

21. PEST ANIMALS

21.1 PROCESSES

21.1.1 Cause

Many pest animals are introduced species. Some of these species were introduced by English migrants to remind them of the English landscapes. Species, such as deer and foxes were introduced for sport while others were introduced as biological control agents. Feral populations of pigs, goats, horses and camels resulted from domestic stock escaping. The establishment of watering points for the pastoral industry has ensured their survival (31).

Rabbits adapted rapidly to the disturbed Australian environment and spread quickly. The spread of the rabbit also resulted in the spread of foxes, which now had a major food source. Plagues such as mice and locusts are also relatively common and can cause major damage to crops, and native and introduced pastures. The presence of pest animals does not necessarily mean the animals are causing damage. Most damage occurs when there is competition between domestic, native and feral animals, which can lead to land degradation (84).

Numbers of native species also increased due to disturbed habitats and increased watering points. For example, kangaroo numbers increased due to a lack of natural predators (dingoes) and improved access to a constant supply of water and food.

Increases in pest animal numbers are commonly the result of natural ecosystems being out of balance. This can result in habitat and food source losses or abundances, which may lead to competition with other species. An example is the increased numbers of cockatoos along rivers ringbarking and destroying trees. The numbers of reptiles eg. goannas have been severely reduced due to the lack of shelter in the understorey or native grasses along riverbanks due to overgrazing. Goannas are natural predators of bird eggs. Consequently, cockatoo numbers have exploded due to lack of predation and they don't have enough habitat. Increases in pest animal numbers result from the impacts of previous and current landuse practices. Restoration of the environment can go some way to correcting population imbalances.

21.1.2 Upstream/Downstream Inter-Relationships

Pest species cause environmental degradation. Rabbit warrens have resulted in gully erosion in many areas (3). Animals such as kangaroos, pigs and goats are responsible for decreased agricultural production, and increased costs such as fence repairs. Pigs are also responsible for erosion due to overgrazing and wallowing, and goats cause the destruction of trees and shrubs. Constant grazing impairs the regeneration of native species and results in bare ground, which is susceptible to erosion and the invasion of weeds.

21.2 PRESENT CONDITION

21.2.1 Extent and Distribution

Pest animals are distributed over the Little River Catchment and landholders consider some native animals such as kangaroos as "pest animals". Carp and Red Fin are found in the river systems, eating smaller fish and muddying the waters, and are dealt with in the Section 17 on Riverine Environment. Native animals such as kangaroos have been identified as a problem within the catchment which requires further control. Foxes, rabbits and pigs are also present.

21.2.2 Severity

Native animals such as kangaroos were identified in the landholder survey as the main animal pests in the catchment. This problem is only moderate. However, numbers are thought to be increasing. The heaviest infestation of kangaroos is reportedly in the Yeoval area and near Goobang National Park. Suntop appears to have a rabbit problem and the landholders from the Hervey Ranges and Arthurville areas have noted the incidence of wild pigs.

21.2.3 Environmental Impacts

There are numerous environmental impacts caused by pest animals. Land degradation including erosion, loss of vegetation, habitat loss and species decline are all impacts caused by pest animals. Other environmental impacts are related to some control methods e.g. the use of strychnine, and baiting to control mice plagues. There is the potential to inadvertently destroy populations of native animals that come into contact with such poison.

21.2.4 Social and Economic Impacts

Damage by pest species costs millions of dollars annually in lost agricultural production (31). The Grains Research and Development Corporation (GRDC) has estimated that mice plagues cost the agricultural industry \$54.8 million per year (84). In 1993 (prior to the release of calici virus), it was estimated that rabbit control in agricultural areas of South Australia cost \$1.6 million for an annual benefit of \$62 million. The value of damage to native wildlife and the natural environment is difficult to estimate.

21.3 THE FUTURE

21.3.1 Projected Environmental Impacts

There is the potential for loss of biodiversity due to impacts from pest animals. Many pest species also severely impair the regeneration of native vegetation eg. goats, cockatoos, rabbits. Loss of vegetation can lead to other land degradation issues such as erosion and decreased water quality. Native wildlife is also affected by pest animals as their habitat is destroyed, or their numbers decline due to predation eg. foxes and cats (31).

21.3.2 Projected Social and Economic Impacts

Costs to agriculture and other industries have the potential to be quite significant due to the high costs involved in containing the problem, particularly if landholders substantially reduce or eradicate pest species (31).

21.4 CURRENT ACTIVITIES

21.4.1 Planning

A new Federal Government initiative has been initiated to manage feral animals. A five year program - National Feral Animal Control Program (NFACP) is funded under the National Heritage Trust (NHT). It is managed by the Bureau of Resource Sciences and Environment Australia. The NFACP aims to develop and implement strategic activities to reduce damage to agriculture by pest animals. Funding is directed towards developing techniques for managing feral animals, and educating landholders and park managers on how to limit the damage caused by pest animals (77).

21.4.2 Research and Development

Government is traditionally responsible for research and development in pest management. The Bureau of Resource Science and the Vertebrate Biocontrol Cooperative Research Centre (CRC) is responsible for research and development into the control of pest animals in Australia. Examples of these programs include the Rabbit Calicivirus Disease and fungus bio-control for controlling locusts. Immuno-contraception is also being trialed for the control of mice.

21.4.3 Implementation

The NFACP is developing pest animal management techniques, regional management strategies, monitoring, extension materials and activities to facilitate the adoption of best management practices for pest animal management. Local Rural Lands Protection Boards (RLPB) also provide support for the control of pest animals in the local areas, particularly foxes and rabbits. The extent of these activities varies depending on the extent of the pest animals at certain times. NSW Agriculture can provide advice to farmers on control methods.

The National Parks and Wildlife Service (NPWS) are responsible for the control of native animals. They determine the numbers of native animals that may be culled under licence. NPWS also control pest animals within Goobang National Park. Annual aerial culls for goats are carried out, trapping and shooting for pigs, baiting of foxes and fumigating and ripping for rabbits. NPWS are also interested in doing more fencing. Kangaroo culling is carried out by surrounding neighbours, subject to licences.

NPWS are also responsible for the control of feral animals in and near the Goobang National Park in order to protect native animals or their habitat as well as prevent their spread onto private land. The major pest animals are foxes, pigs, goats and rabbits. Baiting and trapping is generally only carried out around the Park perimeters, so as to reduce unwanted access to baits by native animals, and also to reduce the spread of pest animals onto neighbouring properties out of the Park.

21.4.4 Monitoring and Evaluation

NPWS is responsible for monitoring the numbers of native animals, and annual quotas for licences are determined accordingly. The Australian Plague Locust Commission is responsible for monitoring the numbers of locusts prior to swarming. NSW Agriculture and RLPBs also monitor the presence of pest animals.

21.4.5 Best Management Options (BMOs)

Best Management Options are currently being developed under the NFACP. Strategies and projects under the Program aim to develop BMOs which are supported by local landholders, government agencies, environmental groups and other interested groups. The Bureau of Resource Science has developed some principles of "best practice" pest animal management.

The main objective is that pest damage is managed, rather than eradicating the pest. The principles are:-

- manage the actual rather than perceived problems
- management plans should aim to reduce pest animal impact rather than animal numbers
- management should be strategic:
 - determine key areas where management should occur
 - timing of management (sustained or one-off)
 - implementing a long-term strategy rather than one-off management
 - use a combination of control techniques
- regional management should involve all stakeholders rather than just the individual landholder
- benefits of management should exceed the costs
- incorporate commercial use to offset some management costs
- ‘no management’ may be a management option
- employ effective and humane pest animal management techniques
- increased emphasis on risk assessment to prevent future problems (84).

21.4.6 Identified or Perceived Barriers

Native animals are often considered to be pests by landholders. However, the animals may be protected and for numbers to be controlled, approval needs to be given by NPWS. Environmental groups are often opposed to the destruction of any native animals and actively lobby against their destruction or utilisation. These differences need to be reconciled for the animals to be managed appropriately. Costs of controlling the pest numbers can also be a barrier. Some people in the catchment oppose planting wildlife corridors as these are seen to harbour pest animals.

21.4.7 Institutional

There are a number of pieces of legislation relating to the control of pest animals. Commonwealth legislation includes the Quarantine Act 1908, National Parks and Wildlife Act 1975 and the Wildlife Protection (Regulation of Imports and Exports) Act 1982. New South Wales legislation includes the Rural Lands Protection Act 1989, Crown Lands Act 1989, National Parks and Wildlife Act 1974, Pesticides Act 1978, Aboriginal Land Rights Act 1983, Firearms and Dangerous Weapons Act 1985, Stock Diseases Act 123, Enclosed Lands Protection Act 1901-1964, Wild Dog Destruction Act 1923, and the Prevention of Cruelty to Animals Act 1979.

21.4.8 Investment

Currently the Federal Government spends around \$7 million per year on the control of wild dogs. The NFACP provides \$16 million for projects aimed at managing pest animals. Landholders and RLPBs are also investing significant sums into the control of pest animals.

21.4.9 Cost Sharing

The Federal Government endorses a beneficiary-pays principle. Governments may contribute to the costs if these are public good benefits, but landholders are expected to meet most of the costs, as they benefit directly. Rural Lands Protection Boards or NSW Agriculture currently provide baits etc for free or at cheaper prices to local landholders for the control of foxes, mice, etc.

21.4.10 Financial and Benefit Cost Analysis

It is difficult to determine the actual costs of damage to the environment and subsequently to value the benefits of controlling pest animals. Best Management Principles developed by the Bureau of Resource Sciences recommend that the benefits of controlling pest animals must outweigh the costs of control. For this reason, management objectives must be strategic and realistic.

21.5 ANALYSIS

21.5.1 Key Stakeholders and Contacts

Rural Lands Protection Boards - Molong, Dubbo
Bureau of Resource Science - Canberra
NSW Agriculture - Dubbo
National Parks and Wildlife Service - Dubbo, Bathurst, Forbes

References

- (3) Soil Conservation Service (1982) *Wellington Technical Manual*
- (31) M. Braysher (1993) *Managing Vertebrate Pests - Principles and Strategies*
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- (84) Bureau of Resource Sciences (2000) *Website* - www.brs.gov.au