

Platypus News & Views



Newsletter of the Australian Platypus Conservancy (Issue 68 – May 2017)

TAKEN BY STORM

Tropical Cyclone Debbie caused widespread and protracted flooding across much of eastern Queensland and adjoining parts of New South Wales in March and April 2017. How are these events likely to have affected platypus populations?

Available information suggests that flooding often results in a mix of positive and negative environmental outcomes when measured over different time frames and spatial scales, with the consequences for a platypus population depending on the timing, magnitude, duration and frequency of flood events. Some positive effects of high flows on platypus habitat quality include the role they play in scouring away silt that has accumulated in pools, and moving logs and large branches from the banks to the channel. Flooding can also create additional foraging opportunities for platypus when backwaters and billabongs are inundated.

On the other hand, adverse effects can arise if high flows exacerbate channel and bank erosion, displace existing snags and other large woody debris downstream, or foster the transport of potentially toxic materials from land into natural waterways. Adult platypus may also sometimes drown in raging torrents. The naturalist Harry Burrell reported as far back as 1927 that platypus carcasses were often recovered from river banks after major flooding occurred in north-eastern New South Wales, and flood-related mortalities have also been documented elsewhere, including deaths apparently caused by aspiration pneumonia.

Depending on the timing of a flood event, the juvenile members of a platypus population are likely to take the greatest hit. A female platypus blocks the entry tunnel leading to her nesting chamber with a series of consolidated soil 'pugs' when it houses young juveniles. However, this behaviour doesn't necessarily safeguard their welfare when water levels rise: pugs may not function effectively when saturated by moisture and mothers also have to breach the pugs if their offspring are to be fed. Furthermore, mothers stop pugging burrows around the time that youngsters are old enough to start emerging from burrows. Because they are relatively weak and inexperienced swimmers, juveniles may remain vulnerable to drowning or being swept downstream in high flows for weeks or possibly months thereafter.

In practice, following very heavy rainfall and subsequent flooding across the Melbourne region in February 2005, the frequency of juvenile platypus subsequently captured by Conservancy staff in annual live-trapping surveys declined to less than 10% of the frequency recorded in the previous four years. Similarly, an otherwise puzzling lack of juvenile platypus noted by Dr Tom Grant along the upper Shoalhaven River in autumn (after half of adult females were found to be lactating in early summer) was explained by the occurrence of major intervening flooding. Given the seasonal timing of Cyclone Debbie, juvenile recruitment in flood-stricken parts of Queensland and New South Wales may well be very low this year.

The occasional loss of most or all of a juvenile cohort is unlikely to have devastating consequences for platypus population viability. The platypus is typically a long-lived species, with individuals known to survive for up to 21 years in the wild, and populations often generate more juveniles than are needed to replace the number of adults that die in a given year. However, if severe floods become more frequent in some parts of the platypus's range – as predicted by many climate change models – this could potentially undermine the resilience of affected populations in the future.

THE INTERNATIONAL PLATYPUS?

Australia is currently the only country where one can see a platypus, either in the wild or in a zoo.

However, that situation could soon change if a permit is provided that allows a male and female to be sent from Taronga Zoo in Sydney to San Diego Zoo in California. As of 22 May, this matter was still being debated by a Senate committee. Is it time for platypus exports from Australia to commence?

There is very little historical precedent for platypus to be successfully transported and displayed overseas, though all three of the platypus taken to an American zoo by David Fleay in 1947 survived the trip and two of these animals remained on display for 10 years. However, Fleay's subsequent attempt to replace this pair was less successful when a male and two females died soon after being flown from Queensland to New York in 1958. No one has since tried to transfer a platypus legally to an overseas zoo.



David Fleay and his wife with a box containing one of the platypus flown to New York in 1958

Transport capabilities have of course improved dramatically since platypus were last taken overseas by plane in 1958, requiring a five day trip from Queensland to New York City with intervening stops at Sydney, Canton Island, Fiji, Honolulu and Los Angeles. While recognising that unforeseen problems can always occur, there is every reason to believe that a captive-bred pair of platypus should be able to be moved successfully from Sydney to San Diego.

In addition, platypus husbandry in Australian zoos has improved substantially in recent decades. Healesville Sanctuary in Victoria has been generating captive-bred juveniles with considerable reliability since 1998 and Taronga Zoo has also had some breeding success in the last 20 years. Some second-generation captive breeding (i.e. from parents that were themselves bred in captivity) has also occurred. As a result, the collective physical capacity of Australian zoos to maintain platypus in captive enclosures now appears to be more or less saturated. There is also no clear conservation imperative for releasing zoo-bred platypus to the wild; at best, this would entail a considerable degree of increased stress and risk for animals that have grown up in a captive setting.

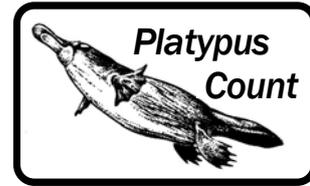
In the mid-1990s, the Australian government declared that no platypus exports to foreign zoos would be allowed until a self-sustaining captive population had been established. Given the facts outlined above, there's no compelling reason why a permit should not now be granted to allow surplus captive-bred (second-generation) animals to be exported to San Diego Zoo and potentially other institutions. As part of the deal, any facility receiving animals should obviously be required to make a genuine commitment both to breed the species in its own right, and to contribute in some capacity to addressing broader platypus conservation issues.

Meanwhile, back home in Australia, we believe that any resulting reduction in demand by overseas tourists to see a platypus in a zoo setting could be more than offset by improving and publicising opportunities for visitors to see this special animal where it truly belongs, in natural rivers and creeks.



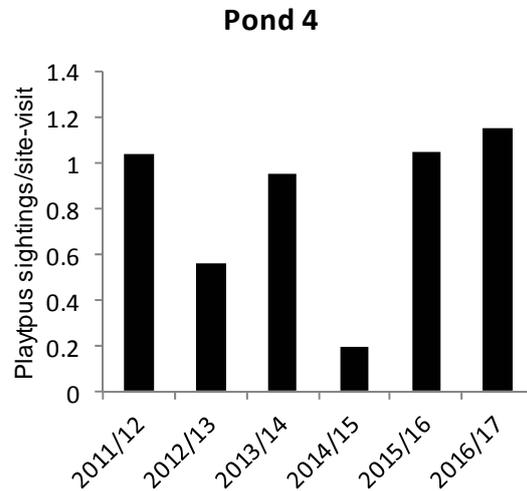
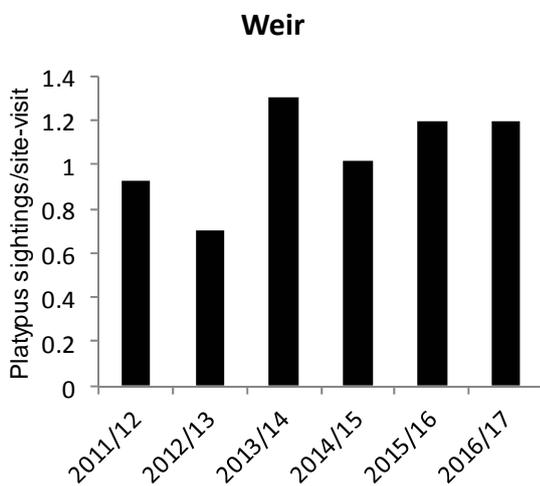
Photo: Sharon Wormleaton

PLATYPUS COUNT UPDATE: TIDBINBILLA



As those of you familiar with Tidbinbilla Nature Reserve in the ACT will already know, it contains a wealth of aquatic habitats: the Tidbinbilla River, a series of five interconnected ponds (Ponds 1-5) that are also connected to the river, and a sixth large pond known as Black Flats Dam. Since March 2011, the Reserve’s volunteer guides have been doing an outstanding job of keeping track of platypus sightings as part of the *Platypus Count* monitoring program.

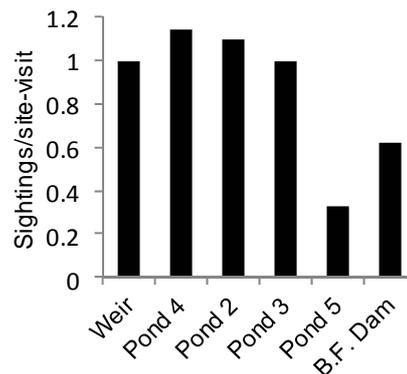
The graphs below show the mean (or average) frequency of platypus sightings recorded in summer (December-February) at the two locations where platypus are most consistently spotted throughout the year, namely a large weir pool located along the Tidbinbilla River and Pond 4. You’ll recall that summer is the peak period for platypus lactation, when mothers are particularly likely to be observed during the day as they work overtime to meet their energetic needs. As you can see, the frequency of sightings at both locations last summer equalled or slightly exceeded the number recorded in the previous year, indicating that platypus numbers have probably remained more or less unchanged over that period.



Platypus are also sometimes observed in all of the other habitats available to them at Tidbinbilla, including Pond 2 (below left), Pond 3 (centre) and Black Flats Dam (below right).



Platypus activity in these secondary habitats seems to vary markedly among seasons as well as years, with sightings being recorded most often in late winter and spring (just before and during the breeding season) or early to mid-autumn (after juveniles have become independent but before they have dispersed). For example, the graph at right compares the mean frequency of platypus sightings at the weir and five ponds in April 2017, when lucky visitors to Tidbinbilla enjoyed a reasonable chance of seeing a platypus on virtually any water body in the Reserve.



PLATYPUS COUNT SET TO GROW

In 2007, the Australian Platypus Conservancy launched a community-based initiative to monitor platypus populations by recording sightings (or the lack thereof) using standardised methods at fixed observational sites. The program, christened *Platypus Count*, followed the successful completion of a three-year pilot study along the Yarra River in suburban Melbourne by a very capable and energetic volunteer named Lyn Easton (who, incidentally, continues to contribute reams of valuable monitoring data for her part of the Yarra River at View Bank).

Platypus Count has proven to be a highly practical and effective way to track change in platypus populations, with volunteer networks now established at sites in country Victoria, New South Wales and the ACT. The methodology is both simple and flexible, and has been successfully adopted in a wide variety of settings. Importantly, it tends to work exceptionally well in the case of relatively large water bodies – such as the Yarra River or the Murray River at Albury-Wodonga – where platypus live-trapping methods are often compromised by too much flow or problems arising when other species (especially large-bodied fish) are accidentally captured in nets.

Having benefited from a decade of feedback from volunteers working at many different sites, the Conservancy now feels the time is right to expand *Platypus Count* to achieve its potential as a national program for highly cost-effective platypus monitoring. To this end, the APC is now developing an interactive website and associated phone app for *Platypus Count*. This will allow persons to contribute to the program as members of a local volunteer network, receive online training and support from both the APC and their peers, submit their data electronically, and receive up-to-date feedback on their own results. Regularly updated online summaries of the program's broader findings will also be freely available to interested resource managers, biological consultants, conservation groups and members of the public.

This development has been very generously funded by Dr Denis Saunders and Mrs Vee Saunders, both of whom are long-time contributors to the APC's work. It is expected that the *Platypus Count* website will be up and running within the next 12 months.

CAN YOU HELP TO FUND PLATYPUS RESEARCH AND CONSERVATION?

The APC is a non-profit, non-government organisation. Much of the Conservancy's funding comes from management agencies, philanthropic trusts or businesses and is usually linked to a specific project or to provision of technical advice.

However, donations provided by individuals and environmental groups interested in platypus conservation are also enormously important. These contributions support much of the APC's general work, such as population monitoring, public education and special studies. They also sometimes fund projects where government grant applications have been unsuccessful (as in the case of *Platypus Count* above).

If you're able to help, please remember that donations and bequests to the Conservancy are tax-deductible.

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