

THE MOUND – BUILDERS

By Howard Jarman

Of the many kinds of Australian birds with remarkable habits perhaps the most extraordinary are the Mound - builders or Megapodes. They are the only birds to have adopted the idea of burying their eggs and relying on the heat generated by the sun or decaying vegetation to hatch them.

There are three species of Megapode in Australia - the Scrub Fowl, Brush Turkey and Mallee Fowl. Only the last is confined to this continent.

The Scrub Fowl (*Megapodius*)

The Scrub Fowl and its allies are also to be found in the islands to the north with a discontinuous distribution from the Nicobar Islands and Celebes in the west, through New Guinea to the New Hebrides, Tonga and Samoa in the east, and one species occurs in the Philippines. In Australia Scrub Fowl range around the coast of the tropical north from the Kimberleys to Northern Queensland.

Most of the Scrub Fowl, including the Australian representatives, build huge mounds of damp earth and forest litter as nesting chambers. Some have been measured up to 120 feet in circumference and 15 feet in height.

The Brush Turkey (*Alectura lathami*)

The Brush Turkey also favours tropical scrub. As well as the various species in New Guinea, there is one which frequents the coastal brush from Cape York Peninsula to northern New South Wales.

This is a large bird about two feet in length, blackish above, grey under and with a naked reddish head. The Brush Turkey, like the Scrub Fowl, builds a large incubator mound of decaying vegetation. This is scraped off the forest floor by the male and as

a result of constant soaking from the tropical rains soon rots and generates heat. When the female is ready to lay a small pit is dug in the mound, the egg deposited in it and covered. This is the only time she is allowed to approach the nest. At all other times the male drives her off. He spends most of his time scraping further dead leaves onto the mound with his strong feet or raking the surface in order to regulate the temperature. It is thought that he can gauge the temperature with the pendulous wattles on his neck. As with all the Megapodes, the chicks, when hatched, dig their way unaided to the surface. Fully fledged at birth, they can run and fly within a few hours of emerging from the nesting mound and are entirely independent of their parents, whom they probably never see.

The Mallee Fowl or Lowan (*Leipoa ocellata*)

Unlike other mound builders, the Lowan prefers dry semi-desert conditions as typified by mallee and mulga scrub with rainfall averaging from 8 to 15 inches. Found inland in all the mainland States, it approaches the coast at Geraldton in the west and the Coorong in South Australia. The Mallee Fowl is of particular interest to Victorians because it is the only mound-builder found in this State. Nowadays it is confined to the northwest, the Mallee and northern Wimmera districts.

It is a handsome bird with mottled brown, grey and white plumage which is excellent camouflage in the Mallee scrub where there is strongly contrasting sunlight and shadows. A plump bird, it is about 24 inches long.

In construction the nesting mound is somewhat different from those of the Scrub Fowl and Brush Turkey. The circular mound is built of sand and may be 10 to 12

feet across and 30 inches above ground level. About March in each year a pit is formed in the centre of the mound by scraping out a hole about two feet in diameter with sloping sides and with its base below ground level. Next the surrounding scrub is raked clear of fallen leaves, twigs and bark. This debris is scraped into the cone along two or three "paths". Only the feet are used, never the wings as has sometimes been suggested. Apparently the male does most if not all the work, standing with his back to the nest and scraping backwards in leisurely fashion with his powerful legs. After several weeks all the litter is scraped into the raised circle of sand and forms an untidy heap a foot or so above ground level. Even sticks three feet in length are raked in.

Further progress is contingent on the winter rains. In normal years these thoroughly soak the accumulated vegetation. In August and September the surrounding rim of sand is thrown onto the wet vegetation so that a mound is formed. The process of decay soon generates heat and in October egg laying commences. It is normal for only one pair of birds to use the nest although it is possible that a second hen may use it.

When an egg is due both male and female open up the mound. The sand is thrown back so that the buried vegetation is revealed. A hollow is excavated in this and filled with sand so that there is a "tub" with vegetable walls and bottom. The first eggs are laid in the bottom of the tub in a rough circle and later eggs are deposited in circles at higher levels. After each egg is deposited the sand is raked back and the nest resumes its usual conical or rounded shape.

The eggs are relatively enormous, being one-tenth of the body weight of the hen. Such a large egg takes a considerable time to

develop within the female so that there is a week's interval between the laying of eggs. Fresh eggs are pink but soon become brown after contact with the surrounding soil. They are generally left in a vertical position but if an egg should rest on its side when newly laid it remains in that position and will hatch successfully. With all other birds it is most important that eggs be turned daily to ensure successful hatching but Megapode eggs are exceptions. They are never moved.

Depending on whether the season be good or bad, Lowan clutches vary from 12 to 30 eggs. The incubation period ranges from 50 to 90 days, averaging about 62 days. No matter what the surface temperature might be, the heat in the egg chamber is always 94°F.

As summer advances the moisture in the vegetation is dried out and so decay and its consequent generation of heat ceases. Solar heat is then relied on. On the mornings of hot days the sand is thrown back and only about two inches cover the uppermost eggs. They are thus kept warm by the hot Mallee sun, while the scattered sand is heated

too. In the late afternoon, or earlier if a cool change develops, the hot sand is thrown back over the egg chamber, which is thus kept warm during the night hours. The male bird is always within a few chains of the nest although he is not often seen. However, when a change of air temperature dictates the addition or removal of sand he can become quite bold and has been known to actually work on the mound while humans are present.

The hatching process may continue until it is time to commence the new season. At this stage the birds will scratch out and discard any unhatched eggs.

The Mallee Fowl has fierce competition in its struggle for survival. Foxes undoubtedly prey on it although they do not seem to habitually dig out the eggs. Man is a major aggressor, taking the eggs for culinary purposes and shooting the adults for food. Even more damaging is the clearing of the bush for farming. The Lowan cannot survive away from the cover of its native scrub. Recent research by the C.S.I.R.O. reveals that sheep and rabbits are dangerous factors in the problem of preserving the Lowan. They

eat the young vegetation which the bird needs and also destroy seeding shrubs.

Therefore it is essential that large reserves be established while areas of the appropriate habitat are available. These would need to be fenced to make them sheep and rabbit proof and measures taken to control the fire menace. The Hattah Lakes and Wyperfeld Parks are of use although habitat suitable for Mallee Fowl is limited in these areas. The small Kiata reserve is an excellent nucleus for a potentially larger reserve while the recent proclamation of 15,000 acres near Lascelles to form the Gama Mallee Fowl Reserve is most encouraging.

A few bold strokes on the Gama pattern should ensure that the Lowan and its associated fauna and flora are preserved for all time. With the present alarming shrinkage of natural mallee scrub and no vigorous policy of preserving large blocks for its native inhabitants, future generations may have to be content to see the Lowan as a museum specimen beside the already extinct Kangaroo Island Emu and Toolach Wallaby.