

A New Species of the Water Skink *Tropidophorus* (Reptilia: Squamata: Scincidae) from Northeastern Thailand

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ABSTRACT.—A new species of the water skink, of the genus *Tropidophorus* was described as *T. hangnam*, sp. nov. based on ten specimens collected from Phu Khiew Wildlife Sanctuary, Chaiyaphum Province, northeastern Thailand. This species is characterized by having the following characteristics: head scales smooth; dorsal weakly keeled, lateral body, and upper, anterior and posterior parts of limbs keeled; tail with strong spine-like keels in lateral; lateral scale-rows directed obliquely; two enlarge preanal scales; no subcaudal median scale rows; tail shorter than SVL. The record makes the species account in Thailand up to nine

KEY WORDS : *Tropidophorus hangnam*, new species, Phu Khiew Wildlife Sanctuary, Chaiyaphum Province, northeastern Thailand.

INTRODUCTION

Since the genus *Tropidophorus* was described in 1839 by Duméril and Bibron (type species, *T. cocincinensis*). Many species of this genus were later described from various parts of Indochina, Southern China, Bangladesh, Borneo, Sulawesi and Philippines. Now the following list is currently recognized for species of genus *Tropidophorus*: *T. assamensis* Annandale, 1912, *T. baconi* Hikida, Riyanto and Ota, 2003, *T. baviensis* Bourret, 1939, *T. beccarii* (Peters, 1871), *T. berdmorei* (Blyth, 1835), *T. brookei* (Gray, 1845), *T. cocincinensis* Duméril and Bibron, 1839, *T. davaoensis* Bacon, 1980, *T. grayi* Günther, 1861, *T. guangxiensis* Wen, 1992, *T. hainanus* Smith,

1923, *T. iniquus* van Lidth de Jeude, 1905, *T. laotus* Smith, 1923, *T. laticutatus* Hikida, Orlov, Nabhitabhata and Ota, 2002, *T. matsuii* Hikida, Orlov, Nabhitabhata and Ota, 2002, *T. microlepis* Günther, 1861, *T. micropus* van Lidth de Jeude, 1905, *T. misaminius* Stejneger, 1908, *T. mocquardii* Boulenger, 1894, *T. murphyi* Hikida, Orlov, Nabhitabhata and Ota, 2002, *T. partelloi* Stejneger, 1910, *T. perplexus* Barbour, 1921, *T. robinsoni* Smith, 1919, *T. sinicus* Boettger, 1886 and *T. thai* Smith, 1919 (see Smith, 1923, 1935; Bourret, 1939; Taylor, 1963; Bacon (1980); Brown and Alcalá, 1980; Welch *et al.*, 1990; Wen, 1992; Ngo *et al.*, 2000; Hikida *et al.*, 2002, 2003; Sharma, 2002; Greer and Biswas, 2004).

Twelve species, *Tropidophorus baviensis*, *T. berdmorei*, *T. cocincinensis*, *T. hainanus*, *T. laotus*, *T. laticutatus*, *T. matsuii*, *T. microlepis*, *T. murphyi*, *T. robinsoni*, *T. sinicus*

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and *T. thai*, were distributed in Indochina. Among them, the largest number of species, eight species, *T. berdmorei*, *T. cocincinensis*, *T. laotus*, *T. laticutatus*, *T. matsuii*, *T. microlepis*, *T. robinsoni*, and *T. thai* have been recorded from Thailand (Hikida *et al.* 2002; Nabhitabhata *et al.*, 2004). The herpetofauna of Thailand has been intensively studied by previous researchers such as Smith (1923, 1935) and Taylor (1963), However, the faunal surveys have been done insufficiently, yet. Recently, many species of lizards were described from Thailand, including two species of this genus (Hikida *et al.*, 2002).

We newly obtained ten specimens of *Tropidophorus*, from Phu Khiew Wildlife Sanctuary, Chaiyaphum Province, Northeastern Thailand. We concluded it an undescribed species, by examining the morphological characters and comparisons them with the known species from Indochina, including Myanmar, Thailand, Laos, Cambodia, and Vietnam. Here, we describe it as a new species in the following details.

MATERIALS AND METHODS

The ten specimens from Phu Khiew Wildlife Sanctuary, THNHM 05776-85, were examined and compared with specimens of twelve species of genus *Tropidophorus*: *T. baviensis*, *T. berdmorei*, *T. cocincinensis*, *T. hainanus*, *T. laotus*, *T. laticutatus*, *T. matsuii*, *T. microlepis*, *T. murphyi*, *T. robinsoni*, *T. sinicus* and *T. thai*. The comparative materials examined are listed in the Appendix. Some data from literatures were used for comparison (see Duméril and Bibron. 1839; Günther, 1861; Boulenger, 1887; Smith, 1919, 1923 and 1935; Taylor, 1963). Several photos of the holotype of *T. baviensis*, MNHN 1948.63, from Dr. Tsutomu Hikida were examined for species identification.

Measurements were taken with a dial-caliper to the nearest 0.1 mm. Values for symmetric head, fingers and toes are given in left/right order. The descriptive terminology of characters followed Taylor (1936), Smith (1946) and Greer and Biswas (2004).

Museum abbreviations are as follows: FMNH: Field Museum on Natural History, Chicago, USA; ROM: Royal Ontario Museum, Ontario, CANADA; THNHM: Thailand Natural History Museum, Pathum Thani, THAILAND (=TNHM in Hikida *et al.*, 2002).

RESULTS

Tropidophorus hangnam sp. nov. (Figs. 1, 2 and 3)

Type material.—Holotype, THNHM 05776 (field no. 20500), an adult male, collected nearby Huay Nam Un, Phu Khiew Wildlife Sanctuary (fig. 4), Chaiyaphum Province, northeastern Thailand by Mr. Kittisak Somsri and Mr. Samai Pissanu. Paratypes, THNHM 05777–85, 9 specimens from the same locality as the holotype.

Diagnosis.—Head scales smooth; dorsal weakly keeled, lateral body keeled, and upper, anterior and posterior parts of limbs keeled, and tail strongly keeled; lateral scale-rows directed obliquely; two large preanal scales; subcaudals paired; tail shorter than SVL.

Etymology.—The specific epithet is derived from a transliteration of the Thai words, “hang” meaning tail, and “nam” meaning spine. It refers to the one of distinguish character of the new species, having strongly keeled or spines on the tail.

Description of holotype.—Size large, snout to vent length (SVL) 78.2 mm, tail length (TaL) 65.0 mm; head, covered by smooth scales on dorsal; body depressed, with scales feebly keeled on dorsal and keeled on lateral; tail compressed at base and taper at tip; limbs pentadactyl and clawed.

Snout round in dorsal and lateral profile; rostral, wider than long; supranasal absent; frontonasal, wider than long; prefrontals large in contact (50% of prefrontal length); frontal, longer than wide; supraoculars four, third largest, first three contact frontal; postsupraocular present; frontoparietals distinct; interparietal with a small pale parietal eye spot nearly half of interparietal length; parietals, not in contact behind interparietal, separated by

azygous scale; transversely enlarged nuchals, two on left and one on right.

Nasal, not divided; nostrils located in posterior part of nasal; a large loreal scale; lower eyelid scaly; preoculars three, same size; supraciliaries four, first anterior largest, first two in contact with first and second supraocular; fourth in contact with third and fourth supraocular; first two supraciliaries and upper palpebrals separated by one row of small scale, last two in contact with upper palpebrals; upper palpebrals eleven, lower palpebrals fourteen, both excluded those which wrap around the corners of the eyelid; postsuboculars three; pretemporal two; supralabials seven, fifth below center of eye and contacting eyelid scales; tympanum large, nearly rounded, superficial.

Temporal region, although somewhat fragmented, shows a basic pattern of primary temporals two; secondary temporals two, upper largest and overlapped by lower; tertiary temporals bordering lower secondary temporal.

Mental wider than long; postmental single, in contact with first two anterior infralabials on left side and first anterior infralabial on right side, and first pair of enlarged chin scales; two pairs of enlarged chin scales, first pair in contact, second pairs separated by a small scale; large chin scales about infralabials; infralabials five.

Scales of dorsal body and neck cycloid, weakly keeled, in 30 longitudinal rows at midbody, slightly larger than lateral and ventral scales; mid-dorsal scales nearly smooth; paravertebrals 52; lateral scales of body and neck keeled, scale rows direct backward; ventral scales of body and neck smooth; preanals two, right one overlapping left; postanal pores absent; base of tail compressed; tail scales strongly emarginated or spinose on lateral; subcaudal paired and wide median subcaudal scale row absent.

Upper forelegs: suprabrachials, infrabrachials, prebrachials and postbrachials weakly keeled; lower forelegs: supra-antibrachials, preantibrachials and postantibrachials weakly keeled, infra-antibrachials smooth; hands: supracarpals and infracarpals smooth; fingers: supradigitals

smooth, subdigital lamellae smooth; subdigital lamellae on fourth fingers 14/14.

Upper hind legs: suprafemorals strongly keeled, prefemorals and postfemorals weakly keeled, infrafemorals smooth; lower hind legs: supratibials, pretibials and posttibials strongly keeled, infratibials smooth; feet: supratarsals strongly keeled, infratarsal granular and smooth; toes: supradigital weakly keeled or smooth, subdigital lamellae smooth; subdigital lamellae on fourth toe 19/18.

Coloration.—(*In preservative*) Dorsal part of head brown; dorsal and lateral part of neck, body, limbs and tail blackish brown with transverse interrupted creamy white bands; ventral part of head, body and limbs creamy white; under part of hands and feet grey.

(*In life*) Dorsal part of head reddish brown; dorsal and lateral part of neck, body, limbs and tail black with transverse interrupted yellow bands; ventral part of head, body and limbs yellowish white; under part of hands and feet grey.

Measurements.—(Holotype) SVL: 78.2 mm.; TaL: 65.6 mm.; head width: 13.5 mm.; snout to tympanum: 16.2 mm.; snout length (snout to posterior margin of posterior loreal scale): 5.7 mm.; eye length 5.6 mm.

Variation.—The average of SVL in five juveniles, which sex were unidentified, was 59.62 mm \pm 3.12 (56.3 mm–64.7 mm). The number of midbody scale rows varied from 28 to 31 (28 in one, 29 in two, 30 in five, and 31 in two). Supralabials were usually seven or eight. Infralabials usually six, but rarely five. Infralabials normally equal number of scales in each side but some specimens showed the unequal numbers as in the holotype. The number of subcaudal median scale rows extended from anal varied from 2 to 3 scales. The numbers of chin scales are variable in the type series. Usually 2 pairs of chin scales like a holotype, but 3 pairs in some paratypes such as THNHM 05779, and 3 scales in right side and 2 in left side as THNHM 05778, and 3 scales in left side and 2 scales in right side as THNHM 05777, 05780–81. Postanal pores absent in both sexes.

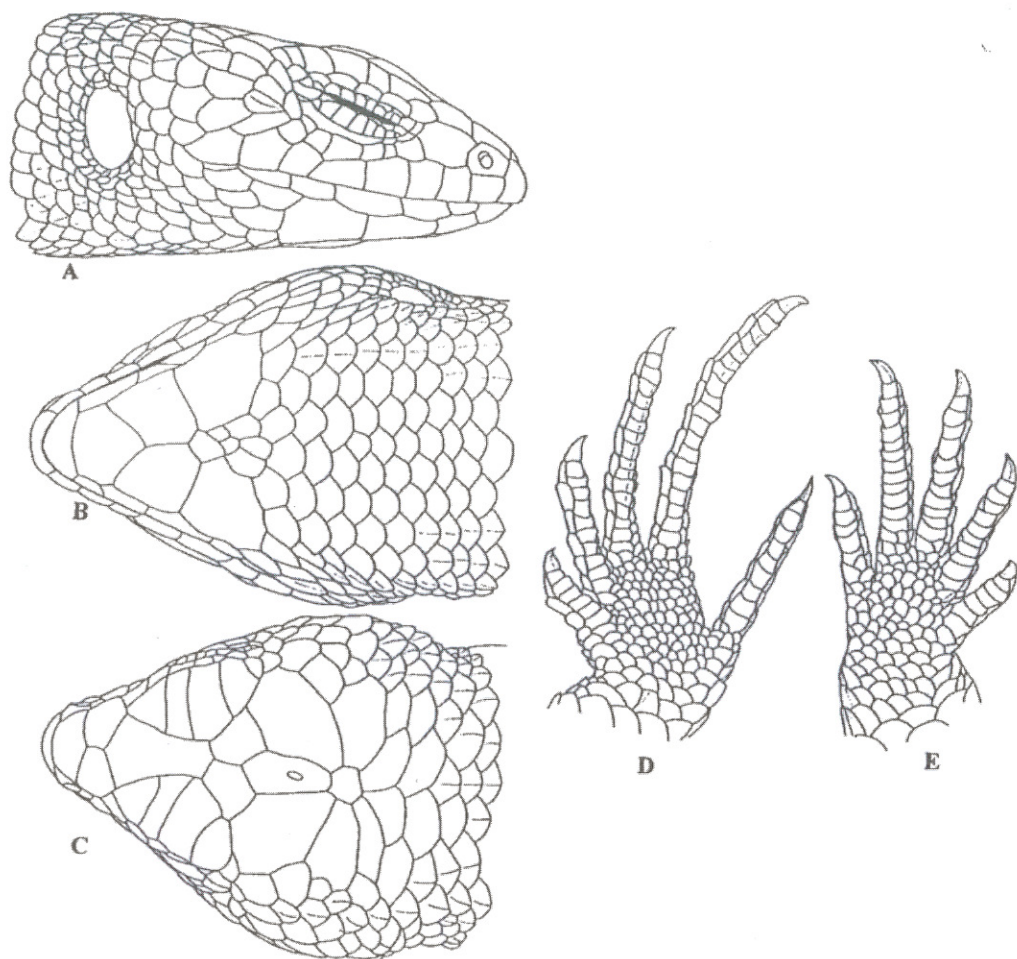


Figure 1 Lateral (A), dorsal (B) and ventral (C) views of head scales and (D) ventral part of right hand and (E) left foot of *Tropidophorus hangnam* sp. nov. (holotype, THNHM 05776). The bar scale of A, B and C = 1 cm; D and E = 5 cm.

Ecological notes.—The type locality is Huay Nam Un (Huay=small stream), Phu Khiew Wildlife Sanctuary, Chaiyaphum Province, northeastern Thailand. The stream is filled with water only during rain. The habitat is Semi evergreen forest, 513–837 m above mean sea level and 95% crown cover. All the type specimens were found in daytime near Huay Nam Un. Some specimens were found 5–20 m away from the stream but never found within the stream. Some specimens were found under small or large rocks. The size of the skink doesn't depend on size of rocks because large and small skinks can be found in both small and large ones. Some specimens were found in the hole under the rock and the holes fit to the body of skinks. The depth of holes is equal to the total length of skink (Snout to tip of the tail). They

stayed in the hole by having head inside downward and let the tail out upward.

Comparisons.—Twelve species of genus *Tropidophorus* from Indochina, *T. baviensis*, *T. berdmorei*, *T. cocincinensis*, *T. hainanus*, *T. laotus*, *T. latiscutatus*, *T. matsuii*, *T. microlepis*, *T. murphyi*, *T. robinsoni*, *T. sinicus* and *T. thai*, were compared with the new species.

The present species has smooth head scales, and clearly differed from four species with rugose or striated head scales, *T. cocincinensis*, *T. hainanus*, *T. microlepis*, *T. robinsoni*, *T. sinicus*. *Tropidophorus hangnam* resembles the rest six species, *T. berdmorei*, *T. baviensis*, *T. latiscutatus*, *T. laotus*, *T. matsuii* and *T. murphyi*, by having

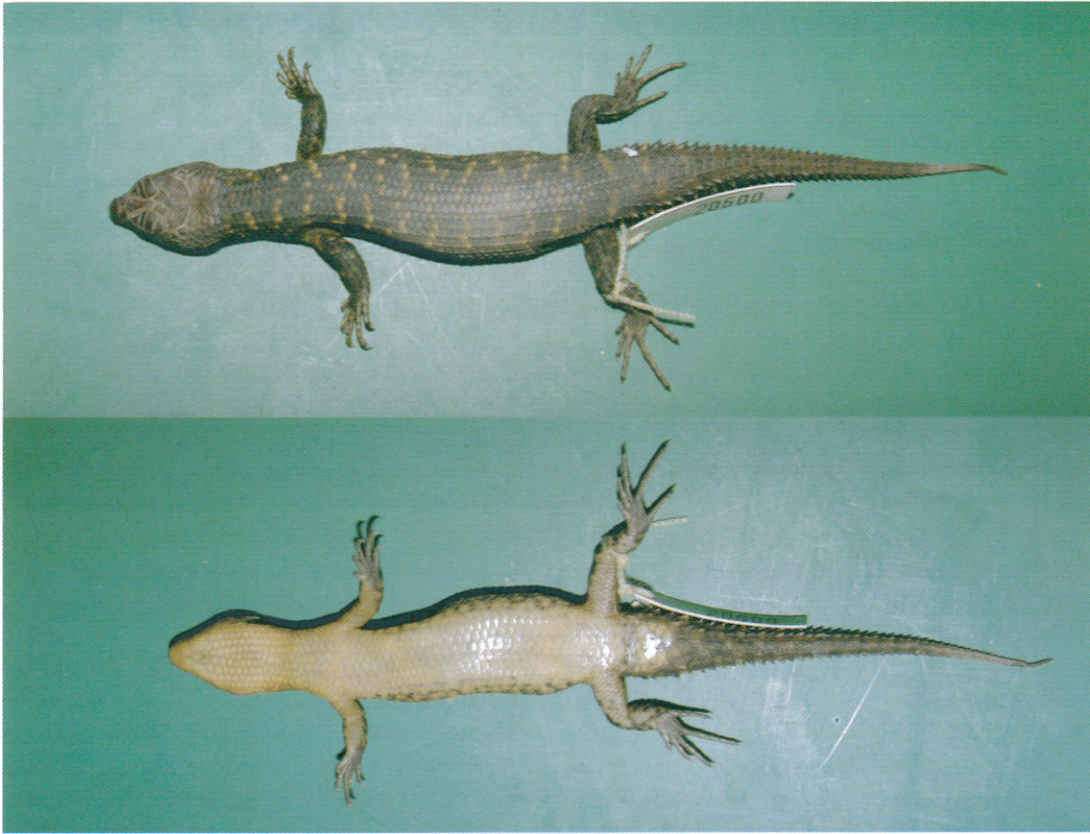


Figure 2 Dorsal (A) and ventral (B) views of *Tropidophorus hangnam* sp. nov. (holotype, THNHM 05776, an adult male, SVL 78.2 mm., TaL 65 mm.).



Figure 3 Life photo of *Tropidophorus hangnam* sp. nov. (holotype, THNHM 05776, an adult male, SVL 78.2 mm., TaL 65 mm.).

smooth head scales. However, it differs from *T. berdmorei* and *T. laotus* by having a tail with strongly keeled scales. The latter species has smooth or weakly keeled scales on tail. This species resembles *T. laticutatus*, *T. matsuii* and *T. murphyi* by having depressed body and keeled tail, but it was differentiated from them by having shorter tail with stronger spine-like keels.

The new species has unique characters such as short tail with spinose scales and paired subcaudals, discriminated from any other species of *Tropidophorus*.

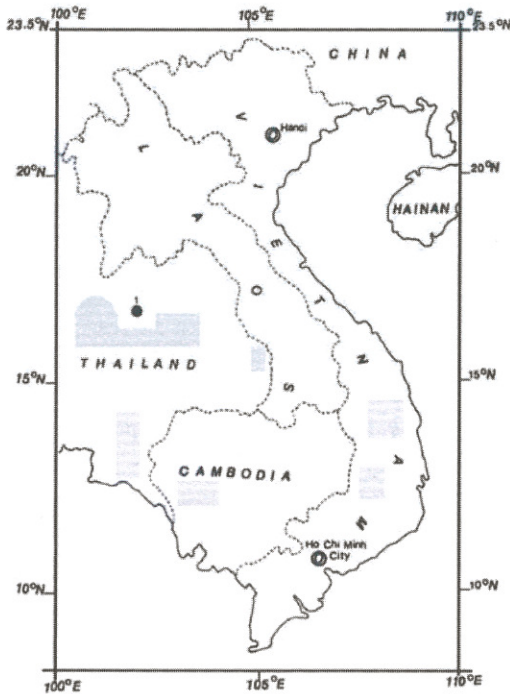


Figure 4 The type locality of *Tropidophorus hangman* sp.nov.: 1 = Phu Khiew Wildlife Sanctuary, Chaiyaphum Province, northeastern Thailand.

We here provide a taxonomic key to identify twelve species of *Tropidophorus* from Indochina as follows:

- I. Head scales smooth; dorsal scales with weak keels in adult.
 - 1a. Frontonasal single 2
 - 1b. Frontonasal divided 5
 - 2a. No subcaudal median scale row, Tail shorter than SVL *hangnam*

- 2b. Subcaudal median scale row, Tail longer than SVL 3
- 3a. lateral scales backwardly straight, body scales smooth or weakly keeled *berdmorei*
- 3b. lateral scales backwardly oblique, body scales keeled 4
- 4a. paravertebrals widened *laticutatus*
- 4b. paravertebrals not widened *murphyi*
- 5a. Head, dorsal, lateral and tail scales smooth *laotus*
- 5b. Head, dorsal, lateral and tail scales keeled *matsuii*

- II. Head scales rugose; dorsal scales strongly keeled.
 - 1a. Three large preanal scales *microlepis*
 - 1b. Two large preanal scales 2
 - 2a. Frontonasal single, undivided 3
 - 2b. Frontonasal double, divided *thai*
 - 3a. lateral scales backwardly straight, head scale feebly rugose 4
 - 3b. lateral scales backwardly oblique, head scales strongly rugose 5
 - 4a. dorsal and lateral caudal scales mucronated; body depressed *baviensis*
 - 4b. dorsal and lateral caudal scales keeled, body not depressed *robinsoni*
 - 5a. 4th supralabial largest *hainanus*
 - 5b. 5th supralabial largest *cocincinensis*

DISCUSSION

Duméril and Bibron (1861) named the genus *Tropidophorus* with the type species, *T. cocincinensis*, many species have been described from Southeast Asia, Indochina, Bangladesh and southern China, Borneo, Sulawesi and Philippines (Pope, 1935; Brown and Alcalá, 1980; Ngo *et al.*, 2000; Rooij, 1915; Smith, 1935; Zhao and Adler, 1993; Hikida *et al.*, 2002 and 2003; Greer and Biwas, 2004; Nabhitabhata *et al.*, “2000”2004). Twenty five species were currently recognized and twelve species were recorded from Indochina. Some species have overlapped distribution especially in China and Bangladesh.

In 2002, two (*Tropidophorus laticutatus* and *T. matsuii*) and one (*T. murphyi*) species were described from northeastern Thailand and

Table 1 Comparison of selected morphological characters among species of genus *Tropidophorus* from Indochina region, including the new species, *T. hangnam*, from northeastern Thailand.

Characters	<i>baviensis</i>	<i>berlnorei</i>	<i>cocincinensis</i>	<i>hainanus</i> ^a	<i>lotus</i>	<i>laticutatus</i>
SVL	72.59±5.77 (66.3–78.7) n=5	76.28±6.91 (60.5–86.5) n=24	86.99±7.91 (78.2–98.6) n=7	48.00±1.41 (47.0–48.0) n=2	71.69±4.24 (66.1–76.0) n=4	72.69±12.85 (60.2–91.0) n=5
TaL	82.18±2.50 (79.3–83.7) n=3	96.94±10.60 (83.0–111.0) n=5	115.58±14.39 (97.0–127.0) n=4	62.50±3.54 (60.0–65.0) n=2	101.80±8.34 (95.9–107.7) n=2	93.33±12.44 (81.5–106.5) n=4
TaL/SVL	1.18±0.09 (1.08–1.26) n=3	1.37±0.04 (1.32–1.43) n=5	1.31±0.06 (1.24–1.29) n=4	1.3±0.04 (1.28–1.33) n=2	1.46±0.01 (1.45–1.47) n=2	1.22±0.09 (1.11–1.31) n=4
mid-body scale row	26–30	34–40	28–33	30–34	30–35	20–38
Characters	<i>matsuii</i>	<i>microlepis</i>	<i>murphyi</i>	<i>hangnam</i>	<i>robinsoni</i>	<i>thai</i> ^{**}
SVL	93.80	63.04±6.11 (55.5–73.4) n=8	85.25±11.81 (76.9–93.6) n=2	91.49±8.93 (78.2–101.2) n=4	50.13±0.18 (50.0–50.3) n=2	56.50±24.75 (39.0–74.0) n=2
TaL	109.45	83.33±11.82 (75.8–106.9) n=6	103.78±8.8 (97.6–110.0) n=2	64.22±5.36 (58.3–68.8) n=4	68.33±0.32 (68.5–69.0) n=2	64.00±21.21 (49.0–79.0) n=2
TaL/SVL	1.17	1.32±0.10 (1.19–1.46) n=6	1.17±0.18 (1.04–1.29) n=2	0.75±0.10 (0.63–0.84) n=4	1.37±0.01 (1.36–1.38) n=2	1.16±0.13 (1.26–1.16) n=2
mid-body scale row	34	27–29	30–32	28–31	–	34

Notes: ^a Data of *Tropidophorus hainanus* came from Smith (1921).
^{**} Data of *Tropidophorus thai* came from Taylor (1963).

Vietnam, respectively, by Hikida *et al.* (2002). The one distinguishing character that was used to identify them is the body depression also as same as occurred in *T. baviensis* from northern Vietnam. The new species, *T. hangnam*, described in the present study, also had this character state. However, we thought it is difficult to identify the species, by using this character, in case of juveniles or small sized individuals and also in gravid females. The term of depress-bodied is a qualitative character. If it is measured by the term of body width and body depth, it will make more errors by itself. This error depends on the method of measurement, condition of preservation or also condition of the skink when measured (after the skink is dead or after changing the preservative solution). Our specimens shown definite depressed-bodied but we found that inside the body were bloated with water and air. When we took the tissue samples (pieces of liver) from the body, the water and air came out too. So we decided not to use the measurement of the character, “depressed-body” for comparison with the characters shown in Table 1. However this character quite well shows the adaptation for living in narrow flat cavities as under the rocks or small holes congruenting with the habitat of our studied type series.

Postanal pores were mentioned by Taylor (1963) as exocrine glands just inside the posterior edge of the anal opening. The literatures and our examination of this character reveals that the pores are present in both male and females in *Tropidophorus davaoensis* (Bacon, 1980), *T.*

microlepis (Taylor, 1963; present study) and *T. cocincinensis* (present study). However this feature is variable in the species of this genus according to Greer and Biswas (2004): present in males but absent in females in *T. baconi*; present at least in males in *T. grayi* (N=5 males, no females examined; Hikida *et al.*, 2003) and *T. matsuii* (N=1 males and no females); present at least in females in *T. beccarii* (N=2 females, no males examined), *T. hainanus* (N=2 females, no males examined) and *T. misaminus* (one female, no males examined), and absent in both sexes in *T. laticutatus* (N=2 males and 3 females) and *T. sinicus* (N=2 males and 3 females). In *T. microlepis*, Taylor (1963) mentioned male postanal pores are more developed than females, but some specimens examined by us showed the well developed condition in both sex by the number of capsule-shape opening pores. The new species show an absence of postanal pores. This character should be important to discriminate some species.

The scales which wrap around the corners of the eyelid (Greer and Biswas, 2004: fig.2) occur in all the specimens of the present species. This characteristic is quite useful to recognize the genus as mentioned by Greer and Biswas (2004).

This study one species be added into the pattern of distribution of the genus *Tropidophorus* in Greer and Biswas (2004): continental Asia (15 species, including the new species), Philippines (4 species), Borneo (6 species) and Sulawesi (1 species). As mentioned by Greer and Biswas

(2004), the distribution of *Tropidophorus* in peninsular Malaysia, Sumatra and Java is not known, as well as no common species have not reported between these four regions. These problems are still remained as unexplained. Fifteen species from continental Asia (Table 2) comprised of seven endemic species that reported from only one country, and four of them are newly described species. However, the endemism of these species may be changed by more exploration and taxonomic study. *Tropidophorus cocincinensis* was described from Vietnam, but later has been recorded from Cambodia, Vietnam and Thailand by rechecking literatures and studying specimens (Greer and Biswas, 2004; Nabhitabhata *et al.*, 2004; this study). The remaining species from continental

Asia, *T. berdmorei* and *T. microlepis* show the wide ranges in this area.

From literature and the present study, the data showed highest species count in Thailand as nine species. The main area with highest diversity is northeastern Thailand (five species: *T. cocincinensis*, *T. laotus*, *T. laticutatus*, *T. microlepis* and *T. hangnam*). Cambodia, Laos and Myanmar show the lower diversity, but it is due to the less information. Some undescribed or unclear specimens were deposited in the collections and some have been studying the identity of species. From this reasons the further species diversity of this genus from Indochina could increase.

Table 2 The distribution range of fifteen species of genus *Tropidophorus* (including the new species) from continental Asia, showing the number of country and their references.

<i>Tropidophorus</i>	range	No. Country	references
<i>assamensis</i>	Bangladesh	1	Shama (2002)
<i>baviensis</i>	Vietnam	1	Bouret (1939), Ngao <i>et al.</i> (2000)
<i>berdmorei</i>	China, Myanmar, Thailand, Vietnam	4	Bouret (1937), Taylor (1963), Chuaynkern <i>et al.</i> (2002), Nabhitabhata <i>et al.</i> ("2000"2004)
<i>cocincinensis</i>	Vietnam, Thailand (?)	2	Smith (1916), Nabhitabhata <i>et al.</i> ("2000"2004)
<i>guangxiensis</i>	China	1	Wen (1992)
<i>hainanus</i>	China, Vietnam	2	Smith (1923, 1935), Bouret (1937),
<i>laotus</i>	Thailand, Laos	2	Taylor (1963), Nabhitabhata <i>et al.</i> ("2000"2004)
<i>laticutatus</i>	Thailand	1	Hikida <i>et al.</i> (2002), Nabhitabhata <i>et al.</i> ("2000"2004)
<i>matsuii</i>	Thailand	1	Hikida <i>et al.</i> (2002), Nabhitabhata <i>et al.</i> ("2000"2004)
<i>Microlepis</i>	Thailand, Cambodia, Laos, Vietnam	4	Taylor (1963), Nabhitabhata <i>et al.</i> ("2000"2004), Teynié <i>et al.</i> (2004)
<i>murphyi</i>	Vietnam	1	Hikida <i>et al.</i> (2002)
<i>Hangnam</i>	Thailand	1	This study
<i>robinsoni</i>	Thailand, Myanmar	2	Taylor (1963), Nabhitabhata <i>et al.</i> ("2000"2004)
<i>Simicus</i>	China, Vietnam	2	Bouret (1939),
<i>thai</i>	Thailand, Myanmar	2	Taylor (1963), Nabhitabhata <i>et al.</i> ("2000"2004)

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- Tropidophorus latiscutatus*.—Thailand: THNHM 05830 (holotype = TNHM-R-60001 [KUZ R40362]), THNHM 05826-29 (paratypes = TNHM-R-60004 [KUZ R40373], TNHM-R-60005 [KUZ R40257], TNHM-R-60002 [KUZ R40258] and TNHM-R-60003 [KUZ R40370]), and from type locality [Phu Wua Wildlife Sanctuary (18°05'N, 103°45'E, altitude ca 200 m)], Nong Khai Province.
- Tropidophorus laotus*.—Laos: FMNH 135993 and 178071 (paratypes) and FMNH 258750-51, from Kasi District, Vientiane; Thailand: FMNH 265808 from Ubon Ratchathani Province.
- Tropidophorus matsuii*.—Thailand: THNHM 05825 (holotype = TNHM-R-60006 [KUZ R40540]), from type locality, Phu Pha Namtip (15°53'N, 104°18'E, altitude 350), Roi Et Province.
- Tropidophorus microlepis*.—Thailand: THNHM 00093-94 and 112, Chon Buri Province, THNHM 00099, Chachoengsao Province, FMNH 182532, Nakhon Ratchasima Province; Vietnam: FMNH 262168-70, Lam Dong Province.
- Tropidophorus murphyi*.—Vietnam: ROM 41223-24 (paratypes), from type locality, Quang Thanh Village (Quang Thanh, 22°37'43N, 105°54'46E, altitude 700-750), Nguyen Binh District, Cao Bang Province.
- Tropidophorus robinsoni*.—Thailand: FMNH 170612 (topotype) and 178295, from Siam (=Thailand).
- Tropidophorus thai*.—Thailand: FMNH 176862 from Chiang Mai Province.

APPENDIX

Comparative materials examined:

Tropidophorus baviensis.—Vietnam: ROM 25544, 49, 58-62 and 65 from Quang Thanh, Cao Bang Province.

Tropidophorus berdmorei.—Thailand: FMNH 152397-98, 41-52, 54-63, 216021-23, 258750-51 and 265807, from Chiang Mai Province.

Tropidophorus thai.—Thailand: FMNH 176862 from Chiang Mai Province.

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