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## A new forest-dwelling Bent-toed Gecko (Squamata: Gekkonidae: *Cyrtodactylus*) from Doi Suthep, Chiang Mai Province, northern Thailand

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### Abstract

We describe a new forest-dwelling *Cyrtodactylus* from Doi Suthep, Chiang Mai Province, northern Thailand. *Cyrtodactylus doisuthep* sp. nov. is characterized by a maximal known SVL of 90.5 mm; 19 or 20 longitudinal rows of dorsal tubercles; a continuous series of 34 or 35 enlarged femoro-preloacal scales, including six or seven pitted scales on each femur (male and females) separated by a diastema from six pitted (females) or pore-bearing (male) preloacal scales; no preloacal groove or depression; transversely enlarged subcaudal scales; and six or seven irregular thin beige dorsal bands between limb insertions.

**Key words:** *Cyrtodactylus doisuthep* sp. nov., taxonomy, new species, Doi Suthep-Pui National Park

### Introduction

In his list of the terrestrial vertebrates of Doi Suthep-Pui National Park, the late Nabhitabhata (1987) listed 50 reptiles, among which was a single *Cyrtodactylus* species, *C. consobrinoides* (Annandale). He later referred to that same population as *Cyrtodactylus variegatus* (Blyth) (Nabhitabhata *et al.* 2004; Nabhitabhata & Chan-ard 2005). Unfortunately these records were not documented, and there is no evidence that either of these two species occur in Thailand (Ellis & Pauwels 2012). Populations from Chiang Dao in Chiang Mai Province and from Pang Mapha in Mae Hong Son Province also referred to *C. variegatus* by Nabhitabhata & Chan-ard (2005) might actually belong to *C. dumnuui* Bauer, Kunya, Sumontha, Niyomwan, Pauwels, Chanhom & Kunya, 2010 and *C. erythropros* Bauer, Kunya, Sumontha, Niyomwan, Panitvong, Pauwels, Chanhom & Kunya, 2009, respectively (Ellis & Pauwels 2012). In order to solve the taxonomic status of the Doi Suthep population, we examined a series of *Cyrtodactylus* specimens from that locality. Although they show remote resemblance to both *C. consobrinoides* and *C. variegatus* due to their banded pattern, they are very distinct in other aspects and differ from all known congeners in scalation and color pattern. This population is consequently described hereafter as a new species, *Cyrtodactylus doisuthep* sp. nov.

### Material and methods

Measurements and meristic counts follow Sumontha *et al.* (2012) and Pauwels *et al.* (2013). Paired meristic

characters are given left/right. Numbers of supralabial and infralabial scales are counted from the largest scale immediately posterior to the dorsal inflection of the posterior portion of the upper jaw to the rostral and mental scales, respectively. The number of longitudinal rows of body tubercles was counted transversely across the center of the dorsum from one ventrolateral skin fold to the other. The number of longitudinal rows of ventral scales was counted transversely across the center of the abdomen from one ventrolateral skin fold to the other. The numbers of subdigital lamellae beneath the toes were counted from the base of the first phalanx to the claw. The following measurements were taken with a digital caliper to the nearest 0.1 mm: AG: axilla to groin length, taken from the posterior margin of the forelimb at its insertion point on the body to the anterior margin of the hind limb at its insertion point on the body; EarL: ear length, the greatest horizontal distance of the ear opening; ForeaL: forearm length, taken on the dorsal surface from the posterior margin of the elbow while flexed 90° to the inflection of the flexed wrist; HeadH: head height, the maximum depth of head from the occiput to the throat; HeadL: head length, from the posterior margin of the retroarticular process of the lower jaw to the tip of the snout; HeadW: head width, measured at the angle of the jaws; Internar: internarial distance, measured between the nares across the rostrum; Interorb: interorbital distance, measured between the anterior edges of the orbits; NosOrb: nostril to orbit distance, from the posterior margin of the external nares to the anterior margin of the orbit; OrbD: orbit diameter, the greatest horizontal diameter of the orbit; OrbEar: orbit to ear distance, from the anterior edge of the ear opening to the posterior edge of the orbit; SnOrb: snout to orbit distance, from the tip of the snout to the anteriormost margin of the orbit; SVL: snout-vent length, taken from the tip of snout to the vent; TailL: tail length, taken from the vent to the tip of the tail, original or regenerated; TailW: tail width, taken at the base of the tail immediately posterior to the postcloacal swelling; TibiaL: tibia length, taken on the ventral surface from the posterior surface of the knee while flexed 90° to the base of heel. Meristic characters abbreviations: DorTub: dorsal tubercles; FemP: femoral pores; IL: infralabial scales; InterorbSc: interorbital scales; PreclP: precloacal pores; SL: supralabial scales; Ven: ventral scales. Museum and other acronyms: CUMZ-R: Chulalongkorn University Museum of Zoology, Reptile Collection, Bangkok; IRSNB: Institut Royal des Sciences naturelles de Belgique, Brussels; MS: Montri Sumontha's field number series; QSMI: Queen Saovabhah Memorial Institute, Thai Red Cross Society, Bangkok; THNHM: Thailand Natural History Museum, National Science Museum, Technopolis, Pathum Thani.

## Systematics

### *Cyrtodactylus doisuthep* sp. nov.

(Figs 1–4)

**Holotype.** THNHM 22543 (field no. MS 317); adult male from Doi Suthep (18°47'55.6" N, 098°55'52.4" E, alt. 676 asl), Amphoe (= District) Muang, Chiang Mai Province, northern Thailand. Collected by Udom Buddeekam at approximately 23h00 on 29 July 2008.

**Paratypes.** CUMZ-R-0.2318 (field no. MS 318), adult female, and QSMI 1168 (field no. MS 319), subadult female, same locality, date and collector data same as holotype.

**Diagnosis.** *Cyrtodactylus doisuthep* sp. nov. can be distinguished from all other congeneric species by its maximal known SVL of 90.5 mm; 19 or 20 longitudinal rows of dorsal tubercles; a continuous series of 34 or 35 enlarged precloacofemoral scales, including six or seven pitted scales on each femur (male and females) separated by a diastema from six pitted (females) or pore-bearing (male) precloacal scales; no precloacal groove nor depression; transversely enlarged subcaudal scales; and six or seven irregular thin beige dorsal bands between limb insertions.

**Description of holotype.** Adult male. SVL 85.5 mm. TailL 81.5 mm (only first 31.7 mm original). Head relatively long (HeadL/SVL ratio 0.29), wide (HeadW/HeadL ratio 0.64), not markedly depressed, distinct from slender neck. Loreal region inflated, canthus rostralis not prominent. Snout elongate (SnOrb/HeadL ratio 0.39), rounded, longer than orbit diameter (OrbD/SnOrb ratio 0.70); scales on snout small, rounded to oval, granular to weakly conical, mostly homogeneous, larger than those on crown, interorbital and occipital regions. Eye large (OrbD/HeadL ratio 0.27); pupil vertical with crenelated margins; supraciliaries short, those at posterior part of orbit bearing small conical spines. Ear opening rounded, relatively small (EarL/HeadL ratio 0.06); orbit to ear distance subequal to orbit diameter (OrbEar/OrbD ratio 0.99). Rostral much wider (3.8 mm) than deep (2.2 mm), rostral

crease very short (about a quarter of rostral height). Two enlarged supranasals in broad contact with one another, no internasals. Rostral in contact with first supralabials, nostrils, and supranasals. Nostrils oval, more or less laterally directed, each surrounded by supranasal, rostral, first supralabial and two enlarged postnasals. Three or four rows of small scales separate orbit from supralabials. Mental triangular, wider (3.7 mm) than deep (2.3 mm). A single pair of greatly enlarged postmentals in broad contact behind mental, each bordered anteromedially by mental, anterolaterally by first infralabial, posterolaterally by an enlarged lateral chinshield, and posteriorly by three granules. Supralabials to mid-orbital position 8/8, enlarged supralabials to angle of jaws 10/11. Infralabials 10/8. Interorbital scale rows across narrowest point of frontal bone 24.



**FIGURE 1.** Live adult male holotype of *Cyrtodactylus doisuthep* sp. nov. at type locality on Doi Suthep, Chiang Mai Province. Photo. by J. Meewasana.

Body slender, relatively short (AG/SVL ratio 0.41) with well-defined non-denticulate ventrolateral folds. Dorsal scales weakly heterogeneous, flat, domed or slightly conical; regularly distributed tubercles (about five times size of adjacent scales) extending from shoulder region onto tail base, smaller tubercles on postocular region, crown, occiput and nape; most tubercles bearing a strong keel, less marked on lower flank tubercles, tubercles on posterior trunk and sacral region most prominent; tubercles in 20 regular rows at midbody, typically separated from one another by two or three dorsal granules. Ventral scales larger than dorsals, smooth, oval and subimbricate, largest on posterior abdomen and in precloacal region. Midbody scale rows across belly between ventrolateral folds 32. Gular region with homogeneous, smooth, juxtaposed granular scales. A continuous row of 34 enlarged femoro-precloacal scales, as follows, from left to right: one unpitted poreless femoral scale + six pitted femoral scales + a diastema of seven unpitted poreless scales + six pore-bearing preanal scales + a diastema of seven unpitted poreless scales + six pitted femoral scales + one unpitted poreless femoral scale. Postcloacal spurs each bearing two enlarged, conical scales.



**FIGURE 2.** Preserved type series of *Cyrtodactylus doisuthep* sp. nov. in dorsal view. Photo. by O.S.G. Pauwels.

Scales on palm and sole smooth, rounded to oval or hexagonal, slightly domed. Scalation on dorsal surface of hind and forelimbs similar to body dorsum with enlarged conical tubercles interspersed among smaller scales. Fore and hind limbs relatively long, slender (Foreal/SVL ratio 0.16, Tibial/SVL 0.19). Digits long, slender, inflected at interphalangeal joints, all bearing robust, slightly recurved claws. Basal subdigital lamellae broad, oval to rectangular, without scansorial surfaces (5-5-6-6-8 right manus, 5-6-7-8-7 right pes); narrow lamellae distal to digital inflection and not including ventral claw sheath: 10-11-12-13-11 (right manus), 10-11-12-11-13 (right pes); no interdigital webbing. Relative lengths of digits: III>IV>II>V>I (manus), V>III>IV>II>I (pes). Partly regenerated tail, gently tapering to pointed tip, slightly shorter than SVL (TailL/SVL ratio 0.95). Original and regenerated parts of tail with enlarged median subcaudal scales.

**Coloration in life.** Dorsal ground color of head, dorsum and tail blackish brown. Seven irregular narrow beige bands on dorsum between fore and hind limb insertions, bearing prominent white tubercles, most prominent on lower flanks (Figure 1). Continuous nuchal loop connects orbits. Yellowish reticulated pattern on top of head. Ground color of upper surfaces of fore and hind limbs grayish brown, with irregular and discontinuous thin, beige bands and scattered whitish tubercles. Original part of tail showing four yellowish (most anterior) to whitish (most posterior) rings that do not encircle the tail. Iris dark brown. Throat, venter and undersides of fore and hind limbs uniformly beige; underside of original portion of tail brown; upper and under sides of regenerated portion of tail uniformly black.

**Variation.** The paratypes resemble the holotype in most aspects of morphology and coloration (Figures 2–4). Main morphometric and meristic characters of the type series are provided in Table 1. CUMZ-R-0.2318 shows an extralabial between IL three and four on the right side, not included in the IL count in Table 1. In QSMI 1168, supranasals widely in contact. CUMZ-R-0.2318 shows a continuous series of 35 enlarged femoro-precloacal scales, as follows, from left to right: two unpitted poreless scales + six pitted femoral scales + a diastema of six

unpitted poreless scales + six pitted preanal scales + a diastema of seven unpitted poreless scales + six pitted femoral scales + two unpitted poreless scales. QSMI 1168 shows a continuous series of 35 enlarged femoro-precloacal scales, as follows, from left to right: two unpitted poreless scales + six pitted femoral scales + a diastema of six unpitted poreless scales + six pitted preanal scales + a diastema of six unpitted poreless scales + seven pitted femoral scales + one unpitted poreless scale. Postcloacal spurs in CUMZ-R-0.2318 like in holotype. Tail of CUMZ-R-0.2318 original, longer than body (TailL/SVL ratio 1.19), with 10 light dorsal rings not encircling the tail.



**FIGURE 3.** Preserved type series of *Cyrtodactylus doisuthep* **sp. nov.** in ventral view. Photo. by O.S.G. Pauwels.

**Distribution and natural history.** The species is known only from Doi Suthep in the Doi Suthep-Pui Range, in dry evergreen forest and deciduous dipterocarp forest, from 350 m to 1660 m asl. We encountered it while it was active at night on rocks along streams (Figure 4), on *Ficus* spp. (Moraceae) roots, beneath logs, and in holes of cement blocks along buildings. Individuals are slow and easy to catch, and bite when handled. Other reptiles we found at direct proximity to *Cyrtodactylus doisuthep* **sp. nov.** include *Platysternon megacephalum* (Gray) (Platysternidae), *Calotes emma alticristata* Schmidt, *Pseudocalotes kakhienensis* (Anderson) and *P. microlepis* (Boulenger) (Agamidae), *Gekko gekko* (Linnaeus), *Ptychozoon* cf. *kaengkrachanense* Sumontha, Pauwels, Kunya, Limlikhitaksorn, Ruksue, Taokratok, Ansermet & Chanhome, 2012 (Gekkonidae) and *Tropidophorus* cf. *thai* Smith (Scincidae).

**Etymology.** The specific epithet *doisuthep* refers to the type locality. It is a noun in apposition, invariable. We suggest the following common names: *Took-kai Doi Suthep* (Thai), Doi Suthep bent-toed gecko (English), *Cyrtodactyle du Doi Suthep* (French), *Doisuthep Bogenfingergecko* (German), *Doisuthepkromvingergekko* (Dutch).

**TABLE 1.** Meristic and morphometric (in mm) data for the type series of *Cyrtodactylus doisuthep* **sp. nov.** Paired meristic characters are given left/right. See Materials and methods for abbreviations.

	THNHM 22543 Holotype	CUMZ-R-0.2318 Paratype	QSMI 1168 Paratype
Sex	Male	Female	Female
SVL	85.5	90.5	62.5
ForeaL	14.0	13.9	10.2
TibiaL	16.3	17.1	12.7
TailL	81.5 (last 49.8 regenerated)	107.6	61.6 (last 6.0 regenerated)
TailW	6.2	6.9	5.7
AG	35.1	40.0	27.8
HeadL	25.1	25.8	20.4
HeadW	16.1	16.7	12.0
HeadH	10.2	10.9	7.8
OrbD	6.8	6.7	5.0
OrbEar	6.7	7.2	5.0
SnOrb	9.7	10.1	7.4
NosOrb	7.4	7.4	5.4
Interorb	5.6	4.9	4.0
EarL	1.5	1.7	1.1
Internar	2.6	2.4	2.1
DorTub	20	20	19
PreclP	6	0	0
FemP	0	0	0
Ven	32	29	35
SL	10/11	Damaged/11	12/12
IL	10/8	10/9	11/10
InterorbSc	24	22	30

## Discussion

We compared *Cyrtodactylus doisuthep* **sp. nov.** to all species known from Cambodia, China, Laos, Myanmar, Peninsular Malaysia, Thailand and Vietnam (see Appendix as well as latest descriptions and intraspecific comparisons in Bauer *et al.* 2010, Ngo & Chan 2010, Ngo & Pauwels 2010, Nguyen *et al.* 2010, Chan-ard & Makchai 2011, David *et al.* 2011, Grismer 2008, 2011, Grismer *et al.* 2012, 2014, Johnson *et al.* 2012, Ngo & Grismer 2012, Sumontha *et al.* 2010, 2012, Pauwels *et al.* 2013, 2014, Ziegler *et al.* 2013, Luu *et al.* 2014, Pauwels & Sumontha 2014).

*Cyrtodactylus doisuthep* **sp. nov.** shows an unusual mix of femoro-precloacal pores and pits. Strictly speaking, pits are not pores (the former being shallower depressions without waxy exudates). Our first approach has thus been to compare *Cyrtodactylus doisuthep* **sp. nov.** with regional species showing precloacal pores but lacking femoral pores. In their recent description of *Cyrtodactylus sanook*, a species with precloacal pores but lacking femoral pores, Pauwels *et al.* (2013) compared that latter species with all other Indochinese and Thai species sharing this condition. Among all these species, *Cyrtodactylus doisuthep* **sp. nov.** can be distinguished, by possessing enlarged femoral scales, from *C. aurensis* Grismer, *C. brevidactylus* Bauer, *C. buchardi* David, Teynié & Ohler, *C. chauquangensis* Hoang, Orlov, Ananjeva, Johns, Hoang & Dau, *C. chrysopylos* Bauer, *C. cryptus* Heidrich, Rösler, Vu, Böhme & Ziegler, *C. durio* Grismer, Shahrul, Quah, Muin, Chan, Grismer & Norhayati, *C. elok* Dring, *C. hontreensis* Ngo, Grismer & Grismer, *C. mandalayensis* Mahony, *C. nigriocularis* Nguyen, Orlov & Darevsky, *C. pageli* Schneider, Nguyen, Schmitz, Kingsada, Auer & Ziegler, *C. pantiensis* Grismer, Chan,

Grismer, Wood & Belabut, *C. pseudoquadrivirgatus* Rösler, Vu, Nguyen, Ngo & Ziegler, *C. stresemanni* Rösler & Glaw, *C. sumonthai* Bauer, Pauwels & Chanhom, 2002, *C. sworderi* (Smith) and *C. wayakonei* Nguyen, Kingsada, Rösler, Auer & Ziegler. By its possession of enlarged subcaudal scales, *Cyrtodactylus doisuthep* **sp. nov.** is distinguished from *C. bidoupimontis* Nazarov, Poyarkov, Orlov, Phung, Nguyen, Hoang & Ziegler, *C. brevidactylus*, *C. buchardi*, *C. bugiamapensis* Nazarov, Poyarkov, Orlov, Phung, Nguyen, Hoang & Ziegler, *C. cattienensis* Geissler, Nazarov, Orlov, Böhme, Phung, Nguyen & Ziegler, *C. chauquangensis*, *C. cryptus*, *C. durio*, *C. irregularis* (Smith), *C. mandalayensis*, *C. martini* Ngo, *C. pantiensis*, *C. papilionoides* Ulber & Grossmann, *C. payacola* Johnson, Quah, Anuar, Muin, Wood, Grismer, Greer, Chan, Ahmad, Bauer & Grismer, 2012, *C. pseudoquadrivirgatus*, *C. quadrivirgatus* Taylor, *C. stresemanni*, *C. sworderi* and *C. wakeorum* Bauer (character state unknown in *C. chrysopylos*). By its possession of 19–20 longitudinal rows of tubercles at midbody, *Cyrtodactylus doisuthep* **sp. nov.** is distinguishable from *C. brevidactylus* (27), *C. buchardi* (25), *C. chrysopylos* (16), *C. condorensis* (Smith) (22–24), *C. durio* (16), *C. eisenmanae* Ngo (14), *C. elok* (5–10), *C. hontreensis* (14), *C. nigriocularis* (0), *C. pageli* (9–14), *C. pantiensis* (21–23), *C. papilionoides* (12–14), *C. quadrivirgatus* (24), *C. samroiyyot* Pauwels & Sumontha, 2014 (17–18), *C. stresemanni* (13), *C. sumonthai* (12) and *C. wakeorum* (24). Its six or seven irregular narrow beige bands readily distinguish it from *Cyrtodactylus angularis* (Smith) (W-shaped marks), *C. aurensis* (four narrow bands), *C. bidoupimontis* (blotches sometimes fused to form irregular wide bands), *C. brevidactylus* (blotches), *C. buchardi* (blotches), *C. bugiamapensis* (blotches), *C. chauquangensis* (three irregular bands), *C. condorensis* (blotches), *C. durio* (blotches), *C. eisenmanae* (four narrow bands), *C. elok* (blotches), *C. hontreensis* (three broad bands), *C. intermedius* (Smith) (four or five bands), *C. irregularis* (blotches), *C. mandalayensis* (blotches), *C. nigriocularis* (zero to four bands), *C. oldhami* (Theobald) (four lines or spots), *C. pantiensis* (blotches), *C. papilionoides* (blotches), *C. paradoxus* Darevsky & Szczerbak (irregular narrow bands connected to a vertebral line), *C. payacola* (blotches), *C. peguensis* (Boulenger) (spots), *C. phuquocensis* Ngo, Grismer & Grismer (four or five broad bands), *C. quadrivirgatus* (stripes), *C. samroiyyot* (three broad bands), *C. stresemanni* (longitudinally elongated blotches), *C. sumonthai* (three bands), *C. surin* Chan-ard & Makchai (broad bands), *C. sworderi* (longitudinal lines of spots), *C. teyniei* (blotches), *C. thochuensis* Ngo & Grismer (3–5 irregular light bands), *C. tiomanensis* Das & Jim (three bands), *C. wakeorum* (five narrow bands), *C. wayakonei* (four or five thin irregular light bands) and *C. yangbayensis* Ngo & Chan (four or five light brown bands, wider than in *C. doisuthep* **sp. nov.**) (Bauer 2002, 2003; Rösler & Glaw 2008; Ngo & Chan 2010; David *et al.* 2011; Ngo & Grismer 2012). The number of preloacal pores of *Cyrtodactylus doisuthep* **sp. nov.** (six) does not overlap with those of *Cyrtodactylus aurensis* (7–9), *C. brevidactylus* (8), *C. bugiamapensis* (7–11), *C. chrysopylos* (10+1), *C. cryptus* (9–11), *C. durio* (two parallel rows of 6 pores each), *C. elok* (7 or 8), *C. hontreensis* (7 or 8), *C. intermedius* (8–10), *C. mandalayensis* (5), *C. martini* (4), *C. nigriocularis* (0–2), *C. oldhami* (0–4), *C. pageli* (4), *C. pantiensis* (8 or 9), *C. paradoxus* (0–4), *C. payacola* (11–15), *C. peguensis* (7–9), *C. phuquocensis* (7–9), *C. quadrivirgatus* (0–4), *C. samroiyyot* (7), *C. sanook* (3 or 4), *C. stresemanni* (10), *C. sumonthai* (2), *C. sworderi* (8 or 9), *C. teyniei* (14 - female) and *C. thochuensis* (3–5).

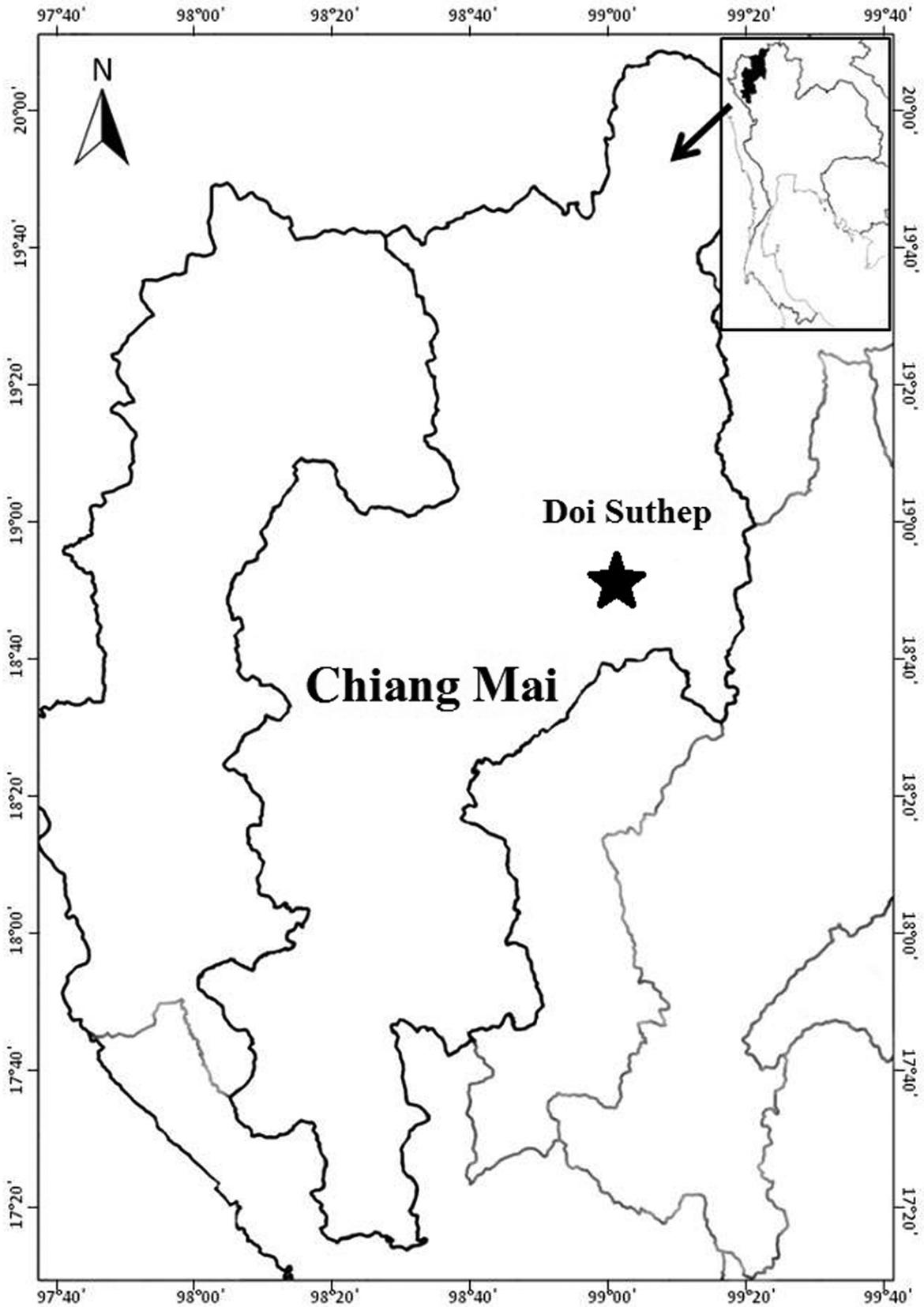
If one instead regards femoro-preloacal pits as equivalent to pores, the set of species to compare *Cyrtodactylus doisuthep* **sp. nov.** with would shift to those showing preloacal and femoral pores separated by a diastema. This condition is also found in the recently described *Cyrtodactylus kingsadai* Ziegler, Phung, Le & Nguyen, 2013 from Vietnam and *C. auribalteatus* Sumontha, Panitvong & Deekin, 2010, *C. dumnuui* and *C. khelangensis* Pauwels, Sumontha, Panitvong & Varaguttanonda, 2014 from Thailand. Their respective descriptors provided comparisons of their new species with all currently known congeners from the Thai-Indochinese Region. Based on these most recent comparisons and the most recent revisions for the Thai and Indochinese Region, *Cyrtodactylus doisuthep* **sp. nov.** is distinct from all known Burmese, Cambodian, Lao, Vietnamese and Thai species showing preloacal and femoral pores separated by a diastema by the combination of the following characters: enlarged subcaudals (absent in *C. aequalis* Bauer, *C. huynhi* Ngo & Bauer, and *C. ziegleri* Nazarov, Orlov, Nguyen & Ho), six preloacal pores in males (11–12 in *C. annandalei* Bauer, 10 in *C. bichnganae* Ngo & Grismer, 7–9 in *C. brevipalmatus* Smith, 9 in *C. caovansungi* Orlov, Nguyen, Nazarov, Ananjeva & Nguyen, 9–11 in *C. consobrinus* (Peters), 7–9 in *C. huynhi* and *C. kingsadai*, 15 in *C. russelli* Bauer, 9 in *C. slowinskii* Bauer, 3 or 4 in *C. takouensis* Ngo & Bauer, 8 or 9 in *C. tigroides* Bauer, Sumontha & Pauwels, 2003), 19–20 longitudinal tubercle rows (24 in *C. aequalis*, 16–18 in *C. annandalei*, 22–24 in *C. auribalteatus*, 16–18 in *C. bichnganae*, 12–18 in *C. brevipalmatus*, 16–18 in *C. caovansungi*, 14–16 in *C. huongsonensis* Luu, Nguyen, Do & Ziegler, 16–18 in *C. huynhi*, 22 in *C. russelli*, 9 or 10 in *C. takouensis*, 13 in *C. tigroides*) and six or seven irregular thin

light bands between limb insertions (three light bands in *C. auribalteatus*; five or six light bands in *C. dumnuui*, wider than those in *C. doisuthep* **sp. nov.**; five light bands in *C. huongsonensis*; four light bi-colored bands in *C. khelangensis*, four of five light bands in *C. kingsadai*, wider than those in *C. doisuthep* **sp. nov.**; blotched pattern in *C. slowinskii*; three or four yellow bands in *C. takouensis*; four yellow bands in *C. tigroides*).

Among all the species showing precloacal pores but lacking femoral pores, the one showing the closest — although distinct — dorsal pattern to that of *Cyrtodactylus doisuthep* **sp. nov.** is *C. thochuensis*, a species whose descriptors stated that it morphologically most closely resembles *C. condorensis* and *C. paradoxus* (Ngo & Grismer 2012). And among all Thai and Indochinese species, possessing femoral pores or not, the one showing the most similar dorsal pattern to *Cyrtodactylus doisuthep* **sp. nov.** is the Southern Vietnamese *C. kingsadai*. It is itself, according to its descriptors (Ziegler *et al.* 2013), phylogenetically allied to *C. bugiamapensis*, *C. caovansungi*, *C. consobrinus*, *C. paradoxus*, *C. pubisulcus* Inger, *C. quadrivirgatus* and *C. ziegleri*. Some of these latter species (*C. bugiamapensis*, *C. condorensis*, *C. paradoxus*, *C. pubisulcus*, *C. quadrivirgatus* and *C. thochuensis*) show precloacal pores but lack femoral pores similarly to *Cyrtodactylus doisuthep* **sp. nov.**, but four (*C. caovansungi*, *C. consobrinus*, *C. kingsadai* and *C. ziegleri*) show femoral and precloacal pores separated by a diastema.



**FIGURE 4.** Microhabitat of *Cyrtodactylus doisuthep* **sp. nov.** (also showing the paratype QSMI 1168) at type locality on Doi Suthep, Chiang Mai Province. Photo. by J. Meewasana.



**FIGURE 5.** Map of Thailand showing the position of the type locality of *Cyrtodactylus doisuthep* sp. nov.

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#### APPENDIX. Comparative material examined.

*Cyrtodactylus auribalteatus*: see Sumontha *et al.* (2010); *C. brevipalmatus*: see Pauwels and Chan-ard (2006); *C. dumnuui*: see Bauer *et al.* (2010); *C. intermedius*: IRSNB 17011, Nakhon Ratchasima, Thailand; *C. oldhami* complex: see Pauwels and Chan-ard (2006) and Pauwels *et al.* (2000); *C. peguensis*: see Pauwels *et al.* (2000); *C. sanook*: see Pauwels *et al.* (2013); *C. sumonthai*: see Bauer *et al.* (2002); *C. tigroides*: see Bauer *et al.* (2003).