



Closed-litter Rainbow Skink (*Carlia longipes*) Foraging on Flies Attracted to Fallen Fig Fruits

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Forty-six currently recognized species of four-fingered skinks (or rainbow skinks) of the genus *Carlia* occur in the Australopapuan region (Uetz et al. 2022). Members of *Carlia* feed primarily on arthropods (Wilson and Knowles 1998). The Closed-litter Rainbow Skink (*Carlia longipes*) occurs along the coast and adjacent hinterland from Cairns to Prince Charlotte Bay in northeastern Queensland, Australia, where it forages in leaf and other ground litter and low vegetation (Cogger 2018). Rodda (2020) suggested that the diet of the Closed-litter Rainbow Skink comprised invertebrates, including grasshoppers (Campbell 2008) and centipedes (Wilson 2012). O’Brien (1994) documented the Closed-litter Rainbow Skink consuming a juvenile conspecific, a Striped Snake-eyed Skink (*Cryptoblepharus virgatus*), and a Mourning Gecko (*Lepidodactylus lugubris*). However, little else has been

published on diet and foraging strategies for this species. Cameron and Cogger (1992) examined the stomach contents of 22 specimens of what is now recognized as Macleay’s Rainbow Skinks (*C. sexdentata*) (Donnellan et al. 2009), but which were at the time classified as Closed-litter Rainbow Skinks, in the Weipa District and found “small snails, grasshopper[s] and beetles as well as one lizard egg 14.5 mm long, and the tail and legs of a skink. (A specimen collected in Torres Strait in July 1977 regurgitated a *Cryptoblepharus virgatus*.” Herein I present observations on selective foraging by the Closed-litter Rainbow Skink and new prey types.

At 0730 h on 1 and 2 October 2022, I observed a single Closed-litter Rainbow Skink on a paved pedestrian footpath in Port Douglas, Queensland, Australia (16.4840 S, 145.4623 E). It was foraging near newly fallen fig fruits (most likely



Figure 1. Closed-litter Rainbow Skink (*Carlia longipes*) watching flies attracted to fallen fig fruit on a footpath. Photograph by James Fitzsimons.

Port Jackson Fig, *Ficus rubiginosa*) that had been crushed, probably by human foot traffic, as well as near what appeared to be fig fruit and seeds spat out by flying-foxes (*Pteropus* sp.). The crushed figs were approximately 30 cm from the cover of sedges and leaf litter on the pedestrian nature-strip verge. Numerous brightly colored flies (likely Sarcophagidae and Calliphoridae; Queensland Museum, pers. comm.) were feeding on those fruits in the morning sun. The skink positioned itself near or between the fallen figs and pursued flies when within about 15 cm (Figs. 1–2). This was a clear and deliberate foraging strategy and the skink consumed multiple (5–10) flies during the 10 min of observation on each of the two days (Fig. 3). Sometimes the skink would run to cover when humans walked past, but I did observe times at which nearby humans did not cause the skink to hide. On the occasions the skink ran to cover, it would return to the figs within a minute. The spat is likely to have come from Spectacled Flying-foxes (*Pteropus conspicillatus*) (Churchill 1998), which have a sizable colony in Port Douglas (Richards 1990; Shilton et al. 2008). Australasian Figbirds (*Sphecotheres vieilloti*) and Torresian Imperial Pigeons (*Ducula spilorrhoa*) were foraging in the tree, and also might have contributed to the dropped fruits. Small ants were not pursued even if close to the skink. On one occasion, a very small fig rolled on the ground, the lizard pursued it, grabbed it with its mouth, but subsequently released it.

The Closed-litter Rainbow Skink mostly deployed a sit and wait foraging strategy, waiting for flies to come within a certain distance (~15 cm) before pursuing. Close approaches by humans on the footpath on some occasions did not elicit a retreat, potentially indicating that a focus on prey may override the fear/retreat response in some cases (see also Fitzsimons and Thomas 2018). The foraging strategy and location is unlike past descriptions of foraging strategies for this and closely related species of *Carlia* (e.g., “an active

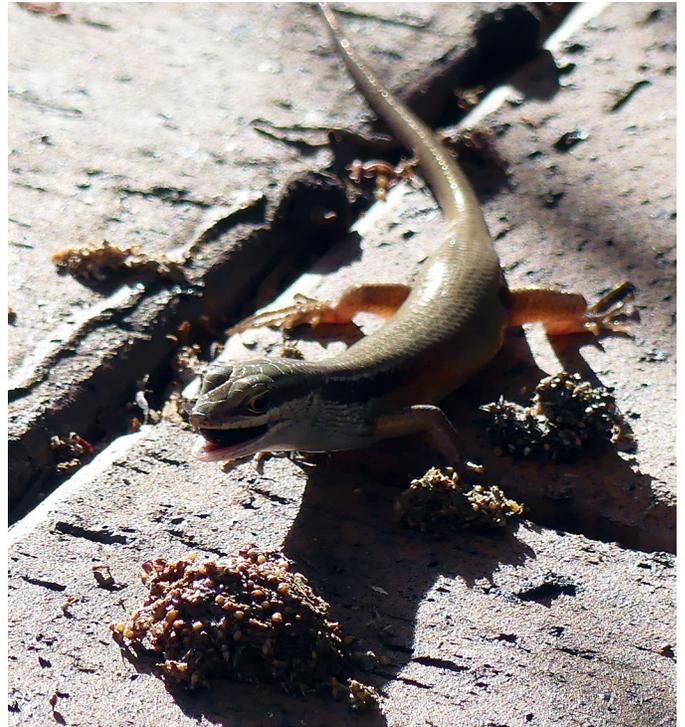


Figure 3. Closed-litter Rainbow Skink (*Carlia longipes*) consuming a fly attracted to fallen fig fruit/flying-fox spat. Photograph by James Fitzsimons.

diurnal forager,” “forages amongst leaf and other ground litter, climbs onto logs, stumps and low vegetation”; Cameron and Cogger 1992; Cogger 2018). Slender Rainbow Skinks (*Carlia gracilis*) also have been seen active foraging (searching) in ground litter at Rainbow Springs, Northern Territory (pers. obs., 20 October 2022).

The crushed fig fruit attracted a ready stream of flies. Surprisingly little documentation addresses attraction to fruit-attracted prey sources for reptiles. However, Turner (2021) documented Green Treefrogs (*Litoria caerulea*) feeding on moths attracted to ripe fruits of the Red Leaf Fig Tree (*Ficus congesta*) and similar observations for the Dainty Green Treefrog (*Litoria gracilentata*) at macadamia inflorescences (Turner 2019).

These observations add to our scant knowledge of *Carlia* diet and document foraging strategies for this genus that have not previously been published. Manicom and Schwarzkopf (2011) found three species of *Carlia* (*C. rostralis*, *C. rubrigularis*, and *C. storri*) on Hinchinbrook Island National Park, Queensland, Australia, to be “selective and they consumed certain prey types and sizes that were in short supply in the environment.” Manicom and Schwarzkopf (2011) also found that one of those species, *C. storri*, “ate large numbers of dipterans and a relatively large number of non-ant hymenopterans (such as wasps and bees), active, mobile prey that would most likely be captured by ambush foraging,” and suggested it was “possible that *C. storri* employed this foraging mode more regularly than the other two species.”



Figure 2. Fly attracted to likely flying-fox spat consisting of fig fruit. Photograph by James Fitzsimons.

Small ants were ignored by the Closed-litter Rainbow Skink during my observations, even when close to the skink, and despite being less mobile than flies. However, Sprackland et al. (2004) found *Carlia laevis* to feed on “small insects including black ants, small beetles and bees” on Fitzroy Island, Queensland, Australia (although they did not record the diet for the Closed-litter Rainbow Skink, which also occurs at that location). Manicom and Schwarzkopf (2011) found that, while all three species of *Carlia* they studied consumed ants to some extent, small (< 3 mm) ants and flies were very rarely taken.

Aside from generalized statements of invertebrates and documented instances of skinks and geckos in the diet of the Closed-litter Rainbow Skink (O’Brien 1994; Campbell 2008; Wilson 2012; Rodda 2020), little else has been published. Herein I identify flies as a specific target by at least this individual, a prey type not previously recorded. Further observations of foraging strategies on this and other species of *Carlia* would complement studies based on stomach content analyses (e.g., Manicom and Schwarzkopf 2011).

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