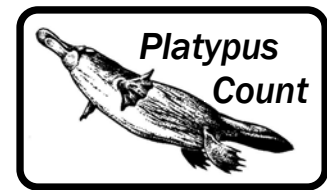


27 November 2011



Hello all,

Earlier this year we considered how the frequency of platypus and water-rat (or rakali) sightings changed in the months immediately following the one-in-30-year flood event that occurred along the Queanbeyan River in December 2010.

In brief, sightings of both species increased modestly at Queanbeyan township in January and February 2011 as compared to the number of sightings made 12 months earlier, suggesting that few (if any) resident animals died or were swept long distances downstream in response to strong flows.

In contrast, the number of platypus and water-rats observed along the Queanbeyan River southeast of Burra (many kilometres upstream of Queanbeyan township) plummeted after the flood, with no individuals of either species observed until the latter half of March. Flooding also appeared to alter river habitats much more radically near Burra as compared to Queanbeyan township, with the channel becoming wider and in some places much deeper than had previously been the case. Accordingly, it is possible that platypus and water-rats may have vanished for a time simply because populations of their prey – in the form of aquatic invertebrates such as insect larvae and yabbies and (in the case of water-rats) larger animals such as fish – were badly depleted by surging flood waters.

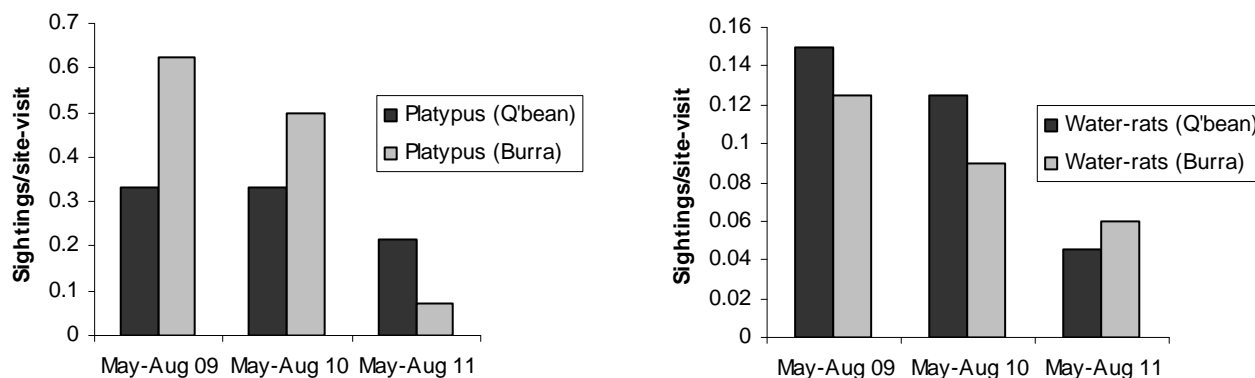
In theory, flooding could also affect the frequency of platypus and/or water-rat sightings by reducing the number of juveniles that are successfully weaned – even if adults survive unscathed, their offspring may drown or otherwise die, particularly in the case of small juveniles that can't yet swim well.

In practice, the timing of the December 2010 flood (which broke the Queanbeyan's banks, inundating both platypus and water-rat burrows) means that it may well have had a catastrophic impact on platypus reproduction: females of this species produce only one litter a year, and juveniles normally first emerge from nesting burrows in January or February after developing inside the burrow for 3-4 months.

Water-rats might potentially cope better with the effects of a large summer flood on reproduction, given that females can produce two or more litters annually. However, in the case of water-rats living along the Queanbeyan, this assumes that life got back to normal fairly quickly following the December flood event, which may not have been the case - for example, if animals found it hard to locate adequate food and/or shelter for some time after high flows abated.

Any reduction in the annual output of juvenile water-rats or platypus is likely to be most apparent near the end of the breeding season, when young animals are otherwise most abundant. As discussed in a previous newsletter (November 2010), the increased frequency of water-rat sightings noted along the Queanbeyan River in May (and to a lesser extent June through August) in both 2009 and 2010 most plausibly reflects heightened activity by dispersing juveniles. By comparison, the corresponding impact of juvenile platypus on the rate of sightings in autumn and winter will almost certainly be more muted, reflecting the fact that they tend to be much less diurnally active than their elders.

The graphs below summarise how the frequency of water-rat and platypus sightings recorded at Queanbeyan and near Burra from May to August 2011 compares to the number of sightings made in the same monthly periods in 2009 and 2010.



As you can see, many fewer sightings of platypus and water-rats occurred at both locations in 2011 than in the two previous years.

In the case of water-rats, the mean (or average) rate of animals seen at Queanbeyan and Burra in May-August 2011 respectively represented 33% and 56% of the corresponding sightings rates for 2009-2010. This level of reduction is roughly in line with the order of magnitude expected if reproduction largely failed in the preceding spring and summer, given that each resident female should normally wean at least two (and possibly more than six) offspring in that period.

In the case of platypus, the mean sightings rate at Queanbeyan in May-August 2011 was two-thirds of the corresponding value for 2009-2010, which again might reasonably be explained by widespread reproductive failure in the preceding summer.

By comparison, platypus sightings at Burra fell much more dramatically – the mean sightings rate in May-August 2011 was only 12% of the corresponding value for 2009-2010 – suggesting that substantial flood-induced habitat alteration has also contributed to the reduced frequency of platypus sightings in this area.

The conclusion that platypus appear to be more sensitive than water-rats to habitat change near Burra presumably reflects differences in their feeding ecology: whereas platypus feed exclusively in the water, water-rats are happy to scamper about on land in search of food, sometimes travelling hundreds of metres from natural water bodies to raid pet food left on a porch or snaffle goldfish from garden ponds.

In any event, it will certainly be interesting to see how these two species fare along the Queanbeyan in coming months. Happy Platypus Counting!

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