

Fact Sheet

Malleefowl



Malleefowl (*Leipoa ocellata*) is one of three mound-building Australian birds known as megapodes and the only one that lives in arid areas. It is rarely seen.

IDENTIFICATION

Malleefowl (*Leipoa ocellata*) are a large bird species belonging to the Megapodiidae family, which means big-footed. All megapodes build mound for nests and the family also includes the Australian Brush Turkey (*Alectura lathamii*) and the Orange-footed Scrub-fowl. The Malleefowl has mostly pale grey-brown plumage with barred upperparts and a black marking down the throat. The male booms loudly and both sexes grunt and warble.

TRADITIONAL NAMES

Nganamara (Kokatha)

ADAPTATION

The species is the only megapode to reside in semi-arid and arid habitat as opposed to damp forests. It has developed the most sophisticated incubation system compared with other mound-builders.

BEHAVIOUR

Monogamous Malleefowl pairs build a mound up to 4m across and up to 1m high. The female buries up to 30 enormous eggs per season deep in the mound with composting, moist leaf litter and warm sand, allowing incubation to take place over two months using external heat sources rather than the birds' own body heat.

Perfect incubation takes place at 33°C, and the male checks the mound temperature by probing his bill, like a thermometer, into the soil. He opens the mound to the cool air of early morning to decrease the temperature or opens it to the hot sun of the late afternoon to increase the temperature. About 80 per cent of chicks will hatch.

Completely independent upon hatching, Malleefowl chicks climb unassisted for up to 15 hours to the surface after being buried beneath up to 1m of sand. Once emerged, chicks are completely on their own and receive no parental care. Each freshly hatched chick thermoregulates, sources food and keeps safe from predators. They can fly within a day and reach reproductive maturity at 3-4 years of age, continuing until about 15 years.

The Malleefowl diet changes depending on the season and location. It includes flowers, fruits, seeds, herbs, invertebrates, fungi and tubers. A diet high in protein and energy foods such as Acacia seeds and lerps, is important during breeding and increases the survival chances for chicks.



Malleefowl nest with egg

HABITAT

Thick vegetation corridors are important for the survival and dispersal of Malleefowl. The species spends almost all of its time in native vegetation, including unburnt strips among burnt vegetation.

It uses roadside vegetation to relocate to other patches of scrub. Chicks can disperse at an average rate of 600m per day when newly hatched and up to 2km for others.

Breeding Malleefowls have an average home range between 83 and 92ha, and are tightly bound to their nesting mounds. This area is six times larger for non-breeding birds.

DISTRIBUTION

Rated Vulnerable under the *National Parks and Wildlife Act* (NPWS Act) of 1972, the *Environment Protection and Biodiversity Conservation Act* (EPBC Act) 1999, and the IUCN (International Union for the Conservation of Nature), the Malleefowl has experienced a decline of 30-50% in the past three generations. A similar rate of decline is expected into the future.

Likewise, the Malleefowl range has diminished considerably since European settlement. Historically, the range was more connected from near Exmouth in Western Australia across to the central desert and southern parts of South Australia, to central New South Wales and Victoria (see map below). Since that time, populations have become extremely fragmented and numbers have declined significantly in SA.

Only about one quarter of the South Australian population is present compared with 15 years ago and the geographical range has also contracted.



An active Malleefowl mound

THREATS

The numerous threats that exist for Malleefowl are collectively responsible for its strong decline. The clearing of mallee woodlands for wheat and sheep production is the most influential. The most productive habitats with high fertility soils and adequate rainfall have largely been cleared for agriculture and pastoralism and the patches that remain are often small.

Malleefowl rely on camouflage in vegetation cover to hide from predators and the clearing and decimation of understory vegetation undermines this ability. It removes litter for composting in mound nests and removes food sources, impacting chicks who are new to finding food and need high protein and high calorie items such as lerps and wattle seeds. Dense canopies protect Malleefowl from aerial predation and also provide a heat refuge.

Predation by the introduced Red Fox (*Vulpes vulpes*) is also associated with the Malleefowl decline. Foxes prey on all

life stages, including digging up eggs, and limiting the recruitment of chicks into adults. However controlling foxes can result in increased cat numbers and cats are also a Malleefowl predator.

Fire is another significant threat to Malleefowl. Not only does fire decimate long term habitat and the understory vegetation Malleefowl require for protection, nesting and food resources, as poor fliers they are unable to escape a fire threat. Traditional Aboriginal burning techniques likely protected Malleefowl habitat by reducing spinifex surrounding mulga habitat and thus reducing fuel load.

The Malleefowl Recovery Plan identified that of 194 Australia-wide monitoring grids across in which the species had been recorded in the past, about 47 per cent had no individuals recorded since before 1992 and about 30 per cent since before 1981. With no records since the 1960s in the Northern Territory, the species is thought to be extinct there.

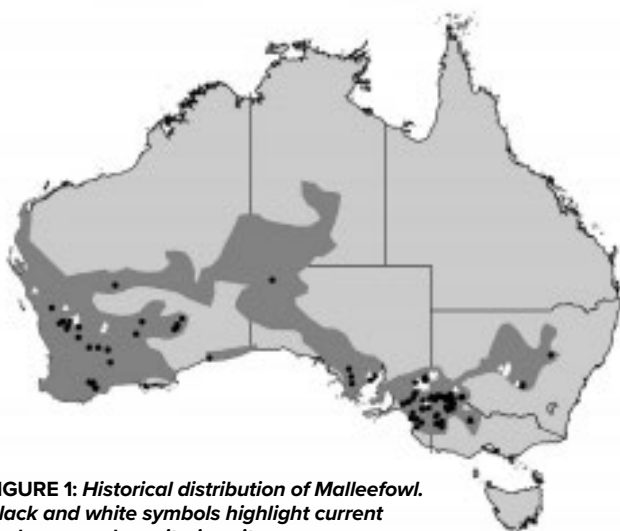


FIGURE 1: Historical distribution of Malleefowl. Black and white symbols highlight current and proposed monitoring sites.

Source: Hauser et al. 2019.

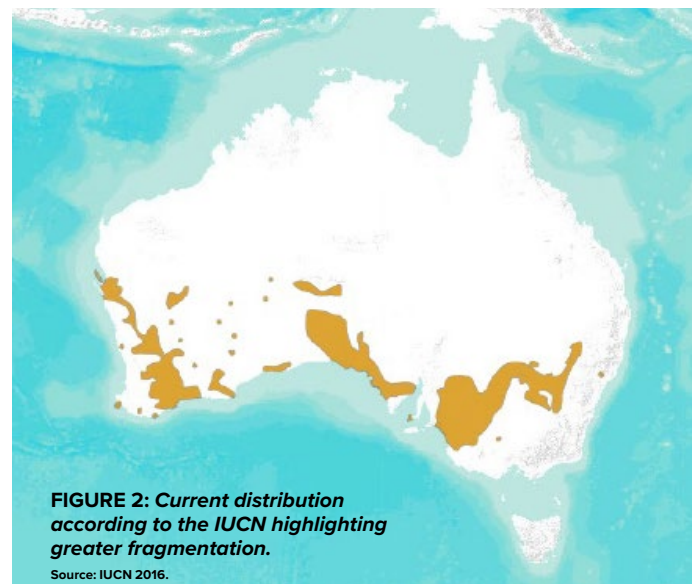


FIGURE 2: Current distribution according to the IUCN highlighting greater fragmentation.

Source: IUCN 2016.

CONSERVATION

The conservation of Malleefowl have attracted dedicated scientists and citizen volunteers for decades. Formal conservation began with a Research Phase Recovery Plan, a National Malleefowl Recovery Plan in 2000 and updated in 2007. A National Malleefowl Recovery Team formed in 1989 to coordinate and implement objectives outlined in key documents, consisting of over 300 members in monitoring every year. Yearly monitoring is undertaken of nests at more than 130 sites and up to 4000 mounds. Fox baiting has dominated protective conservation actions on-ground (Garnett *et al.* 2018).

An Adaptive Management approach across South Australia and Western Australia has examined the cost-benefits of fox baiting on Malleefowl conservation. Early results indicate a weak effect of predator control on Malleefowl breeding activity.



WHAT ARE WE DOING?

Malleefowl were a target species of the SAAL Landscape Board's *Bounceback and Beyond* Project from 2019 to 2023. During this project, new Malleefowl mounds were found using LiDAR technology and monitored and the activity was measured and compared between areas baited and unbaited for foxes. Similar to outcomes seen elsewhere, the feral cat increased in numbers in baited areas.

The research also showed the Malleefowl nest activity increased with rainfall and that this may be more influential on activity than baiting.



A Malleefowl caught on monitoring camera at Secret Rocks

RESOURCES

National Recovery Plan for Malleefowl. Department for Environment and Heritage, South Australia.

The conservation ecology of Malleefowl, with particular regard to fire. Monash University, Clayton.

Recovery plan research phase for Malleefowl. Australian National Parks and Wildlife Service, Canberra.

Fox predation on Malleefowl after the spread of RCD in Victoria: The first Malleefowl breeding season. Parks Victoria and Department of Natural Resources and Environment, Mildura.

Distribution, relative abundance and conservation of Malleefowl in South Australia. Working Papers of the National Malleefowl Forum, Adelaide.

Efficacy of fox control in reducing the mortality of released captive-reared Malleefowl. *Wildlife Research*, 24.

SA Arid Lands Landscape Board. *Bounceback and Beyond RLP Project Year 5 Final Report*, July 2023.

Patch size and breeding status influence movement patterns in the threatened Malleefowl. *Austral Ecology*, 48.