Platypus News & Views

Newsletter of the Australian Platypus Conservancy (Issue 76 – May 2019)

SOME THINGS THAT ARE *NOT* TRUE ABOUT THE PLATYPUS

Now that the Australian Platypus Monitoring Network website is up and running, the Conservancy's next major online task is to update the APC website. The website's content is due to be revamped by mid-June. Meanwhile, as part of the revision process, we recently spent time inspecting some of the many other websites that purport to provide information about the platypus – and were disheartened to see how much of the material is misleading. We therefore thought it might be useful to try to set the record straight with respect to at least some of the faulty information we encountered:

In the absence of teeth, a platypus uses gravel to help mash its food into manageable pieces for consumption.

It's true that a platypus sheds its teeth soon after it starts eating solid food, and also true that bits of mud and sand are sometimes found mixed with edible invertebrates when these are removed by researchers from a platypus's cheek pouches (used to temporarily store its prey while it swims underwater). However, there's no reason to believe that this inedible material is anything other than an inconvenience, ingested accidentally as a platypus grabs its mainly bottom-dwelling prey. After losing its teeth, the platypus chews up its prey using rough grinding pads located at the back of its jaws, probably after squeezing excess water out of its mouth through corrugations located at the edge of the lower bill (as shown at right). The grinding pads are made of keratin (the tough structural protein found in human hair and fingernails and the claws, horns and hooves of other mammals) and can reduce aquatic insects, small freshwater shrimps and worms to a fine paste without any help needed from other abrasive agents.

The platypus doesn't have a stomach.

This statement presumably is based on a study published in 2008 about the genes controlling platypus digestion. The study's findings were summarised at the time as signifying that "the platypus lacks a functional stomach". The fact is that the platypus's digestive tract does include a small expanded pouch-like section where one would normally expect a stomach to be located. However, this structure doesn't secrete digestive acids or enzymes, though it does contain Brunner's glands (which produce a mucus-rich fluid to assist nutrient absorption). Following on from the discussion of grinding pads above, it would seem that platypus food is mashed up so well in the mouth that it's unnecessary for much additional processing to occur before food reaches the intestines. Given that platypus foraging behaviour entails swallowing relatively small mouthfuls of food at intervals of 40 seconds or (generally) longer over a feeding period lasting many hours, there's also no need for the animal's stomach to have a large holding capacity to accommodate large but occasional meals.

Webbing between the platypus's front claws retracts on land to expose its claws.

This statement presumably originated when someone misunderstood a description of how a platypus walks, and has since been disseminated through the internet's echo chamber. When a platypus swims, a large expanse of skin extending beyond its front claws unfurls to form a very efficient paddle. To avoid tripping on land, this skin simply folds under the animal's palm when it walks, so the front claws (which are always exposed) are then located at the front of the foot to help grip the soil as the animal moves forward.

Platypus venom has been known to kill a dog.

We must confess that for many years we thought this was true. However, when we checked the historical records (all dogs known to have been affected by venom were spurred while retrieving a platypus from the water after it had been shot to provide a pelt in the late 1800s), it turns out that this generalisation is based on testimony from only one retired hunter, who claimed that four of his dogs (plus more belonging to his brother) died in this manner. The dogs' symptoms were not described, apart from the fact that they allegedly became very drowsy. In contrast, a different hunter reported that his dog survived being spurred on three occasions, with the effects apparently weakening over time. In each case the dog's head (the part of the body that had been spurred) became tender and swollen and the animal became sleepy and showed some (though not much) difficulty with breathing. However, recovery was invariably complete, with swelling disappearing in 36, 10 and 3 hours. Two other accounts of dogs recovering after being spurred by a platypus (though becoming very thin in the process) were reported by a Dr Lalor in the *British Medical Journal* in 1894.

To help reconcile these conflicting reports, it's interesting to consider the results of tests that have been carried out to investigate how injecting controlled amounts of platypus venom affects laboratory rabbits and mice.

Firstly, C.J. Martin and F. Tidswell published the results of four trials involving rabbits (each weighing about 1.5 kg) in an 1894 issue of the *Proceedings of the Linnean Society of New South Wales*. In brief, a rabbit that was injected under its abdominal skin with 0.05 gram of dried platypus venom (dissolved in saline solution) developed swelling around the injection site along with a slightly elevated body temperature. It was lethargic and ate only sparingly for the first day, but recovered completely within 2-3 days. In contrast, three rabbits that were injected directly into the jugular vein with 0.06 gram, 0.04 gram or two sequential doses of 0.02 gram of venom (again dissolved in saline solution) all died within 30 minutes.

Similarly, more recent trials by Peter Temple-Smith carried out as part of his PhD thesis research (published in 1973) found that mice injected with venom just under the skin showed only mild toxic effects and survived, whereas those injected with venom directly into a vein died after experiencing symptoms similar to those caused by an extreme allergic reaction.

Based on all of the above, it appears fair to conclude that platypus venom could potentially kill a dog, but only in the unlikely event that a platypus happened to inject a substantial quantity of venom directly into a major blood vessel. Otherwise, the dog is expected to experience pain and swelling and is likely to be very dozy for at least a few hours, but should fully recover.

LITTER CAUSES ANOTHER PLATYPUS TO DIE HORRIBLY

As an example of the truly dreadful harm caused by litter, a distressed juvenile female platypus was recently found lying next to Morses Creek in the centre of Bright township in northeastern Victoria by local residents Gill and Steve Bennett. Three elastic hair-ties (shown at left) were tightly wrapped "bandolier-fashion" around her body.

Inspection by APC biologist Geoff Williams revealed that these had caused an extremely deep laceration on the right side of the animal's neck (as shown below), with a corresponding wound behind her left front leg where the flesh had been sliced through to the bone. As well as suffering enormous pain, there's no way this animal could swim and feed properly, so she was on the verge of starving to death. Jo Mitlehner from Staghorn Wildlife Shelter was also soon on the scene, having been alerted by Wildlife Victoria. She conveyed the platypus to Alpine Animal Doctors in Porepunkah where it was clear that euthanasia was the kindest option.

Sadly, litter entanglement is a very common threat to platypus welfare. Because the platypus mainly feeds on bottom-dwelling insects, much of its time is spent searching for food precisely where litter tends to settle. A platypus also finds it very difficult to remove loops or rings from its neck or body: its front feet end in two broad skin flaps that make great paddles but are hopeless at gripping or grabbing. Encircling loops therefore tend to stay in place until either the loop breaks or the platypus dies.

In our experience, virtually any rigid or flexible loop or ring with a diameter of up to about 8 cm can be a problem for a platypus after the item ends up in the water. For example, along with elastic hair-ties (which are actually one of the worst offenders), all of the following have been found around a platypus (some alive, others dead): cable-ties, six-pack holders, both wide and narrow elastic bands, a hospital identification wrist band, canning jar seals, knotted loops of twine, an engine gasket, miscellaneous circular plastic fittings (in one case, apparently from a bicycle headlamp), a short off-cut of PVC pipe, tamper-proof rings from food containers, plastic bangle-type bracelets and loops of nylon fishing line (another very big offender).

By adopting a few simple habits in your day-to-day life, you can make a real difference to reducing the risk that a platypus gets tangled in litter:

- Pick up litter – particularly anything that looks like it could eventually get caught around a platypus's bill, neck or body – whether or not it's found near water.

- Spread the word to children that carelessly dropped personal items such as plastic bangles or elastic hair-ties can have lethal consequences for platypus, even when they're dropped on sidewalks or in playgrounds (and then carried through stormwater drains).

- Cut through ALL metal or plastic rings or loops of any size – just to be on the safe side – before you dispose of them in a responsible manner.

OPERA HOUSE TRAP BAN GAINS MOMENTUM

In Victoria, new rules banning the recreational use of opera house traps (and other enclosed yabby trap designs) in all waters will come into effect from 1 July 2019. Since the Victorian initiative was announced last year, there hasn't been any sustained public criticism of the decision to allow only wildlife-safe methods to be used in future for yabbying. With so little political downside to outlawing enclosed traps, it's surprising that all of the remaining states and territories that still permit their use have not acted sensibly by now. (Enclosed yabby traps have effectively been prohibited in both Tasmania and Western Australia for quite some time.)

Happily, it appears that momentum for positive action is now starting to build quite widely. ACT Minister for the Environment Mick Gentleman recently confirmed a commitment to ban use of enclosed yabby traps in the near future throughout the Australian Capital Territory. New South Wales is also considering action along similar lines to Victoria, following advice provided by the Recreational Fishing NSW Advisory Council. In Queensland, state MP Stephen Andrew has recently called for this issue to be addressed. And in South Australia (which, together with the Northern Territory, still allows enclosed traps to be deployed in all public and private waters) Adelaide Hills Council is leading the push to ban opera house traps due to the considerable risk they pose to native water-rats/rakali.

AUSTRALIAN PLATYPUS MONITORING NETWORK UP AND SCANNING

The APMN website – www.platypusnetwork.org.au – is now fully operational. The citizen science program that it supports - the Australian Platypus Monitoring Network - was formally launched in early May by Dr Denis and Mrs Vee Saunders, who have very generously funded development of both the website and reporting app. Thanks are also owed to the Field Naturalists Association of Canberra for hosting the launch at the Australian National University.

APMN information sessions and training workshops were recently held in Canberra and sites in New South Wales (Cooma, Yass, Goulburn, Queanbeyan, Mongarlowe and Dalgety), and we again sincerely thank all those who helped host and promote these events. We are also most grateful to the North East Catchment Management Authority in Victoria for supporting a regional roll-out of APMN at Myrtleford, Wodonga, Wangaratta, Bright, Rutherglen and Omeo. Other such events are currently being planned, but in the meantime we encourage anyone interested in becoming involved in APMN to check the website for more information.

AUSTRALIAN GEOGRAPHIC SOCIETY HELPING US TO HELP THE PLATYPUS

The Australian Geographic Society is making APMN the focus of its current fund-raiser. Donations can be made either in-store or online. To contribute online until 30 June, please go to: www.givenow.com.au/endangeredspecies.

Donations from individuals and environmental groups contribute enormously to the APC's work by supporting platypus and rakali population monitoring, public education programs and studies that can't otherwise be readily funded through formal grant requests. In addition to the AGS fund-raiser, donations can be directed to the APC at the address below and are tax-deductible in Australia.

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