Platypus News & Views

Newsletter of the Australian Platypus Conservancy (Issue 95 – May 2024)

PLATYPUS NET AVOIDANCE – NEW FINDINGS USING CAMERAS

Platypus fyke nets are set in relatively shallow water to assess population status, fit radio- or acoustic tags to monitor movements and habitat use, or obtain samples needed for veterinary or genetic studies. As shown at right, these nets consist of a long, cylindrical mesh chamber (supported by metal rings and fitted with internal one-way funnels), flanked on either side by rectangular mesh wings.

Photo: APC

To reduce the likelihood that a platypus evades capture, it's necessary to block all possible gaps between the nets and channel using carefully deployed lines of rocks or bricks. Conservancy biologists also routinely stretch the lateral wings well up onto the banks to reduce the risk that a platypus simply walks around them.

But are these steps enough to ensure that most or all of the platypus that encounter a pair of fyke nets are captured?

Following on from recent research on the use of time-lapse cameras to record platypus activity, APC biologists recently joined forces with Chris Bloink from Ecology Australia (ably assisted by Jason van Weenen and Liberty Olds from Green Adelaide) to assess the frequency of platypus net evasion in the Steavenson River system near Buxton, Victoria.

Importantly, platypus fyke nets hadn't (to the best of our knowledge) ever been set before in this system, providing confidence that the animals' behaviour wouldn't be affected by having previously entered nets. In addition, the cameras used to record nocturnal behaviour were equipped with a 940 nanometre 'black light' infrared flash to reduce (though not necessarily eliminate) the risk that platypus activity might be altered by using an artificial light source.

In practice, pairs of fyke nets (one facing upstream and the other facing downstream, as shown above) were set in the afternoon at four sites in mid-April. Nets were checked at intervals of about 2 hours through the night, and removed from the water soon after dawn.

Platypus captures were recorded both at the farthest downstream site (Site 1, two juvenile females) and at the farthest upstream site (Site 4, one adult male). The two juveniles were probably sisters, given that they were encountered at the same time and had been travelling in the same direction. No additional platypus activity was recorded by cameras at either Site 1 or Site 4.

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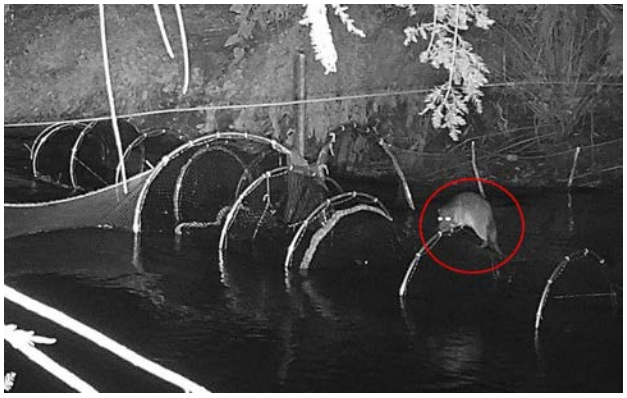
PLATYPUS NET AVOIDANCE – NEW FINDINGS USING CAMERAS *(cont. from p. 1)*

Conversely, although no animals were retrieved from nets at Sites 2 and 3, cameras revealed that three individuals eluded capture at these locations.

The most parsimonious interpretation - given the direction in which each platypus was travelling and when it was filmed relative to when animals were removed from nets elsewhere - is that they were three additional members of the local population.

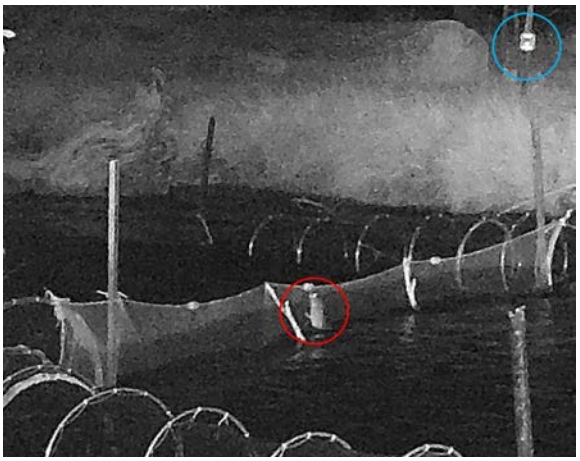
Interestingly, each platypus that evaded capture did so in a different way.



The platypus at Site 2 presumably would have been retrieved by researchers *except* for the presence of a hole made by a rakali, through which the platypus escaped in less than 5 minutes. The hole had been created about an hour earlier by the large rakali circled in red at left (note bright eyeshine). This animal initially perched on top of the net to gaze at some fish held below, then found the net entrance and swam inside before eventually escaping through a hole chewed at the waterline.

The first platypus to arrive at Site 3 entered a net but then failed to swim along its length to reach the final non-return chamber. Instead, it turned around near the front and tried to find its way back out, taking just over 30 minutes to do so. The animal clearly knew an opening must be present, but consistently failed to look for it in the right place (at the centre of the netting funnel fitted just inside the entrance). Instead, it repeatedly searched the cul-de-sac between the outer face of the funnel and the front wall of the net to find a way out. After finally managing to locate the opening, it swam back down the channel.

The second platypus to show up at Site 2 (arriving 22 minutes after the first) was filmed at mid-channel, standing upright on a patch of barely inundated gravel with the tip of its bill just over the top of a netting wing (see animal circled in red at right; also note the camera mounted on a metal stake on the far bank, circled in blue). The animal was not visible in any of the photos subsequently taken (at 5-second intervals) by the two cameras at this site. The simplest explanation is that the animal scrambled over the net and promptly resumed swimming downstream.



These findings indicate that it makes sense to release fish through the night from platypus fyke nets set in places where rakali are likely to occur (already a standard APC practice).

They also suggest that fyke nets should only be set at spots where water is sufficiently deep to preclude a platypus from standing upright at any point along the channel.

Additional camera studies are needed both to amplify our understanding of how to optimise platypus captures in fyke nets, and determine the extent to which fyke-netting inherently underestimates platypus abundance. As a good starting point, findings from the recent 12-month field study investigating the use of time-lapse cameras to monitor platypus activity can be downloaded from https://www.publish.csiro.au/AM/AM23045.

A SEASONAL LOOK AT THE 'AUSSIE OTTER'

In *PN&V* no. 94, we described how the frequency of rakali sightings in Ballarat's Lake Wendouree varies seasonally, peaking in the colder months of the year. To what extent is this pattern repeated across the rakali's wider geographic range?

Photo: Kerry Vickers

The Conservancy has now contributed well over 3,000 reports of rakali sightings to the Atlas of Living Australia, the national database for wildlife reports.

These records, most of which were originally shared with us by persons using the APC's website reporting form, make up nearly one-third of all rakali records held by the ALA. We recently analysed information for the past 7 years (March 2017 to February 2024) to see how the frequency of sightings varies seasonally, and if any monthly variation is apparent on a finer geographic scale.

As shown below, the seasonal pattern of rakali sightings for the entire combined database parallels the Lake Wendouree findings, with animals most often seen in winter, followed by autumn. As mentioned in *PN&V* no. 94, one plausible explanation for this pattern is that juvenile numbers are likely to build up from late spring into autumn, and then decline as surplus animals die or disperse before breeding starts again in spring.

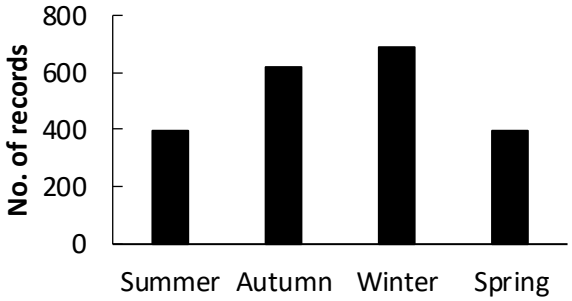


Photo: Jan McKay

Studies conducted both in captivity (a colony housed outdoors in Canberra as part of a research project) and in the wild in Victoria and South Australia have found that rakali mainly breed in spring and summer, though litters occasionally appear in other months. However, further studies are needed to confirm that this generalisation also applies at the warmer, northern end of their range.

Along with seasonal breeding, water temperature may well contribute to a winter peak in rakali sightings. These animals are insulated by a dense fur coat that works nearly as well as platypus fur to keep their skin dry in the water. However, they lack the special network of intertwined veins and arteries found in the platypus's pelvic region, designed so blood returning to the heart from the legs and tail automatically absorbs warmth from blood being pumped to the legs and tail – a very efficient way to retain body heat.

In practice - and quite unlike a platypus - a rakali cannot maintain a stable body temperature in water below 25°C and must periodically leave colder water to warm itself up.

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A SEASONAL LOOK AT THE 'AUSSIE OTTER' (*cont. from p. 3)*

It would therefore not be surprising if rakali become more diurnal and potentially spend more time on land as water temperature drops, augmenting how often they're seen by human observers in autumn and winter.

Location	*Peak sightings by month*
Victoria	June (12%)
South Australia	June (14%)
New South Wales	July (13%)
Queensland	Aug (15%)

Interestingly, as shown at left, when the monthly number of sighting reports is summarised for each state along the eastern Australian mainland, the highest frequency of sightings occurs two months earlier in Victoria and South Australia than in Queensland.

This is consistent with the expected pattern if the frequency of diurnal and/or terrestrial activity peaks in response to low winter temperatures as early as June in Victoria and South Australia, a little later in habitats occurring farther north in New South Wales, and perhaps not at all in Queensland. Research is again required to test this hypothesis in the field.

Meanwhile, if you do happen to see a rakali anywhere in the wild, please consider reporting the details using the form provided at: https://platypus.asn.au/report-a-sighting/.

APC WEBSITE – TAKING A STAND AGAINST FAKE NEWS (AND MORE)

Photo: Pete Walsh

It's no secret that the internet has fostered myths and fallacies on an epic scale. In previous issues of *PN&V* (see no. 76 and 93) we've called attention to some of the fake news items perpetuated about the platypus, and also flagged our intention to improve how information is documented on the APC's own website.

To do so, we've double-checked and now include details of scientific publications contributing to specific APC website pages so interested persons can use the site with confidence and (if desired) read the original source material.

In addition to describing interesting aspects of platypus biology, the APC website provides detailed advice about platypus survey methods and an overview of conservation issues and how to assist platypus survival. It also contains pages about rakali, a 'Report a Sighting' page, and specific guidelines for platypus rescue, platypus-related contingency planning for capital works programs and designing rakali-friendly wetlands. To make use of any of these resources, please visit https://platypus.asn.au/.

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