

## Western Swamp Tortoise

### *Pseudemydura umbrina* (Siebenrock, 1901)

#### Size

Shell length

Up to 155 mm in males

Up to 135 mm in females

#### Weight

0.55 kg in males

0.41 kg in females

#### Subspecies

None recognised



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

#### Description

Characterised by its short neck (the head and neck when extended are much shorter than the shell). The shell in outline is relatively square and greatly depressed. The plastron (plates on the ventral side) is flat and broad and almost as wide as the carapace. The head is broad and flat and covered with a single large scute. Usually brown or dark-grey above and whitish, yellowish or olive brown below. The forelimbs are webbed and have five claws.

#### Other common names

Short-necked tortoise, western swamp turtle

#### Distribution



Key To Map: Dark grey = present distribution

The western swamp tortoise has been found only in ephemeral swamps in a three to five kilometre narrow strip of the Swan Coastal Plain near Perth. This strip runs parallel with the Darling Scarp extending from Perth Airport to Pearce Royal Australian Air Force Base at Bullsbrook. It is thought that the tortoise has always had a restricted distribution, however, this has become even more limited as its preferred habitat along the Swan Coastal Plain was cleared for agriculture, urbanisation and for extraction of clay for brick and tile manufacture. The only surviving populations are located at Twin Swamps and Ellen Brook Nature Reserves, which were created to protect the remaining habitat of the tortoises.

#### Habitat

The western swamp tortoise lives in and near ephemeral winter-wet swamps with clay or sand over clay soils.

#### Behaviour

Individuals are not territorial and do not appear to have a fixed home range. However, they do navigate well within the limited area available in the nature reserves and the home range of many individuals may have been much larger than the reserves.

The tortoises feed during spring when the swamps have filled after winter and the water temperature is high enough (below 14 °C). During this time food intake increases and fat supplies are built up for the coming summer. When the swamps are nearly dry and the water temperature has reached 28 °C (around November), the tortoises leave the water to aestivate (become dormant) through the summer and autumn. Aestivation refuges vary from naturally occurring holes in the clay to leaf litter or fallen branches. The choice of refuge varies between sites.

### **Diet**

Tortoises are carnivorous and eat only live food such as insect larvae, crustaceans, earthworms and small tadpoles. They do not eat during aestivation.

### **Breeding**

Western swamp tortoises produce only one clutch per year when three to five hard-shelled eggs are laid in an underground nest in November or early December. Hatchlings emerge early in the following winter. Growth is slow and varies considerably from year to year and between animals depending on seasonal conditions - the lower the annual rainfall the shorter the swamp life and the slower the growth rate. This means that age to sexual maturity also varies between animals and can be up to 15 years or more (at Twin Swamps Nature Reserve the average age to sexual maturity is 11 years). Their life span is not known, however it is estimated to be more than 60 years and possibly much more.

### **Threatening processes**

Habitat destruction and fox predation have been the major causes of decline. Hatchlings must reach a weight of at least 25 grams in their first six months in order to survive the following summer and often this is not achievable in years of low rainfall as the swamps only retain water for a short time. It is also thought that females are unable to produce eggs in low rainfall years. Therefore, for recruitment to succeed there must be two successive years of average or above average rainfall. The numbers of tortoises have undoubtedly been affected by the many years of below average rainfall in Perth since the 1960's. Other predators, such as dogs, feral cats and ravens, are also believed to impact upon the survival of the tortoise.

### **Conservation status**

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

### **Management in Western Australia**

The strategies described are aimed at ensuring the persistence of the western swamp tortoise by establishing at least two viable populations in the wild:

- Population monitoring.
- Habitat management and control of deleterious effects from surrounding land - monitoring water quantity and quality, use of adjacent land and drainage effects, predator control and management of fire.
- Captive breeding at Perth Zoo.
- Re-introduction of captive bred animals to the wild once threats are removed from the site.
- Purchase of additional habitat adjacent to the Ellen Brook Nature Reserve.

### **Other interesting facts**

- The first western swamp tortoise known to science was sent to the Vienna Museum in 1839 and remained in the museum unnamed until 1901.
- Some adult female tortoises, which were more than 20 years old when captured in the 1960s, are still producing eggs.

- The western swamp tortoise digs its nest with its forelegs while all other tortoises and turtles dig their nest chamber with their hind legs. In addition to this they only produce one clutch of eggs per year, whereas most other Australian freshwater tortoises produce several clutches.

### **Selected references**

Burbidge, A. (1988). Endangered - Western Swamp Tortoise . *LANDSCOPE* 3(3): 44.

Burbidge, A. (1991). What the Tortoise Taught Us. *LANDSCOPE* 6(4): 28.

Burbidge A.A. and Kuchling G. (1994). Western Swamp Tortoise Recovery Plan. Wildlife Management Program No. 11. Department of Conservation and Land Management, Perth.

Cogger H.G. (1996). Reptiles and Amphibians of Australia. Reed Books Australia. Port Melbourne, Victoria.

### **Website links**

[http://www.naturebase.net/projects/west\\_shield.html](http://www.naturebase.net/projects/west_shield.html)

<http://www.perthzoo.wa.gov.au/wst.html>

<http://www.ea.gov.au/biodiversity/threatened/action/reptiles/index.html>