

Urban wildlife - an overview

Don Fletcher

ABSTRACT

A summary is provided of the urban wildlife management program run by the ACT Parks and Conservation Service in Canberra, followed by discussion of general principles of urban wildlife management.

At first sight the day to day interaction of the community with urban wildlife could be seen in terms of:

- 'a problem' of having to make hundreds of responses to thousands of telephone calls;
- the confrontation associated with some urban wildlife such as swooping magpies threatening young children on their way to school, or a snake in the backyard; and
- numerous individual animals requiring attention.

It is more appropriate to view urban wildlife in the following ways:

- as contributing to conservation of species and communities throughout their natural range;
- as enhancing enjoyment, recreation and aesthetic appreciation of the urban environment;
- as contributing to a sense of human well-being because of the presence of urban wildlife;
- as an opportunity for effective education;
- as wildlife populations to be protected and managed (as well as individual animals);
- as providing one of the few remaining opportunities for urban people to accept elements of nature not under complete human control; and
- as providing people who care for injured or orphaned animals with health, emotional and social benefits equivalent to those associated with more conventional companion animals.

INTRODUCTION

What is Urban Wildlife?

In this paper 'urban wildlife' refers to *wild vertebrates local to the region, that may occur in the urban area.*

One group of animals that falls outside this definition should be mentioned, namely captive wildlife species not indigenous to the local area, because such animals occasionally are released or escape and establish feral colonies, such as the small populations of aviary birds in most Australian cities.

Captive animals and escapees are one of the most likely potential sources of the next feral pest. People who manage urban wildlife are likely to be among the first to become aware of such animals at an early stage and have a responsibility to draw them to the attention of government wildlife authorities. The potential value to Australia of doing so is immense and probably exceeds the importance to the nation of other urban wildlife work.

Why is there urban wildlife in Canberra?

Canberra, the 'bush capital', is well known for the abundant wildlife in its suburbs. This aspect of Canberra has even been used by the Canberra Tourism Commission to promote the ACT as a tourist destination.

The main reason for the abundance of Canberra's urban wildlife is the design of the city. Canberra has been developed as a series of separate satellite towns and the hilltops within and between the satellite towns have been retained in an undeveloped state, for water reticulation and landscape reasons. The hilltops are now managed as Canberra Nature Park, a series of small urban nature reserves.

The result is that wildlife habitat has been preserved.

The amount and quality of habitat determines the range and abundance of urban wildlife. Direct hands-on management of urban wildlife such as wildlife rescues, hand-rearing or veterinary care has much less influence on the abundance of urban wildlife than aspects of habitat management such as the extent to which habitat is divided, disturbed, or degraded by processes such as river channel smoothing, weed invasion, track development and invasion by exotic predators.

MANAGEMENT OF URBAN WILDLIFE IN CANBERRA

Legal aspects of urban wildlife management

The ACT has benefited for a long time from well conceived wildlife legislation and policy. Without going into details, the essential feature of the *ACT Nature Conservation Act J 980* (shared by the equivalent laws in some of the other states and territories) is that a permit is required to keep, catch, kill, import or export almost all Australian and exotic wildlife.

Management of urban wildlife is also governed by the *ACT Animal Welfare Act 1992* which relates to almost every activity involving human interaction with animals.

Who manages urban wildlife in Canberra?

Figure 1 shows the organisations involved in urban wildlife management in Canberra. The majority of urban wildlife matters that are not dealt with directly by the community are handled by the ACT Wildlife Foundation (a voluntary organisation) and the staff of Canberra Nature Park (CNP). The other units of the ACT Parks and Conservation Service shown in figure 1 provide supplementary services including veterinary advice, law enforcement and research.

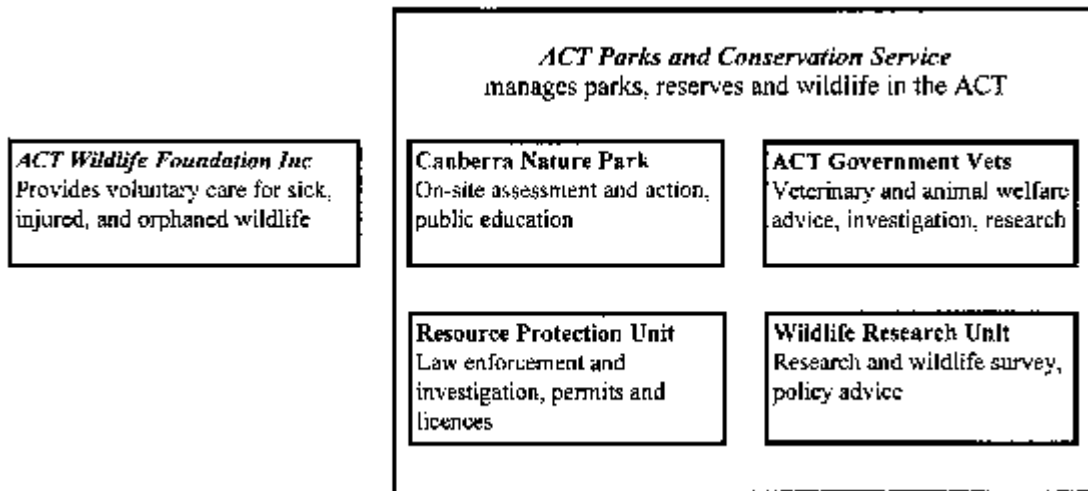


Figure 1: Principal urban wildlife organisations in the ACT

Public enquiries are received by a telephone and pager service operated jointly by the ACT Wildlife Foundation and Canberra Nature Park (CNP). Staff of CNP answer phone calls during business hours and provide a 24 hour field response where there is a requirement for capture or euthanasia of an animal at large, and to respond to complaints about magpies that require a site visit. Sick, injured or orphaned wildlife requiring care are referred to the ACT Wildlife Foundation.

Objectives for managing urban wildlife

The objectives for the urban wildlife management service provided by Parks and Conservation are to:

- protect and manage native wildlife in the urban area;
- provide advice and assistance to the community in regard to urban wildlife issues; promote an appreciation and acceptance of wildlife by the community, and a realistic attitude to its management;
- maintain acceptable standards of animal welfare; and
- pay due regard to principles of biological conservation in making decisions about urban wildlife policy and management.

The first two objectives define the nature of the service provided. The last three objectives could be summarised as education, animal welfare, and ecology which are the subject of further discussion in the 'general principles' part of this paper.

How many urban wildlife matters are referred to local government in Canberra?

For the past four years in Canberra an average of 2040 calls has been recorded per year on the shared telephone number, with 780 (38 percent) requiring action.

Figure 2 indicates the relative volume of calls concerning mammals, birds and reptiles and how many calls generate a field visit. Shading identifies the main species in each of these three animal groups.

The fact that almost 90 percent of reports about eastern grey kangaroos require action, compared to less than 20 percent for the other main species, is because most kangaroo calls are about animals injured or killed by motor vehicles. Injured animals are euthanased and all large carcasses are removed from roadsides within the city area. Each kangaroo is checked for pouch young, and its species, sex, foot length and location are recorded.

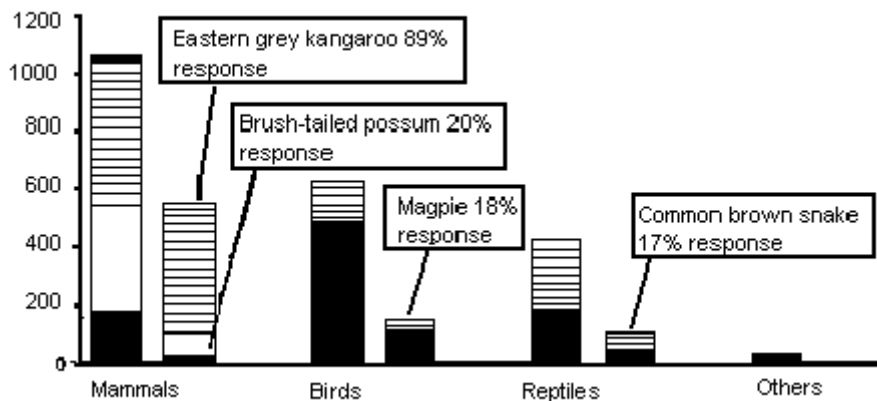


Figure2: Relative volume of telephone calls concerning mammals, birds and reptiles

Figure 3 indicates that the demand for management action is continuous throughout the year but that activity associated with some species exhibits strong seasonal patterns. For example, the magpie season in September to October is followed closely by the reptile season from November to February. The fact of seasonality may be obvious, but it is important. Because of it, education initiatives about problem species can be planned in advance, thereby considerably reducing the workload. Success can be achieved more easily with a seasonal campaign than an ongoing one. It is easier to persuade people to adopt certain behaviours for a limited period.

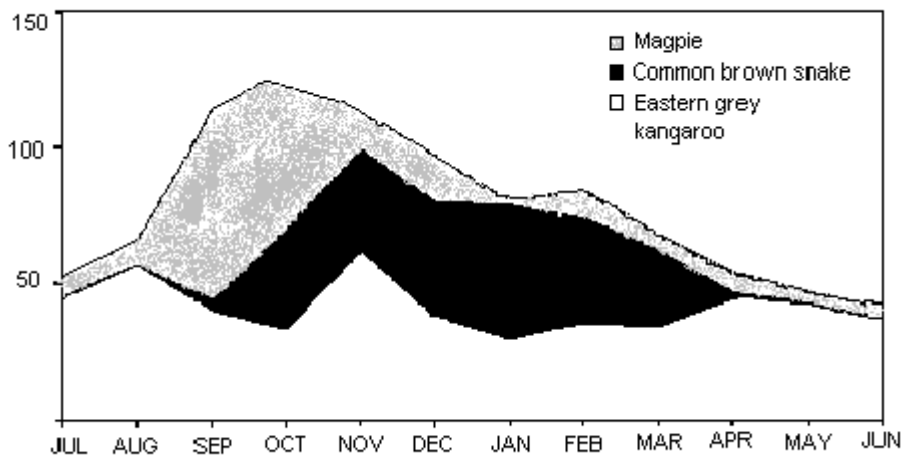


Figure 3: Seasonality of telephone calls about selected species of Canberra urban wildlife (data from 1990/91 to 1993/94).

URBAN WILDLIFE - GENERAL PRINCIPLES

The value of urban wildlife

Judging from telephone calls received, in general urban wildlife appears to be highly valued by the community although some people respond very negatively to snakes and swooping magpies. The benefits of urban wildlife are shared by a range of interest groups whose requirements do not always coincide. The value of urban wildlife to the various groups should be made explicit to help avoid potential resource management conflicts and reduce the chance of inefficient management.

Urban wildlife has the following values to the community. It:

- contributes to conservation of species and communities throughout their natural ranges;
- enhances enjoyment, recreation and aesthetic appreciation;
- contributes to a sense of well-being because of its presence;
- creates opportunities for community education and learning about nature conservation issues;
- provides one of the few remaining opportunities for urban people to accept elements of nature not under complete human control; and
- provides the people who care for injured or orphaned animals with health, emotional and social benefits equivalent to those associated with more conventional companion animals.

The integration of these values and the objectives previously stated will be discussed under the heading 'Balancing objectives'.

Ecological considerations: population dynamics as a guide to management priority

The successful management of wildlife depends on a knowledge of its abundance and how the populations increase and decrease. There are many historical examples to demonstrate this point, for example, see Caughley (1983).

To simplify consideration of how the abundance of urban wildlife populations is maintained, the following six categories are suggested. The species given as examples occur in Canberra. Different species would be referred to in other places:

1. species that sustain themselves within the suburbs, for example magpies, brush-tailed possums, some small reptiles;
2. species whose populations mainly depend on adjoining areas but which flow into and out of the suburbs, for example, small honey eaters, rosellas, echidnas, most of the larger reptiles;

3. the converse of 2, that is, species that overflow from suburbs into adjoining areas (1 can not think of an unequivocal example of a local native species in this category);
4. species in local decline because of some factor related to suburbs, for example, striped legless lizard, lined earless dragon;
5. vagrants, for example, spotted tailed quoll; and
6. imports, for example, frogs and pythons in crates of bananas. lizards in plants, on firewood etc.

The study of population dynamics is that part of ecological studies concerned with how and why animal populations increase and decrease, and how they can be managed for increase or decrease. The study of population dynamics tells us that the fate of small numbers of animals from groups 1, 2 and 3 is unlikely to have any effect on the size of the population as a whole.

Factors influencing decisions about animals from these groups should mostly be social or political ones, rather than ecological or species conservation ones. For example, the decision whether to make a site visit in response to a telephone call may be influenced by animal welfare concerns or because an education or public relations opportunity arises.

On the other hand, decisions about individual animals from groups 4 and 5 should take account of factors relevant to conservation such as whether there is an opportunity to gain information about species distribution and abundance, as well as the social and political factors. For example, most states have a wildlife atlas recording system which depends on information supplied by the public and interested officials. If the relevant facts about an individual animal from group 4 or 5 can be obtained for the state wildlife atlas, the information may be valuable in planning processes such as environmental impact assessments, thereby doing much more to conserve the species than any possible treatment of the individual animal itself.

Even dead specimens of animals in groups 4 and 5 may have value. These may be made into a freeze dried display and used for education purposes, or could be included in reference collections such as the Australian Wildlife Collection managed by the CSIRO in Canberra and the museum collections in other capital cities.

Group 6 is peculiar in that an animal that is probably very abundant in one place has been moved to a place where there is no naturally occurring population at all. Group 6 is examined more closely in the next section.

Balancing objectives: conservation, animal welfare, animal rights, education and public relations

Widespread misunderstanding about ecological processes limits the extent to which a rational approach can be applied to the management of urban wildlife.

Management of urban wildlife is also characterised by conflict between objectives relating to conservation, animal welfare, animal rights, education and public relations.

Four examples will be discussed to illustrate these issues. These are the formulation of a policy on rearing of eastern grey kangaroos, euthanasia of swooping magpies, the management of accidentally imported animals, and *eco-pet*, an alternative to traditional government policy about the keeping of Australian animals.

People have difficulty coming to terms with an ecological approach to wildlife management, partly because modern Australian society is insulated from natural mortality. Most wild animals die at an early age, even before they reach sexual maturity (figure 4). In contrast, most humans survive beyond the breeding age of the species, and live long enough to consume significant resources.

It is easy to understand that a right to life has real ecological significance if it is a human life because there is a high probability that if the right is upheld, the life will result in production of offspring and in significant ecological effects, such as the consumption of plants and animals for food. Figure 4 shows that an individual of most other vertebrate species is highly unlikely to have such ecological effect. It may not be easy to understand in ecological terms what a right to life means when it is applied to individuals which have a high probability of dying in the near future in any case.

Figure 4: Survival curves for Homo sapiens and other vertebrates.

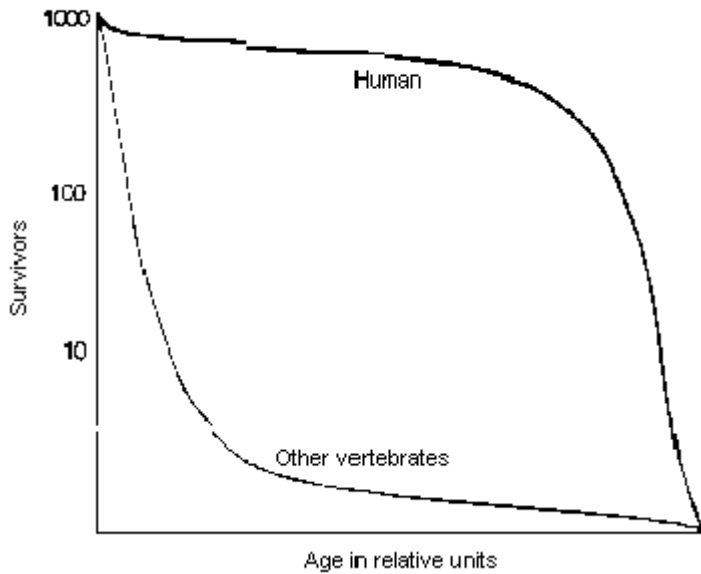


Figure 4 is based on information from Odum (1959), Keeton (1967) and Caughley (1977)

It can be difficult for government policy makers and members of the community to resolve apparent conflict between:

- management based on the ecology of an animal;
- animal rights (the right to life of individual animals); and
- public relations, including the desire by many people to protect the community or some of its members (for example, children) from certain actions or concepts (for example, dying versus euthanasia).

Animal welfare - the prevention of cruelty - is less likely to be problematical than are the principles mentioned above. Animal welfare relates more to the method than to the intent of management action.

There is widespread misunderstanding about the conservation status of urban wildlife. The reality is, that with few exceptions, urban wildlife has more social and political significance than conservation significance. The species best able to maintain themselves in the suburbs are adaptable species with wide ranges and some tolerance for disturbed environments. They are not the sorts of species likely to be threatened with extinction.

Eastern grey kangaroos

Eastern grey kangaroos are so abundant that each year thousands are shot under permit in surrounding areas of rural NSW and some ACT farmers receive subsidies to account for kangaroo damage. The ACT government is currently considering a policy which would allow kangaroos to be shot under permit on rural leases. Meanwhile there is a strong interest within the community in rearing orphaned joeys of eastern grey kangaroos. To shoot the mothers, rear the joeys, then release them to be shot makes no sense ecologically. Here then is an apparent conflict between, on one hand, animal rights and the interests of the individual animal, and, on the other hand, ecologically based management of the population. Alternatively, the wish to rear the joey may be regarded as serving the interests of the carer, in which case the conflict can be described as being between the social and the conservation values of urban wildlife.

In this case the Parks and Conservation Service has resolved the policy in favour of ecologically-based management. Permits are issued to rear any kangaroo or wallaby species except eastern grey kangaroos.

Hand reared animals sometimes behave toward humans as if the humans were members of the animal's species. This includes hand-reared male kangaroos, in which such behaviour may become evident when the animal reaches sexual maturity or in its final years. In particular, descriptions of the kangaroo behaviour associated with some so-called 'attacks' on children by male kangaroos corresponds better with pre-copulatory behaviour than aggressive behaviour. It may be that to release hand reared males of the large macropod species is taking a risk of creating a danger that may be dormant for up to a decade and a half. In future, any suspicion that this is the case can only reinforce commitment to the policy of discouraging rearing.

Australian magpies

The fact that the loss or gain of small numbers of grey kangaroos, brush-tailed possums or magpies would have no effect on their population size does not necessarily imply that the best management response is to euthanase all nuisance kangaroos, magpies or possums. Other aspects may outweigh the ecological considerations. The community may be better served by being shown how to live with a wildlife problem rather than culling animals in every case where culling would be ecologically justifiable.

The management of magpies in Canberra is an example. The community has developed a new attitude to magpies (see the following section), which would not have happened if every nuisance magpie had been removed. Although the annual production of young magpies suggests the population could cope with a significant rate of culling, on average only four magpies have been trapped and euthanased each year for the past nine years.

Imported animals

It is more difficult to balance various objectives in the case of animals accidentally imported with loads of fruit, plants, firewood etc. The relevant objectives are the requirement for ecologically based management, public relations and an education objective to encourage a positive attitude to wildlife generally.

In general, importation has removed animals from where the species is abundant to where there is no naturally occurring population at all. Very rarely do such animals establish themselves in the new area. In Canberra there is a population of an Australian lizard, the weasel skink, *Saproscincus mustelinus*. which probably is such a case of establishment.

Generally, the invaders have little prospect of surviving in the local environment. The main issue may be how to maintain and channel the good intentions of the community member wanting to do the right thing by saving the Queensland frog that hopped out of their bananas, for instance.

The animal should not be released outside its natural range. That option would receive a negative score for animal welfare *and* a negative score for conservation. On the other hand it may be expensive to return it.

If ecological factors were the only ones to be considered, the answer would be to educate the person about why the animal should be euthanased. The reality is that with some people we are not able to do that. The fruiterer at the markets who found out that frogs or pythons we collected from him would be euthanased, would not call us in future. The next consignment of animals might be released illegally or sold (for example, for bait).

Ansett Airfreight has recently provided a way out of this dilemma by providing free transport to the airport nearest the place of origin, where the animals are handed to the local wildlife agency.

Knowing the origin of the animals is still a prerequisite, but one that is relatively easily met for at least those animals that emerge from fruit cases labelled with the supplier's address.

Eco-pet - an alternative policy for government wildlife agencies

It has been suggested to me by others that the policy and legislation administered by most state and territory wildlife authorities in the name of conservation is not as realistic, or as effective, as it could be. Current practice in most cases is to legislate or issue permits for the keeping or rearing of native animals in a way which encourages their release to the wild. Such policy is based on the assumption that there is some conservation effect from the keeping or release of common, abundant wildlife species. (The contention in this paper is that such animals have more social, than conservation, significance.)

The obvious alternative policy is to allow the common wild species to be retained and (according to one suggestion) perhaps even to issue permits in a way which encourages the replacement of pet cats and dogs by native species for pets.

The basic idea would be to enable the Australian pet keeping culture and industry to shift in favour of native species (especially herbivores) at the expense of keeping the exotic carnivores.

The first step would require state and territory wildlife agencies to recognise the balance of social and ecological factors relating to the rearing and keeping of conventional pets and wildlife. The potential for the initiative to provide a cover for illegal traffic in endangered species is a concern which would need to be addressed.

There are numerous other aspects to be considered, including health, economic, social, education and environmental issues. The commercial aspects would be particularly interesting. I suspect the pet food industry might suffer from any substantial shift from carnivores to herbivores but veterinarians would make a lot more money from eco-pets than from the same number of cats and dogs. Perhaps the AVA should develop a policy on it!

FUTURE TRENDS AND THE ROLE OF EDUCATION

Figure 5 includes data published by ACT Government (1994) showing that the number of dwellings in Canberra has increased about 3 percent per year since 1985. The number of reports about eastern grey kangaroos and brush-tailed possums has increased even faster (Figure 5). Increased public awareness of the urban wildlife service, as well as urban growth, may be responsible.

It is wise not to interpret such trends too precisely. Wildlife populations are notoriously difficult to measure and many factors may affect the number of wildlife incidents recorded. The important thing for management is that there has been an increase in the number of telephone calls about possums and kangaroos.

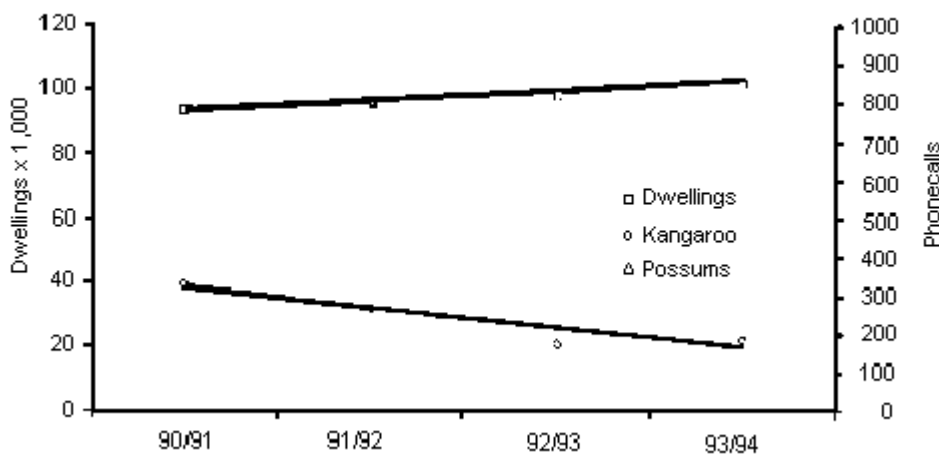


Figure 5: Telephone calls about eastern grey kangaroos and brush-tailed possums in relation to Canberra suburban growth

Figures 6 and 7 (presented with the same Y axes as figure 5) show an interesting contrast, because the rates of complaint about eastern brown snakes and magpies have actually declined (magpie data have been collected systematically for a longer period and are presented for eight years.)

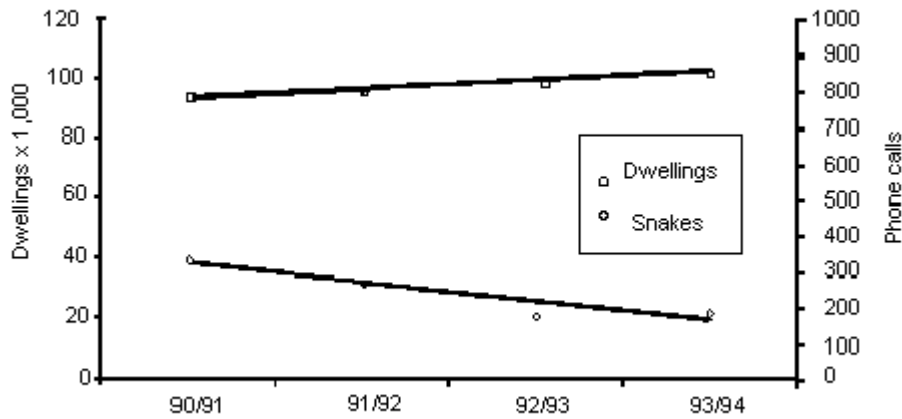


Figure 6: Telephone calls about common brown snakes in relation to Canberra suburban growth

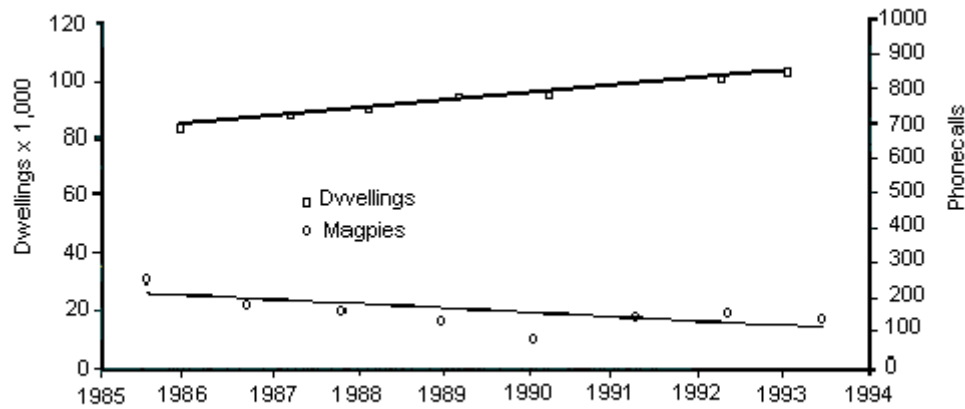


Figure 7: Telephone calls about magpies in relation to Canberra suburban growth

There are no grounds to suspect that either magpies or eastern brown snakes have become less abundant. Magpies especially, are well known in even the oldest suburbs. A more likely explanation is that these species are being complained about less often.

This is a particularly encouraging result, because it is these species which have been the focus of the most intensive education efforts, including distribution of leaflets at a variety of outlets, seasonal press releases and newspaper articles, and talks on local radio.

As with management of conventional pets, it is the people, not the animals, who are the main focus. The objective of many of the education efforts has been to get people to understand why the animal is behaving in the way it is and how the people can adapt to that behaviour. *Living with magpies* and *Living with snakes* are fitting titles for the leaflets.

Figures 5 to 7 indicate that in suitable cases, it may be less costly to manage a species through education than any other way.

An educational approach is not likely to be effective for all species. Eastern grey kangaroos are an example. Inducing motorists to reduce speed is notoriously difficult, and to add to this, the problem is continuous, not seasonal. Even on-site kangaroo warning signs are known to be ineffective in changing driver behaviour (Coulson 1982). Only the sight of animal carcasses on the roadside results in a reduction in speed (Pojar et al. in Coulson 1982).

Brush-tailed possums are a more complex case because their management is partly in the hands of private companies and because education about other species has received more attention in recent years. Authorised pest control companies remove possums from roof cavities and therefore play a part in changing community behaviour. As with the eastern grey kangaroo, the possum issue is relatively non-seasonal, but in this case I suspect a well focused education campaign would be cost effective in reducing the work-load. The main requirement is to provide possum nest boxes outside the house and block entry to the roof space, and when possums are trapped in chimneys, to hang a rope down so the animal can remove itself. The human behaviour being sought is satisfying to the person over and above solving the immediate problem and requires only a short-term effort from each person.

Future of education

Education is one of the few cost-effective tools available to the urban wildlife manager in the context of declining budgets and expanding cities. It merits more attention, along with survey and research efforts.

By increasing popular understanding of wildlife, education also offers the only long term prospect for resolving the occasional conflicts between ecologically responsible management and other objectives.

ACKNOWLEDGEMENT

Will Andrew, Tony Brownlie, Gary Croston, Diane Garrood, Kruno Kukolick, Bernadette O'Leary, Peter Ormay, Marjo Rauhala and David Shorthouse commented on an initial 'issues list' for this paper. Tony Brownlie extracted data from his well organised urban wildlife recording system and provided an explanation for some aspects of the day-to-day management of urban wildlife in Canberra. Andrew Tatnell, Debbie Worner and Jenny Andrew-Gannon discussed the main ideas in the section about eco-pet. I particularly wish to thank Kerry Moir, Diane Garrood and Bernadette O'Leary for editing, at short notice, a previous draft of the paper.

REFERENCES

ACT Government 1994. *Housing Development in Canberra*. quarterly series, Land Development Branch (DELP).

Caughley, G. 1977. *Analysis of vertebrate populations*, Wiley, London. Caughley, G. 1983. *The Deer Wars*, Heinemann, Auckland.

Coulson, G. M. 1982. 'Road-kills of Macropods on a section of highway in Victoria', *Australian Wildlife Research*, 9:21-6.

Keeton, W. T. 1967. *Biological Science*, Norton, New York.

Odum, E. P. 1959. *Fundamentals of Ecology*, W.B. Saunders, Philadelphia.

Pojar, T.M., Prosenice, R.A., Reed, D.F. and Woodard, T.N. 1975. 'Effectiveness of a lighted, animated deer crossing sign', *Journal of Wildlife Management*, 39:87-91.

ABOUT THE AUTHOR

Don Fletcher
ACT Parks and Conservation Service
PO Box 1119
Tuggeranong ACT 2901
Telephone (06) 207 2195

The author is a biologist with the ACT Parks and Conservation Service whose work includes the control of weeds and vertebrate pests. He has managed Australian wildlife in captivity and in the wild, and has attempted to control feral animals. He agreed to prepare this paper in his temporary capacity as Manager of the ACT Parks and Conservation Service Wildlife Research Unit.

[UAM 94 index](#)