Redescription of the Thailand blindsnake "*Ramphotyphlops ozakiae* Wallach in Niyomwan, 1999," nomen nudum, as *Ramphotyphlops mollyozakiae* n. sp. (Serpentes: Typhlopidae)

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INTRODUCTION

In the late 1990's the author assisted Piyawan Niyomwan, who was working on her thesis on the blind snakes of Thailand, by sending her a MS draft of a key to the typhlopids of Thailand, which included an as-of-yet undescribed species from that country. There was never any mention of the proposed species, *Ramphotyphlops ozakiae*, as having been published (and no publication of such was discussed or sent). Niyomwan then borrowed one of the designated specimens from the proposed type series in the Field Museum and, mistakenly believing the species to have been published by the present author, included it in her published thesis (NIYOMWAN, 1999). Niyomwan presented scale counts and proportional measurements of the proposed holotype (FMNH 180007; see Table 1), illustrated it with line drawings of the head and a colour photo, and mapped the type locality. However, inclusion of the species in the thesis was

Table 1. Data presented on *Ramphotyphlops ozakiae* in NIYOMWAN (1999).

Page	Description
v	listing of *Ramphotyphlops ozakiae* as part of Thai fauna
13–14	listing of material examined (*R. ozakiae,* FMNH 180003–180007)
24	listing of FMNH specimens, including *R. ozakiae* paratype
25	listing of *R. ozakiae*
27	distribution map with plot of type locality
32	list of species with description of *R. ozakiae* Wallach, 1998
35	Fig. 4-3D: color photo of *R. ozakiae,* FMNH 180007
37	Fig. 4-5D: line drawings of three head views of *R. ozakiae* (FMNH 180007)
40	Fig. 4-8H: line drawing of venter of tail of *R. ozakiae* (FMNH 180007)
41	Tab. 4-1: measurements and scale counts of *R. ozakiae* (FMNH 180007)
42	Tab. 4-2: proportions of one specimen of *R. ozakiae* (FMNH 180007)
45	listing of *R. ozakiae* in discussion of BW/SVL, HW/SVL, and RW/HW
46	listing of *R. ozakiae* in discussion of RW/SVL, TL/SVL, and TW/SVL
47	Tab. 4-3: proportions of one specimen of *R. ozakiae* (FMNH 180007)
57	identification key couplet with *R. albiceps* and *R. ozakiae;* Fig. 6 showing snout dorsum and tail venter color pattern and Fig. 7 showing dorsal head shields [reproduced in English in NIYOMWAN et al*.,* 2001: 51, couplet 6 and figs. 9–10]
68	bibliographic citation of the Wallach Ph.D. thesis (WALLACH, 1998)
79	App. 1: material examined with only one *R. ozakiae* (FMNH 180007) listed
96	App. 2: total length of material examined with *R. ozakiae* (FMNH 180007) at 227 mm
107	App. 3: scale counts of material examined with *R. ozakiae* (FMNH 180007) with 317 + 6 + 3 = 326 total middorsals
118	App. 4: head shields of *R. ozakiae* (FMNH 180007)
130	App. 5: further description of head shields of *R. ozakiae* (FMNH 180007)
140	App. 6: twelve measurements of FMNH 180007 (FMNH 180007)

never suggested to be a new description; it was believed that *Ramphotyphlops ozakiae* had already been published and authorship was attributed to Wallach throughout the text. Communication with Ms. Niyomwan confirmed that the use of the name *R. ozakiae* was accidental and unintentional, and was due to her belief that the species had already been published. This belief may have been further solidified when borrowing FMNH 180007, which had been proposed as the holotype of the type series by Wallach and probably was tagged as such in the collection and on the loan invoice.

Considerable confusion existed following the publication of Niyomwan's thesis and consultation with various systematic herpetologists (Hobart M. Smith, Patrick David, Olivier Pauwels, Richard Etheridge, Jay M. Savage) indicated that the taxon should be known as *Ramphotyphlops ozakiae* Wallach in NIYOMWAN, 1999, and such a designation was subsequently followed (WALLACH et al*.,* 2014; CHAN-ARD, 2012). However, the species was considered "validly but unintentionally published" (CHAN-ARD, 2012).
According to Art. 8(a)(2) of the Code (ICZN, 1985), one criterion of publication is that the work "must be obtainable, when first issued, free of charge or by purchase," and only a few copies of the thesis by NIYOMWAN (1999) were distributed within Chulalongkorn University to her Committee members and colleagues (P. Niyomwan, pers. comm.). The name *Ramphotyphlops ozakiae* is technically a nomen ineditum (unpublished name) but according to the Rules it is officially recognized as a nomen nudum (naked name) as it does not conform to Articles 8 (valid publication) and 11 & 13 (availability) of the Code.
Several authors (CHAN-ARD, 2012; COX et al., 2013; HEDGES et al., 2014), not aware of Niyomwan's thesis in 1999, cited authorship as *Ramphotyphlops ozakiae* (NIYOMWAN et al., 2001). However, according to the Article 16.1 of the most recent edition of the Code (ICZN, 1999), any name proposed after 1999 "must be explicitly indicated as intentionally new," with the inclusion of terms such as "sp. nov.", "n. sp.", or "new species" to indicate a new nominal taxon. The publication of *Ramphotyphlops ozakiae* by NIYOMWAN et al. (2001) also constitutes a nomen nudum*.* All previous references to the species (as *Typhlops ozakiae, Ramphotyphlops ozakiae* and *Indotyphlops ozakiae*) are invalidly published and unavailable (nomina nuda) according to the Rules of Nomenclature (ICZN, 1985 & 1999). Those names are cited below in the synonymy. According to Art. 16.1 of the Code (ICZN, 1999), the intention of authors to establish a new nominal name after 1999 must explicitly state that it is new (i.e., sp. nov. or new species). Names proposed between 1931 and 1999 must satisfy the conditions of Art. 13.1.1 and be accompanied by a description or definition that states in words characters that are purported to differentiate the taxon.
HEDGES et al. (2014) transferred the species from the genus *Ramphotyphlops* to *Indotyphlops* based upon geography and similarity to other *Indotyphlops* as molecular data are not yet available.
COX et al. (2013) erroneously recorded the holotype as MCZ R 177983. *Ramphotyphlops ozakiae* is a data deficient species (IUCN, 2014) and the Data Deficient taxon ID is 191975 (BUTLER, 2019).

MATERIALS AND METHODS

All measurements were made to the nearest 0.5 mm and abbreviations include SVL = snout-vent length, T or TL = tail length, TW = mid-tail width, LOA = total length, ABD, MBD and PBD = anterior, midbody and posterior diameter in horizontal plane, MTW = mid-tail width in horizontal plane, HW = head width at interocular level, RW = rostral width at midscale, SL = supralabial, INS = inferior nasal suture, SNS = superior nasal suture, DSR = dorsal scale row formula, TMD = total middorsals between rostral and apical spine, SC = subcaudals, DC = dorsocaudals counted on vertebral line, SIP = supralabial imbrication pattern, left and right side counts indicated by a diagonal (left/right). Discussion of visceral characters and their definitions can be found in WALLACH (1985, 1993, 1998, 2001, 2005), CUNDALL et al. (1994), WALLACH & INEICH (1996), WALLACH & GÜNTHER (1998), and BROADLEY & WALLACH (2002, 2007a–b). Data on characters of the soft anatomy are presented in three formats: meristic numbers, values listed as % (i.e., 12.0–13.5%) represent the character as % SVL, and values given as decimals (i.e., 0.42–0.50) represent ratios between two visceral characters. An organ listed without reference to a point

Figure 1. Preserved holotype of *Ramphotyphlops mollyozakiae* (FMNH 180007).

(midpoint, anterior tip, posterior tip) or gap/interval refers to the organ length, gap (G) = length between two organs, interval (I) = length from anterior tip of more craniad organ to posterior tip of more caudad organ, and midpoint-midpoint distance (MPD) = length between the mid-points of two organs.
Data on the holotype as reported by NIYOMWAN (1999) are provided in parentheses under the description of the type specimen.

DESCRIPTION

A synonymy of previously published names referring to this taxon is listed below. As a consequence of the epithet *ozakiae* having been accidently published but not formally described, all of these names are nomina nuda. The appropriate name for this species should therefore be:

Ramphotyphlops mollyozakiae n. sp.
Molly Ozaki's Blindsnake
Figs. 1–3

Synonymy

Typhlops ozakiae nomen nudum
NIYOMWAN, 1999: 13–14, 79, 96, 107, 118, 130, 140; NABHITABHATA & CHAN-ARD, 2005: 133, 173, 222; DAS, 2010: 350, 376; CHAN-ARD, 2012: http://dx.doi.org/10.2305/IUCN.UK.2012-1.RLTS.T191975A2023185.en; IUCN, 2014: 10; PATAWANG et al., 2016: 1.

Ramphotyphlops ozakiae nomen nudum
NIYOMWAN, 1999: v, 24–25, 27, 32, 35, 37, 40–42, 44–47, 57, figs. 4.1, 4.3D (holotype), 4.5D (holotype), 4.8H (holotype), 4.9H (holotype), 6 (right), 7 (right); NIYOMWAN et al., 2001: 47, 51–52, figs. 9b, 10b; CHAN-ARD et al., 2015: 147; WALLACH, 2003: 229; 2006: 15; 2009: 42; WALLACH & PAUWELS, 2004: 15; WALLACH et al., 2007: 696; 2014: 617, 1186; AFROOSHEH, 2009: 17; CINAR, 2009: 269; DAS, 2012: 153; 2018: 169; COX et al., 2013: 15–17; PARR et al., 2014; WALLACH et al., 2014: 629, 757.

Indotyphlops ozakiae nomen nudum
HEDGES et al., 2014: 6, 11, 16, 23, 37; PYRON & WALLACH, 2014: 16, 34, 56, 80; FELDMAN et al., 2015: 48; HIKIDA, 2015: 44; MATTISON, 2015: 152; PAUWELS & GRISMER, 2015: 457; FOTOLULU, 2018: 521; ITIS, 2019; UETZ & HOSEK, 2019: http://reptile-database.reptarium.cz/species?genus=Indotyphlops&species=ozakiae.

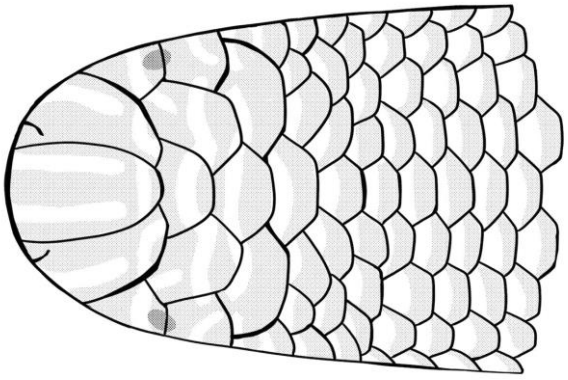


Figure 2. Dorsal view of head of holotype of *Ramphotyphlops mollyozakiae* (FMNH 180007).

Drawing: Emma Hsiao.

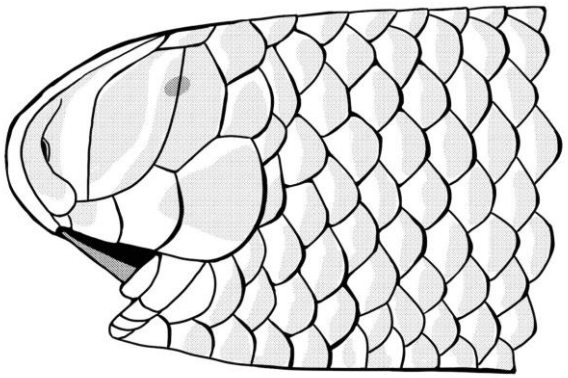


Figure 3. Lateral view of head of holotype of *Ramphotyphlops mollyozakiae* (FMNH 180007).

Drawing: Emma Hsiao.

Holotype

FMNH 180007 (previously field number WRH 3679), a 158 mm male collected by W.R. Heyer on 17 September 1969.

Type locality

Sakaerat Experimental Station, Amphoe Pak Thong Chai, Nakhon Ratchasima Province, southeastern Thailand, 14°43'N, 102°01'E, elevation 200 meters.

Paratypes

FMNH 180003 (WRH 676) collected 25 March 1969 at type locality; FMNH 180004 (WRH 2560) collected 6 June 1969 at type locality; FMNH 180005 (RFI 3389) collected 27 August 1969 at type locality; FMNH 180006 (WRH 3390) collected 27 August 1969 at type locality; ZMUC R52174 collected by O. Hagerup on 5 October 1916 at Lomban Djulo (Loemban Djoeloe), north of Lake Toba, Sumatra, western Indonesia, 2°40'38"N, 99°50'40"E, elevation 1100 meters.

Etymology

This species is named in honour of Molly Ozaki (1927–2010), long-time Secretary and Administrative Assistant in the Division of Amphibians and Reptiles (and briefly in the Division of Fishes), Field Museum of Natural History, Chicago, IL. Her tenure extended from 1978 to 1992 (Fig. 4). Mere words cannot describe her or capture the essence of her personality. Although she and her husband, Yoji, were held prisoner in a Japanese camp during WW II, they exhibited no resentment over their former tribulations. In my experience, Molly was the most gracious, accommodating, and effective secretary ever to administrate a herpetology department. Molly greatly facilitated herpetological research in the Field Museum during her 15 years of service. She is certainly missed by all who were fortunate enough to have known or worked with her.

Figure 4. Molly Matsunaga Ozaki in the FMNH Reptiles & Amphibians departmental office.

Diagnosis

Since molecular data are lacking for most members of both *Ramphotyphlops* and *Indotyphlops*, morphological data must be relied upon for clues to relationships. *Ramphotyphlops mollyozakiae* is most similar to *R. albiceps* (currently placed in *Indotyphlops* by HEDGES et al., 2014), with which it is sympatric, and can be distinguished from *R. albiceps* by head colour (brown vs. yellow head and nape), number of postoculars (1 vs. 2–4), and the number of helical coils in the hemipenis (0.5 vs. 3.5), in addition to the visceral characters listed in Table 2. Although not diagnostic, due to overlap in ranges, it also has a smaller average number of middorsals (x = 307 vs. 343) and a thicker body proportion (L/W ratio: x = 40 vs. 68). *Ramphotyphlops mollyozakiae* differs from *R. lineatus* in fewer scale rows (20 vs. 22–24), relatively longer tail (T/LOA ≥ 1.8% vs. ≤ 1.8%), INS contact (SL 2 vs. SL 1), and number of postoculars (1 vs. 2–4) and from all other *Ramphotyphlops* with 20 scale rows, *R. mollyozakiae* can be distinguished by its SNS being visible on the dorsum of the snout. *Ramphotyphlops mollyozakiae* can be distinguished from *Virgotyphlops braminus* by the INS contact (SL 2 vs. pre-ocular) and bisexual mode of reproduction (vs. unisexual) (WALLACH, 2020).

From all Asian species of *Indotyphlops* with 20 scale rows, *R. mollyozakiae* can be separated from *I. jerdoni* by a single postocular (vs. 2); from *I. lankaensis* by total middorsals (> 290 vs. < 265), larger body size (LOA > 150 mm vs. < 130 mm), thinner body proportions (L/W > 38 vs. < 35), and the INS contact (SL 2 vs. pre-ocular); from *I. malcolmi* by larger body size (> 150 mm vs. < 135 mm), thinner body (L/W > 38 vs. < 32), and nasal shield (divided vs. undivided); from *I. pammeces* by total middorsals (< 327 vs. > 328), thicker body (L/W < 53 vs. > 54), and nasal shield (divided vs. undivided); from *I. porrectus* by SIP (T-III vs. T-V), posterior scale rows (20 vs. 18), and total middorsals (< 330 vs. > 400); from *I. schmutzi* by SIP (T-III vs. T-V), total middorsals (< 330 vs. > 385), and larger body size (> 150 mm vs. < 145 mm); from *I. tenebrarum* by larger size (≥ 154 mm vs. ≤ 144 mm), broader rostral (RW/HW > 0.35 vs. < 0.30), and nasal shield (divided vs. undivided); from *I. veddae* by larger body size (> 150 mm vs. < 95 mm), subcaudals (≤ 12 vs. ≥ 13), thicker body (L/W < 55 vs. > 60), and nasal shield (divided vs. undivided); and from *I. violaceus* by larger body size (≥ 154 mm vs. ≤ 135 mm), and the INS contact (SL 2 vs. pre-ocular) (Table 3).

Table 2. Comparison of visceral data of *Ramphotyphlops mollyozakiae* and *R. albiceps* (mean values as % SVL).

Character	*mollyozakiae* (n = 6)	*albiceps* (n = 4)
Shy	12.0	7.7
HMP	29.8	32.3
SHI	31.9	34.2
HLI	31.9	34.2
HGBG	30.4	35.8
RLMP	46.1	51.6
LLMP	44.0	48.7
TLS	20.7	15.0
LKG	27.4	22.1
GBMP	62.9	70.7
GBKG	23.3	15.2
GBKI	32.6	22.9
RGMP	77.7	83.2
LGMP	80.2	84.2
GKG	4.8	1.1
RAMP	83.1	85.9
LAMP	84.7	86.7
T	30.8	33.1
TLg	18.3	20.4
RLgMP	40.3	42.7
RLgPT	48.8	51.1
RBPT	42.1	46.4
TB	41.0	45.2
TBMP	21.6	23.8
HLMPD	16.3	19.3
TLMPD	29.6	33.9
LKMPD	44.8	38.2
TBGBMPD	41.4	47.0
HRGMPD	47.7	50.9
HKMPD	61.1	57.5
TBKMPD	69.2	66.0

Description (holotype)

FMNH 180007 (Fig. 1), an adult male with SVL 153 (146.9) mm, TL 4.5 (4.3) mm, LOA 157.5 (151.2) mm, TL/LOA 2.9% (2.9), ABD 3.0 mm, MBD 3.0 (3.5) mm, PBD 3.5 mm, LOA/MBD ratio 52.5 (42.7), MTW 2.5 (2.9) mm, TL/MTW 1.8 (1.5), HW 2.6 (1.8) mm, RW 1.0 (1.0) mm, RW/HW 0.38 (0.54), DSR 20-20-20 (20-20-20), TMD 318 (317), SC 12, DC 13, scales smooth, cycloid and imbricate without pits. Snout rounded in dorsal aspect,

Taxon	ASR	MSR	PSR	SIP	TMD	SC	LOA	L/W	RTL (%)	RTW	INS	SNS	PO
Ramphotyphlops													
albiceps	20–22	20	20	T–III	301–424	8–25	117–302	39–104	1.3–6.7	0.9–3.0	2	Yes	2 (3–4)
angusticeps	20	20	18–20	T–III	617–709	20–29	243–455	64–95	2.3–4.0	2.4–3.9	1	No	2–3
becki	20	20	20	T–III	206–241	8–15	62–149	17–31	2.3–6.3	1.0–2.1	2	No	2 (3)
conradi	20	20	20	T–III	398	8–11	165–175	58–66	1.2–1.5	1.0	2	No	1–2
exocoeti	20	20	20	T–III	466–508	17–20	230–398	52–73	2.2–2.9	1.8–2.7	2	No	2
lineatus	22–24	22–24	20–22	T–III	315–438	8–11	152–480	36–60	1.7–1.8	0.8–1.1	1	No	2–3 (4)
multilineatus	20	20	20	T–III	513–586	20–22	220–427	46–73	2.6–4.3	1.7–2.9	1	No	2
mollyozakiae	20	20	20	T–III	291–327	7–12	154–176	38–53	1.8–2.9	1.1–1.8	2	Yes	1
similis	20	20	18	T–III	234–235	9–12	154–235	18–27	3.2–3.9	1.0–1.2	2	No	1
Indotyphlops													
jerdoni	20	20–22	20	T–III	260–313	9–15	130–280	35–47	2.1–3.3	1.3–1.5	2	Yes	1–2
lankaensis	20	20	20	T–III	229–261	11–15	67–130	27–35	2.5-4.4	1,5	Pre	Yes	1
malcomi	20	20	20	T–III	261–308	9–12	81–135	30–32	2.5–4.2	1.1–1.2	2	Yes	1
pammeces	20	20	20	T–III	328–391	11–13	119–195	54–75	1.9–3.1	1.3–1.6	2	Yes	1–2
porrectus	19–20	18–20	18	T–V	388–468	7–14	65–285	40–91	1.4–2.3	0.9–2.0	2	No	1–2
schmutzi	18–20	18–20	18–20	T–V	403–413	9–12	58–140	63–93	1.8–2.0	1.8–2.0	2	No	1
tenebrarum	20	20	20	T–III	298–339	9–14	65–144	34–72	2.1–3.0	1.4–2.0	2	Yes	1
veddae	20	20	20	T–III	295–309	13-14	93	60–91	3.0	1.4	2	Yes	1
violaceus	20	20	20	T–III	245–308	10–13	65–135	30–43	2.2–3.1	2.0	Pre	Yes	1
Virgotyphlops													
braminus	20	20	20	T–III	261–368	8–15	35–203	30–60	1.5–3.5	0.7–2.0	Pre	Yes	1

Table 3. Scutellation data for relevant *Ramphotyphlops, Indotyphlops* and *Virgotyphlops* species. ASR, MSR and PSR = anterior, midbody and posterior scale rows, SIP = supralabial imbrication pattern, TMD = total middorsal scales, SC = subcaudal scales, LOA = total length, L/W = total length/midbody diameter ratio, RTL = relative tail length (as % LOA), RTW = relative tail width (TL/TW), INS = inferior nasal suture contact (Pre = pre-ocular, 1 = SL 1, 2 = SL 2), SNS = superior nasal suture contacting rostral, PO = number of postoculars.

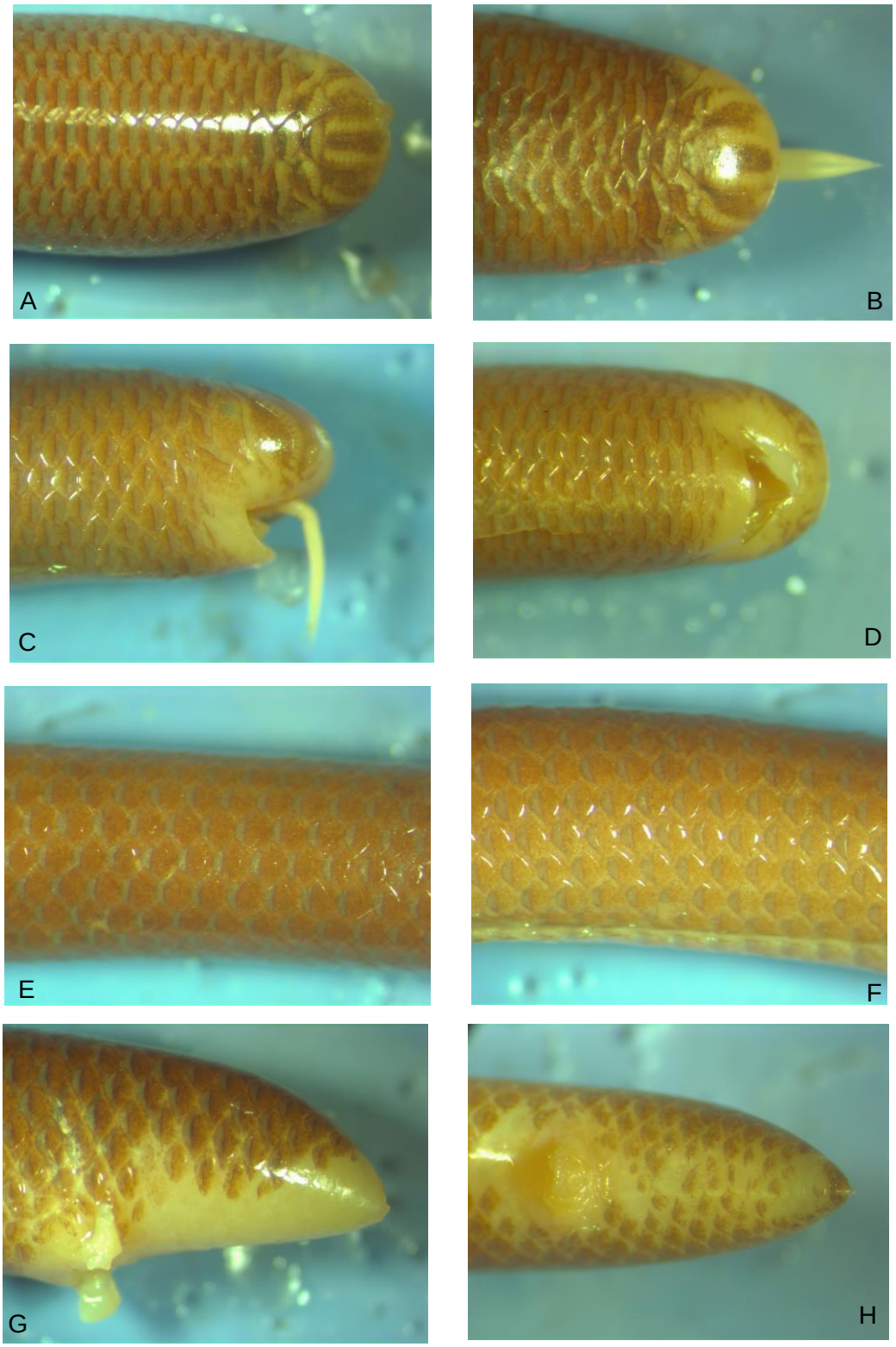
rostral oval in shape, tapering slightly anteriorly and posteriorly, extending nearly to the interocular line, supranasals subequal in width to rostral, bordered posteriorly by a frontal that is twice as broad as deep; frontal bordered posteriorly by a similar sized postfrontal and laterally by a pair of transversely oriented, blocky supra-oculars, 1.5 times as broad as deep and as wide as three costal scales; a single pair of transversely oriented parietals present, separated on midline by postparietal, also twice as broad as deep, which is largest vertebral scale; enlarged occipitals absent. Snout rounded in lateral view, nasal semi-divided with a complete suture between SL 2 and nostril and an incomplete suture extending dorsally onto dorsum of snout, curving towards the rostral but not making contact, nostril elongate and bean-shaped, obliquely oriented and directed laterally; infranasal small and narrow, supranasal broad and extending onto dorsum of snout just beyond the rostral, posterior border concave; pre-ocular broader than supranasal and ocular, and taller than ocular; both pre-ocular and ocular obliquely inclined to horizontal; eye reduced to a small faint spot beneath the pre-ocular-ocular suture in dorsal view but under the ocular in lateral view; postocular single, elongate and apparently fused from two costal scales; supralabials 4, SIP T-III, SL 4 largest, broader than tall and 2.5 times the size of SL 3, SL 3 subequal in size to SL 2, taller than broad, SL 2 as broad as tall and 4 times the size of SL 1; mental weakly projecting from curvature of lower jaw, fitting into a notch in the median rostral when mouth is closed; infralabials 4, the first 3 of which are visible externally.

In coloration (after preservation) the middorsal 10 rows are dark reddish-brown, the midlateral rows lighter, and the ventral scale rows lighter still with peppering or brown vermiculations over a yellow base; gland rows on head yellow as well as supralabials and infralabials, cloacal region, most of subcaudals, and tip of tail; tongue yellow. Individual costal scales appear greyish along the basal 1/4 to 1/3 of each scale with the remainder brown.

The tongue has a pair of caudally projecting lateral papillae just posterior to the tongue's cleft.

Variation (paratypes)

There is variation in the extent of the yellow coloration of the labials and subcaudals, ranging from completely yellow upper and lower lips (FMNH 180004, 180007) to only some yellow markings on SL3 and/or 4 (FMNH 180003). Additionally, the nasal, pre-ocular and ocular are yellow only on the right side of FMNH 180005. Ventral tail coloration ranges from entirely yellow (FMNH 180005), to a yellow cloacal region and tail tip (FMNH 180006),



A. Dorsal view of head of paratype of *Ramphotyphlops mollyozakiae* (FMNH 180004).
B. Dorsal view of head of paratype of *Ramphotyphlops mollyozakiae* (FMNH 180006).
C. Lateral view of head of holotype of *Ramphotyphlops mollyozakiae* (FMNH 180007).
D. Ventral view of head of holotype of *Ramphotyphlops mollyozakiae* (FMNH 180007).
E. Dorsal view of midbody of paratype of *Ramphotyphlops mollyozakiae* (FMNH 180003).
F. Lateral view of midbody of paratype of *Ramphotyphlops mollyozakiae* (FMNH 180003).
G. Lateral view of tail of paratype of *Ramphotyphlops mollyozakiae* (FMNH 180005).
H. Ventral view of tail of paratype of *Ramphotyphlops mollyozakiae* (FMNH 180003).

to only isolated and scattered yellow scales (FMNH 180003).

Statistics on the five paratypes (4 females, 1 male) include total middorsals (291–319, *x* = 305.2), subcaudals (7–10, *x* = 8.8), total length (154–172 mm, *x* = 161.6 mm), relative tail length (1.8–2.8%, *x* = 2.3%), L/W (38.4–53.3, *x* = 43.2), and TL/TW (1.1–1.8, *x* = 1.5). FMNH 18003 had one small developing egg (0.75 x 1.75 mm) in each ovary and 7/5 follicles; FMNH 18004 had one moderate egg (1.3 x 2.5 mm) in right oviduct and 6/4 follicles; FMNH 180006 had only 7/4 follicles; ZMUC 52174 had one large egg (1.5 x 6.5 mm) in right oviduct and 5/4 follicles in ovaries.

Most interesting is the hemipenis, which is everted in FMNH 180005, an adult male with LOA 159 mm. It is not the typical short typhlopid hemipenis that everts itself inside out when in use and retracts in the opposite manner but the *Acutotyphlops-Anilios-Ramphotyphlops* type, found in conjunction with retrocloacal sacs, that is typically longer than the tail, everts directly, and is retracted in a coiled position in order to fit inside the tail. Hemipenis coiling varies from 0–15 coils (WALLACH, 1998). The hemipenis of *Ramphotyphlops mollyozakiae* lacks complete coils and appears as a single awn with a basal kink or half coil. The organ is 3.5 mm in length, tapering slightly from a basal bulge 1.0 mm long to a thin awn 2.5 mm in length. Short retrocloacal sacs are present (2.5 mm or 1.6% SVL).

Internal anatomy

Characters of the soft anatomy include the sternohyoideus (Shy) posterior tips (10.3–15.0%, *x* = 12.0%), sternohyoideus-heart gap (0.44–0.64, *x* = 0.57), heart (3.5–4.9%, *x* = 4.2%), heart MP (28.8–30.7%, *x* = 29.8%), snout-heart interval (30.6–33.1%, *x* = 31.9%), liver overlaps the heart (0.6–2.3%, *x* = 1.7%), right liver lobe (26.9%, MP = 46.1%), right liver segments (7–13, *x* = 9.7), left liver lobe (27.6%, MP = 44.0%), left liver segments (8–17, *x* = 11.0), heart-liver interval (21.3–39.7%, *x* = 31.9%), gall bladder MP (51.6–72.4%, *x* = 62.9%), liver-gall bladder gap (0.7–5.5%, *x* = 2.8%) and interval (21.6–40.1%, *x* = 31.0%), gall bladder-gonad gap (8.4–16.3%, *x* = 12.3%), right gonad MP (70.5–83.1%, *x* = 77.7%), left gonad MP (73.1–86.5%, *x* = 80.2%), total adrenal MP (80.5–86.2%, *x* = 83.9%), liver-kidney interval (60.8–65.0%, *x* = 62.2%), right and left kidney identical (3.8–6.5%, *x* = 5.0%), right kidney MP (87.7–90.2%, *x* =89.4 %), left kidney MP (89.7–94.2%, *x* = 92.3%), kidney-vent gap (3.0–7.1%, *x* = 5.2%), and interval (11.9–15.5%, *x* = 13.1%), rectal caecum (3.2–5.2%, *x* = 3.8%), caecum-vent interval (8.7–11.9%, *x* = 10.1%), trachea (29.0–32.0%, *x* = 30.8%), trachea MP (15.8–17.3%, *x* = 16.5%), total tracheal rings/cartilages (210–294, *x* = 244), tracheal rings/10% SVL (68.9–93.6%, *x* = 79.2%), tracheal lung AT (8.5–10.5%, *x* = 9.4%), tracheal lung (17.1–20.3%, *x* = 18.3%) and vascular foramina (16–22, *x* = 18.8), tracheal lung MP (17.8–19.3%, *x* = 18.5%), terminal tracheal entry, right lung (11.3–20.6%, *x* = 17.0%), right lung MP (36.3–43.5%, *x* = 40.3%) and PT (41.9–53.8%, *x* = 48.8%), intrapulmonary (right) bronchus (6.5–14.0%, *x* = 10.3%), bronchus/right lung (0.56–0.68, *x* = 0.60), trachea/bronchus (35.5–45.6%, *x* = 41.0%), trachea/bronchus MP (19.4–24.3%, *x* =21.6 %), heart-kidney MPD (59.4–62.9%, *x* = 61.1%), heart-liver MPD (10.8–20.0%, *x* = 16.3%), heart-right lung (7.4–12.8%, *x* = 10.6%), liver-kidney MPD (40.5–49.0%, *x* = 44.8%), right lung-adrenal MPD (41.7–45.2%, *x* = 43.6%), trachea-adrenal MPD (64.4–69.0%, *x* = 67.4%), trachea-liver MPD (23.6–32.8%, *x* = 29.6%), and trachea/bronchus-kidney MPD (65.8–70.9%, *x* =69.2 %).

Distribution

Southeastern Thailand and western Indonesia (Sumatra), known from 200–1100 meters elevation.

DISCUSSION

Typical snake hemipenes, in conjunction with absence of retrocloacal sacs, are universally found in the following worldwide snake genera: *Afrotyphlops, Amerotyphlops, Antillotyphlops, Argyrophis, Cubatyphlops, Gerrhopilus, Grypotyphlops, Indotyphlops, Letheobia, Madatyphlops, Malayotyphlops, Megatyphlops, Rhinotyphlops, Typhlops, Xenotyphlops,* and *Xerotyphlops*. The *Acutotyphlops-Anilios-Ramphotyphlops*-like hemipenis is restricted to the Australasian region (ROBB, 1966). Male reproductive structures are unknown in *Cathetorhinus, Cyclotyphlops*, *Virgotyphlops,* and a few species (*bipartitus, conradi, lorenzi, mansuetus, marxi,*

similis, and *supranasalis*) currently assigned to *Ramphotyphlops* based on geography (PYRON & WALLACH, 2014). These taxa are either known only from females or have not been examined for hemipenes and/or retrocloacal sacs. Both *mollyozakiae* and *albiceps* are once again referred to *Ramphotyphlops* rather than *Indotyphlops* (as suggested by HEDGES et al., 2014 and followed by PYRON & WALLACH, 2014) based upon the male reproductive structures.

Ramphotyphlops now consists of 23 valid species with the addition of *R. albiceps* and *R. mollyozakiae* (UETZ & HOSEK, 2019), which are the most northerly members of a genus mainly found in the East Indies, both species occurring in Thailand with *R. albiceps* also extending farther north in Hong Kong (KARSEN et al., 1998).

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SUMMARY

The typhlopid species from Thailand referred to in the literature since 1999 as *Typhlops, Ramphotyphlops* or *Indotyphlops ozakiae* was never formally described or validly published and therefore all previous names are nomina nuda. It is now described as *Ramphotyphlops mollyozakiae* and finally published after 20 years, becoming the latest recognized member of the genus.

SAMENVATTING

De blindslang uit Thailand die sinds 1999 in de literatuur circuleert onder de namen *Typhlops, Ramphotyphlops* of *Indotyphlops ozakiae* was nooit officieel beschreven, waardoor alle eerdere aanduidingen nomina nuda betreffen. De soort wordt nu, na twintig jaar, taxonomisch beschreven als *Ramphotyphlops mollyozakiae*, waarmee de vorm de jongste aanwinst in het genus betreft.

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