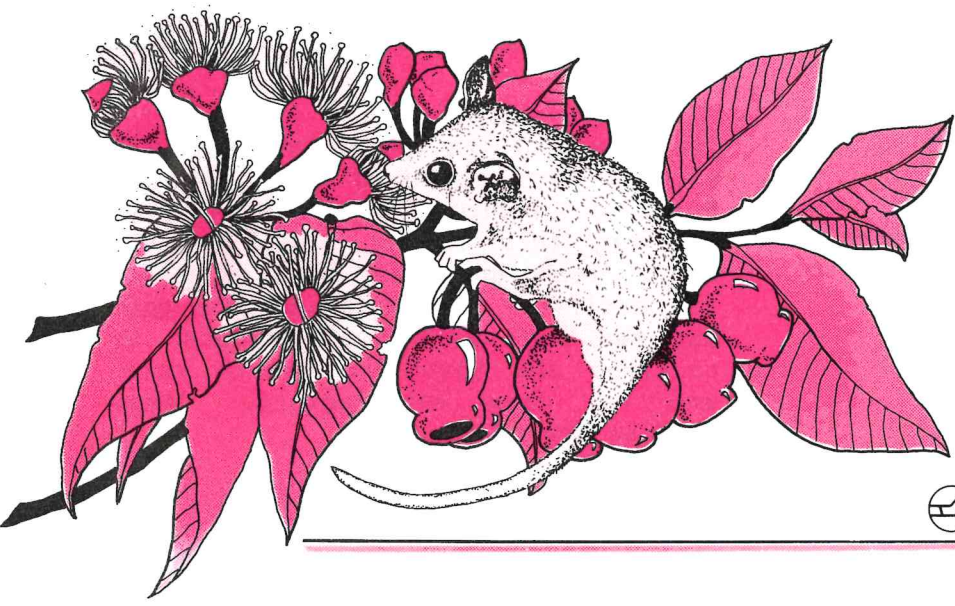


Resource Notes

Number 13. June 1987

 Department of Conservation and Land Management



WESTERN SWAMP TORTOISE

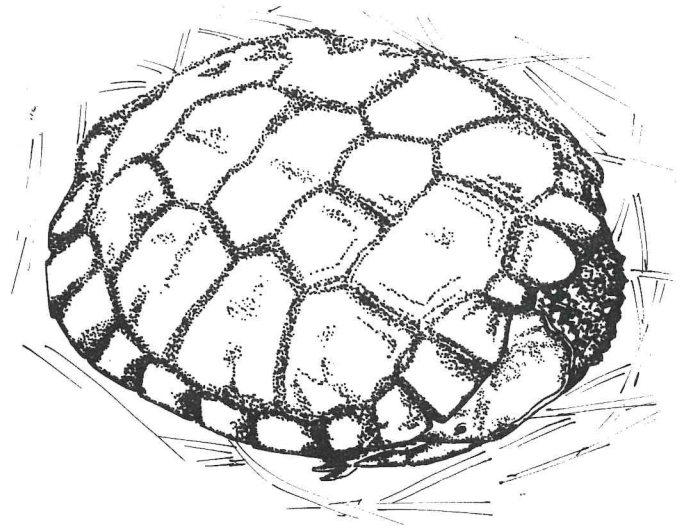
The Western Swamp Tortoise, sometimes called the Short-necked Tortoise, is Western Australia's rarest vertebrate. It is on the verge of extinction with less than 50 tortoises remaining. It is rare because of several factors related to its specialized biology and the way it interacts with its habitat, as well as man's interference with the natural environment.

The Western Swamp Tortoise was discovered in 1839, when a single specimen was collected and sent to the museum in Vienna, Austria. No further tortoises were seen for more than 100 years and the species was feared extinct. Then, in 1953, a boy found one walking across Warbrook Road, Upper Swan, and brought it into the Western Australian Naturalists' Club Wildlife Show. At first, scientists thought it was a new species not seen before, but after a while it was discovered to be the same as the one in the Vienna museum.

After much searching it was discovered that Swamp Tortoises still occurred in two small areas of natural habitat remaining on the edge of the Perth metropolitan area. These areas were purchased by the Government, with the aid of a public appeal, and set aside as Nature Reserves in 1962. Today they are called the Twin Swamps and Ellen Brook Nature Reserves.

The Western Swamp Tortoise has been studied by wildlife scientists since its rediscovery and the populations have been monitored since 1963. Much has been learned about its life history and the reasons for its rarity.

The tortoises live in swamps that fill only during the winter and spring and are dry during summer and autumn. While the swamps contain water the tortoises swim around feeding on small aquatic invertebrates. When the swamps dry they aestivate in holes in the ground (at Ellen Brook) or under deep leaf litter (at Twin Swamps). The females lay three or four hard-shelled eggs in a nest dug in the ground in late November or early December and the eggs hatch the following May or June.



Why is the Western Swamp Tortoise so rare? There are several reasons.

Firstly, they have a very low reproductive potential. Other Australian freshwater tortoises are much larger and the females, which are bigger than the males, can lay from 12 to 30 eggs a year.

Secondly, it seems that at the time of European settlement Swamp Tortoises occurred only in a very small area, centred on the Swan Valley. This was the first area developed for agriculture in the State and most of its habitat was cleared or drained a long time ago. The two nature reserves apparently contain only marginal habitat. They are marginal mainly because the swamps do not fill for long enough to allow sufficient time for the tortoises to feed and grow. In dry years hatchlings usually do not survive because they do not grow large enough to withstand the drying out that occurs during summer, and females do not get enough food to produce eggs. The slow growth rate also means that it takes from 10 to 20 years for the tortoises to reach sexual maturity, a very long time for such a small animal.

Thirdly, the introduced fox has taken a heavy toll of tortoises that aestivate under leaf litter. The combination of marginal habitat, drought and predation has led to the extinction of the population at Twin Swamps Nature Reserve, while the population at Ellen brook has remained static at about 25.

The future of the species may now rest with the development of techniques for breeding tortoises in captivity. However, this is not proving to be easy. Techniques have been developed for artificial incubation of the eggs but few eggs have been produced by captives and hatchling growth rates are far from satisfactory. These studies are continuing.

What more can be done to save the Western Swamp Tortoise from extinction? Unfortunately the answer is very little. No better habitat is available for purchase - it has all been modified beyond restoration. Captive breeding has not been a success, and with so few tortoises remaining there are very few chances available to improve the techniques developed so far. All that can be done is to continue the present research program and hope for a breakthrough.

The rediscovery of the Western Swamp Tortoise may have been too late to save it.

This paper was written by Andrew Burbidge, who is Senior Principal Research Scientist with the Department of Conservation and Land Management. He has studied Western Swamp Tortoises since 1963, and was awarded the degree of Doctor of Philosophy in 1968 for studies on south-west Australian tortoises.

