Desert Bigfoot

by
Andrew Burbidge

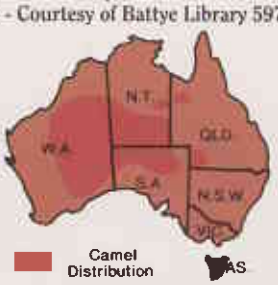
AT the height of the goldrush late last century thousands of camels were imported into Western Australia. Breeding depots were established to increase their numbers further. When they were no longer needed for transport, many were released and became established in the wild.

The first one-humped camels were introduced to Australia in 1840 but camels were not imported for use in desert travel until 1860, when they were shipped from India for the Burke and Wills expedition. It was gradually recognised that camels were much better pack and draught animals in arid areas than horses or bullocks and from the late 1860s to 1907 thousands were imported, together with many 'Afghan' camel drivers, who were actually from the drier parts of India. From 1894 to 1897, at the height of the goldrush, 6 600 camels were imported into Western Australia alone.

Camel-breeding 'depots' were set up by both private individuals and Governments. Government depots in WA included one at Londonderry, near Coolgardie, operated by the Mines Water Supply Department. Depots at Jigalong, Dromedary Hill (30 km east-north-east of Payne's Find) and Yalgoo were operated by the Agriculture Department to breed camels for use in vermin fence maintenance.

By the 1920s there were about 20 000 domesticated camels in Australia. They were an indispensable part of outback

Camels were widely used as pack animals in arid parts of Australia.
Photo - Courtesy of Battye Library 5970P▲



life until displaced by motor vehicles in the 1930s and 1940s. Today there are many more wild camels than there were domesticated ones earlier this century.

The number of wild camels in Australia is not accurately known. In 1969 numbers were estimated at between 15 000 and 20 000 and a 1983 estimate put the number around 25 000. However, a 1984 aerial survey in the Northern Territory produced an estimate of 31 500 camels for the Territory alone, suggesting that there could be more than 100 000 in the whole country. This is likely to be conservative as, despite their size, camels blend into the landscape and are difficult to see from the air.

Camels occupy a variety of habitats in Australia, but are mainly found in the sandy deserts in the southern half of the Northern Territory, the northern half of South Australia and the extreme south-west corner of Queensland. In Western Australia they are found in the Great Sandy, Little Sandy, Gibson and Great Victoria Deserts, often spilling onto the Nullarbor Plain and into adjacent pastoral areas (especially in dry years) where they damage fences and artificial water points.

Australia is now the only place in the world where there are wild camels; the 15 to 20 million in other countries are all domesticated. Desert travellers in Australia often see signs of camels along roads and tracks; their large footprints and small, almost spherical droppings are everywhere.

Occasionally the animals are sighted, usually in small groups of four to 20. Some camels are road-hogs - they will run along a track in front of a vehicle, never moving from the wheel ruts, stopping when it stops and starting again when it starts. On a narrow track they are almost impossible to pass.

Camels blend into the landscape and are difficult to see from the air.
Photo - Cliff Winfield▲

The first feral camels in Australia were two abandoned by the Burke and Wills expedition.
Photo - Robert Garvey◀

Photos on opposite page:
Footprint - Andrew Burbidge
Camels - Cliff Winfield

DESERT ADAPTIONS

Camels are well-adapted to desert life. They have a low metabolic rate and slow water turnover, storing heat gained during the day and dissipating it at night. They don't begin to sweat until their body temperature rises above 38°C and their droppings contain little water. Their urine is only moderately concentrated, but it is produced slowly in times of water stress.

If drinking water is not available under hot conditions (about 40°C), a camel will lose about two per cent of its weight per day, but even when it has lost 25 per cent of its body weight, its blood volume has decreased by only 10 to 15 per cent. Camels can lose up to 30 per cent of their body water and still remain in good health.

To compensate for this water stress a dehydrated camel may drink 100 litres or more of water at one time. This causes a degree of dilution of the blood and other body fluids that cannot be tolerated by other animals: the red blood cells of the camel can swell to twice their normal size without rupturing. The hump stores fat that can provide a reserve food supply for up to six months. Some extra water is gained when the fat is metabolised.

Camels are gregarious and usually live in herds that range from a few animals to more than 100. A herd is usually led by an older female, but when males come into breeding condition a mature male will attempt to dominate a herd, becoming aggressive to other males.

The gestation period is between 360 and 380 days. The single calf weighs about 40 kg at birth and is suckled for more than a year. The interval between births is about 18 to 24 months. Camels become sexually mature at three years and continue to breed until they are about 20 years old. Their lifespan is about 30 years. A recent Northern Territory study has shown an increase rate of 12 to 15 per cent annually in undisturbed populations, allowing numbers to double every six years.

ONE HUMP OR TWO ?

The camel family, the Camelidae, are ruminants and part of the mammal order Artiodactyla (even-toed Ungulates). Other ruminants include giraffes, deer, cattle, buffalo, sheep, goats and antelope. Members of the camel family are usually separated from other ruminants into the suborder Tylopoda (meaning pad-footed) because they walk on pads instead of the sole of the hoof (the hoofs are reduced to claw-like toes projecting beyond the pad). The Camelidae also differ from other ruminants in not having horns or antlers. The oval shape of their red blood corpuscles makes them unique among mammals.

Camels on a recently burnt area of sand on the Gibson Desert. Photo - Andrew Burbidge ▲

The Camelidae originated in North America (where they became extinct in prehistoric times) and spread to the south and west. In South America, wild members of the family are guanacos and vicuñas; the domesticated llama (used for meat and as a beast of burden) and alpaca (bred for its long, soft hair, used as wool) are descended from the guanaco.

Camels probably arrived in the Old World around two million years ago. In historical times the two-humped camel or bactrain (*Camelus bactrianus*) occurred in the wild only in the Gobi Desert, but was domesticated from Turkey to Manchuria. The original range of the wild one-humped camel or dromedary (*Camelus dromedarius*) is not known, but probably included Arabia (where there were wild camels in Roman times) and other parts of the Middle East. It is domesticated throughout north and east Africa, and from the Middle East to north-east India. Both the one-humped and two-humped camel were domesticated about 3 000 years ago.

Two main breeds of the one-humped camel are generally recognised - a slender riding form (the dromedary) and a heavier pack animal, but the breeds blend into each other. One-humped and two-humped camels may be forms of the same species, since crosses between the two are fertile.

EFFECTS ON AUSTRALIAN PLANT AND ANIMALS

The camel's split upper lip enables it to browse selectively from tree branches, shrubs and groundcovers. It eats like a vacuum cleaner, sucking up leaves into its mouth. The diet includes a wide variety of plants, particularly those with high levels of moisture and salt, such as prostrate succulent plants.

The impact of tens of thousands of half-tonne herbivores on Australian desert plants and animals is not yet fully known. One study has shown that feeding has little impact on plants unless camel densities are high (more than two per square kilometre). However, there is some evidence that selective grazing of palatable, uncommon species of plants such as desert kurrajong, quandong and pittosporum is gradually eliminating these species from the sandy deserts by preventing seedlings from establishing.

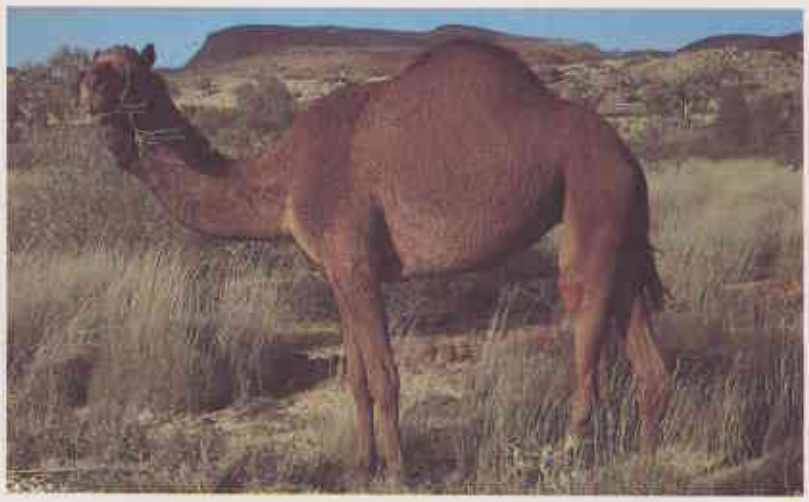
The greatest impact of camels is on desert waterholes. When Aborigines roamed the deserts they depended on many water points, mostly small rockholes and soaks (or "native wells"). The Aborigines kept these waterholes open and clean; rockholes were often covered with a slab of rock or a bundle of spinifex to reduce evaporation. A group of camels can empty a rockhole in minutes and this was a source of considerable friction between some of the early European travellers and Aborigines. Camels cannot dig for water like kangaroos and they collapse the walls of soaks.

The camel's upper lip is split and hairy - it is specially adapted for selective browsing.
Photo - Kerry Cook ▼

Camels often travel in groups of between four to twenty animals.
Photo - David Pearson ▲

A desert kurrajong (*Brachychiton gregorii*) browsed to camel height in the Great Victoria Desert.
Photo - Andrew Burbidge ▲

Feral camels destroy fences and compete with native animals for precious water supplies.
Photo - Neil Burrows ▼



CAMELS AND AUSTRALIAN DESERT EXPLORATION

The first European to cross overland from South Australia to Western Australia was John Eyre in 1840-41. Hugging the coastline of the Great Australian Bight, he suffered incredible hardship, losing many of his horses, but managed to struggle into Albany. John Forrest made the return trip in 1870, again with horses, benefiting from supplies provided by a schooner at Esperance, Israelite Bay and Eucla.

The Burke and Wills expedition of 1860-61 was the first to use camels for exploration, having a mixture of camels and horses in their retinue. Peter Egerton Warburton was the first explorer to use camels as the only means of transport for desert exploration, when he crossed the Great Sandy Desert from east to west in 1873-4 *en route* from Alice Springs to the Pilbara. His party suffered extreme hardship and doubtless would have perished had horses been used.

Although John Forrest was able to cross a small part of the Gibson Desert from west to east with horses in 1874 while exploring from Geraldton to Alice Springs, he traversed mainly hilly country with many rockholes and travelled in a good season. Ernest Giles first tried to cross the central Gibson Desert from east to west with horses, also in 1874. He set off from the Rawlinson Range hoping to reach the headwaters of the Murchison River, but the horses failed before he had covered a fraction of the distance. His companion, Gibson, died in the desert that now bears his name and Giles only just escaped with his life. In 1875 Giles led an expedition in South Australia using both horses and camels. In the hot, dry conditions all the horses perished and the explorers might have died too if the camels had not survived a 350 km trek without drinking. Convinced that camels were the only means for desert exploration, Giles successfully crossed the Great Victoria Desert from east to west later in 1875 and returned eastwards across the northern Gibson Desert in 1876.

After this success many other explorers used camels for desert expeditions.

Camels brought west by Ernest Giles when he crossed the Great Victoria Desert in 1875.
Photo - Courtesy of WA Newspapers ▲

Camels may have contributed to the decline of seed-eating birds, such as this rare Princess Parrot.
Photo - Jiri Lochman ◀

The effect of camels on waterholes, combined with the lack of maintenance by today's Aborigines, has enormously reduced desert waters. This has a serious effect on some native animals, particularly seed-eating birds such as parrots, pigeons and finches. Camels may have contributed to the rarity of the Princess Parrot and the near-extinction of the Night Parrot, by eliminating sources of drinking water in arid areas.

The establishment of feral camels may not have been as damaging as the introduction of other northern hemisphere animals such as foxes, cats and rabbits; nevertheless, like most foreign intruders into natural ecosystems, camels are having a serious negative effect on Australian flora and fauna. More studies of the effects of camels are needed before their place in the desert web of life can be fully understood. ⊡

LANDSCOPE

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Dolphins, whales and seals frequently strand along the WA coast. Find out who helps them and what they do on p. 10.

Powerful forces have formed the rocks and land surface of WA over billions of years. See p. 48.

Why are the thousands of feral camels that roam inland Australia the scourge of the desert? Turn to p. 22.

Explore the fascinating subterranean worlds deep beneath the earth on p. 28.

Inlets and rivers, towering karri and tingle forests, rugged coastline and remote wilderness areas - Walpole-Nornalup National Park has it all. See p. 15.

C O V E R

Australian sea-lion (Neophoca cinerea). *Photo - Nick Gales*

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