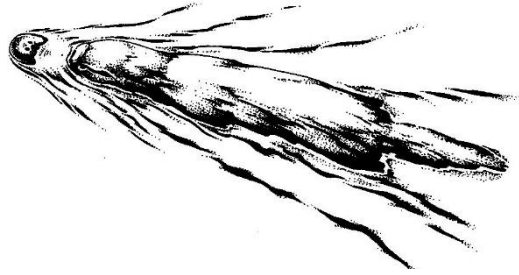


Platypus News & Views



Newsletter of the Australian Platypus Conservancy (Issue 91 – February 2023)

MORE GOOD PLATYPUS NEWS FOR THE WERRIBEE RIVER

You may recall that a year ago we reported on positive findings from two platypus live-trapping surveys conducted in early 2022 by the Conservancy along the Werribee River in and near Bacchus Marsh, a small but very rapidly growing community at the western fringe of greater Melbourne (see *PN&V* 87, pp. 1-2). The work, carried out on behalf of the volunteer-run Bacchus Marsh Platypus Alliance, indicated that platypus abundance in this part of the river is most appropriately classified as 'Moderate' using the scale adopted across the Melbourne region in recent years.

Two subsequent netting surveys – conducted on behalf of the Werribee River Association – have now provided an up-to-date assessment of platypus population status farther downstream in the Werribee River at Werribee township. This work took place in February 2022 and February 2023, with 5-6 pairs of fyke nets used to sample the same 6 km of river channel on both occasions. In both cases, Conservancy biologists worked hand in hand with biologists from a very well-respected environmental consulting firm (Ecology Australia, EA) to set nets and check them regularly throughout the night, measure and weigh animals, and permanently mark each captured platypus with a tiny micro-chip tag (the same type used by vets to mark pet dogs and cats).



*Platypus survey nets being set in the Werribee River in 2023. L to R: Gemma Snowball (EA), Matt Linn (EA), Melody Serena (APC).
Credit: Geoff Williams/APC*



One of the females captured in 2023, looking quite relaxed after having been measured and marked. Credit: Bryce T. Halliday/EA

Seven animals were captured and released in the two nights of fieldwork: one adult male, one juvenile male and one grown female in 2022, and four grown females in 2023. Captures occurred at several different locations, with the single largest number (3 animals) recorded under the Princes Freeway Bridge. The female captured in 2022 was presumed to be the mother of the juvenile recorded in the same year, with both encountered at the same site. The six grown animals were all considered to be in average condition based on their tail fat reserves (see *PN&V* 87, p. 4), with the juvenile judged to be slightly plumper.

(cont. on page 2)

MORE GOOD PLATYPUS NEWS FOR THE WERRIBEE RIVER (cont. from page 1)

The combined mean (or average) frequency of platypus captures in the Werribee River at Werribee township in 2022 and 2023 is 0.64 animals per site per night (or 0.32 animals per net per night), with the juvenile included in the calculation as per the current standard method for the greater Melbourne region. This equates to platypus abundance at Werribee township being ranked as 'High'.

We also confidently predict that this section of the Werribee supports many other individuals that failed to enter our nets - the river consists of a series of large to very large pools, many of which are sufficiently sizeable that a platypus could find enough to eat on any given night without having to move from one pool to another via the shallow intervening riffles where our nets were set. Platypus habitat quality in this part of the river has also benefited by ongoing revegetation and weed control activities conducted by the Werribee River Association in partnership with other organisations over many years.

We were also very pleased to find that the current platypus sex ratio for adults and subadults at Werribee township strongly favours females (1 male: 5 females) – a further indication that the local population is expected to be productive and resilient.

However, one negative finding from the Werribee fieldwork involved ongoing evidence of platypus litter entanglement.

As shown at right, one female captured in 2023 had a thick black plastic band looped diagonally around her body, from just in front of her right shoulder to just behind her left front leg. Her head would have originally passed through the band as she searched for food on the channel bottom. She would then have used her hind feet to tug the band back along her body in a bid to remove it, until it was too tight to be pulled back any farther. The band had started to cut into the animal's skin, but fortunately hadn't yet penetrated into the underlying muscle by the time we were able to remove it.



The black plastic band – still looped around the animal just before small scissors were used to remove it. Credit: Gemma Snowball/EA

Appallingly, a second female captured on the same night had deep scars on both sides of her neck – evidence of previous litter entanglement in which the item would have fortuitously come apart before the animal was killed by its worsening injuries.

Research by the Conservancy has found that, on average, up to 1.5% of the platypus living near Melbourne and 0.5% of those occupying water courses in country Victoria are at risk of being injured or killed by entangling litter at any point in time. The Werribee River Association continues to work hard to clean up the lower Werribee by organising regular activities by volunteer 'litter blitz' groups. Such efforts will help to reduce the risk of platypus entanglement but can't eliminate it. This can only happen if everyone in the community works together to address the issue at its source by adopting a few simple habits:

- Routinely pick up litter, especially anything that could encircle a platypus's neck or body.
- Spread the word that items such as elastic hair-ties or plastic cable-ties can kill a platypus, even if they're dropped far from water (but then get washed into stormwater drains).
- Cut through all metal, plastic or rubber rings or loops of any size – just to be on the safe side – before disposing of them.

DESIGNING A SUITABLE HOME FOR THE AUSSIE ‘OTTER’

The rakali (a.k.a. Australian water-rat or *Hydromys chrysogaster*) will feed in a wide range of man-made water bodies, including water supply reservoirs, flood retention basins, siltation ponds, recreational lakes and farm dams. Development of a new pond or lake in a housing or industrial estate or a recreational facility (such as a golf course or park) therefore creates an opportunity to contribute to rakali conservation. But what key design features are needed to make such water bodies suitable for use by Australia’s ‘otter’?

Relatively few studies have focused on rakali activity or foraging behaviour in the wild. However, based on what is known about *Hydromys* ecological requirements, the APC has recently formulated rakali-friendly design guidelines to assist those wanting to encourage rakali usage of man-made water bodies. Design issues considered in the guidelines include:

Water body size. A significant positive relationship has been documented between the surface area of urban wetlands and the likelihood that rakali were detected there, presumably because larger water bodies tend to support more animals. However, sizeable populations can occupy relatively small man-made lakes, especially if these are located fairly near to a creek or river (such as Bendigo’s Lake Weeroona, which has a surface area ~ 0.5 km²) or are part of a chain of ponds (as found at Point Cook in Melbourne’s south-western outskirts).

Water permanency. Rakali abandon water bodies when these dry up, as exemplified by an Adelaide study which found that rakali numbers dropped by two-thirds when a large on-stream weir was drained for a period of about 2 months (leaving only a small channel 1-2 m wide and ~ 0.5 m deep filled with water); numbers remained low for at least 8 months after the weir was allowed to refill. Similarly, rakali continued to be seen at Lake Wendouree in Ballarat as the water level dropped progressively from 2004 to 2006 during the Millennium Drought, but disappeared once the lake dried out entirely in early 2007. Although the lake refilled in 2010, rakali weren’t spotted again until late 2013.

Water depth. The available data indicate that rakali prefer to make use of relatively shallow water bodies (less than about 2 metres deep). We have often observed animals foraging assiduously near woody debris or the trunks of drowned trees located close to the banks of man-made lagoons, or around the edge of reed beds in water where they can easily stand up (see image at right).



Credit: Sally Grundy

Habitat attributes. Studies conducted in urban wetlands and at a coastal reserve in Western Australia both concluded that rakali are most likely to occupy habitats where abundant low vegetation grows on the banks (reducing predation risk). In addition, the occurrence of rakali in urban wetlands has been found to be positively associated both with habitat diversity and the presence of relatively steeply angled and stable banks (providing suitable habitat for burrows).

As shown at right, rakali normally carry prey items to an elevated feeding platform where they can sit comfortably out of the water while dining. Platforms may consist of logs, large fallen branches, flat rocks or reed clumps and are invariably located in or immediately next to the water. It is therefore important to ensure that a selection of such features is available in any water body meant to attract rakali usage.



Credit: APC

The new guidelines can be downloaded from the APC website at <https://platypus.asn.au/2023/03/01/guidelines-for-design-of-rakali-friendly-wetlands/>

Specific design requirements are of course expected to vary from project to project and, if needed, please contact the Conservancy for more detailed technical advice.

SALINITY AND THE PLATYPUS

We recently received a report of a platypus seen feeding at the edge of Camp Creek near Wynyard, Tasmania, about 200 metres upstream from the ocean (see image at right, courtesy of K. Douglas). Platypus are normally considered to be a freshwater species, but can they also survive in salt water and, if so, for how long?



Most of the plausible reports describing platypus activity in marine environments appear to be due to juvenile misadventure. For example, in his 1980 book *Paradoxical Platypus*, David Fleay states that at least four juveniles were found swimming in the Pacific Ocean a mile or so from the Queensland coast following summer cyclones. We've also heard several reports of exhausted youngsters being found near the sea on the banks of an estuary - presumably dispersers who had reached the end of the line after failing to find a vacant territory to occupy. For instance, see the video of a juvenile that was returned to the wild by biologists from the APC and the Victorian Department of Environment after she was rescued at the mouth of the Snowy River in 2012: (<https://www.facebook.com/225816770830721/videos/170837036371046>).

However, there are also reports of animals seen swimming along quite normally in a saltwater environment. For instance, a platypus was observed making good progress as it travelled near the edge of a Kangaroo Island beach a few years ago. This sort of sighting is important in suggesting that dispersal between platypus populations occupying coastal creeks and rivers may sometimes occur via intervening salt water as well as across land.

On the whole though, records of platypus activity in marine and near-marine habitats remain rare. This may partly reflect the fact that the bill electroreceptors used by a platypus to find food and navigate underwater work less effectively in saline conditions as compared to fresh. In addition, just as in the case of most other mammals, the longer that a platypus is immersed in ocean water, the thirstier and more dehydrated it's expected to become.

The ideal setting to learn more about the platypus's ability to tolerate saline conditions is likely to be at the lower end of coastal rivers where mixing routinely occurs between fresh water and ocean water. The Conservancy welcomes all reports of the species being seen in such places, particularly if salinity at the site where an animal is spotted can be tested at the same time or soon thereafter. Similarly, we applaud the enthusiastic group of APMN volunteers at Lorne in Victoria who are currently searching for a suitable additional monitoring site on the St George River to document platypus activity at the downstream end of this water course.

Australian Platypus Conservancy



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