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Skinks and burrowing crayfish as prey items of the Eastern Yellow Robin *Eopsaltria australis* in south-eastern Australia

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Abstract. This note describes five observations during 2014 and 2015 of predation by Eastern Yellow Robins *Eopsaltria australis,* on a burrowing crayfish *Engaeus* sp. and small skinks. This species feeds predominantly on terrestrial invertebrates and insects but these recent observations suggest that it is an opportunistic feeder.

Introduction

The Eastern Yellow Robin *Eopsaltria australis* is a member of the Family Petroicidae, which consists of 46 species, limited to Australasia, New Guinea and a small portion of the western central Pacific (Boles 2007), with 22 species occurring in Australia (Christidis & Boles 2008). It occurs in woodland, forest and rainforest habitat (Higgins & Peter 2002; Tzaros 2005; Boles 2007). The diet of robins in the Petroicidae is described by Boles (2007, p. 451) as "a range of small invertebrates, mainly insects", but some members of the family are described as consuming annelids, molluscs, and small lizards (Boles 2007). The Eastern Yellow Robin's food is described as 'invertebrates, mainly insects' (Barker & Vestjens undated; Higgins & Peter 2002). In a detailed study of the birds at Clarkesdale Bird Sanctuary, Victoria, Loyn *et al*. (2009) classified this species as a member of the insectivore/ damp ground feeding guild. Here we describe instances of Eastern Yellow Robins catching skinks (Reptilia: Scincidae) and a burrowing crayfish (Crustaceae), which indicate that the species may be an opportunistic feeder on a wide range of prey.

Observations

Tarra–Bulga National Park, Victoria

On 2 January 2014, at *c*. 1230 h, an adult Eastern Yellow Robin was observed by MO on the southern side of Scenic Track just north of the Tarra–Bulga National Park Visitors Centre. This park is south of Traralgon in the La Trobe Valley, Gippsland. The Robin was sitting on a low branch in a relatively dense understorey, striking a prey item against the branch. Upon closer inspection with the use of 10 x 42 binoculars, MO noted that parts of the food item had dropped to the ground below the sitting Robin. At this point, the Robin departed and MO checked the food remains. These were a small pair of crayfish claws and the end of a crayfish leg. A photograph was taken of the remains (Figure 1) and later identified (with the assistance of Tarmo Raadik, Arthur Rylah Institute for Environmental Research) as belonging to a locally common burrowing crayfish species, the Gippsland Burrowing Cray *Engaeus hemicirratulus* (O'Brien 2007).

Figure 1. Remains of a burrowing crayfish that had been captured and consumed by an Eastern Yellow Robin at Tarra–Bulga National Park, Vic. Photo: Martin O'Brien

Pound Bend, Warrandyte State Park, Victoria

In the early afternoon on 28 August 2014, SR observed a pair of adult Eastern Yellow Robins in a lightly wooded area along the Yarra River at Pound Bend, Warrandyte State Park. One of the Robins flew to the ground, captured a small skink and started striking it on the ground, eventually killing it. It then flew off with the dead skink in its beak. SR did not observe the Robins consuming the skink, and did not record whether there was any blood on the skink or whether its tail was still attached. The skink was ~6–8 cm long.

Figure 2. (a–b) Eastern Yellow Robin with a Delicate Skink, Booderee National Park, Jervis Bay Territory, ACT, (a) holding the skink and (b) striking this against a log. Photos: Con Boekel; (c–e) Eastern Yellow Robin, Rise and Shine Bushland Reserve, Clydesdale, Victoria, (c) begging for food, (d) receiving skink and (e) with skink, indicating likely courtship feeding. Photos: Geoff Park

Booderee National Park, Jervis Bay Territory, Australian Capital Territory

At *c.* 1300 h on 23 September 2014 in the Botanic Garden at Booderee National Park, Jervis Bay Territory, CB observed an adult Eastern Yellow Robin on a perch ~2 m high and 3 m from a skink that was located in the open on a path. In this area, the Botanic Garden has eucalypts (some planted), sparse native shrubs, rich ground-litter and open paths. The Robin flew down and captured the skink in its beak (Figure 2a–b). After striking the prey several times against the surface of the path, the Robin flew ~3 m, with the prey in its beak, and landed on a dead branch lying on the ground. The Robin struck the prey several times against the branch using a downward twist of its head (Figure 2b). When the prey was inert, the Robin flew off with the prey in its beak.

The prey was later identified from the photographs by C. Macgregor as a Delicate (or Garden) Skink *Lampropholis delicata*. CB did not see the skink's tail when it was captured and could not find it after a search of the nearby area. CB also did not see the skink bleeding when being handled by the Robin but one photograph shows a little blood from the skink's mouth following the battering process.

Clarkesdale Bird Sanctuary, Victoria

On 25 December 2014, at *c.* 1700 h in the extensively revegetated Bird Paddock (see Loyn *et al.* 2009) at Clarkesdale Bird Sanctuary (south-east of Linton), KC, VL and Daphne Hards observed two adult and two juvenile Eastern Yellow Robins. One adult appeared to be killing a small skink: a long dark animal in the Robin's beak appeared flexible as the Robin struck it repeatedly against a branch on the ground. KC could see the prey reddening as the striking progressed, presumably from the prey bleeding. The approximate length of the prey was less than half the length of the Robin, i.e. ~4–5 cm. The capture of this prey by the Robin was not observed. KC then observed the Robin feeding this prey to one of the juvenile birds. The prey was pushed whole into the beak of the young bird, which appeared to swallow the entire prey.

The observation took place ~10 m from the birds and was partially screened by shrubs. Poor light at the shady location where the predation occurred precluded definitive identification of the prey, and the legs and tail of the prey could not be seen. We noted that the prey was more robust in appearance than an earthworm, and the skink could have shed its tail by then (Cogger & Zwiefel 2003; Wilson & Swan 2013). Both skinks and earthworms have red blood, but a skink is much more likely to bleed visibly when struck in this manner (Ruppert *et al.* 2004; M. Campbell pers. comm.).

At Clarkesdale Bird Sanctuary, VL observed a pair of breeding Eastern Yellow Robins near her campsite capturing large earthworms, which are flexible, but which did not produce red blood when struck repeatedly by a Robin.

There are 10 species of lizards in the area surrounding Clarkesdale. From its size and habitat, the skink involved in our observations was most likely the Grass Skink *Lampropholis guichenoti*, Boulenger's Snake-eyed Skink *Morethia boulengeri*, or possibly Spencers' Skink *Pseudemoia spenceri* or Coventry's Skink *Niveoscincus coventryi* (Wilson & Swan 2013; N. Clemann pers. comm.). Skinks of the genus *Lampropholis* are described by Wilson & Swan (2013, p. 286) as having "fragile" tails.

Rise and Shine Bushland Reserve, Clydesdale, Victoria

In mid morning on 23 August 2015, GP photographed an adult Eastern Yellow Robin on a branch—it appeared to be begging for food. Another adult Robin flew in, holding a skink in its beak (Figure 2c). This skink was immediately fed to the first Robin (Figures 2d–e), which then flew away. GP had observed an active Robin nest nearby. Thus this was likely an observation of courtship feeding. The skink, which had lost its tail, appears to be a *Lampropholis* or *Saproscincus* species. GP has observed courtship feeding in Eastern Yellow Robins on many occasions but never of a skink. The site is in Alluvial Terraces Herb-rich woodland that is in good condition.

Discussion

Detailed studies on the diet of the Eastern Yellow Robin summarised by Higgins & Peter (2002) list reptile prey as the least frequent category, with invertebrates such as insects and spiders being the major food sources. Higgins & Peter (2002) listed only a few references to reptiles and specifically Family Scincidae as prey (i.e. Littlejohns 1932; Lea & Gray 1935; Marchant 1985; Royal Australasian Ornithologists Union Nest Records Scheme). Barker & Vestjens' (undated) comprehensive study of Australian birds' diet listed 90 references to Eastern Yellow Robins feeding on invertebrates but only two to feeding on skinks. Ford (1985) stated that reptiles are 'occasionally eaten', and Slater *et al.* (2003) mentioned small lizards as forming part of the Robin's diet. In addition, Hans Erken (2014) photographed an Eastern Yellow Robin holding a Rose's Shadeskink *Saproscincus rosei* in its beak, at Mary Cairncross Scenic Reserve near Maleny, Queensland. Amongst other members of the Family Petroicidae, the Hooded Robin *Melanodryas cucullata*, Western Yellow Robin *Eopsaltria griseogularis* and Scarlet Robin *Petroica multicolor* have also been recorded to include skinks in their diets (Higgins & Peter 2002).

The fact that the Eastern Yellow Robins at Clarkesdale Sanctuary were feeding fledged young could have been an impetus to capture this larger prey item. Marchant (1985) and Littlejohns (1932) also observed Eastern Yellow Robins feeding skinks to their young. In addition, the Robins described by SR and CB did not consume their prey at the observation sites, but flew away with their prey. This may indicate that the Robins fed their prey to young birds elsewhere, as the observation dates of August and September fall within the Robin's breeding period of July–January (Higgins & Peter 2002). The observations described here may point to a link between breeding of this species and preying on items more substantial than small invertebrates. In addition, the observation of a skink being fed during courtship strengthens the link of this prey with breeding. This possible relationship requires further research.

Crustaceans, especially burrowing crayfish, have not been recorded previously in the Eastern Yellow Robin's diet. The extensive study of bird diet by Barker & Vestjens (undated) did not record decapod crustaceans as part of Australian robins' food items, although Higgins & Peter (2002) listed the following species as feeding on decapods: Lemon-bellied Flycatcher *Microeca flavigaster*, White-browed Robin *Poecilodryas superciliosa* and Mangrove Robin *Peneothello pulverulenta.*

These observations indicate that Eastern Yellow Robins can be opportunistic and may have a wider range of prey, such as reptiles and crustaceans, more frequently than previously described. Further observations and photographs would extend our understanding of the importance of these larger prey items for the species.

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References

Barker, R.D. & Vestjens, W.J.M. (undated) [*c.*1991]. *The Food of Australian Birds, Volume 2: Passerines.* CSIRO, Melbourne.

Boles, W.E. (2007). Family Petroicidae (Australasian robins). In del Hoyo, J., Elliott, A. & Christie, D.A. (Eds). *Handbook of Birds of the World*, *Volume 12: Picathartes to Tits and Chickadees*. Lynx Editions, Barcelona, Spain.

Christidis, L. & Boles, W.E. (2008). *Systematics and Taxonomy of Australian Birds*. CSIRO Publishing, Melbourne.

Cogger, H.G. & Zwiefel, R.G. (Eds) (2003). *Encyclopedia of Reptiles & Amphibians*. Rev. edn. Fog City Press, San Francisco, California, USA.

Erken, H. (2014). Eastern Yellow Robin eating a Rose Shade Skink. *Flickr*. Available online: https://www.flickr.com/photos/cheap-thrillz/12944387974/in/photostream/ (retrieved 12 March 2015).

Ford, H.A. (1985). The bird community in eucalypt woodland and eucalypt dieback in the Northern Tablelands of New South Wales. In: Keast, A., Recher, H.F., Ford, H. & Saunders, D. (Eds). *Birds of Eucalypt Forests and Woodlands*: *Ecology, Conservation and Management,* pp. 333–340. Royal Australasian Ornithologists Union & Surrey Beatty, Sydney.

Higgins, P.J. & Peter, J.M. (Eds) (2002). *Handbook of Australian, New Zealand & Antarctic Birds, Volume 6: Pardalotes to Shrike-thrushes*. Oxford University Press, Melbourne.

Lea, A.H. & Gray, J.T. (1935). The food of Australian birds, part 2. *Emu* **35**, 63–98.

Littlejohns, R.T. (1932). Unusual food of the Eastern Yellow Robin. *Emu* **31**, 308–309.

Loyn, R.H., Faragher, J.T., Coutts, D.C. & Palmer, G.C. (2009). Bird responses to targeted revegetation: 40 years of habitat enhancement at Clarkesdale Bird Sanctuary, central-western Victoria. *Australian Field Ornithology* **26**, 53–75.

Marchant, S. (1985). Breeding of the Eastern Yellow Robin *Eopsaltria australis*. In: Keast, A., Recher, H.F., Ford, H. & Saunders, D. (Eds). *Birds of Eucalypt Forests and Woodlands*: *Ecology, Conservation and Management,* pp. 231–240. Royal Australasian Ornithologists Union & Surrey Beatty, Sydney.

O'Brien, M.B. (2007). Freshwater and terrestrial crayfish (Decapoda, Parastacidae) of Victoria: Status, conservation, threatening processes and bibliography. *Victorian Naturalist* **124**, 210–229.

Ruppert, E.E., Fox, R.S. & Barnes, R.D. (2004). *Invertebrate Zoology*. 7th edn. Thompson, Belmont, California, USA.

Slater, P., Slater, P. & Slater, R. (2003). *The Slater Field Guide to Australian Birds*. New Holland Publishers, Sydney.

Tzaros, C. (2005). *Wildlife of the Box-Ironbark Country*. CSIRO Publishing, Melbourne.

Wilson, S.K. & Swan, G.A. (2013). *A Complete Guide to Reptiles of Australia.* 4th edn. New Holland, Sydney.

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