

# Predation of Eastern Yellow Robin nestlings from the same nest by an Eastern Ringtail Possum and a Pied Currawong

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**Abstract.** This note describes the predation of nestling Eastern Yellow Robins *Eopsaltria australis* by an Eastern Ringtail Possum *Pseudocheirus peregrinus* and by a Pied Currawong *Strepera graculina* and likely attempted predation by a Red Wattlebird *Anthochaera carunculata*. Although Eastern Ringtail Possums have been inferred to be predators of birds' nests, the observations and video presented here appear to be the first unequivocal evidence of carnivory in that species and offer new insights to this possum species' ecology.

## Introduction

Predation is one of the most significant selective pressures in the natural environment that shapes the evolutionary relationships within many systems (Caro 2005). The nest is part of a critical phase in a bird's lifecycle, when the bird is confined to a specific location (Ibáñez-Álamo *et al.* 2015). To a large extent, these selective pressures regulate bird biology. Therefore, nest predation has attracted much attention from ornithologists as it is a key source of evolutionary selection in birds (Ibáñez-Álamo *et al.* 2015).

In the present study, videos were used to identify predators and potential predators at the nest of a pair of Eastern Yellow Robins *Eopsaltria australis* in an urban area in eastern New South Wales.

## Method

In November 2022, an Eastern Yellow Robin nest was recorded in the fork of a Small-leaved Privet *Ligustrum sinense* growing in a disturbed bushland park at Macquarie Park in eastern New South Wales (–33.77724, 151.127991). On 6 November, a visual inspection revealed three eggs in the nest. A single trail camera (Reconyx XR6) was installed on a nearby Broad-leaf Privet *L. lucidum* to monitor activity around the nest and was set to face the nest and record 30 seconds of video on the highest sensitivity setting with no pause between trigger events. It was in place from 9 to 29 November.

## Observations

Video footage taken between 9 and 29 November showed two adult Eastern Yellow Robins taking turns monitoring and incubating the eggs as well feeding the chicks when they had hatched (Figure 1a–b).

On 19 November at 0437 h (Figure 1c; see Video 1 at <https://youtu.be/MTTpldNapSg>), one of the Robins was sitting on the nest and showed behaviour that resembled distress, possibly even defending the nest from a Red Wattlebird *Anthochaera carunculata* that was perched on a

vertical trunk of a Small-leaved Privet, below the nest. On two occasions, the Wattlebird attacked the adult Robin on the nest, while a second Robin was attempting to distract the Wattlebird. The Wattlebird eventually flew off. A visual inspection of the nest at 1625 h that day revealed that two of the three eggs had successfully hatched. The third egg remained unhatched.

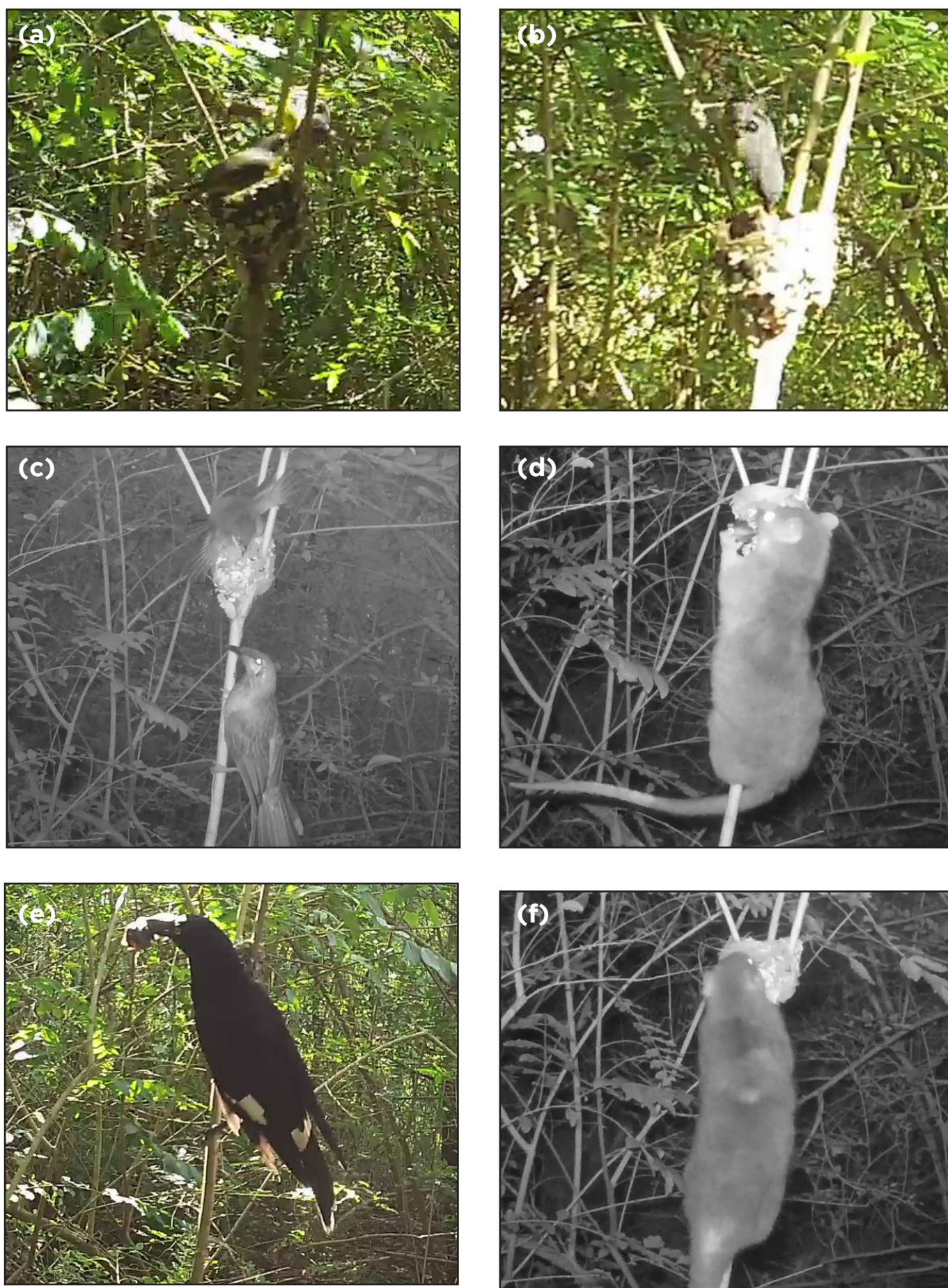
On 22 November at 2133 h, an Eastern Ringtail Possum *Pseudocheirus peregrinus* was filmed removing and consuming one of the chicks from the nest (Figure 1d; see Video 2 at <https://youtu.be/MJvq5hmEGbA>). Throughout the video, the chicks could be heard making agitated calls as the Possum climbed up the privet towards the nest, reached inside the nest, grabbed one of the chicks with its teeth, and transferred this to its left front paw. In the 23 seconds of footage recorded while the Possum consumed the nestling, the nestling was clearly still alive – i.e. there was no fatal bite to kill the nestling before consumption. The video did not record the full duration of the consumption event, although it is presumed that the chick was fully consumed as no remains of the chick could be found near the nest. The adult Robins returned to the nest the following day at 0505 h and continued to care for the remaining chick and egg.

On 23 November at 1615 h, the nest was visited by a Pied Currawong *Strepera graculina* (Figure 1e; see Video 3 at <https://youtu.be/bfkzs7jqRso>). The Currawong was perched on the privet below the nest for 7 seconds before grabbing one of the other chicks with its beak and flying out of view of the trail camera. The Robin chick could be heard making distress calls when it was seized by the Currawong. The last time that the adult Robins were seen visiting the nest was at 0923 h and it is presumed that they abandoned the nest after this time.

There was no evidence of eggs being consumed during the Possum's and Currawong's visits, although a visual inspection of the nest on 26 November revealed that the remaining egg had a minor crack on it and did not survive.

The Eastern Yellow Robin nest was also visited by an adult Eastern Ringtail Possum on 25 and 29 November (Figure 1f) but predation of a Robin chick or egg was not recorded on those occasions. Because of similarities





**Figure 1.** Screenshots of videos captured by a camera trap at a nest from which an Eastern Ringtail Possum and a Pied Currawong each removed an Eastern Yellow Robin nestling, November 2022. (a) Male Robin feeding an incubating female, 21 November; (b) Adult Robin feeding one of the chicks inside the nest, 22 November; (c) Robin defending nest from Red Wattlebird, 19 November; (d) Possum preying on one of the Robin chicks, 22 November; (e) Currawong removing one of the Robin chicks, 23 November; (f) Possum inspecting the nest, 29 November.



between individuals, it was not possible to confidently identify if the Possum was the same individual on all three occasions (22, 25 and 29 November).

## Discussion

My study at Macquarie Park highlighted a diversity of potential and actual predators at a single Eastern Yellow Robin nest.

Nest predation of small bird species has been well documented for Pied Currawongs (Bass 1995; Major *et al.* 1996; Wood 1998; Bayly & Blumstein 2001; Fulton & Ford 2002; Major 2003; Smith *et al.* 2016; Fulton 2019a). Zanette & Jenkins (2000) found that 95% of all Eastern Yellow Robin nest failures were because of predation, with Pied Currawongs accounting for 41.2%. Debus (2006a) identified that predation by medium and large birds, including Pied Currawongs, was the primary reason for failure in 71% of Eastern Yellow Robin nests. He also identified a Pied Currawong preying on what resembled a newly fledged Eastern Yellow Robin that had fallen on the ground. Debus (2006b) recorded predation in five out of eight (63%) and 11 out of 12 (92%) uncaged nests of Eastern Yellow Robins and Scarlet Robins *Petroica boodang*, respectively, with Pied Currawongs among the nest predators.

Red Wattlebirds are also known predators of birds' eggs. Footage from camera traps installed at artificial nests by Fulton (2006) identified this species as a primary culprit of nest predation. Camera traps installed by Fulton (2019b) recorded six nest-predation events by Red Wattlebirds, although only eggs were taken in those events.

Of most significance in my observations from Macquarie Park is the consumption of a nestling Eastern Yellow Robin by Eastern Ringtail Possum. Like other ringtail possums *Pseudocheirus* spp., the Eastern Ringtail Possum is primarily a folivore, but also includes flowers and fruit in its diet (e.g. Thomson & Owen 1964; Pahl 1987; Jackson 2015). Major reviews of ring-tailed possum diet do not document consumption of vertebrates (Jackson 2015), but a few studies infer Eastern Ringtail Possums as predators of birds' eggs or nestlings (via various methods) although observational evidence of this does not appear to have been published.

Mihailova *et al.* (2018) conducted an experiment that suggested that Eastern Ringtail Possums were quicker to predate Crimson Rosella *Platycercus elegans* nestlings and eggs when plumage odour was present at nest boxes. Matthews *et al.* (1999) found that Eastern Ringtail Possums accounted for 0.6% of total predation events (determined by teeth indentations) of artificial eggs in Eastern Yellow Robin nests. Smith *et al.* (2016) concluded that this possum species is also likely to prey on New Holland Honeyeater *Phylidonyris novaehollandiae* nests, based on bite marks on imitation plasticine eggs. Similar studies by Berry & Lill (2003), also using plasticine eggs, suggested this possum as a potential nest predator, although several other mammalian species, with similar bite marks, could have been responsible. Krebs (1998, p. 121) suggested that Eastern Ringtail Possums and Sugar Gliders *Petaurus breviceps* "appear to be the most likely mammalian egg predators" of Crimson Rosellas in Canberra, Australian

Capital Territory. Camera traps installed by Stojanovic *et al.* (2014) showed an Eastern Ringtail Possum visiting a hollow containing a Swift Parrot *Lathamus discolor* nest and suggested that the Possum was a potential predator.

My observations and videos offer new insights into Eastern Ringtail Possum ecology, including the method of predation, consumption rate (only one of the two nestlings was consumed and the egg was not) and multiple return inspections of the nest by the Possum. This is the first properly documented observation of carnivory in the family Pseudocheiridae, joining members of the families Phalangeridae (brush-tail possums, cuscuses) and Petauridae (wrist-winged gliders and relatives) as known diprotodont marsupial predators of birds' eggs and nestlings.

In rural and urban landscapes, a key threat to the survival of small passerines has been the Pied Currawong's frequent predation of nestlings (Reid 1999; Fulton & Ford 2001). As a result of the provision of planted, exotic, berry-bearing shrubs and trees in suburban gardens, there has been an increase in the abundance of this species (Fulton & Ford 2001). Consequently, other small passerines that build open-cup nests and were once very common in Sydney, New South Wales (such as the Jacky Winter *Microeca fascians*: Keast 1995) are in decline partly because of these predation events.

These observations provide valuable insight into interactions between nesting birds, passerine birds and arboreal mammals. In urban bushland environments where optimal habitat for nest building is limited, predation of nestlings by other passerines and by arboreal mammals may reduce Eastern Yellow Robin breeding success. It is also likely that Pied Currawongs are a primary predator of adults and nest contents in all populations of small, sympatric birds (Bayly & Blumstein 2001). My observations further contribute to our understanding of predation pressure on urban birds.

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