Feral Animals in Australia

The great isolated continent of marsupials has been invaded. Australia, so long the evolutionary cradle of the pouched animals, has been confronted by domestic animals that have run wild since European settlement. Suddenly a range of new wild animals are competing for space, food and shelter in Australia. Such a change cannot occur so quickly without causing a major impact on the soil, water and the native plants and animals that evolved with them over millions of years.

Domestic animals and their descendants that have gone wild are known as feral animals. There are many other recently introduced wild animals such as the rabbit, fox, species of deer, and aquarium fishes but these are known as introduced pests or exotics.

Most of the problems associated with feral animals in Australia arise because they have the capacity to rapidly increase in numbers without natural predators or diseases to control them. The major feral animal pests are ungulates, or hoofed animals, such as the Asian water buffalo, the pig and the goat which occurred naturally on every continent except Australia and Antarctica. The wild ancestors of these domestic animals evolved among large predators such as the big cats, bears and wolves. In Australia, a large continent wihtout these predators, the feral animals have truly run wild.

The only natural control of feral animals in Australia is drought. Numbers increase during good seasons and decline rapidly during dry times. When feral animals are not controlled by predation or disease they die when food and water are in limited supply. The other alternative is control or eradication through human intervention.

There are good reasons for controlling feral animals. Certain species have a devastating impact on the Australia environment. For example, many feral animals are herbivores that remove vegetation which provides food and cover for wide range of native species. Unique native animals such as the rabbit-eared bandicoot or bilby require a constant supply of carbohydrate rich seeds and roots. If these are removed by large introduced herbivores then the vulnerable native species disappear.

Some of the changes caused by feral animals are more subtle but have a similar end result. The removal of vegetation by heavy grazing can mean that there are fewer fires to control the invasion of scrub. Feral animals can therefore be a major problem on reserves established to conserve representative samples of native plants and animals.

Land degradation can also result from damage caused by feral animals. Soil erosion is often a consequence of overgrazing by feral animals or direct damage from walking pads, rooting and wallowing. Whereas managed domestic livestock can be removed from areas that have been overgrazed or require de stocking until soil conservation works are revegetated, it is much more difficult to remove feral animals.

Feral animals cause major losses to agriculture and involve framers in continuing control programs. They compete with domestic stock for food, damage crops, prey on sheep, and damage fences and watering points. In some areas feral animals force farmers to choose less economic forms of production than otherwise possible.

Because the feral animals are closely related to the animals that form the basis of our livestock industries they are carriers of the same diseases. Efforts to eradicate economically damaging livestock diseases such as tuberculosis are impeded by the constant source of reinfection from feral animals.

In earlier times it was good luck, but more recently it is by good quarantine management, that Australia is free of some of the major diseases affecting domstic animals. Preventing the entry of diseases such as foot and mouth disease, rabies and swine fever, and parasites such as the screw worm fly is of paramount importance. An outbeak of foot and mouth disease would have an immediate and disastrous impact on the entire Australian economy. The potential for some feral animals to act as a reservoir for exotic diseases would make the diseases much more difficult to control.

Because feral animals did not evolve here, they have no place in the Australian environment or agriculture and must be controlled. Although many of their adverse impacts on agriculture and the natural environment are understood and provide reasons for their control, much remains to be learnt about these animals. Further research will provide a better understanding of the damage they cause and hopefully offer new methods for effective and humane control.

The feral horse or brumby

There are none of the original species of wild horses of the northern hemisphere left running in their natural habitat. Today, all wild horses are descendants of the domestic horse Equus caballus and they are found only in Australia and North America. By the 1830s `bush horses' were described as plentiful in the hills around Sydney. Horses accompanied the spread of pastoral development and inevitably became established in the wild.

The Northern Territory alone has approximately four times the number of wild horses than the entire United States of America. A major source of brumbies in northern and central Australia was the large number of properties that specialised in breeding horses as army remounts. As mechanisation displaced the mounted cavalry, many of these horses were simply left to roam free. The number of feral hourses in Australia may now be as high as 600 000 head. The Northern Territory and Queensland have the largest proportion of these, followed by Western Australia, South Australia, New South Wales and Victoria respectively.

Feral horses tend to lose the conformation desired in domestic horses and develop small bodies with big heads and short necks. However, many of those in central Australia still have reasonable conformation because they are recent descendants of animals bred for military purposes. A common misconception is to refer to some or all of these feral horses as `Walers'. This name was originally a derivative of the name of the state New South Wales when all army remounts were shipped overseas from Sydney. Hence, all horses shipped as army remounts were Walers.

The brumbies in Central Australia prefer rocky range country with permanent water. The greater mobility of horses allows them to graze further from water than cattle. Horses graze up to 50 km from water. The main impact of brumbies is to extend the area of impact of introduced herbivores. About 27 per cent of the Alice Springs district is grazed by horses but not cattle.

Some properties in the Alice Springs district are carrying one brumby to every three cattle. Weight for weight, horses and cattle consume about the same quantity of feed. As there is considerable dietary overlap between horses and cattle in the types of grasses eaten they are regarded as being in direct competition. A common complaint is that brumbies also cause significant damage to fences.

The distribution and abundance of brumbies in the Alice Springs district is controlled only by the availability of food within grazing distance of permanent water. These resources are also needed to sustain native wildlife and the economic use made of pastoral land. It is therefore necessary to manage these resources judiciously to protect the environment and sustainable agriculture where it is appropriate. In the absence of natural predators and disease or the ability to remove brumbies in the same way as managed domestic livestock, it is necessary to intervene with other methods of control.

Despite all current methods of controlling wild horses they will be present in Australia for many years to come because eradication is not possible at present. An annual rate of natural increase of 25 per cent during good years enables brumby populations to recover rapidly from control operations or natural disasters such as drought.

Mustering brumbies on horseback is impossible in some terrain and helicopter mustering is the most commonly used method of removing them. Traps around water can be successful but only where there are a limited number of watering points.

Helicopter shooting by trained shooters is the most humane way of reducing the number of feral horses over large areas. It is quick and the horses are not subject to yarding and transportation to slaughter. However, helicopter shooting is very expensive and is regarded by some as inhumane and wasteful of a resource.

Animal welfare groups opposed to the use of helicopters in feral horse control have advocated the use of contraceptives as a non-lethal method of control. Unfortunately, the technology to achieve this is not yet available for use in areas such as the vast rangelands of central Australia. The absence of a safe and effective permanent contraceptive or any system of applying it means that it does not yet provide an alternative to helicopter shooting or mustering.

The feral donkey

The reputation of the donkey Equus asinus as a hardy beast of burden suited to the arid interior resulted in the first imporations to Australia in 1866. Donkeys were used to crossbreed with station horses to produce mules for heavier work and were also favoured in areas such as the Victoria River District of the Northern Territory where poisonous plants restricted the use of horses. Donkeys were still being imported into the Northern Territory until 1910.

There are very few donkeys in domestic use today. Better road access and mechanised transport saw many station donkeys abandoned or deliberately released. It was not long before the mistake was realised. By the late 1960s there were feral donkeys in all pastoral districts of the Northern Territory and across the north of Western Australia from the Kimberleys to the Pilbarra as well as in parts of South Australia and Queensland.

In 1962 a survey of only 300 square kilometres on Victoria River Downs Station revealed 3000 feral donkeys. At that time 28 000 donkeys were shot in another part of Victoria River Downs which allowed the recovery of an area of about 500 square kilometres that had previously been described as a wasteland because of grazing by feral donkeys. Unfortunately, the rate of natural increase of donkeys enables populations to recover rapidly. For example, 83 000 donkeys were shot in the Victoria River District between 1981 and 1984 and although reduced by 50 per cent the population has now recovered.

The donkey thrives in areas unsuitable for horses and cattle and is believed to be able to survive better during droughts. Donkeys eat a wider range of vegetation than either cattle or horses and graze further away from water causing much wider impact on native vegetation. Donkeys are also believed to congregate around the remaining watering points during dry times and prevent cattle from drinking. The inability to control donkeys with conventional methods of domestic livestock management makes them a serious problem where rangeland management requires an area to be destocked to allow regeneration of vegetation, or where soil conservation works need to be kept free of stock until they are stabilised.

A large market for donkey meat exists in Europe and China but Mexico fills it more economically than is possible from Australia. The only use made of donkeys in Australia is as pet meat when they can be obtained at low cost. The only alternative method of donkey control is by shooting from helicopters.

The feral camel

It seems that for every environment encountered in Australia there existed in another part of the world a suitable domesticated animal. So it was with the camel Camelus dromedarius. Camels were imported into Australia for use in exploration and to carry cargo across the vast distances of the arid interior. With the camels also came the cameleers and many Afghan camel drivers had teams until they were displaced by railways and motor transport. Rosy dock, a plant now common in central Australia, is actually native to the Middle East and was introduced as seed among the straw used for lining the pack saddles used by the Afghan camel drivers.

Many camels were turned loose or escaped from paddocks on large cattle stations on the fringes of central Australian deserts where they readily found a niche. Australia is now the only country in the world that has wild camels. Camels inhabit large tracts of sparsely populated or uninhabited arid ares of the Simpson Desert and the area west of Alice Springs across into the Gibson and Great Sandy Deserts of Western Australia. The number of feral camels in the Northern Territory in 1986 was estimated to be about 31 000.

Its large size and preference for the more open and flat country make it easier to control camels in pastoral areas by shooting. Those that occur on the more remote cattle stations can damage fences, particularly when rutting bull camels fight across a fence. Feral camels have an impact on the arid zone vegetation because they are highly selective browsers with a tendency to concentrate on the species exhibiting the freshest growth. Research near Alice Springs has found that camels eat 233 (81%) of the 288 plant species in the area, some of which are rare and endangered.

At present there are only limited opportunities for the commercial harvesting of feral camels for live export or as breeding stock for meat and hide. If a stronger market developed it may become economically attractive to reduce cattle numbers on some central Australian cattle stations in favour of camels to achieve better rangeland management.

The feral goat

Goats were a convenient form of livestock for the early settlers, arriving on the First Fleet. The goat Capra hircus is small compared to other draft animals, browses a wide range of plants, and provides meat and milk. Certain breeds were valued for mohair and this encouraged further importations. Many goat herds were abandoned or gradually became wild when not kept under close supervision.

Feral goats have successfully colonised most habitats except rainforest, wetlands and desert. They are most common in rocky or hilly country in the semi arid rangelands of western New South Wales, South Australia and Queensland. Goats in the eastern ranges can avoid dingo predation to some extent by sheltering around steep rocky outcrops and rock faces. However, it does not appear that the dingo limits the distribution and abundance of the feral goat in the pastoral regions because most goats occur in sheep country where the dingo has been either eradicated or heavily controlled.

The feral goat exerts a great influence on native vegetation and competes with native animals for food and shelter. One of the main reasons that yellow-footed rock wallabies are rare in their former range in western New South Wales is that they are thought to be forced out of rock shelters by feral goats. Rock wallabies are heavily preyed on by wedge-tailed eagles and require rock overhangs and caves for shelter from predators and the heat of the day. Feral goats compete with domestic stock for pasture, particularly during drought. Goats also carry foot rot, making it difficult to eradicate the disease from sheep where goats are present.

Feral goats are sometimes trapped or mustered for slaughter with the young breeding females sold as foundation stock for mohair flocks. The intensity to which these activities are pursued depends largely on the economic value of goats in certain areas. The `Judas goat' techinque has recently been developed to remove small numbers of goats from inaccessible areas. A feral goat is caught and fitted with a radio-collar and tracked so that the goats it has joined up with can be shot.

The feral cat

The domestic cat Felis catus is found in every part of Australia. It inhabits such remote places as the central Australian deserts where there is no permanent water. In urban areas some feral cats are abandoned strays that may interbreed with household pet cats. However, other cats found in bushland areas close to human settlements are pets supplementing their diet with native animals. This variety in distribution and lifestyle reflects the way cats are kept as pets, as well as their adaptability.

The feral cat eats an extremely wide range of native fauna. It is capable of killing mammals as large as the brushtailed possum or surviving in the desert regions on small reptiles and insects. It has two litters each year and is therefore able to increase its numbers very quickly in favourable seasons or following a control operation. Other predators such as the dingo, the wedge-tailed eagle and some of the large reptiles, prey on feral cats but do not appear to regulate their numbers.

Feral cats descended from pets taken to island by lighthouse keepers, sailors and seal hunters have had a disastrous impact on the fauna. For example, as well as eating over 50 000 birds each year on Macquarie Island, feral cats have caused the extinction from the island of a subspecies of the red-fronted parakeet. It is much more difficult to determine what impact the feral cat is having on mainland fauna. Ground-nesting birds such as the lyrebird are believed to be very vulnerable, particularly where populations are low or fragmented because of land clearing and development. The introduction of the feral cat is probably one of a number of changes since European settlement that act in concert to threaten vulnerable species of native fauna.

Feral cats have been eradicated from some islands but this is impossible to achieve on the mainland at present where control is sporadic and is limited to poisoning, trapping and shooting. Other control schemes have been suggested but most are impractical. The reproductive capacity of the feral cat means that any area that is poisoned or trapped is soon recolonised. There is also a constant source of new recruits from urban areas. There would certainly be fewer native animals killed by cats if people managed their urban pets more responsibly.

The feral dog

None of the feral animals except the dog had relatives in Australia before European settlement. Asian seafarers had carried the dingo Canis familiaris dingo, a subspecies of the domestic dog Canis familiaris, to the mainland around 4000 years ago where it displaced the two large native mammal carnivores, the Tasmanian devil and the thylacine. This early entry of a dog was added to with the flood of domestic dogs that accompanied European settlement. Even Sir Joseph Banks, the botanist on that first journey of British discovery led by Captain Cook, was accompanied by his greyhound.

It is not known whether crosses between domestic dogs and dingoes have a more detrimental impact on native fauna or livestock. Most breeds of domestic dog are capable of breeding twice a year, whereas the dingo has only one litter per annum. This does raise some fears that the increasing incidence of feral domestic dogs will lead to more wild dogs or a greater capacity to recover numbers following control measures. It is more likely, however, that the Australian environment poses its own limitations n the optimum size and number of predators.

Any wild dogs, be they feral domestic dogs, dingoes or crosses between the two, are a problem among sheep and need control. The most common methods of controlling dingoes and feral dogs are by exclusion fences, poisoning and trapping. However, it is now recognised that there is also a place for the dingo in the Australian ecosystem and there are many areas where it does not come into conflict with the livestock industry.

Feral cattle

The three species of cattle in Australia are the European breeds Bos taurus, the humped cattle or zebu breeds Bos indicus and the banteng Bos javanicus. All three are closely related and interbreed freely. Only the European and zebu breeds are used for beef production and some of these become feral. It is difficult to classify all wild cattle as feral because some may have been deliberately left unmanaged on large stations because it was uneconomic to muster them at the time. Many such wild cattle were shot in northern and central Australia in recent years as part of the brucellosis and tuberculosis eradication scheme.

Banteng cattle are found only on the Cobourg Peninsula of the Northern

Territory. They are a truly feral population having been imported from Java for use at Fort Wellington over 150 years ago. Unlike other feral animals, they have not spread far beyond where they were liberated. It is thought that there are about 3000 banteng cattle on the Cobourg Peninsula and that the population is gradually increasing to a level that is having a detrimental impact on the native vegetation.

Banteng cattle will be maintained on Cobourg Peninsula and adjacent coastal areas of Arnhem Land, particularly as wild banteng no longer exist in Indonesia. The population will be controlled according to a herd management plan aimed at minimising their impact on the environment.

Trophy hunting and their use as a source of protein for the traditional Aboriginal landowners are the principal menas for controlling the numbers of banteng cattle.

The feral pig

The Australian bush and agriculture have provided the feral pig Sus scrofa with a wide variety of food. As a result, feral pigs can reach very high population densities - up to 80 pigs per square kilometre in some wetlands. No one knows how many feral pigs occur in Australia but they certainly number in the millions. They occur from western Victoria, through New South Wales and Queensland and across northern Australia from Cape York to the Kimberley in Western Australia. Pigs need to drink daily in hot weather so they are absent from inland areas where there is no permanent surface water. The feral pig is the most serious feral agricultural pest in Australia. Pigs eat and damage crops and pasture, prey on lambs and damage fences. Up to 40 per cent of lambs born are killed and eaten by feral pigs in some areas, costing the sheep industry millions of dollars annually. The greatest threat the feral pig poses to agriculture is its potential to carry exotic diseases such as foot and mouth disease and swine fever, and to act as a host for the screw worm fly, should any of these diseases enter Australia.

Feral pigs have an adverse impact on natural ecosystems. Their habit of wallowing and rooting around the margins of water courses and swamps can destroy the vegetation that prevents erosion and provides food and nesting sites for native wildlife. Eradication of the feral pig is impossible under present circumstances because of its wide distribution, much of it in remote areas with dense vegetation. Control in certain areas can be achieved by poisoning and trapping. Helicopter shooting can be successful in reducing populations in more open country and is a quick, target specific method that gives clear results. There is also a commercial trade in game pig meat exported for

human consumption.

The feral water buffalo

It is not surprising that the water buffalo Bubalus bubalis was brought to northern Australia. It is one of the most widely used domestic animals of South-East Asia where it is able to work ground that is too wet and boggy for other draft animals suited to the tropics. The water buffalo was brought from Timor to Fort Dundas on Melville Island as a source of meat in 1826. Only two years later it was brought to the mainland at Cobourg Peninsula where some were released. There were further importations and by 1843 wild herds of up to 50 head could be seen on the mainland.

The water buffalo is now well established in the wet tropics of the `Top End' of the Northern Territory. In 1985 it was estimated that there were 350 000 feral buffalo in the Northern Territory. Occasional vagrants, usually displaced old bulls, are found in the Kimberley of Western Australia and the Gulf Country of Queensland, as well as further south towards Tennant Creek in the Northern Territory.

The buffalo was so successful in colonising the wet tropics that by 1895 there was a trade in shooting wild buffalo for skins and government officials were expressing concern that the feral buffalo, then viewed as a resource, would be eradicated. There was then very little concern about the significant environmental damage being caused by the feral buffalo.

Large herds of buffalo overgrazed the areas close to water and virtually eliminated the water couch plant Hymenachne from the fringes of swamps. This plant forms the living fabric of the swamp, being grazed by native animals and forming huge floating rafts used by crocodiles, birds and other small animals for nesting. The rotting vegetation is a food source for other small aquatic animals. Other plants such as the giant reed Phragmites are also seriously depleted by buffalo, and the trampled soil is exposed to erosion from the rains of the wet season. Overgrazing and erosion caused by large numbers of buffalo have resulted in the degradation of some of Australia's largest and most spectacular wetlands.

The swimming and wallowing habit of the buffalo has also had a devastating impact on the low sub-coastal wetlands. During the wet season buffalo use regular routes to swim and walk between the high ground where they graze. This behaviour pattern breaches naturally formed levee banks and forms deep swim channels that remain as permanent canals. The damaged levee banks and canals allow the invasion of salt water from high tides during the dry season. The persistent flow of tidal salt water accelerates the erosion process. Freshwater can drain from the wetlands and the intrusion of saltwater can cause widespresd damage and destruction to natural communities unable to tolerate salt.

Buffaloes carry major cattle diseases and have been a major hindrance in attempts to eradicate tuberculosis. Disease free herds of buffalo are being identified so that they can be used to form the basis of a domesticated buffalo industry. Elsewhere, it is desirable to eradicate feral buffalo by helicopter shooting, particularly in areas dedicated to nature conservation such as Kakadu National Park. The buffalo has a place in northern Australia but as a managed domestic animal away from areas of conservation value.