.5%	100.0%
Reptiles						
Cats	Dogs	Traffic	'Human'	Natural	Other*	Total
7	10	1	2	-	-	20
35.0%	50.0%	5.0%	10.0%	0.0%	0.0%	100.0%

* Causes of casualty could not be determined, eg bird found near road but without obvious injury etc.

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Of the 79 species involved in this study, none of the three rare species was affected by domestic pets. Two of the rare species however were directly affected by humans. A brush-tailed phascogale (Phascogale tapoatafa) was killed by motor traffic and a red-crowned pigeon (Ptilinopus reginae) died following injury when it flew into a plate-glass window. The third of the rare species, a noisy pitta (Pitta versicolor) was found exhausted and in poor condition, most likely due to natural causes. No distinction has been made between native wild species and introduced ones, but it is worthy of note that the introduced spotted turtledove (Streptopelia chinensis) was by far the bird most commonly caught by cats or dogs.

From Table 3 it can be seen that wildlife losses due to human factors are significantly higher among the uncommon and rare species than other causes including domestic cats and dogs, although it is acknowledged that in these categories the samples are very small.

Table 2. Wildlife Casualties by Status and Cause (Species)
(79 species in 482 cases received at wildlife shelter)

Status	Cats	Dogs	Human	Traffic	Other
Very common	18	12	8	19	35
Common	7	6	4	7	11
Uncommon	2	1	3	2	2
Rare	-	-	1	1	1

Table 3. Wildlife Casualties recorded as after hours emergencies by status and cause (6 138 reports)

Very Common Species				
Pets*	Human	Natural	Other	Total
81	51	37	206	375
21.6%	13.6%	9.9%	54.9%	100.0%
Common Species				
Pets*	Human	Natural	Other	Total
32	20	6	25	83
38.6%	24.1%	7.2%	30.1%	100.0%
Uncommon Species				
Pets*	Human	Natural	Other	Total
4	8	2	2	16
25.0%	50.0%	12.5%	12.5%	100.0%
Rare Species				
Pets*	Human	Natural	Other	Total
-	2	1	-	3
0.0%	66.7%	33.3%	0.0%	100.0%

- Pets=combined figures of causes attributed to cats and dogs.

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KOALA CASUALTIES

Biologists who have studied the koala in detail generally agree that the major threat to the long term survival of this species is loss of habitat. It has also been suggested that chlamydial diseases, caused by the bacterium, Chlamydia psittaci, which can lead to female infertility and premature mortality in koalas of either sex, may in some areas, be influenced by nutritional stress. (F. Carrick, pers comm). It would seem then that the major threat to koala survival stems directly from human activity. From Table 4, it can be seen that the losses caused by traffic (31.1%) are considerably higher than those attributable to domestic dogs; nevertheless, 16.2% of all causes of premature mortality in a single species is a significant loss factor and reasonable measures to reduce or eliminate dog predation on koalas must be considered.

Table 4. Koala casualties 1986-1990 (inclusive)

Dogs	Traffic	Disease	Other	Total
169	323	54	7	1040
16.2%	31.1%	52.0%	0.7%	100.0%

AFTER HOURS WILDLIFE EMERGENCIES

From July 1988 to July 1992 a total of 6 138 calls have been made by the public to trained wildlife volunteers and rangers on standby. Callers are referred to this service via a telephone answering device, the recorded message clearly indicating that the service is "...for genuine wildlife emergencies which cannot be handled during normal business hours..." Despite this only 3 451 or a little over half of all calls, actually related to wildlife casualties. Of these 10.1% appeared to involve domestic pet predation. The balance, about 90% of emergencies were believed to have resulted from natural influences, such as storm and high wind, and less natural human-based causes, such as land clearing, deliberate shooting and indirect human activities such as the suspected use of pesticides.

PET HORSES

Land management practices necessary for the keeping of pet horses, such as clear felling, slashing and manure spreading, massively alter the preferred habitats and microhabitats of a wide range of native fauna. During a brief assessment of one such area in a western Brisbane suburb, it was estimated that the number of species of plants growing in the paddock was between 10 and 12. By contrast the mature, well vegetated area immediately adjacent to the paddock was estimated to have contained between 70 and 80 plant species. (P. Grimshaw, pers comm).

In an attempt to assess the effect of the contrasting diversities, a very short observation (25 minutes) was undertaken of birds in each area. These observations were carried out during a time of very low bird activity ie 2.25pm to 3.15 pm on 20 August 1992. The results do not therefore reflect the true carrying capacity of either area. However, only two bird species could be observed in the paddock whereas a total of 13 bird species could be seen in the adjoining bushland. As cursory as these observations were, there is a strong indication of far fewer bird species in the paddock designed for horses and it is suggested that a detailed fauna and flora survey would reveal an even more stark contrast between the two areas.

WILDLIFE WELFARE

Aside from the long term wildlife conservation aspect, there is the consideration of wildlife welfare. The question arises as to whether domestic pets should be permitted to injure or kill large numbers of native animals which are not taken primarily for sustenance. A reasonable conclusion is that they should not.

In the case of koalas, obviously it is the larger, more powerful breeds which pose the greatest threat. Additionally most are taken at night when moving through backyards to change trees (unpubl. data). The peak number of casualties during the year, occurs between August and November (Nattrass and Fiedler in press) which corresponds to increased movement probably associated with the beginning of the breeding season.

Two strategies could be considered by the responsible authorities which, if effective, would significantly reduce koala mortality due to domestic dogs. Disincentives to select the larger dog breeds in areas known to have koalas could be employed via a public education program advertised in public places and veterinary surgeries. The program could emphasise the danger to koalas posed by dogs and encourage the night time muzzling, or penning, especially from July to December, of the larger breeds. The other strategy involves differential registration fees for dogs based on breed, weight or height at the shoulder to encourage the keeping of small relatively harmless dogs.

In education programs directed toward responsible dog ownership, an emphasis should be placed on sound obedience training, which if done correctly, could substantially reduce wildlife predation by them. In the case of cats, the emphasis should be placed on desexing which significantly reduces the cat's home range and could also contribute significantly to a reduction in wildlife loss in the urban environment. (C. Day, pers comm) Seebeck et. al. (1991) have reported on proposed local laws designed to control cats in Victoria but these regulations are more likely to satisfy sociological rather than ecological needs.

SUMMARY

The welfare of wildlife is a legitimate concern and all reasonable methods used to reduce or eliminate suffering to native animals by domestic pets must be encouraged; but it should also be recognized that cats, dogs and horses can play a vital role in the well being of some humans whose only contact with non-human species is through these important pets. Cats and dogs can continue to "harvest" a "surplus" of individuals of a wide variety of relatively common wildlife species and provided that sufficient areas of preferred habitat remain relatively intact, may pose no long-term threat to species survival. Habitat destruction however, associated with urbanisation, industrialisation and the keeping of horses is often final with the species becoming locally extinct. It is habitat destruction which is the greater cause for concern.

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Ric Nattrass has been a Wildlife Ranger with the Queensland National Parks and Wildlife Service (QNPWS) since

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UAM 92 Index Page

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