

THE FRESHWATER TURTLE TIMES

**1 MILLION TURTLES COMMUNITY CONSERVATION PROGRAM UPDATES,
RESEARCH INSIGHTS AND MORE**



In this issue:

- Eureka!
- 1 Million Turtles program update
- TurtleSAT and Predictive turtle mapping tool and website updates
- National Nest Predation Survey updates and call for more data
- Spotlight on community turtle conservation – Friends of Western Swamp Tortoise, WA
- Local Council Turtle Initiatives – Sign templates available
- Research update from Professor Mike Thompson – Turtles and their algae or is it the other way around?



1 Million Turtles is a Eureka Prize Finalist!

We are over the moon to let you know that 1 Million Turtles Community Conservation Program is a finalist in the prestigious Australian Museum Eureka Prize for Innovation in Citizen Science. This is wonderful recognition of the TurtleSAT app that allows easy collection and sharing of important data and the broader program's ability to involve everyday Australians in hands-on turtle conservation activities such as habitat reconstruction and restoration, nest protection and fox management.

Emphasising STEM literacy and First Nations knowledge, the Australia-wide program has influenced policy, and saved over 1000 freshwater turtles and 200 nests in 2022 alone. You are all part of the success of this project – so congratulations to you all!

Our esteemed Associate Professors of Turtle Science – Ricky Spencer (University of Western Sydney) and James Van Dyke (La Trobe University) and Debbie Bower (University of New South Wales) will represent the project at the awards ceremony at the Australian Museum in Sydney on Wednesday August 23.

Join the fun online and be there when the winner is announced. Register by clicking below.

Click Here



1 Million Turtles Community Conservation Program

It is hard to believe we are already in the third and final year of this Australian Government-funded citizen science community conservation project. We have achieved a great deal with the support of so many organisations, communities and individuals but this is definitely not the end. Turtle conservation in Australia needs us all to keep up the good work and keep spreading the message for many years to come.

To start the conversation of 'Where to from here and how do we get there?' we are holding a workshop in Albury NSW in April 2024 and we'd love your input.

More information to come.

Nesting Site Predictive Tool

Finding as many turtle nesting sites as possible is crucial to turtle conservation in Australia.

The new Turtle Nest Predictor Mapping Tool enables anyone to easily search for turtle nesting sites in their local area, and this online tool is constantly being updated and improved.

There is a lot of helpful information about the tool and turtle nesting on our website - [check it out](#).

The tool itself <https://emydura6.users.earthengine.app/view/predicted-nests-and-water-bodies> is powered by Google Maps. You can zoom in on your local area or utilize the search function at the top of the screen. To start, type an address or point of interest - and the tool will display the corresponding location.

The predictive hotspots are color-coded, ranging from white to yellow, orange, and red. Red areas indicate a probability exceeding 85% of containing turtle-preferred nesting habitat (vegetation). Additionally, you can customize the map type and visual display according to your preference.

WAYS YOU CAN HELP US IMPROVE THIS TOOL

Please go and explore the mapping tool and keep giving us feedback so we can ensure it is as useful as possible across Australia. You can forward your feedback to us via email at 1millionturtles@1millionturtles.com

With November's Turtle Month just around the corner, this predictive tool is going to be gamechanger to assist people to find local nesting locations.

You can also help us to 'ground truth' the models by letting us know if you visit suggested hotspot sites and you don't think they actually are suitable nesting areas.

National Nest Predation Survey

In a similar fashion to last year, over the cooler months, Nest Predation Survey results have shown much lower levels of fox predation activity on the buried chicken eggs.

There are still a few more months until we have to stop this project for a couple of weeks for the key turtle nesting month of November. So please get involved if you can.

For more information on how to get involved:

<https://1millionturtles.com/nnp-survey>

For those who have signed up, we have sent an evaluation survey so we can learn from you if any improvements need to be made.

If you have any questions about data entry or other queries please email: 1millionturtles@1millionturtles.com

Email us for more information on how to get involved in the National Nest Predation Survey at

1millionturtles@1millionturtles.com

Spotlight on the Friends of the Western Swamp Tortoise, WA



The Western Swamp Tortoise, *Pseudemydura umbrina*, is one of the most critically endangered tortoises (or turtles) in Australia. It was actually feared extinct for over 100 years until rediscovered at two sites in the Swan Valley, Western Australia; Twin Swamps and Ellen Brook Nature Reserves. Predation by foxes and feral cats has been a major cause of decline in these tortoises (or turtles). They are now protected at the two remaining sites by predator proof electric fences.

Perth Zoo has developed a highly successful captive breeding program which has led to the reintroduction of juveniles back to their natural habitat at Twin Swamps Nature Reserve, and introduced them to a number of other sites. A small breeding population at Adelaide Zoo is another initiative aiming to ensure the long-term survival of the species.

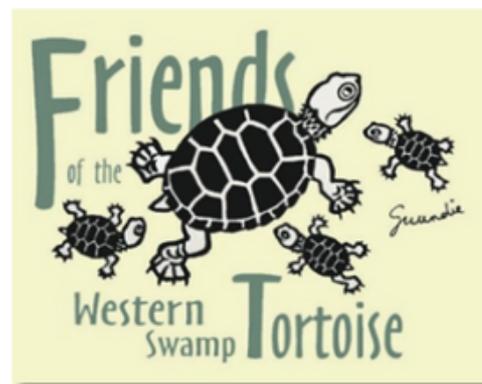
The species has a Recovery Plan and Program coordinated by the WA Department of Biodiversity, Conservation and Attractions, and a Recovery Team to implement recovery actions consisting of representatives from the Department, University of WA, Perth Zoo, World Wide Fund for Nature and the Friends of the Western Swamp Tortoise.

For more information, please visit: <https://perthzoo.wa.gov.au/animal/western-swamp-tortoise><https://www.adelaidezoo.com.au/animals/western-swamp-tortoise/>

A little more about the 'Friends of the Western Swamp Tortoise' by - Jan Bant, Chairperson

The Friends of the Western Swamp Tortoise is a not-for-profit community environmental group formed in 2004 to assist the Western Swamp Tortoise Recovery Team in their efforts to bring this critically endangered animal back from the brink of extinction. Although many captive bred animals have been released into the wild, they cannot be considered as adults until they have reached breeding age (approx. 12-15 years), so the species will be considered critically endangered for some years yet.

Working to educate and raise awareness through on site works, school visits, stalls at public events and presentations to interested groups, together with assisting Recovery Team scientists with material and physical help is our aim. Our funds are gained from donations; from individuals, schools, businesses and other groups of concerned citizens. With over 600 members, we hold family-friendly activities such as planting, weeding, guided walks, visits to the Captive Breeding Facility at the Perth Zoo, and releases to build up the wild populations.



Our Education Team visits schools, scout/cub groups and hosts school holiday workshops. We keep in touch with regular Newsletters ("Tortoise Tales") and monthly E-News of events and meetings. We have a website and Facebook Page to communicate with our members.

Contact Us

We welcome anyone interested in the Western Swamp Tortoise to take advantage of our free membership.



www.westernswamptortoise.com.au



@FriendsOfTheWesternSwampTortoise

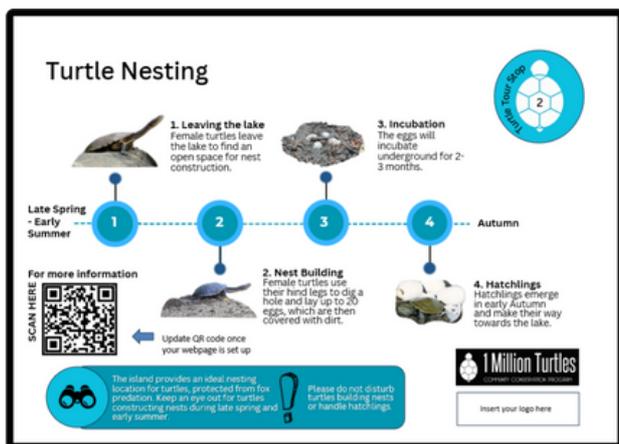


westernswamptortoise@yahoo.com.au

Local governments and their local turtles. A match made in heaven?

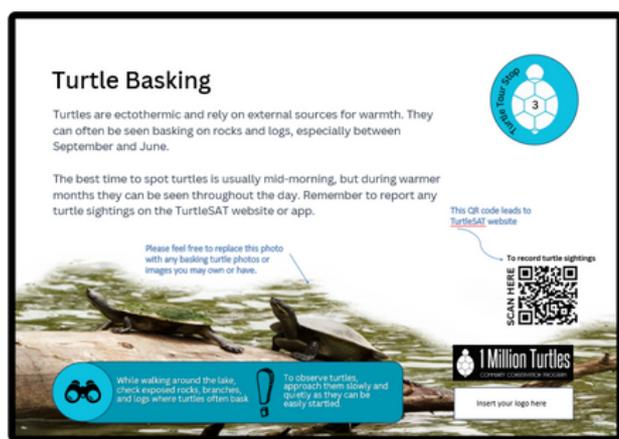
Waterways are often a feature of local government managed reserves and parks, and they are almost always home to freshwater turtles. A number of local Councils around Australia have been teaming up with 1 Million Turtles team members to create informative signs, educating people about their local turtle species and how they can contribute to turtle conservation.

These signs are being installed at popular wetland and lakes and are even more effective when associated with locations where people are likely to observe turtles, such as natural or re-established basking sites.



Lake Alexandra in Mittagong is a great example. Wingecarribee Shire Council has worked with Associate Professor Ricky Spencer to create a 'TURTLES OF LAKE ALEXANDRA' tour. This incorporates 5 signs around the lake describing; the local species, why turtles are important, turtle behaviour including nesting and basking, what to do if you see a turtle, and how to contribute to turtle conservation through a range of actions.

Click below to learn more.



An adaptable template has now been created to assist other Councils create something similar at their local river, lake or wetland. This template is also being rolled out in Wodonga, VIC in August, 2023. We are happy to work with individual Councils to ensure the correct information on species from their local area is included.

We are also developing other useful information for Councils that will help them with turtle matters such as recommended steps to take to manage resident turtles when a lake needs to be drained or altered.

Do you work for a local Council or would you like to work with your local Council to start an initiative like this?



Email us at 1millionturtles@1millionturtles.com with the subject line: Councils and Turtles and we will be in touch.

Research Highlights – Emeritus Professor Mike Thompson, University of Sydney

Moss-back algae on long-necked turtles

You may have come across an Eastern long-necked turtle, *Chelodina longicollis*, that looks like it is being smothered by algae growing on the back of its shell, its carapace. It is not actually being smothered, the species of alga growing on the shell is a filamentous alga called the moss-back alga, *Bacillaria ramulosa*, and it only lives on the shell of turtles.



Photo Source: TurtleSAT, user submission

Moss-back alga has only been confirmed to grow on the backs of three species of Australian turtles, most commonly in the Eastern long-necked turtle, but also on two species in northern Australia (Arnhem Land long-necked turtle, *Chelodina burrungandjii* and Northern red-faced turtle, *Emydura australis*).

Although Eastern long-necked turtles occur commonly in that same habitat with two other species (Broad-shelled turtle, *Chelodina expansa* and Murray short-necked turtle, *Emydura macquarii*) in south-eastern Australia, the moss-back alga lives only on the long-necks not the other species, and not all individuals carry the alga.

This interesting genus of algae, *Basycladia* is found in many regions of the world and includes at least seven different species, most of which occur predominantly on the shells of turtles. Some species also attach to the shells of aquatic snails, and some to other hard surfaces like rocks, but most grow much better on the shells of turtles. The only species described from Australia is *B. ramulosa*, and so far it has not been recorded growing anywhere except on the shell of turtles.

Research on North American species suggest that *Basycladia* species are suited to growing on turtles because they are slow growing (as are turtles), they don't have many other alga species on the turtles to compete with, and they are more resilient to dehydration than other alga meaning they can survive periods when the turtles are on land. This last point may in part explain why the alga is only on the long-necked turtles, as the Eastern long-necked turtles is the only one of the three turtle species in its habitat that can survive long periods of time on land by aestivating (becoming dormant) when waters dry out.

Is there anything in it for the turtle? No-one has specifically investigated the co-evolution of the alga and turtles. Perhaps the alga provides a camouflage for the turtle. As adults, Eastern long-necked turtles have few natural predators in the water, although a covering of algae might help to disguise them when partially buried in leaf litter on land when aestivating. Perhaps the alga also helps the turtle to be disguised from potential prey when the turtle is sitting under the water waiting for its food to swim by. There is also a distinct microbiome associated with algae on the shells of turtles that is different from areas without algae, but the effect of this difference on the turtle is not known.

There is clearly much to be learned! **So how can you help with understanding this relationship further?**

It would be helpful for you to include any notes about what might be growing on turtle shells for observations that you uploaded to TurtleSAT (turtlesat.org.au). That way, we can slowly build up a picture of how the prevalence of this amazing association between algae and long-necked turtles varies across Australia, and it may help us to determine the existence of a similar relationship in other Australian turtle species.

Further information on this topic:

Chessman, B. C. (1983). A note on aestivation in the snake-necked turtle, *Chelodina longicollis* (Shaw) (Testudines: Chelidae). *Herpetofauna* 14, 96–97.

Garbary, D.J. 2010. Taxonomy of *Basycladia* (Cladophorales, Chlorophyta) with two new combinations. *Novon* 20: 38-40.

Ducker, S.C. 1958. A new species of *Basycladia* on Australian freshwater turtles. *Hydrobiologia* 10: 157–174.

McKnight, D.T., K.R. Zenger, R.A. Alford, R. Huerlimann. 2020. Microbiome diversity and composition varies across body areas in a freshwater turtle. *Microbiology*, 166 (5): 440-452.

Proctor, V.W. 1958. The growth of Basidiocladia on turtles. *Ecology* 39: 634-645.

Roe, J.H., A Georges. 2008. Terrestrial activity, movements and spatial ecology of an Australian freshwater turtle, *Chelodina longicollis*, in a temporally dynamic wetland system. *Austral Ecology*, 33, 1045-1056.

Skinner, S., N. FitzSimmons, T.J. Entwisle. 2008. The moss-back alga (Cladophorophyceae, Chlorophyta) on two species of freshwater turtles in the Kimberleys. *Telopea* 12(2) 279-284.

The Mary River Catchment Coordinating Committee are working to improve the habitat and increase the survival of the Mary River Turtle.

Can you help?



Turtle Hatchling Habitat Improvement Project

The Mary River Catchment Coordinating Committee (MRCCC) in Queensland has an upcoming flood recovery project based in the Mary River catchment. This project is targeting several species, including two endangered turtles, the Mary River turtle (*Elusor macrurus*) and the White Throated Snapping turtle (*Eseya albagula*).

The project will focus on carrying out surveys to improve understanding about population distribution and nesting locations of these species. In addition to surveys, the project will also undertake habitat improvement measures to remedy some of the damage to these critical habitats that occurred during the 2022 floods. The project team also will be working alongside Marilyn Connell and the Tiaro Landcare team's turtle conservation work concurrently with this flood recovery project.

The project design is in progress and the team is seeking some assistance to help with this process. They are keen to hear from others who have worked on similar projects or components, particularly improving in-stream habitat for turtle hatchlings and juveniles.



If you or anyone you know could assist with this and happy to share your experience, ideas or recommendations, please reach out to either Keira or Caitlin (contact details below).



Keira McGrath - keira.mcgrath@mrccc.org.au
Caitlin Mill - caitlin.mill@mrccc.org.au

We're really keen to share the turtle conservation achievements of groups and individuals around Australia. If you would like to share your group's activities in a future newsletter please let us know via 1millionturtles@1millionturtles.com and include 'newsletter update' in your subject heading.

And don't forget to tag us @1millionturtles on Facebook if you are sharing your turtle photos, activities and stories.

Find out more:

Visit our <https://1millionturtles.com> website for information about the 1 Million Turtles program, the team members who support the project, links to event registrations, videos, training modules, some of the recorded webinars, and more.

Follow us on two Facebook pages:

(a) [TurtleSAT](#) which provides updates on interesting sightings and community alerts such as red-eared sliders.

(b) [1 Million Turtles](#) which provides general freshwater turtle information, project updates and invitations.

Do you have a community or research story to share?

We're really keen to share the turtle conservation achievements of groups and individuals around Australia. If you would like to share your group's activities in a future newsletter please let us know via 1millionturtles@1millionturtles.com and include 'newsletter update' in your subject heading. And don't forget to tag us @1millionturtles on Facebook if you are sharing your turtle photos, activities and stories.

1 Million Turtles Team Contacts

Remember that if you would like one-on-one support from a team member please contact 1 Million Turtles 1millionturtles@1millionturtles.com, include 'Need 1 on 1 support' in the subject heading, provide us with some information on the nature of the assistance you require along with your location and best contact details, and a local contact with be in touch with you.



NSW/ACT - Assoc. Professor Ricky Spencer, Ms. Geetha Ortac, Assoc. Professor Deb Bower (Armidale area)



VIC/TAS - Assoc. Professor James Van Dyke (and NSW Riverina)



SA - Dr Sylvia Clarke, Professor Mike Thompson



WA - Dr Anthony Santoro



QLD - Ms Marilyn Connell, Assoc. Professor Deb Bower



NT - Assoc. Professor Deb Bower