

## Western Swamp Tortoise *Pseudemydura umbrina*

Conservation Status: Critically Endangered

### Identification

The western swamp tortoise *Pseudemydura umbrina* is Australia's rarest reptile, found only in a small number of swamps near Perth in Western Australia. It is also notable as the smallest species belonging to the Australian Chelidae family of aquatic or semi-aquatic turtles.

It is a short-necked, freshwater tortoise with a squarish shell that is brown above and white, yellow or olive-brown below. The neck is covered in tubercles (knobbles). It has webbed toes with five claws on each foot. Females are smaller than males, and can be distinguished by the shape of the plastron (belly of shell) and the length of the tail.

The western swamp tortoise is readily distinguished from other freshwater tortoises in south-west Western Australia by its short neck.

*Carapace (Shell) Length:* maximum 15.5cm (males), 13.5cm (females), 2.4-2.9cm (hatchlings)

*Weight:* maximum 550g (males), 410g (females), 3.2-6.6g (hatchlings)

### Taxonomy

**Family:** Chelidae

**Genus:** *Pseudemydura*

**Species:** *umbrina*

**Other common names:** western swamp turtle, short-necked tortoise, Yarkiny

### Distribution and Habitat

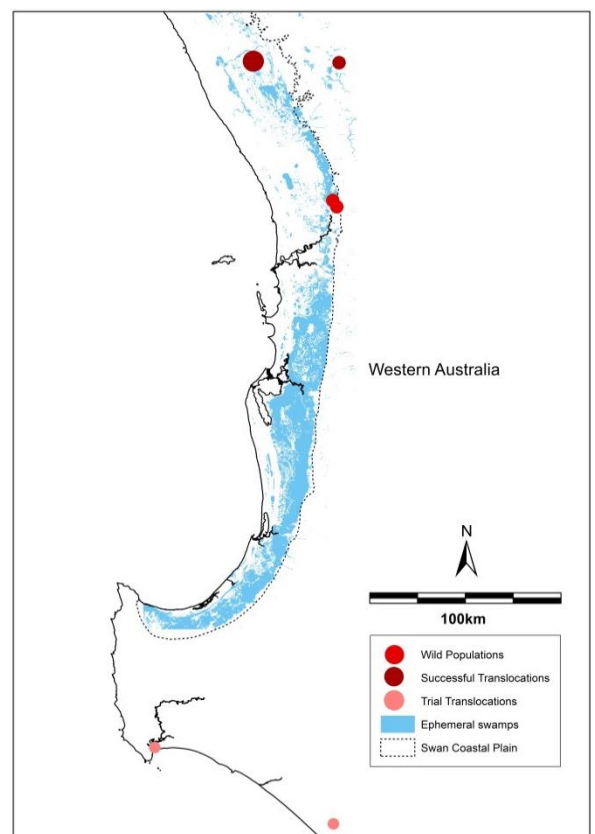
The western swamp tortoise was thought to have been extinct for over 100 years prior to its rediscovery in 1953. Little is known about the species distribution prior to its rediscovery, but its possible former distribution was in ephemeral swamps on the clay soils of the Swan Coastal Plain between Mogumber in the north to Donnybrook in the south. Currently there are only two known wild populations near Perth, with two successfully translocated populations approximately 80km further north.

The western swamp tortoise occupies shallow, ephemeral swamps that are wet in the winter and spring. The swamps are on clay or sand over clay soils, and are nearby suitable aestivation refuges. Studies have found that soil temperatures must be less than 34°C for egg survival, and water temperatures need to be between 14°C and 30°C for western swamp tortoises to remain in the water and feed.

For further information regarding the species distribution, please refer to [www.naturemap.dpaw.wa.gov.au](http://www.naturemap.dpaw.wa.gov.au).



Photos: Gerald Kuchling/DBCA



Possible historic distribution (ephemeral swamps on the Swan Coastal Plain) and current locations of the western swamp tortoise (Parks and Wildlife, 2017)

## Community Involvement

If you think you have seen a western swamp tortoise, fill out a [fauna report form](#) and send it to the Department's Species and Communities Branch at [fauna@dbca.wa.gov.au](mailto:fauna@dbca.wa.gov.au). The Department keeps track of the distributions of threatened species to help monitor population trends and inform management decisions.

The Department runs a variety of volunteer projects across WA including scientific research, community education and manual labour. Further information about these opportunities can be found on the Department's [webpage](#).

## Biology and Behaviour

Western swamp tortoises are semi-aquatic, spending the spring months in the water, when the swamps have filled with water and the water has warmed up. In the summer and autumn months, when the swamps are nearly dry and water temperatures have risen above 28°C, they leave the water to aestivate (prolonged torpor) under leaf litter, fallen trunks, branches or dense low bushes, or in holes dug by other animals or left by rotting tree roots.

Western swamp tortoises are most active in spring, spending their time feeding to replenish their fat supplies for the aestivation period. Western swamp tortoises are carnivorous, eating only live food including insect larvae, crustaceans, earthworms and tadpoles.

Western swamp tortoises are not territorial but studies suggest they do have home ranges and they are potentially larger than the nature reserves in which they are found. Some released tortoises have dispersed up to 1.5km outside of the nature reserve boundary. These long-range movements (>500m) primarily take place only when tortoises are searching for suitable habitat.

Once a year, females lay one clutch of 3-5 hard-shelled eggs (3.5x2cm in size) in an underground nest between November and early December. They construct the nest cavity with their forelegs, in comparison to other turtles in the same family which dig nests with their hind legs. The eggs hatch after early winter rains cause a drop in incubation temperature, and the hatchlings emerge from the nest between late April and June. Both eggs and hatchlings are highly prone to predation by introduced and native birds, mammals and reptiles, and successful breeding is highly reliant on rainfall and temperatures. Growth of hatchlings is slow and variable depending on the year and seasonal conditions, and therefore age to sexual maturity varies between 6-15 years. Under ideal conditions, their life span is estimated to reach over 60 years

## Conservation Status

The western swamp tortoise is recognised as a threatened species under State and Commonwealth legislation. In Western Australia the species is listed as fauna that is 'likely to become extinct' in the wild (Specially Protected) under the [Wildlife Conservation Act 1950](#) and has been assigned the threat status ranking of Critically Endangered using [International Union for Conservation of Nature](#) (IUCN) criteria. Nationally the species is listed as Critically Endangered under the Commonwealth [Environment Protection and Biodiversity Conservation Act 1999](#).

Ongoing threats, compounded by the species' specialised biology and ecology, include:

- Restricted geographic range in marginal habitat;
- Historic and ongoing land clearing for agricultural, industrial or urban uses;
- Predation by native and introduced predators, including foxes, rabbits and feral pigs;
- Wildfire and inappropriate fire regimes; and
- Climate change leading to a drying climate.

## Management

### Recovery Plan

A [national recovery plan](#) has been produced for the western swamp tortoise, and it outlines the recovery actions required to decrease the chance of extinction by increasing the number of naturally recruiting populations and the total number of mature individuals in the wild. Recommended actions from this plan include:

- Manage the reserves within which the species occurs, including predator control, weed control, revegetation and rehabilitation, appropriate fire management, and maintaining appropriate water levels as required.

- Conduct regular monitoring.
- Establish and maintain a captive breeding program.
- Undertake translocation to existing and new sites as required.
- Increase public awareness and understanding of the species and its recovery.

### Existing Conservation Measures

The Western Swamp Tortoise Recovery Team, currently led by the Department of Biodiversity, Conservation and Attractions, has been assisting with the implementation of recovery actions as outlined in the past and current recovery plans since 1990.

The western swamp tortoise occurs are within nature reserves managed by the Department. Management of these reserves for the benefit of the western swamp tortoise includes monitoring water quantity and quality, fire management, predator control, weed control, revegetation and implementing dieback hygiene procedures. Predator management includes fox-proof fencing around both the reserves near Perth, fox, rat and feral cat control, and quenda removal from inside the fenced reserves.

The [Western Australian Environmental Protection Authority](#) has placed controls on the lands surrounding the reserves near Perth as a means of protecting the western swamp tortoise habitat from adverse impacts of clay mining, urbanisation and other land uses.

[Perth Zoo](#) manages a captive breeding program that has been successfully producing captive-bred animals for release since 1989. The Department, including Perth Zoo, has undertaken regular translocations using captive-bred animals. Captive-bred individuals have been released at one of the reserves near Perth to restock the population, and others have been successfully translocated to the two reserves approximately 80km north. Trial translocations have also been undertaken at potentially suitable habitat in the South West and Warren Regions.

Various research projects into the species' ecology and biological requirements has been undertaken to inform management decision, including translocations.

### Citation

Department of Biodiversity, Conservation and Attractions. (2017). *Fauna Profile - Western Swamp Tortoise Pseudemydura umbrina*. Retrieved from <http://www.dbca.wa.gov.au/>

### Key References and Further Reading

Department of the Environment and Energy. (2016). *SPRAT Profile: Pseudemydura umbrina - Western Swamp Tortoise*. Retrieved from <http://www.environment.gov.au/sprat>

Department of Environment and Conservation (2010). *Western Swamp Tortoise (Pseudemydura umbrina) Recovery Plan – WA Wildlife Management Program No. 50*. Perth, WA: DEC. Retrieved from: <http://www.environment.gov.au/resource/western-swamp-tortoise-pseudemydura-umbrina-recovery-plan-0>

Cogger, H. (2014). *Reptiles and Amphibians of Australia* (7<sup>th</sup> ed.). Collingwood, VIC: CSIRO Publishing.

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