

Short Communication

First records of *Lygosoma haroldyoungi* (Taylor, 1962) from Cambodia with notes on its locomotion behaviour

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Though *Lygosoma haroldyoungi* has been known to science for over 60 years (Taylor, 1962), the number of verified records and voucher specimens has remained very limited until now. This has led to a poor understanding of the actual distribution and general biology of the species and its primarily sub-fossorial life mode might be the major factor for that (Grossmann, 2012; Miller & Zug, 2016). Though the species is known to occur in a wide range of habitats, including dipterocarp forests and agricultural lands, any encounter with a *L. haroldyoungi* seems to be a rather unusual event, even for local people or farmers. One such rare finding of a “Naga with legs” in Laos was reported in an ethnozoological remark by Geissler *et al.* (2011). Currently the species is only known to occur in Thailand and Laos. The latest compilation of published distribution records (Taylor, 1962; Soderberg, 1967; Way, 1975; Nabhitabhata *et al.*, 2004; Moravec & Böhme, 2008; Teynié & David, 2010; Orlov *et al.*, 2010; Grossmann, 2012) was collated (Fig. 1) by Chuaynkern *et al.* (2013). Due to the proximity of some records to the borders of Myanmar and Cambodia, as well as the wide habitat range of *L. haroldyoungi*, its occurrence in both countries was suspected (Pauwels *et al.*, 2008; Das, 2010; Miller & Zug, 2016). Subsequently, Miller

& Zug (2016) found a partly digested *Lygosoma* in the stomach of a *Psammodynastes pulverulentus* from Kachin State in Myanmar, which they hesitantly referred to *L. haroldyoungi*. However, some differences in pholidosis and the poor state of preservation made the determination at species level preliminary.

In 2020 and 2022, a total of four specimens of *L. haroldyoungi* were found at two localities in central and northern Cambodia (Fig. 1). These represent the first country records of the species in Cambodia and extend its known range about 350 km towards the southeast. The first specimen was found on 22 July 2020 by an anonymous person in Siem Reap, Siem Reap Province. A photograph of this specimen (Fig. 2) was sent to Neang Thy for identification. The three other specimens were found by Nanthawichianrit Nila on 13 June 2022 near Alon Veng in Kulen Promtep Wildlife Sanctuary, Oddar Meanchey Province (Figs 2 & 3). Photographs and films (Figs 2 & 3) were subsequently posted in the group Natural Cambodia on Facebook for determination. Based on this material, we were able to identify all four specimens as *L. haroldyoungi* on account of their body shape and characteristic colour pattern. They match the holotype in the following diagnostic traits (Taylor, 1962; Grossmann, 2007; Geissler *et*

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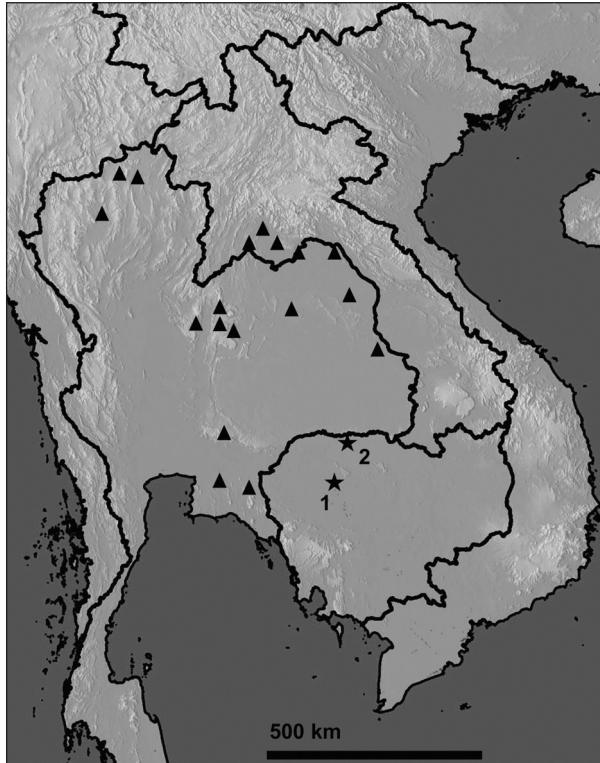


Fig. 1 Northern mainland Southeast Asia showing the known distribution records of *L. haroldyoungi*. Black triangles mark the published records in Thailand and Laos as compiled by Chuaynkern *et al.* (2013). Asterisk 1 marks the first Cambodian record from Siem Reap, Siem Reap Province. Asterisk 2 shows the second Cambodian record from Alon Veng within the Kulen Promtep Wildlife Sanctuary, Oddar Meanchey Province.

al., 2011): body extremely elongated, snake-like; limbs short, pentadactyle (can be seen in the specimen in Fig. 2); dorsal surface of head dark brown, sharply bordered by the light dorsum colouration behind the parietals; ground colouration of dorsum light yellowish-brown (the specimen depicted in Fig. 2 shows a rather greyish-brown ground colouration); dorsum bearing dark brown or blackish crossbands which are narrowing towards the flanks, forming a reticulated pattern (in the specimen depicted in Fig. 2 the anterior crossbands are widely fused, forming an irregular paravertebral band on the anterior part of trunk); original parts of tail bearing dark brown crossbands, alternating with thin bands in grey, whitish or bluish colouration; regenerated parts of tail dark brown, scattered with irregular light spots. Interestingly, one specimen from Kulen Promtep Wildlife Sanctuary (the larger specimen depicted in Fig. 2) is bearing



Fig. 2 Above: Specimen of *L. haroldyoungi* found during excavations on 22 July 2020 in Siem Reap, Siem Reap Province (© Anonymous). Below: Two specimens found on 13 June 2022 near Alon Veng in Kulen Promtep Wildlife Sanctuary, Oddar Meanchey Province (© Nila Nanthawichianrit).

a completely original, not regenerated tail. All specimens known to science so far had partially regenerated tails (Grossmann, 2012). Though we do not have exact coordinates for the new localities, the highly disturbed microhabitats shown in Figs 2 & 3 as well as the circumstances of the observations support the assumption that *L. haroldyoungi* is able to survive in anthropogenically transformed habitats such as agricultural areas (Grossmann, 2012; Chuaynkern *et al.*, 2013), and is by no means restricted to sub-montane forests, as stated by Chan-ard *et al.* (2015). One of the four reported Cambodian specimens was filmed in a sequence of about 30 seconds, providing a short insight into the various modes of locomotion employed by this skink (Fig. 3). Thus far, the locomotion of *L. haroldyoungi* was only observed in captivity and described by Grossmann (2012). He identified seven major ways of locomotion, of which four were observed in our filmed specimen. (1) Slow crawling: the skink moves in a sinuous movement, using all extremities for crawling; depending on the surface structure this

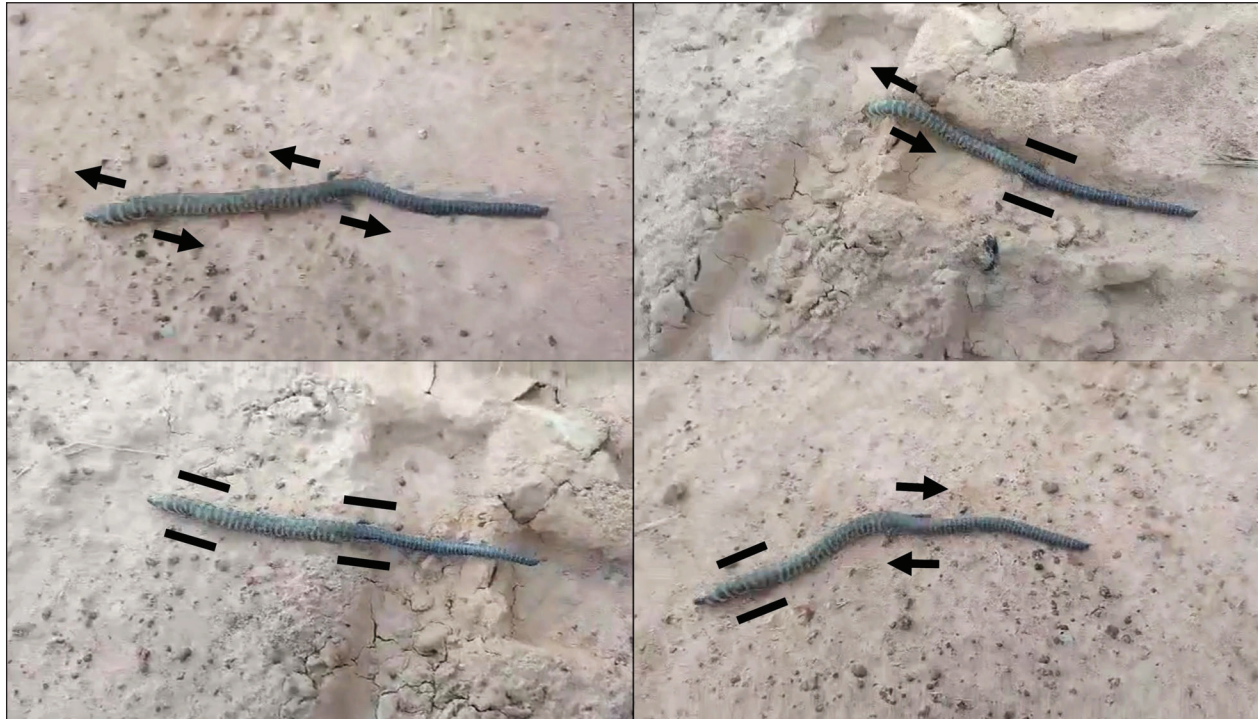


Fig. 3 Fixed images from a short film showing four different modes of locomotion (*sensu* Grossmann, 2012) observed in a fourth Cambodian specimen of *L. haroldyoungi*, found on 13 June 2022 near Alon Veng in Kulen Promtep Wildlife Sanctuary, Oddar Meanchey Province. Above-left: slow crawling; above-right: normal-speed crawling; below-left: speedy crawling; below-right: hindleg crawling. Arrows indicate the direction of move of each limb, while short lines indicate limbs adpressed to the body (© Nila Nanthawichianrit & Peter Geissler).

crawling also contains stages, in which the trunk is almost completely stretched out. (2) Normal-speed crawling: the sinuous movements are faster; forelegs are used for crawling while hindlegs are adpressed to the tail base; the skink actively uses the surface structure by pushing its body to the wheel imprint to thrust itself forward. (3) Speedy crawling: snake-like movement; all extremities adpressed to body and base of tail; the trunk may also be stretched out completely, while moving in this manner. (4) Hindleg crawling: forelegs are adpressed to trunk; hindlegs are used for crawling. The latter mode was also observed by Grossmann (2012), but only when his specimen was crawling through underground tunnels. All four modes are shown in Fig. 3.

The new records described above underline the value and importance of observations made by amateur naturalists and local people for a better understanding of biodiversity in Cambodia. Citizen science may not only contribute fundamental biological data for under-surveyed areas, but also represents a valuable starting point for wildlife conservation efforts.

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