



Ripples

Newsletter of the **AUSTRALIAN PLATYPUS CONSERVANCY**

NET GAIN FOR PLATYPUS RESEARCH

Platypus have earned a very well-deserved reputation for being a difficult species to study or monitor using live-trapping methods.

Platypus survey nets (unweighted rectangular mesh nets in the case of relatively deep water and modified fyke – or eel – nets in the case of relatively shallow water) are time-consuming and fiddly to set, and require the operator to stay awake through the night (when platypus are most active) so captured animals can be safely removed from nets in a timely manner.

These limitations in turn restrict the number of nets that can be effectively set and checked on any given occasion, so at most a handful of animals are likely to be captured per live-trapping session.

To cap things off, there's really no practical way to bait platypus nets with an appropriate food reward (in the form of living aquatic invertebrates). As there's no benefit from a platypus's point of view to entering a net, the animals are highly motivated to avoid capture whenever possible. In practice, the more often that nets are set in an area, the more likely it is that platypus will learn to recognise and avoid nets, thereby progressively reducing trapping success through time.

Given the above, APC biologists have recognised for many years that there was a pressing need to develop reliable alternative methods for routinely monitoring platypus – as exemplified by the Conservancy's visually-based *Platypus Count* program (see page 2).

However, for all its inherent limitations, use of platypus live-trapping nets continues to have a valid place in research – for example, if tissue samples need to be collected for analysis, or physical attributes such as lactational status need to be assessed.

To help ensure that platypus live-trapping activities are as efficient and productive as possible, Conservancy researchers recently carried out an analysis of how platypus capture rates in fyke nets – the method mainly used by the APC – vary both through the year and through the hours of the night.

Based on more than 400 live-trapping sessions conducted from 1995 through 2010, it was found that the platypus capture rate in the most productive month for netting (July) was nearly three times greater than that in the least productive months for netting (April and May) (see also *Ripples* 38). However, the pattern of monthly male and female capture rates was not identical through the year: male captures peaked in August (at the start of the platypus breeding season) whereas females were captured most often in January (the peak period for lactation, when females have to feed for up to 17 hours a day to keep pace with their energy needs).

Platypus capture rates also varied significantly on a nocturnal time scale, with 63% of adults and subadults and 73% of juveniles captured in the first half of the night.

Along with highlighting when fyke netting is likely to be most effective in sampling platypus populations, this analysis should contribute to improving the efficiency of net checking procedures on behalf of animal welfare.

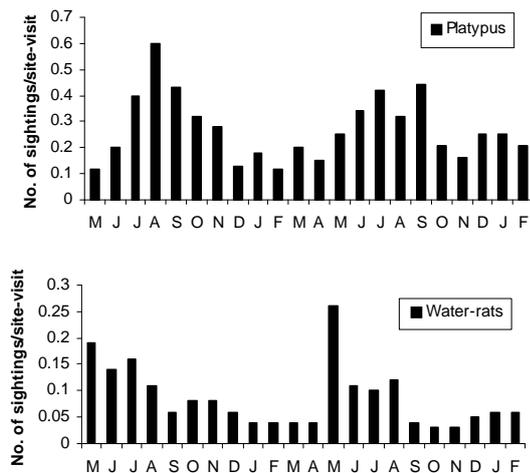
With respect to future research, the results clearly indicate that the timing of surveys must be taken into account when comparing the results of population studies based on fyke netting (or when interpreting the results of long-term monitoring programs). Similarly, studies aiming to describe sex ratio need to recognise that the ratio of captured males to females can vary considerably through the year.

EFFECTS OF FLOODING

As mentioned in the previous issue of *Ripples*, the flooding which occurred along the Queanbeyan River in December 2010 has provided an ideal opportunity to gain insight into the consequences for platypus of a one-in-30-year flood event, based on data collected by hard-working *Platypus Count* volunteers since mid-2009.

Ongoing associated monitoring of native water-rats (or rakali) at Queanbeyan has also made it possible to see for the first time how this species responds to substantial flooding.

The two graphs below show how the frequency of platypus and water-rat sightings at monitoring sites located in and near Queanbeyan township have varied on a monthly basis from May 2009 through February 2011, roughly two months after the one-in-30-year flood event occurred.



As you can see, there's no indication that high flows were responsible for reducing the amount of post-flood activity by either animal. In fact, the number of both water-rat and platypus sightings was generally slightly higher in the period from December 2010 to February 2011 as compared to the period from December 2009 to February 2010.

Although these findings certainly suggest that platypus and water-rat numbers didn't drop much (if at all) around Queanbeyan township following this particular flood event, it would be premature to conclude that high flows have had no effect on this river's platypus and water-rat populations.

Firstly, it's possible that a substantial rise in December water levels may have adversely affected breeding success this year, by causing young juveniles to drown. This is particularly likely in the case of platypus, which have a restricted breeding season with juveniles confined from mid-spring until at least the end of January to burrows located in the banks. In contrast, water-rats have a much more flexible and extended breeding season, with as little as five weeks separating the births of consecutive litters.

By eroding banks, altering channel depth, and carrying away and re-depositing dead trees and other vegetation, strong flows can also affect the distribution and abundance of key food resources, in the form of aquatic insects and crustaceans and (in the case of the water-rat) larger prey such as fish.

In support of this hypothesis, some *Platypus Count* participants reported that the pattern of platypus and/or water-rat sightings in their section of the Queanbeyan River altered after flood waters receded, with sightings declining noticeably at some spots and increasing at others.

Perhaps the most dramatic reported change occurred upstream of Queanbeyan township near Burra, where platypus sightings crashed after the December flooding, with no animals seen again until mid-March.

Flood waters also seem to have had a very marked effect on the structure of in-stream habitats in this part of the river, with the channel reportedly becoming much wider and in some places much deeper than had previously been the case.

A really interesting question is whether platypus activity in this area may eventually increase above the documented pre-flood level, given that the newly created pools may develop into ideal places for this species to feed.

Only time (and ongoing monitoring) will tell.



A VERY MERRI SIGHTING

Spotting a platypus in the wild is often an exhilarating and memorable experience. Reporting the details of the sighting, including where and when the animal was seen, can also contribute to improved understanding of how this very special species is distributed.

An interesting example of how changes in distribution can potentially be tracked through sightings has recently occurred at Merri Creek in Melbourne's inner suburbs.

Past live-trapping surveys have failed to register any trace of a platypus in this highly urbanised water body. However, no fewer than five separate sightings of the species were reported in September and October 2010, roughly 5 kilometres upstream of the creek's confluence with the Yarra River. Another two sightings were reported in approximately the same location in May 2011.

The Merri Creek Management Committee and the Friends of Merri Creek have worked tremendously hard for many years with the help of other organisations to improve environmental values along this stream. At this stage it would be premature to conclude that platypus are starting to recolonise the area permanently. In all likelihood the sightings reflect the presence of juvenile(s) or subadult(s) dispersing from elsewhere in the Yarra catchment which may or may not be able to establish a viable home in Merri Creek.

Nevertheless, the presence of this species after a presumed absence of many decades is a great boost to all who have worked to rehabilitate this waterway.

FREE PLATYPUS SIGHTINGS APP

Platypus sightings have traditionally been forwarded to the Australian Platypus Conservancy by post, email or via the on-line reporting facility at www.platypus.asn.au.

Now, thanks to the help of Robert Ewing in Canberra, there is a new method – a platypus sightings app that can be downloaded for free at the following link:

<http://itunes.apple.com/au/app/platypus-sighting/id434192866?mt=8>

Did You Know That...

To hold its position in slow-moving water, a platypus paddles gently when resting on the surface, creating a distinctive "bull's eye" pattern of ripples. These ripples often provide the first sign that a platypus is active in the area.



FORTHCOMING PLATYPUS TALKS

Ringwood Field Naturalists Club. (Tues. 5 July 2011, 8 pm. 1 Gardenia Street, Blackburn).

Manningham City Council Environment Series. (Wednesday 6 July 2011, 7.30 pm. Warrandyte Community Centre).

NEW AMBASSADOR FOR PLATYPUS SCHOOLS PROGRAM

Each year the APC provides platypus education classes to selected schools. Visits in 2011 will be made to schools in the Cardinia Creek catchment near Melbourne (with support from the Helen Macpherson Smith Trust) and a range of country schools located in north central Victoria (funded by the North Central Catchment Management Authority).

A star attraction of all school visits is Patrick – an adult male platypus preserved as a taxidermic specimen after being killed in an illegal net set some years ago.

The platypus education program has recently gained another ambassador: Pim, a character designed by Dutch illustrator Flos Vingerhoets, who will be used to highlight some of the key conservation messages presented to students.

