

Platypus News & Views



Newsletter of the Australian Platypus Conservancy (Issue 53 - Aug 2013)

JUST GENES

The platypus's entire DNA sequence was successfully mapped in 2008 (see *Ripples* No. 40), paving the way for studies aiming to compare the genetic characteristics of populations in different parts of the species' range.

Not too surprisingly, researchers have found that animals occupying a given river system generally resemble each other more closely than do individuals occupying different river systems. Genetic differentiation tends to increase both with the amount of distance and the occurrence of substantial geographic barriers between populations.

In practice, the greatest genetic differences revealed to date are between mainland animals and those living in Tasmania, which has been surrounded by ocean since the end of the last ice age.

Interestingly, specific mitochondrial DNA sequences (which are inherited exclusively from the mother) tend to be shared less across river systems than are specific microsatellite DNA sequences (which are inherited from both parents). In turn, this suggests that females are less likely than males to travel between river systems, carrying their genes with them.

This accords with the finding that adult male platypus are typically much more mobile than females, travelling on average about three times farther between consecutive captures. In the case of juveniles, young females normally move less than two kilometres between consecutive captures whereas young males sometimes travel more than 40 kilometres.

The fact that male platypus are predicted to do nearly all of the heavy lifting when it comes to dispersing long distances is not too surprising, given that this pattern has previously been described in many other mammals. In turn, male-biased dispersal has important implications for the length of time needed for a platypus population to become established in vacant habitat (for example, following a major habitat restoration program) or to bounce back after declines caused by devastating floods or long-term droughts.

In both cases, one expects that males will be the first individuals to migrate into an area, and are likely to show up fairly quickly even if the nearest source of dispersing juveniles is located tens of kilometres away. Females are also likely to appear reasonably quickly if at least one breeding age female is located within 2-3 kilometres, and so in a good position to wean young females that are within an easy swim of the unoccupied habitat. If not, the length of time needed for a female to arrive is likely to depend on how far the habitat is located from the nearest established breeding age female, and may quite conceivably be measured in decades or even longer if this distance is substantial.

If current climate models are correct, severe droughts and floods will both tend to become more frequent in the future. In turn, this suggests that careful planning is needed to ensure that river systems contain enough suitable refuge habitats for mature females to survive such events – and enable platypus populations across the system as a whole to recover before the next catastrophic event hits.

UPDATE ON BIRCH'S CREEK

Ron Cosgrave raises beef cattle on a property with frontage to Birch's Creek in north central Victoria, near the town of Smeaton. Platypus have been observed regularly in this part of the creek for more than a century, since the time that Ron's grandfather started farming there. In 2008, we featured a story in Ripples (No. 38) about Ron's determined efforts to get some water released from Newlyn Reservoir in order to save the lives of four platypus that were on the brink of dying in three tiny, rapidly drying pools – the only surface water remaining in that section of creek in a year of crippling drought. Since then, the millennium drought has broken and Birch's Creek has been subject to major flooding. We recently caught up with Ron to find out how his local platypus population is faring, and thought you might be interested to hear the latest news in Ron's own words.

Back in February 2008, Birch's Creek at Smeaton was drying up due to the long drought. Although Goulburn-Murray Water had a responsibility to regulate the flow of water between the Newlyn Reservoir and the Lawrence Weir, they failed to do so and the creek was allowed to dry up. This resulted in the death of all the fish in our part of the creek, along with other creatures dependant on water flow. The species of fish that perished were the brown and rainbow trout, the native blackfish, redfin and tench.

At my property I was watching four platypus struggling to survive, and as a result I was able to negotiate a one-off release of water from the Newlyn Reservoir. The water first had to fill all the pools farther upstream in the creek to enable a flow to occur, and passage was slow. The distance to my property would have been something like 16 kilometres and when it finally arrived it stopped short in a pool about 500 metres from where the platypus were holed up. With the assistance of the local Fire Brigade's quick fill pump and heaps of 64 millimetre hose I was able to get the water to where it was needed. Everything went better from that day on, the drought broke and the creek began to live again.

Then in September 2010 and again in January 2011 the creek was flooded after unprecedented amounts of rain. I had never in my life time seen the creek in such a state of furious anger. Tullaroop Reservoir filled overnight as did Cairn Curran Reservoir. Numerous townships in my area such as Creswick, Clunes and Carisbrook flooded, as well as other townships in the Loddon River system.

After the great rush of water had subsided and everything got back to normal I wondered whether the platypus had survived or not. Over the following weeks and months I searched for their presence, whether it be dead or alive. For months I found no traces of either them or fish. Interestingly enough, around the time of the two floods the Department of Primary Industries and Department of Sustainability and Environment carried out a massive program of restocking reservoirs across the state. The Newlyn Reservoir and Hepburn's Lagoon (both of which feed into Birch's Creek) were both stocked predominantly with rainbow trout. Shortly after, Newlyn Reservoir spilt for the first time in ages and on a visit there I saw a great number of trout fingerlings travelling over the spillway and into Birch's Creek.

Time went by and I started to spot white-tailed water rats, creatures I had not seen in the creek for years and years. I thought to myself, "I have lost the platypus and have gained water rats". I did not think that this was a fair exchange at all. Then, in February 2013 I spotted a platypus and a very shy one at that, as any sightings from that day on have been rare.

UPDATE ON BIRCH'S CREEK - continued



Birch's Creek in drought (April 2008) and in flood (January 2011).

About this same time I heard reports of fish being caught again in the creek upstream from my property. Being interested, I dropped a line in and caught a nice rainbow trout. However, they remain few and far between, presumably survivors from the restocking program.

In mid July whilst observing the creek I saw my usual mate there swimming around and took some video footage on my smartphone. Whilst doing this another one swam upstream towards me, so I confirmed I now had two, maybe because mating season was coming up soon. More recently I tried filming with my camera and was able to get a fair bit of footage of a rather large platypus swimming contentedly on the surface. The other platypus is much smaller and I'm guessing it's a female or perhaps a young animal born last year somewhere else in the system. The footage was extraordinary, as I was able to catch the larger animal as he opened his bill up very wide and snapped it shut. My instincts were telling me the platypus was behaving in a protective manner with the bill snap, though maybe I am wrong. He was on the surface for about 48 seconds. I thought the footage was too good not to share with others so it is now loaded on YouTube ("platypus at Smeaton"). The reason I noticed the animal in the first place was some muddied water near the bank, and I am thinking he may have just come out of a burrow, or he is actually a she and had been digging or cleaning a burrow to nest in. Maybe, maybe not.

Birch's Creek now has an official Bulk Water entitlement, meaning water (though not much) is held in Newlyn Reservoir for environmental flows. Whether it gets used or not in any given year is another matter as the creek is normally in very good condition all year round without the need for extra water. If Goulburn-Murray Water staff do not fail in their responsibility to ensure it also flows in drought years, problems with platypus survival should not happen again.



Birch's Creek in August 2013.

I have always believed that what goes around comes around. I have found that sometimes the wheel is bigger and takes longer to turn, but it does come around.

MORE NEWS ON FACEBOOK

Check out the “Australian Platypus Conservancy (Official)” Facebook page for more news about platypus and Australian water-rats. Articles posted in the last three months include:

- Matakupay Platypus Project – APC launches Murray River platypus search at Swan Hill in partnership with the Wadi Wadi community and Friends of the Earth
- Another platypus killed in yabby trap – a recent incident in ACT
- Turtle mortalities in opera house traps
- Make Mine Mink – the amazingly aquatic mink
- All at sea with otters

Our Facebook page includes details of public events (such as talks given by the APC and platypus-monitoring sessions). There is also a “Sighting of the Week” (selected from the many platypus and water-rat records sent to the APC by members of the community) which is used to highlight important ecological, conservation and research issues.

Topics covered in the last three months include recent results from the APC visual monitoring program along the Murray River at Albury, the contribution to platypus sightings records made by bird-watchers, the value of sightings reports as an adjunct to live-trapping surveys, recent observations of water-rats in the sea at Geelong and platypus sightings at Tidbinbilla Nature Reserve (one of the best places to see the species in the wild).

MISSED AN EDITION OF *PLATYPUS NEWS & VIEWS*?

Previous editions of *Platypus News & Views* (formerly known as *Ripples* until issue no. 50), can be found on the APC website www.platypus.asn.au, dating back to no. 14.

SPECIAL THANKS TO OUR SUPPORTERS!

The Australian Platypus Conservancy is a non-profit research and conservation organisation. The success of the APC's programs relies on the support of businesses, management agencies and individuals sharing our interest in one of the world's most amazing animals. We gratefully acknowledge recent help by the following supporters:

City of Banyule ■ City of Manningham ■ Decor Corporation ■ East Gippsland Shire
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CMA ■ Parks Victoria ■ Platypus Outdoors ■ Taronga Conservation Society ■
Upper Murrumbidgee Waterwatch ■ West Doncaster Veterinary Centre ■

Australian Platypus Conservancy



PO Box 22, Wiseleigh VIC 3885

(03) 5157 5568 platypus.apc@westnet.com.au

www.platypus.asn.au Facebook: Australian Platypus Conservancy (Official)