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SHORT COMMUNICATION

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Courtship and mating behaviour of the intermediate bow-fingered gecko *Cyrtodactylus intermedius* in the wild

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The semi-arboreal gecko, *Cyrtodactylus intermedius* (Smith, 1917), endemic to south-east Asia, was first described from Khao Sebab Mountain in Chantaburi Province, south-east Thailand. The geographic range of the species includes Khao Sebab Mountain (in the Cardamom Mountains) and the Dong Phaya Yen-Khao Yai forest complex of Thailand, Phnom Aural Wildlife Sanctuary and the Cardamom Mountains of Cambodia, and throughout the Dong Nai and Kien Giang Provinces of Vietnam. This species is also found in the dry evergreen forest of the Sakaerat Biosphere Reserve (SBR) which is part of the Dong Phaya Yen-Khao Yai forest complex in north-eastern Thailand. We report here the first observation of the courtship and mating behaviour of *C. intermedius* in the SBR.

On 2 July 2020, in the middle of the rainy season, during a herpetological night survey in the dry evergreen forest of the SBR, we observed and photographed the courtship and mating of a pair of *C. Intermedius*. This occurred on a natural trail (14° 29’59.4708’’ N, 101° 55’35.1084’’ E, 496 m a.s.l.). The geckos were positioned approximately 30 cm up the dead trunk of a native spiny shrub tree (*Streblus ilicifolius*). The female gecko was clearly larger than the male and the species identified later when a hemipene was visible from the male. We witnessed courtship and mating behaviours from 19:46 h to 20:32 h in the drizzling rain, following heavy rain in the late afternoon. Temperature and humidity were 28 °C and 84% respectively according to the SBR weather station in the dry evergreen forest.

The courtship period (19:46 to 20:24 h)

The male was initially observed clinging to the back of the female in a vertical position. He then twisted the posterior portion of his body, on the left-hand side of the female, and put his tail under her cloaca. He was flicking his tail, possibly to stimulate the female (Fig. 1A). Eight minutes later (19:54 h), the male moved the anterior portion of his body onto her back and waited for her to accept his advances (Fig. 1B). The mating did not occur and the female began to move around (Fig. 1C). The male then pressed his head against the middle of her dorsum. At 20:22 h, the female moved closer to the ground with her head down and tail stiff. The male pressed his weight on her back, and his right fingers pushed her head, appearing to control her motions. The male’s cloaca was bulging at this time and turned a bloody-reddish colour (Fig. 1D). The pair finally rotated back into an upright position, with the male completely clinging to her back (Fig. 1E). Then the male inserted his tail base, causing the female to lift her tail (Fig. 1F).

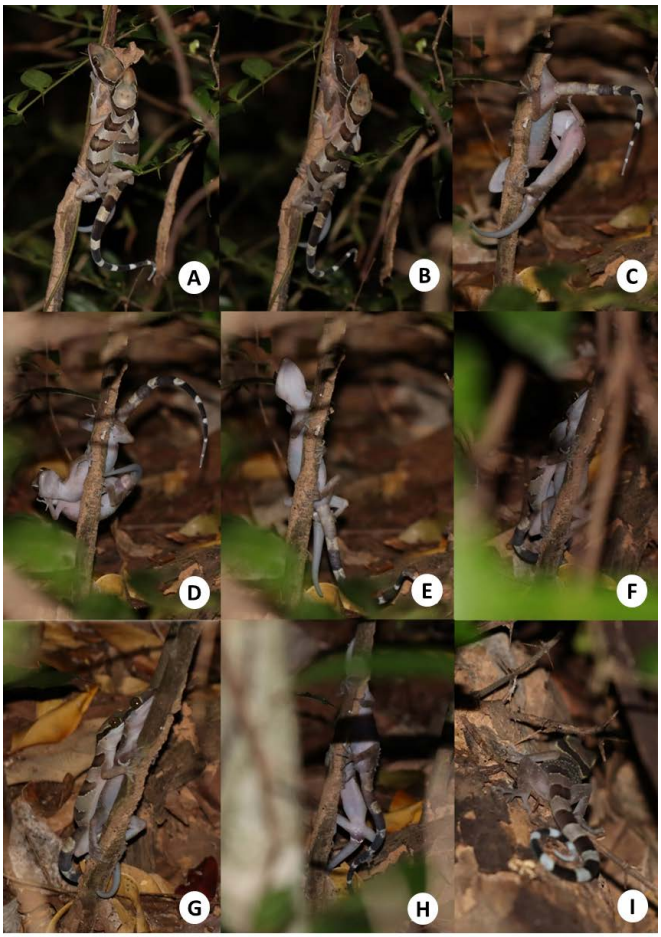

Figure 1. Mating activity of *Cyrtodactylus intermedius* - **A.**–**F.** Courtship from 19:46–20:24 h, **G.**–**H.** mating from 20:24–20:28 h, and **I.** after mating from 20:28–20.32 h

The mating period (20:24 to 20:28 h)
The male pressed his body tightly downwards on the female using the front limbs on the tree trunk. He finally inserted a hemipene into her cloaca (Fig. 1G). The hemipene was inserted for four minutes before being pulled out (Fig. 1H).

The after-mating period (20:28 to 20:32 h)
The gecko pair eventually separated after mating (Fig. 1I). The observed sequence terminated when the two lizards disappeared from view.

Mating behaviours of *Cyrtodactylus* geckos have been little documented. The only one observed previously in the wild was *Cyrtodactylus macrotuberculatus* (Quah et al., 2022). They mate in an upright posture in the middle of the monsoon season, which corresponds to this observation of *C. intermedius*. At SBR, the seasonal breeding period of *Cyrtodactylus* spp likely varies according to species (Artchawakom & Suttanon, undated). In the cases of *Cyrtodactylus quadrivirgatus* and *Cyrtodactylus seribuatensis* there appears to be an extended reproductive cycle (Goldberg & Grismer, 2015; 2016) and in the cases of *C. macrotuberculatus* and *Cyrtodactylus phuketensis* they are known to mate throughout the year (Quah et al., 2022; Sumontha et al., 2012; Termprayoon et al., 2021). We observed *C. intermedius* mating in July and there is also a record of *C. intermedius* mating in Khao Yai National Park, north-eastern Thailand, in early July which is in the middle of the rainy season (Panitvong et al., 2012). Other observations on reproductive activity of *C. intermedius* at SBR include a gravid female that was carrying two eggs in November through February, and juveniles presented in January. It seems possible that *C. intermedius* has a limited reproductive period initiated during the rainy season but further research is required to confirm this.

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