

# **A case of web entanglement and apparent predation of the skink *Lampropholis delicata* (De Vis, 1888) (Sauria: Scincidae: Lygosominae) by the red-back spider *Latrodectus hasseltii* Thorell, 1870 (Aranea: Araneomorpha: Theridiidae) in an autochthonous mesic habitat in coastal southeast Australia**

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There are several accounts of predation of small Australian amphibians and reptiles by terrestrial arthropods, although relatively few compared with those from most other continents. The majority of published Australian records are of small lizards and snakes entangled in webs, apparently prey of female red-back spiders *Latrodectus hasseltii*. All of these observations were made in the vicinity of urban and rural buildings, most in mid to late summer where dates were provided (Anonymous, 1939; McKeown, 1936, 1943, 1952, 1963; Roberts, 1941; Copland, 1953; Cook, 1973; De Rebeira, 1981; König, 1987; Bush, 1989; Raven, 1990; Orange, 1990, 2007; D. Goodwin in Valentic, 1997; Durigo, 2010). The lizard records are dominated by terrestrial lygosomine skinks. However, Cook (1973) reported *L. hasseltii* as one of the few predators of the arboreal skink *Cryptoblepharus p. pulcher* (as *C. boutonii virgatus*) in the Sydney region, New South Wales. Raven (1990) reported two dead and desiccated *C. p. pulcher* (as *C. virgatus*) in *L. hasseltii* webs and also gave an account of web entanglement and putative predation of the fossorial lygosomine skink *Anomalopus verreauxii* in suburban Brisbane, Queensland. Geckoes have also been recorded as prey of *L. hasseltii*. König (1987) reported *L. hasseltii* web entanglement of the arboreal gecko *Christinus marmoratus* (as *Phyllodactylus (Christina) marmoratus*), and Orange (2007) reported web entanglement of *C. marmoratus* and another arboreal gecko *Gehyra variegata*, both reports from

Western Australia. The present note extends the list of records of web entanglement and apparent predation by *L. hasseltii* on small Australian lizards, as well as providing details of the interaction.

Observations were made during the course of a local survey for aboriginal engravings by the second author, 2 July 2010 (southern hemisphere mid-winter), ~1000-1010 hr (Australian Eastern Standard Time), on a dry, overcast and still day,  $T_a \sim 12^\circ\text{C}$ , 8/8 c.c. (Australian Bureau of Meteorology records, nearest recording station at Holsworthy Range ~5 km southwest of observation site), ~100 m south of the Georges River, ~26 km southwest of the Sydney CBD, mesic southeast coastal Australia, at  $33^\circ 58' 51''\text{S}$ ,  $150^\circ 59' 33''\text{E}$  (GDA 94 grid, Garmin® *eTrex* GPS), 29 m elevation. The habitat in the immediate area is formed by a Hawkesbury Sandstone ridge on the southern bank of the Georges River with mixed yellow clay/grey sand soils that support a minimally disturbed rare forest remnant (Sydney Sandstone Ridgeway Forest, one of few remaining in the Greater Sydney metropolitan region), a dry sclerophyll forest type, over a medium shrub middle storey and heath understorey, with a well-developed leaf-litter layer, and weathered sandstone cliffs and exposed outcrops and platforms. This riparian reserve area is bordered to the south and west by a road and Holsworthy Military Reserve, to the north by the residential suburb of Sandy Point and roads, and continuous suburbs north of the river.

A dead adult *Lampropholis delicata* (~70 mm total length) with a complete original tail was observed entangled in the typically irregular web of a mature adult female *L. hasseltii* (abdomen diameter ~8 mm). The tail of the *L. delicata* had not been autotomised, although an angular point in the curved tail may indicate a partial break at about the mid-tail level. The web was situated

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within one of numerous potholes (~20 cm diameter and 15-20 cm depth) in a ~20 m<sup>2</sup> exposed rock platform near the top of the ridge, in a diffusely sunlit area at the time of observation. The potholes are formed by the erosive effect of rotation of pebbles by water action across the sandstone surface (probably a former stream bed, later uplifted). The bottom of the potholes were lined with dried leaf litter. The top of the web was ~10 cm above the bottom of the pothole suspended horizontally between attachment points on the sides. The *L. delicata* was held in position by several silk strands near the top of the web and ~5 cm from the southwestern side of the pothole with its ventral surface uppermost, its head pointing into the centre and the tail loosely coiled and slightly twisted over the dorsal surface of the body (Figure 1).

While the lizard was tightly bound together with silk strands, it was not swathed in silk as was also the case with the few small (<1 mm) unidentified gnats (Diptera: Nematocera) that were caught in the web. No macroinvertebrate prey were present in the web. On the

condition and position of the *L. delicata* and prevailing recent weather, it was estimated that entanglement had occurred over the previous 2-3 days, and mortality probably the previous night or early in the morning prior to observation. The lizard was not desiccated, *rigor mortis* was present, decomposition had not commenced and no necrotic odour was perceived. When first detected, the spider was in the web on the left ventrolateral surface of the *L. delicata* and remained in this position on the carcass, despite close proximity and photography by the observer and poking of the carcass with a stick to determine if the lizard was still alive. This is atypical of the response to disturbance of active adult female *L. hasseltii* in webs, as they usually retreat to a refugium when disturbed by day (DCM, pers. obs.). The subjects were not further disturbed after photography and the dead *L. delicata* was left in the web. Although most diagnostic character-states for the two *Lampropholis* species found in metropolitan Sydney are dorsal and lateral and hence not evident in the photograph (Figure



**Figure 1.** Dead adult *Lampropholis delicata* trapped in web of adult female *Latrodectus hasseltii*. Photograph © P. A. Ridgeway (Panasonic® 5MP digital (non-SLR) camera, taken without flash in diffuse sunlight).

1), habitus, head shape, ventral colour pattern and particularly the irregular dark markings on the ventral tail are all characteristic of *L. delicata* as compared with its cogenor *L. guichenoti*.

This interaction could be interpreted as a case of predation by the adult female *L. hasseltii* on the *L. delicata*. However, other explanations are possible. This record adds to several other reported cases of web entanglement and apparent predation of terrestrial *Lampropholis* spp. and other small Australian skinks by *L. hasseltii*. It is notable as the first report from a non-anthropogenic habitat, for its occurrence in mid-winter, close attendance during day-light on the dead *L. delicata* by the female *L. hasseltii*, the lack of behavioural response by the *L. hasseltii* to disturbance by the observer, absence of extensive silk swathing over the dead *L. delicata*, and the lack of macroinvertebrate prey items in the web.

References below comprise a bibliography of previous published accounts of web entanglement and apparent predation of lizards and snakes by *L. hasseltii*, completely and correctly cited for the first time.

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## References

- Anonymous (1939): Rare case of spider capturing snake in web reported from west. The Telegraph, Brisbane [Queensland, Australia], Tuesday 31 January 1939, p. 2.
- Bush, B. (1989): Ontogenetic colour change in the Gwardar, *Pseudonaja nuchalis*. Western Australian Naturalist **18**(2):25-9.
- Cook, R. (1973): The wall lizard *Cryptoblepharus boutonii virgatus*. Herpetofauna **6**(2): 15-16.
- Copland, S.J. (1953): Presidential address, delivered at the Seventy-eighth Annual General Meeting, 25th March, 1953, by S. J. Copland, M.Sc. Recent Australian herpetology. The Proceedings of the Linnean Society of New South Wales **78**(1-2):i-xxxvii.
- De Rebeira, P. (1981): A Redback Spider attacking an immature Dugite. Western Australian Naturalist **15**(1): 33-34.
- Durigo, B. (2010): This snake's prey became the predator. The Daily Advertiser [Wagga Wagga, N.S.W., Australia], Thursday 1 April 2010, p. 2.
- König, R. (1987): Die Schwarze Witwe (*Latrodectus mactans hasseltii* Thorell) als Fressfeind von Reptilien in Australien. Herpetofauna **9**(48): 6-8.
- McKeown, K. (1936): Spider wonders of Australia [1<sup>st</sup> ed.]. Angus & Robertson, 89 Castlereagh Street, Sydney. xiv + 270 pp.
- McKeown, K.C. (1943): Vertebrates captured by Australian spiders. Proceedings of the Royal Zoological Society of New South Wales for the year 1942-43 **63**: 17-30.
- McKeown, K.C. (1952): Australian spiders. Their lives and habits (2<sup>nd</sup> ed.). Angus & Robertson, Sydney. xiv + 274 pp.
- McKeown, K.C. (1963): Australian spiders. Their lives and habits (3<sup>rd</sup> ed.). Sirius Books (an imprint of Angus & Robertson), Sydney. xiv + 287 pp.
- Orange, P. (1990): Predation on *Rhinoplocephalus monachus* (Serpentes: Elapidae) by the redback spider, *Latrodectus mactans*. Herpetofauna **20**(1): 34.
- Orange, P. (2007): Predation on lizards by the red-back spider, *Latrodectus hasseltii*. Herpetofauna **37**(1): 32-35.
- Raven, R. (1990): Spider predators of reptiles and amphibia. Memoirs of the Queensland Museum **29**(2): 448.
- Roberts, N.L. (1941): Some notes on Australian spiders. Proceedings of the Royal Zoological Society of New South Wales for the year 1940-41 **61**: 36-41.
- Valentic, R.A. (1997): Predation on *Litoria tornieri* (Anura: Hylidae) by a *Dolomedes* like spider (Araneomorphae: Pisauridae). Herpetofauna **27**(1): 49-50.