

WHITE-THROATED SNAPPING TURTLE (*Elseya albagula*)



Female white-throated snapping turtle

IDENTIFICATION

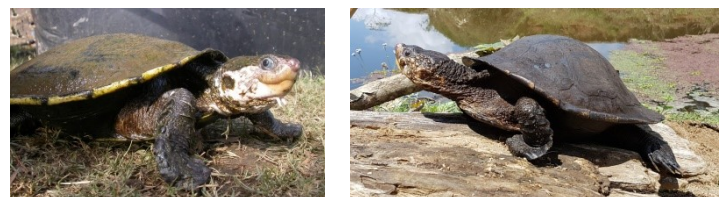
The White-throated snapping turtle or Southern snapping turtle (*Elseya albagula*) is one of the largest short-necked freshwater turtles in Australia, with females growing to 38cm and males to 28cm (straight carapace or shell-length) in the Mary River Catchment. Although smaller in body length, adult males can be distinguished from females by their much longer tail (see figure 1).ⁱ

Female White-throated snapping turtles have a robust build and large head, and exhibit white or cream markings on the side and under-surface of their neck and head, hence their name *albagula* stemming from the Latin "alba" meaning white, and "gula" for throat.ⁱⁱ The head and neck of males is typically grey.



IMAGE: THOMSON 23¹

Figure 1: Comparative size of adult male (L) and female (R). Note the difference in tail size. (Source: M Connell 2002)



BACKGROUND & BIOLOGY

The White-throated snapping turtle was recognised as its own species in 2006. Until this time it was affiliated with the Northern snapping turtle (*Elseya dentata*).ⁱⁱⁱ

Like some other species of freshwater turtles, *Elseya albagula* is a 'bum breather.' Scientifically this is known as 'aquatic respiration'. Adult White-throated snapping turtles can obtain 40%-60% of their oxygen via their cloaca, enabling them to remain submerged for several days (under optimum conditions).^{iv}

BREEDING & REPRODUCTION

The White-throated snapping turtle is slow-growing, and is thought to reach sexual maturity in the wild around 15-20 years old. Adult females nest once each year, laying a single clutch of eggs with 6-10 eggs per clutch. The turtles have a long incubation season from Autumn to Spring, with hatchlings emerging in December.

INGENIOUS ADAPTATION:

THE EGGS OF THE WHITE-THROATED SNAPPING TURTLE EMPLOY 'EMBRYONIC DIAPAUSE,' DELAYING DEVELOPMENT TO ENSURE THEY HATCH WHEN CONDITIONS ARE JUST RIGHT!

(Department of Agriculture, Water and the Environment 2020)

Elseya albagula make their shallow nests in a variety of soil types, anywhere from 1m to 65m from the water's edge. They tend to gather at specific sites to nest and may return to the same nesting bank over many years.^v

DISTRIBUTION & HABITAT

The White-throated snapping turtle is only found in the Mary, Burnett and Fitzroy River catchments in south-eastern Queensland. Its entire area of distribution is less than 500km² (See figure 2).^{vi}

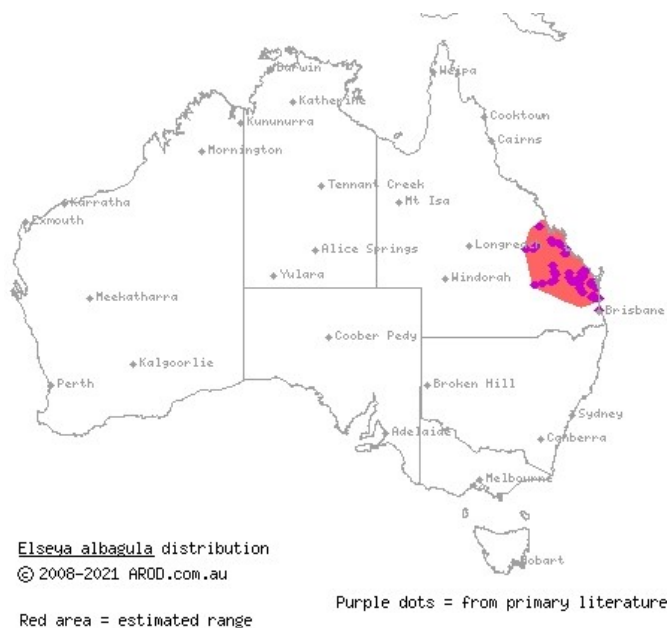


Figure 2: Distribution of *Elseya albagula* (Macdonald, 2021)^{vii}

In general, most White-throated snapping turtles do not venture far, sticking to a small home-range of around 1-2km of stream length, where they forage and nest. *Elseya albagula* are known to inhabit both clear and turbid waters and to move between deep pools and shallow riffles. However, their distribution is limited to reaches of permanent water and they prefer shady habitats with undercut banks and submerged logs or boulders for shelter.^{viii}



Figure 3: Female *Elseya albagula* on a partially submerged log – key habitat for this species (Zozaya & Schaffer)^{ix}

FACTS and SYSTEMATICS

Scientific name: *Elseya albagula*

Common names: White-throated snapping turtle,
Southern snapping turtle

Family: Chelidae

Order: Testudines

Suborder: Pleurodira

First Described: 2006

Distribution: Fitzroy, Mary, and Burnett River
catchments in Queensland

Conservation Status

EPBC Act 1999 (Cwlth): **Critically Endangered**

Nature Conservation Act 1992 (Qld): **Endangered**

(Department of Agriculture, Water and the Environment 2020;

Thomson et al. 2006)

DIET

Elseya albagula's diet is broad and mainly consists of filamentous algae, aquatic plants such as *Vallisneria*, and windfall fruits, buds, and insects.^x Their food sources can become scarce during extended droughts or after flooding scours rivers, removing aquatic vegetation. When times are tough, female turtles can reabsorb developing embryos as an alternative nutrient source.^{xi}

THREATS

The White-throated snapping turtle population has been severely reduced due to an excessive loss of eggs and hatchlings, with only 1% of hatchlings surviving to adulthood each year. In combination with other threats, this has resulted in a population dominated by aging adult turtles, which is predicted to reduce by over 90% in the next three generations.^{xii}

The species is listed as **Critically Endangered** under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), and **Endangered** under Queensland's *Nature Conservation Act 1992*.

According to the National Recovery Plan for the White-throated snapping turtle (2020), key threats to the species include:

Predation and trampling at nesting sites

Most of the eggs laid by White-throated snapping turtles are eaten by predators (including foxes, dogs, pigs, cats, goannas or water rats), or the nests are trampled by cattle.

In-stream barriers

Impoundment structures such as dams, weirs and road causeways change the instream habitat. A flowing stream becomes a still water pond. Barriers can obstruct turtle movement and cause injury or death to turtles trying to navigate over or through these structures. Deep water in dams also tends to be lower in oxygen, which can interfere with the turtle's cloacal respiration.

Degradation of habitat and water quality

The management of riparian zones can have negative impacts on turtle habitat, reducing habitat diversity, riparian vegetation, and food supply.

There are many steps that councils and landholders can take to improve habitat quality and recruitment success for the White-throated snapping turtle, including installing riparian fencing to prevent cattle accessing streambanks during turtle nesting periods; replanting degraded riparian zones with native riparian vegetation; and implementing predator management programs.

Climate change

Projected increases in air and water temperature, along with more frequent and intense droughts and flooding events are predicted to impact the White-throated snapping turtle's habitat quality and food supply, as well as increasing nesting temperatures, reducing hatchling success and fitness.

Fishing and boating activities

This species is regularly caught by recreational fishers in the Mary River. Removal of fishing hooks can cause injuries. It is recommended that stainless steel hooks are NOT used. Young turtles are predated on by introduced recreational fish species such as saratoga and sooty grunter as well as native species such as eels and fork-tailed catfish.

CONSERVATION

A national recovery plan was introduced for the White-throated snapping turtle in December 2020. The 10-year plan aims to improve the recruitment of hatchlings and juveniles, decrease death and injury rates amongst adult turtles, improve habitat quality, improve knowledge of the species, and increase public awareness.

Priority conservation strategies recommended in the plan include:

- Establishing hatchery and nest protection programs
- Predator control
- Population monitoring
- Managing water releases and water levels to avoid nest inundation and maintain stream flow

Local catchment groups and volunteers have begun work relocating turtle eggs to specially designed cages to keep out predators.^{xiii}



Figure 4: Turtle nest-protection on the Burnett River (Marie, 2021)^{xiv}

REFERENCES

- ⁱ Department of Agriculture, Water and the Environment 2020, *The National Recovery Plan for the White-throated Snapping Turtle (Elseya albagula)*, December 2020, Department of Agriculture, Water and the Environment, Canberra.
- ⁱⁱ Thomson, S, Georges, A, Limpus, C 2006, 'A New Species of Freshwater Turtle in the Genus *Elseya* (Testudines: Chelidae) from Central Coastal Queensland, Australia', *Chelonian Conservation and Biology*, vol. 5, no. 1, viewed 8 August 2021, <<https://www-proquest-com.ezproxy.usq.edu.au/docview/208674756?OpenUrlRefId=info:xri/sid:primo&accountid=14647>>.
- ⁱⁱⁱ Department of Agriculture, Water and the Environment 2020, p. 8.
- ^{iv} Gordos, MA, Hamann, M, Schauble, CS, Limpus, CJ, Franklin, CE 2007, 'Diving behaviour of *Elseya albagula*', *Journal of Zoology*, vol.272, no. 4, viewed 8 August 2021, <<https://zslpublications-onlinelibrary-wiley-com.ezproxy.usq.edu.au/doi/full/10.1111/j.1469-7998.2007.00289.x>>.
- ^v Department of Agriculture, Water and the Environment 2020, p. 13-14.
- ^{vi} Department of Agriculture, Water and the Environment 2020, p. 8.
- ^{vii} Macdonald, S 2021, *Distribution map of Elseya albagula (Southern snapping turtle)*, digital image, Australian Reptile Online Database, viewed 8 August 2021, <<http://www.arod.com.au/arod/reptilia/Testudines/Cheluidae/Elseya/albagula>>.
- ^{viii} Micheli-Campbell et al. 2017, 'Identifying critical habitat for freshwater turtles: integrating long-term monitoring tools to enhance conservation and management', *Biodiversity Conservation*, DOI 10.1007/s10531-017-1325-9.
- ^{ix} Department of Agriculture, Water and the Environment 2020, p. 6.
- ^x Micheli-Campbell et al. 2017, 'Identifying critical habitat for freshwater turtles: integrating long-term monitoring tools to enhance conservation and management', *Biodiversity Conservation*, DOI 10.1007/s10531-017-1325-9.
- ^{xi} Department of Agriculture, Water and the Environment 2020, p. 12.
- ^{xii} Department of Agriculture, Water and the Environment 2020, p. 8.
- ^{xiii} Marie, J 2021, 'Experts hatch plan to save critically endangered White-throated snapping turtle', *ABC Wide Bay*, 19 May, viewed 9 August 2021, <<https://www.abc.net.au/news/2021-05-19/recovery-plan-for-endangered-turtle/100146518>>.
- ^{xiv} Marie, J 2021, *Photo of protected cage on the Burnett River*, digital image, *ABC Wide Bay*, viewed 9 August 2021, <<https://www.abc.net.au/news/2021-05-19/recovery-plan-for-endangered-turtle/100146518>>.