Quokka
Setonix brachyurus (Quoy and Gaimard, 1830)

Size
Head and body length
435–540 (487) mm in males
400–500 (468) mm in females

Tail length
260–310 (289) mm in males
245–285 (265) mm in females

Weight
2.7–4.2 (3.6) kg in males
2.7–3.5 (2.9) kg in females

Subspecies
None recognised

Photo: Babs & Bert Wells/Department of Conservation and Land Management

Description

Pelage is grizzled grey-brown above with a tinge of rufous, and the underparts are lighter in colour. Fur long, thick, coarse. Ears very short and rounded, snout unfurred. Tail short, tapered, and close-haired. No definite body markings.

Other common names
Short-tailed wallaby, short-tailed pademelon

Distribution

Key To Map: Black = present distribution

At the time of European settlement the quokka was common in the south-west of Western Australia. Fossil evidence suggests that it has always been restricted to this region and to Rottnest and Bald Islands but, while numbers on Rottnest Island remained high, mainland populations declined so severely in the twentieth century that by 1960 it was known only from a few isolated populations in swamps south of Perth.

The current distribution of the quokka includes Rottnest and Bald Islands, and at least 25 sites on the mainland, including Two Peoples Bay Nature Reserve, Torndirrup National Park, Mt Manypeaks National Park, Walpole-Nornalup National Park, and swamp areas through the south-west forests from Jarrahdale to Walpole.

Habitat

On Rottnest Island the quokka is widely dispersed. The quokka survives on the island in a harsh, seasonally arid habitat where the largest populations exist around the lakes and settlement areas. The quokkas tend to inhabit areas that provide refuge such as low dense heath, low forest (*Acacia rostellifera*) and the salt marsh and lakeside communities.

The mainland quokka lives in the Darling Range and south-west regions of Western Australia, mostly inhabiting densely vegetated swamps and sometimes tea-tree thickets on sandy soils along creek systems and dense heath on slopes.

Behaviour

Information is currently limited to island quokkas. Although quokkas have an excellent thermoregulatory ability at ambient temperatures up to 44 ^{o}C, animals around soaks fight for the available shelter on hot summer days, though temperatures such as this are rarely encountered on the island. Local populations are widely dispersed during winter, and as the days begin to become hotter in November they begin to converge at night, sometimes from as far afield as two kilometres, around soaks which provide the only permanent freshwater. Each soak is used exclusively by a group of animals from the surrounding area and the group has a well developed social organisation. Adult males form a linear hierarchy based on age and are dominant to females and juveniles, which themselves have no ranking. Males defend an individual space, and this defence is most marked in the vicinity of their resting sites.

Populations living in areas distant from soaks form groups of between 25 and 150 adults, which occupy group territories. Very few individuals move outside their group territories, the boundaries of which are generally coincident with topographical features.

Mainland quokkas tend to hide in runs among vegetation during the day and forage along the swamp margins at night.

Diet

Studies of the diet in the northern Jarrah forests found the quokka to be a browser, with peppermint (*Agonis flexuosa*) and thomasia species being dominant vegetation items in their diet.

Plant quality on Rottnest Island progressively declines in water and nitrogen content through the summer. By the end of summer, animals become anaemic and many die, those populations farthest from sources of fresh water suffer the highest mortality. Seasonal debility arises from insufficient drinking water for metabolic and thermoregulatory needs which, in turn, leads animals to eat more succulent but less nutritious plants, thus adding the effects of nitrogen deficiency to those of dehydration.

Breeding

On the mainland, the quokka can breed throughout the year but on Rottnest Island the breeding season is brief. Females come into oestrus (heat) in January if the year is mild but in hot years, do not do so until March. A single young is carried in the pouch until August and is suckled until October. Most females carry a quiescent blastocyst resulting from a mating shortly after the first birth of the year but few blastocysts resume development after that young has left the pouch.

Threatening processes

Much of the decline of the quokka coincided with the arrival of the fox in the south-west of Western Australia in the late 1920's. Clearing and burning of remnant swamp habitat has also contributed to their decline through increased exposure to fox predation.

Conservation status

2000 IUCN Red List of Threatened Species	Vulnerable
Western Australian Wildlife Conservation Act	Threatened
Environment Protection and Biodiversity Conservation Act	Threatened (Vulnerable)

Management in Western Australia

Management actions that are currently underway or have been completed include:

- Taxonomic study.
- Survey previous known sites and estimate population size underway in the northern jarrah forest.
- Develop model to predict occurrence of quokkas elsewhere within the northern jarrah forest.

- Most of the known populations on the Darling scarp and Two Peoples Bay continue to be protected by fox baiting.
- Fox baiting is being extended to additional sites via the Western Shield program.

Other interesting facts

- The Dutch explorer Willem de Vlamingh referred to Rottnest Island as 'Rottenest' (rat nest') after the rat-like animals he saw there and which we now call quokkas.
- During the 1920s, quokkas were considered pests of pine plantations other farming practices near Perth and were consequently hunted and poisoned.

Selected references

Kitchener, D.J. (1995). Quokka. In R. Strahan (Ed.) The Mammals of Australia. Australian Museum and Reed Books. Chatswood, NSW.

Sinclair, E. and Morris, K. (1995-96). Where have all the Quokkas gone? *LANDSCOPE* 11(2): 49.

Maxwell S., Burbidge A.A, Morris K. (1996). The 1996 Action plan for Australian Marsupials and Monotremes. Wildlife Australia, Canberra.

Anon (1997-98). Quokkas and Easter bilbies - indicators to a success story. *LANDSCOPE* 13(2): 9.

Website links

http://www.naturebase.net/projects/west_shield.html
http://www.naturebase.net/plants_animals/mammal.quokka.html
http://www.ea.gov.au/biodiversity/threatened/action/marsupials/23.html
http://www.perthzoo.wa.gov.au/quokka.html