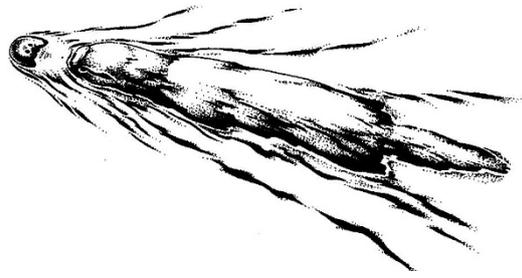


# Platypus News & Views



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*Newsletter of the Australian Platypus Conservancy (Issue 89 – August 2022)*

## FLOODS AND THE PLATYPUS

Many river systems supporting platypus populations in eastern and south-eastern mainland Australia and Tasmania are predicted to be affected by flooding rainfall in coming months. A negative Indian Ocean Dipole has now officially developed (loading moisture into tropical air at Australia's western end) and there's also a 70% chance that a La Niña event will develop later this year which (for the third year in a row) will also load moisture into tropical air at Australia's eastern end. The last La Niña resulted in torrential rain falling across much of coastal Queensland and New South Wales in autumn 2022, with Sydney receiving nearly a month's rainfall on just one memorable night in early April. To add insult to injury, parts of New South Wales were again hit with record rainfall in early July. Furthermore, these events followed widespread flooding from northern coastal New South Wales to Sydney in March 2021.

So how are extreme rainfall and associated flooding predicted to affect platypus populations?

The biggest adverse impact of flooding is likely to occur when rapidly rising water inundates burrows holding juveniles that are still too young to swim, causing them to drown.

Interestingly, research conducted both in creeks near Melbourne and the Shoalhaven River in New South Wales has found that flooding is more likely to reduce juvenile survival in the *second* half of their underground development period. This is believed to reflect the fact that a mother platypus typically blocks the tunnel leading to the chamber holding small juveniles with 2-9 consolidated earthen 'pugs' whenever she enters or exits the burrow. Plugging the entry tunnel undoubtedly reduces the risk that juveniles are killed by a predator and should also help to keep flood waters at bay. However, this maternal behaviour – which is both time-consuming and energetically demanding – appears to stop as her offspring become older.



It also makes sense that juveniles that have only recently emerged from a nesting burrow will be more vulnerable to being battered by debris, drowned in turbulent flood waters or swept far downstream as compared to older, larger and more experienced animals.

For example, the photo at left shows a very young juvenile that was encountered in a moribund state on the banks of a Queensland waterway near Imbil soon after flood waters receded in early March 2022.

Fortunately, it was discovered just in the nick of time by a local resident who administered a series of two-finger chest compressions - causing the little animal to cough, resume breathing and eventually swim away!

*(cont. on page 2)*

## **FLOODS AND THE PLATYPUS (cont. from page 1)**

Findings from extensive platypus mark-recaptures studies conducted by Dr Tom Grant in the upper Shoalhaven system indicate that few adults are likely to be killed or permanently displaced even by raging torrents, though some flood-related mortality may occur, for example when pneumonia develops after water enters the lungs.

At the same time, it's by no means uncommon for the number of platypus sightings to drop following a flood and not get back to normal for some time.

As a good example, wildlife photographer Matthew Higgins reported that platypus activity apparently ceased in an anabranch of the Bega River (in south-eastern New South Wales) after major flooding occurred there in the late summer of 2002, with an animal not subsequently seen until July. However, he's since spotted the species on several occasions, with two animals observed swimming near to one another in late July (as shown at right).



A few weeks later he was also able to document reproductive activity at this same location (a link to Matthew's video of mating behaviour is available via the APC Facebook page, posted 22 August).

In some cases, it's possible that platypus activity may decline at a flood-affected site due to depletion of their food supply when aquatic insects and other invertebrates are washed away, or the channel bottom becomes smothered by sand or finer sediment dropped by high flows.

In other cases, animals may temporarily relocate their activity to backwaters or billabongs that become filled by floods and provide highly productive feeding habitats for some time thereafter - or to nearby pools that have been rejuvenated after sediment has been flushed downstream.

Flooding is a natural event in Australian rivers and platypus populations have had millions of years to adapt to the disturbance caused by high flows. The net effect of flooding on a platypus population is therefore expected to be fairly minimal as long as creek and river banks (and the gullies leading to creeks and rivers) support plenty of deep-rooted perennial vegetation throughout the catchment to limit the risk that extensive soil erosion is triggered by heavy rainfall.

By comparison, river systems that have been damaged through poor human management (now or in the past) are predicted to be less resilient to flooding and therefore more likely to support platypus populations that suffer major setbacks when high flows occur.

Presuming that climate change models are correct in predicting that extreme rain events will become increasingly common in the future, the cumulative effect of major floods could – particularly when combined with more frequent droughts - push some platypus populations to extinction unless the resilience of their habitats to flooding is adequately restored.

Meanwhile, we encourage anyone living along a flood-affected creek or river where the number of platypus sightings has dropped substantially to keep watching for the animals – and ideally let us know when they're again being observed.

## **BALLARAT'S 'OTTERS' NEED FRIENDS, NOT FEEDERS**

The rakali (or Australian water-rat) is a highly intelligent and inquisitive animal that quickly takes advantage of any foraging opportunities provided by humans - stealing pet food left on porches, hunting goldfish in garden ponds and avidly devouring scraps left by anglers or at picnic spots.

People sometimes decide to take this process a step further by feeding rakali on a regular basis. This is likely to foster an unnaturally high population density with all sorts of negative outcomes, including excessive levels of rakali predation on local frogs, turtles, etc. Artificial feeding, particularly when this mainly consists of bread, is likely to provide poorer nutrition as compared to a natural diet and may mean that some animals become dependent on human support with dire consequences for their welfare if feeding stops. It can also cause animals to behave aggressively in a bid to solicit free food.

Lake Wendouree in Ballarat is one of the best places in Victoria (and possibly Australia) to observe this attractive species. Unfortunately, a small number of local residents are potentially killing rakali with kindness by deliberately feeding them. Some animals have started begging for food from random people passing by – see photo at right, courtesy of Carol Hall. In recent weeks, several persons have reported that their shoes have been nipped by hungry rakali and one person wearing sandals went to hospital after being bitten on a toe. The time has clearly come to spread the message that getting rakali hooked on eating hand-outs – at Ballarat or elsewhere - is unlikely to work out well for either the animals themselves or humans in the long run.



Many Ballarat residents are already great fans of rakali, an animal that can be just as cute and engaging as an otter. However, other people remain unaware of its existence or think it's just an introduced rat species. The Australian Platypus Conservancy will therefore be holding a community information session to raise awareness about this very special animal on Tuesday 6 September at 7.00 pm at the Field Studies Centre, Federation University, Gillies Street campus. The talk will focus on rakali biology and conservation requirements.

In response to a number of local residents who are keen to ensure that the rakali population in and around Lake Wendouree remains healthy and is sustainably managed, the talk will be followed by a discussion concerning possible establishment of a Rakali Friends group to champion and monitor Ballarat's 'otter', and how best to address practical issues such as artificial feeding.

If you don't happen to live in Ballarat but are interested in learning more about rakali, the APC also schedules rakali webinars throughout the year. These are advertised through the APC Facebook page, but please feel free to send us an email if you'd like to be notified about when the next session is going to be presented. The Conservancy also provides webinars on behalf of community or environmental groups that are specifically interested in developing local awareness of rakali populations – again, please email us to discuss possible dates.

Finally, if you do happen to spot a rakali, please consider reporting the details via the APC website – [www.platypus.asn.au](http://www.platypus.asn.au). Much remains to be learned about this species' status in the wild, and sightings records are therefore of great value. The APC has now contributed almost 30% of the rakali records held by the Atlas of Living Australia, so we'd also like to take this opportunity to sincerely thank all those who have previously contributed information.

## **DIVING AHEAD**

A platypus spends much of its time looking for food. Platypus foraging behaviour is flexible – animals will fossick among gravel and rocks in shallow riffles, glean food from the surface of submerged logs and branches and search for tasty items under vegetated creek banks. In deeper water, they mainly dive to the bottom to seek out insects such as mayfly and caddisfly larvae. After fitting platypus with data-loggers, researchers in Tasmania found that animals typically completed 75 dives per hour when feeding in a lake, with up to 1600 dives conducted per foraging session. This activity in turn involves a fair degree of effort on the animal's part – a platypus is naturally buoyant and so has to work quite hard to swim down to the bottom.

Some fascinating images captured by Nicholas Rowlands in northern Victoria have recently shown that a platypus may improve the efficiency of its diving technique by twisting its bill to one side just before it submerges, as shown at right. Diving 'edge-on' presumably reduces initial drag and therefore is energetically efficient. However, it remains unknown if this is a general feature of platypus biology or is only adopted in certain places or by certain animals. Additional photos by Nicholas and others are needed to help to answer this question.



Meanwhile, to see more great photos of platypus and other wildlife taken by Nicholas, we highly recommend visiting his Facebook page, Gunbower Island Wetlands.

## **PLATY-PROJECT MONTH OF ACTION**

Platypus researchers at the University of New South Wales have teamed up with the Australian Conservation Foundation to encourage citizen scientists to report platypus sightings this September to a database developed by UNSW. The project aims particularly to obtain information for waterways where this species hasn't previously been recorded or at least not in recent decades – the project website (<https://www.acf.org.au/platy-project>) features an online map that highlights priority areas where sightings are needed to fill gaps.

As discussed in *Platypus News & Views* No. 88, it's important that platypus sighting records are double-checked for accuracy to screen out those where other species were actually observed (such as rakali, musk ducks or large carp). In the case of Platy-Project, a particularly high premium will be placed on reports confirmed by a photograph – the gold standard for sighting records of any species. Persons who spot a platypus in September but don't manage to take a photo may therefore consider reporting the details instead to the Australian Platypus Conservancy website (<https://www.platypus.asn.au>), so it can be screened by APC staff with specific relevant expertise.

Australian Platypus Conservancy



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