First record of *Ahaetulla mycterizans* (Linnaeus, 1758) (Reptilia, Squamata, Colubridae) from Sumatra, Indonesia, with an expanded definition

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ABSTRACT
A specimen of the colubrid genus *Ahaetulla* Link, 1807 collected in 2002 in Jambi Province, Sumatra, Indonesia, proves to be the first record of *Ahaetulla mycterizans* (Linnaeus, 1758) for this Indonesian island. This species was previously known from Java, West Malaysia and southern Peninsular Thailand. The discovery of this specimen constitutes an opportunity to redefine and illustrate this rare and poorly known species and to compare it with the more common *Ahaetulla prasina* (Boie, 1827). Additionally, an identification key of the species of *Ahaetulla* from the Indo-Malayan Region is proposed. This addition brings to 134 the number of snake species currently known from Sumatra Island.

KEY WORDS
Reptilia,
Serpentes,
Colubridae,
Ahaetulla mycterizans,
Ahaetulla prasina,
Sumatra,
Indonesia.

RÉSUMÉ
*Première mention d'*Ahaetulla mycterizans *(Linnaeus, 1758) (Reptilia, Squamata, Colubridae) pour Sumatra, Indonésie, avec une redéfinition de cette espèce.*
Un spécimen du genre de couleuvre *Ahaetulla* Link, 1807, collecté en 2002 dans la province de Jambi, île de Sumatra, Indonésie, représente la première mention confirmée de *Ahaetulla mycterizans* (Linnaeus, 1758) sur cette île d'Indonésie. Jusqu'à présent, cette espèce était connue de Java, de la Péninsule malaise et du sud de la Thaïlande péninsulaire. La découverte de ce spécimen constitue une occasion de redécrire et d'illustrer cette espèce mal connue et de la comparer avec des représentants d'*Ahaetulla prasina* (Boie, 1827), une espèce beaucoup plus commune. De plus, une clé d'identification des espèces d'*Ahaetulla* de la Région indo-malaise est proposée. Cet ajout porte à 134 le nombre d'espèces de serpents actuellement connues de Sumatra.

MOTS CLÉS
Reptilia,
Serpentes,
Colubridae,
Ahaetulla mycterizans,
Ahaetulla prasina,
Sumatra,
Indonésie.

INTRODUCTION

Sumatra, one of the three major islands of Sunda Islands in western Indonesia, hosts 134 species of snakes (Teynié *et al*. 2010). This value is to be compared with the figures of 127 species given in David & Vogel (1996). Among these species, the island is inhabited by two species of the colubrid genus *Ahaetulla* Link, 1807, namely *Ahaetulla fasciolata* (Fischer, 1885) and *Ahaetulla prasina* (Boie, 1827). The genus *Ahaetulla* is currently composed of eight species, of which two are widespread in southern and southeastern Asia (see the TIGR Reptile Database, http://www.reptile-database.org; accessed on 8.III.2010). All species of this highly arboreal genus are characterized by an elongate head, an extremely thin and elongate body, and eyes with horizontal pupil.

The nomenclatural history of the genus *Ahaetulla* has for long been confused and intricate. We refer to David & Dubois (2005) for a discussion. One of the most enduring confusions bore on the definition of the taxon *Coluber mycterizans* Linnaeus, 1758 (type locality: "America", in error). Following Link (1807), this combination was long given to the more common species with a long nasal appendage now known as *Ahaetulla nasuta* (Bonnaterre, 1790), widespread in southern Asia and the Indochinese Region (see, e.g., the chresonymy in Smith 1943: 376). Due to this confusion, *Ahaetulla mycterizans* has been recorded much farther north than its real range (see, e.g., Smith 1915). However, Andersson (1899), after investigation of the specimens examined by Linnaeus, showed that *Coluber mycterizans* Linnaeus, 1758 was a senior synonym of the taxon described as *Dryophis xanthozonia* Boie, 1827, a species with a short nasal appendage inhabiting the Sunda Islands and Peninsular Malaysia. This position was not widely accepted until Smith (1943), who provided a diagnosis of *Ahaetulla mycterizans*.

Due to this confusion, and also because of its morphological similarities with *Ahaetulla prasina*, a species much more common and widespread throughout Southeast Asia, *Ahaetulla mycterizans* remains a poorly known species. It has been recorded from West Java, West Malaysia and southern Thailand (De Rooij 1917; Smith 1943; Tweedie 1983; Nabhitabhata *et al.* 2004). Indeed, Holtzinger-Tenever (1919) described two specimens under the name *Dryophis xanthozona*, which seems to be genuine *Ahaetulla mycterizans* on the basis of their number of ventral and subcaudal scales (193+132 and 188+133 respectively). However, these specimens were included in a collection composed of specimens from Sumatra, Penang Island, Singapore and Java, without detailed specific record. Raffles (1822) also mentioned *Coluber mycterizans* from Sumatra but we cannot determine which species this author really had in hands, given the fact that no specimens of the group from the Raffles collection are extant. Eventually, no confirmed record of *Ahaetulla mycterizans* was available for Sumatra.

In 2002, a specimen of the genus *Ahaetulla* was collected in Jambi Province, in eastern Sumatra. This specimen agrees with the diagnoses of *Ahaetulla mycterizans* given by Smith (1943) and Tweedie (1983). It thus represents the first record of this species for Sumatra. This specimen is described. A comparison with *Ahaetulla prasina* is given.

MATERIAL AND METHODS

Measurements, except body and tail lengths, were taken with a slide-caliper to the nearest 0.1 mm; all body measurements were made to the nearest millimeter. Drawings were made using a stereomicroscope Leica MS5 and the Adobe Illustrator software. The number of ventral scales was counted according to Dowling (1951). The terminal scute is not included in the number of subcaudals. The dorsal scale row counts are given at one head length behind head, at midbody (i.e. at the level of the ventral plate corresponding to half of the total number of ventrals), and at one head length before vent. Values for paired head characters are given in left/right order.

ABBREVIATIONS

A	anal plate;
BW	body width (at midbody; in mm);
DSR	dorsal scale rows;
EDH	horizontal diameter of the eye (in mm);
HL	head length (in mm);
IL	infralabials;

SC	subcaudal scales;
SnL	snout length (including the dermal appendage; in mm);
SVL	snout-vent length (in mm);
TaL	tail length (in mm);
TL	total length (in mm);
VEN	ventral scales;
BMNH	the Natural History Museum, London (formerly British Museum [Natural History]);
CAS SUR	California Academy of Sciences (Stanford University), San Francisco;
MHLCLFE	Muséum d'Histoire naturelle Henri Lecoq, Clermont-Ferrand;
MNHN	Muséum national d'Histoire naturelle, Paris.

SYSTEMATICS

Genus *Ahaetulla* Link, 1807

Ahaetulla mycterizans (Linnaeus, 1758) (Figs 1; 2)

MATERIAL EXAMINED. — **Indonesia.** Sumatra, north of Jambi Province, 01°10'616"S, 102°24'316"E, a locality on the western fringe of Bukit Besar Reserve, near Dusunmurasekalo, 6.VI.2002, Rémi Girault (Cayenne, Guyane française) coll., 1 adult ♂ (MNHN 2002.0691).

DESCRIPTION

Morphology

Body very thin and elongate (ratio SVL/BW 73.2), compressed; head elongate, narrow but distinct of the thin neck; snout long, acuminate, distinctly convex above, narrower than the head and concave on its sides in front of eyes, amounting for 32.0% of HL and 1.8 times the horizontal diameter of the eye; a short dermal appendage, slightly upturned; a strong canthus rostralis, nostril lateral, large, oblong, piercing near the centre of the nasal; eye large, its diameter about twice the distance between the edge of the lip and its lower margin, with a horizontal, elliptic pupil; tail very long, tapering.

Measurements

SVL 665 mm, TaL 392 mm, TL 1057 mm, HL 24.60 mm, SnL 7.90 mm (including the dermal appendage). Ratio TaL/TL: 37.1%.

Hemipenis (inverted, dissected in situ)

Hemipenis short, reaching only 5th SC, not forked; distal end strongly calyculate with large calyces; proximal region spinose, with a few very large spines near the *sulcus spermaticus*; some folds at the base of the organ.

Dentition

On the right upper maxilla, 16 teeth, as follows: 7 small teeth, progressively but strongly increasing in size posteriorly; a gap; 6 small teeth; and 3 strongly enlarged posterior teeth.

Body scalation

DSR: 15-15-13 rows, in oblique rows; scales all smooth, narrow and elongate, irregular in size: scales of 1st DSR much enlarged, scales of DSR 3-6 very narrow, vertebral scales pentagonal and strongly enlarged.

VEN: 194 (plus 1 preventral), laterally angulated; SC: 168, all paired; anal plate entire.

Head scalation

Rostral high, ending with the short dermal appendage; nasal entire, narrow, 3 times as long as high; internasals triangular, long but shorter than prefrontals, strongly narrowing anteriorly, in broad contact each with the other, strongly curved posteriorly and in contact with anterior loreal; prefrontals subrectangular, elongate, in contact with the preocular on both sides; frontal long, wide, ogive-like, 1.8 times as long as wide, apex rather narrow; an entire supraocular on each side, about 1.7 times longer than wide, very broad posteriorly; two large, subtriangular parietals, slightly shorter than the frontal, followed by 2 enlarged sagittal scales; 2/3 elongate loreal scales (a minute scale anteriorly at right), each about 1.7-1.8 times longer than high; 8/7 supralabials, 1st SL small, 1st and 2nd in contact with nasal, 2nd-4th/2nd-3rd in contact with the group of loreals, 4th SL at right transversely divided into a narrow, oblique supralabial (see Figs 1; 2) and a large lower preocular, SL 4th-5th-6th/4th-5th entering orbit, 6th-7th/5th-6th largest, 8th/7th long and narrow; 1/2 large preoculars, at right the lower one due to a division of the 4th SL;

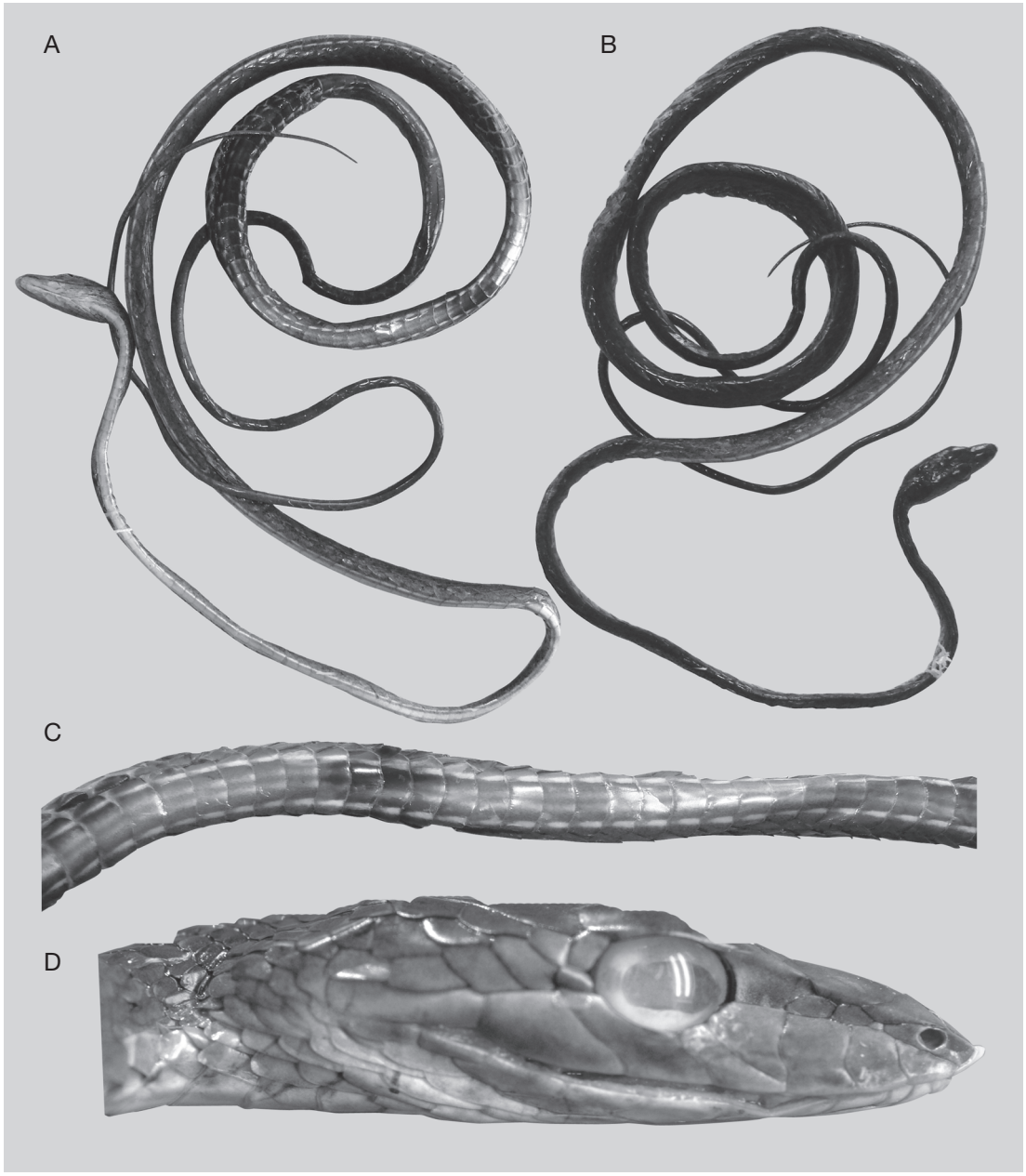

FIG. 1. — *Ahaetulla mycterizans* (Linnaeus, 1758), specimen MNHN 2002.0691: **A**, general view from above; **B**, from below; **C**, close-up of the ventral view; **D**, right side of the head.

2/2 small postoculars; 2+3/2+3 small temporals, the upper ones narrower than the lower ones; 8/9 infralabials, first pair in contact, IL 1-4 in contact with anterior chin shields, 2th IL very small, 5th IL the largest; posterior chin shields narrower but longer than anterior chin shields.

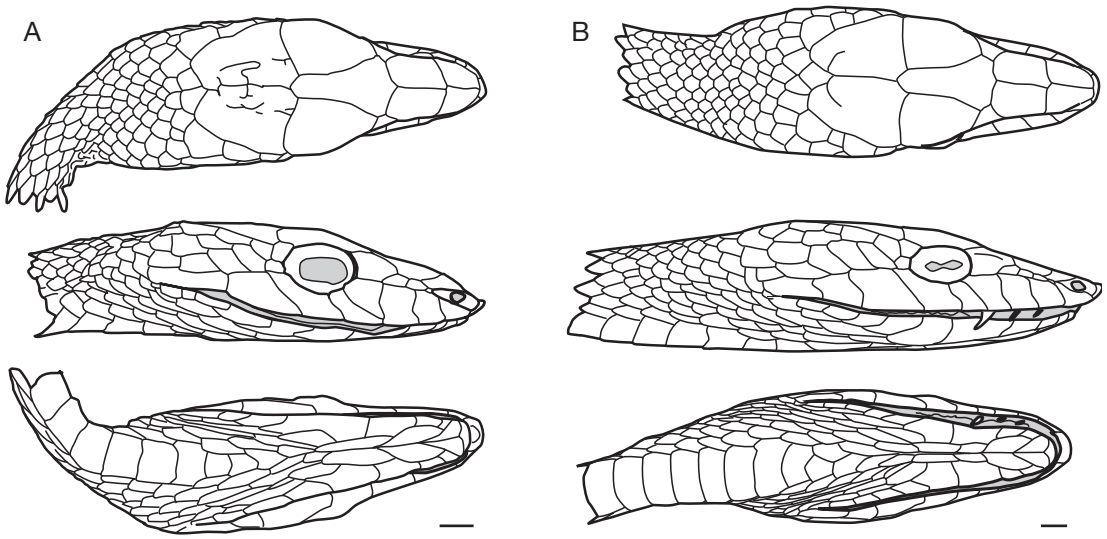

FIG. 2. — A comparison of the head between: **A**, *Ahaetulla mycterizans* (Linnaeus, 1758), specimen MNHN 2002.0691; and **B**, *Ahaetulla prasina* (Boie, 1827), specimen MNHN 2002.0690, both specimens from Sumatra. Scale bars: 2.0 mm.

Coloration and pattern in preservative

The upper surface of the body and tail is uniformly dark greyish-green, somewhat paler on the lower part of the sides including the tip of ventrals, turning to greenish-black on the posterior part of the body and on the tail.

The head is dark green above, lighter greyish-green on its side, especially on the temporals; a faint, creamish-green postocular streak on the posterior supralabials. The chin and throat are ivory, heavily dotted with greyish-green on the posterior infralabials.

The venter is ivory anteriorly, with a thin greenish-grey line extending on the outer third of each ventral which produces a longitudinal stripe on each ventral; a white line between the green line and the tip of ventrals, producing a white ventrolateral stripe on each side. After the first quarter of the venter, the green lateral lines widen, giving a dark greyish-green venter ornate with two median creamish-grey longitudinal stripes; tail beneath entirely dark greyish-green.

BIOLOGY

This specimen was collected in early afternoon in an old forest plantation with a grass cover and jungle-vine plants, which has never been exploited. The specimen was obtained at about 50 m from a forest stream. This forest, covering only a few hectares, is surrounded on 1-2 km with other young man-planted forests, aged between 20 and 30 years and more strongly harvested.

DISCUSSION

DETERMINATION

Our specimen agrees with five diagnostic morphological characters given for *Ahaetulla mycterizans* by Smith (1943) and Tweedie (1983), as follows (variation in the species given in brackets): 1) a snout 1.8 times the diameter of the eye (less than twice the diameter of eye); 2) anal entire; 3) the number of ventrals, 194 (186-195); 4) the number of supralabials (7 or 8, rarely 9); and 5) venter with grey longitudinal stripes. Only the number of subcaudal scales of this specimen is higher than variation given for the species, namely 168 vs 132-156. However, Smith (1943) reported not to have seen any male of this species, so variation given by this author was obviously incomplete. Boulenger (1896), followed by Tweedie (1983) and Manthey & Grossmann

TABLE 1. — Comparison between specimens of the genus *Ahaetulla* Link, 1807 from Sumatra. Abbreviations: see Material and methods.

Specimen / taxon	sex	SVL	TaL	TL	TaL/TL	VEN	SC	A	SnL/Deye	SL
A. mycterizans (Linnaeus, 1758)										
MNHN 2002.0691	♂	665	392	1057	0.371	194	168	1	1.8	8/7
Species	–	–	–	1100	–	186-195	132-168	1 (2)	< 2	7-8 (9)
A. prasina (Boie, 1827)										
MHLCLFE 168	♂	686	380	1066	0.356	213	178	2	2.0	10/9
MNHN 2002.0690	♂	767	406	1173	0.346	219	180	2	–	9/9
CAS SUR 8528	♂	848	464	1312	0.354	228	190	2	2.1	9/9
MNHN 3653	♀	697	–	–	–	216	–	2	2.0	10/9
MNHN 7573	♀	1008	536	1544	0.347	224	182	2	2.1	9/9
Species	–	–	–	1980	–	194-235	141-207	2 (1)	≥ 2	9-10

FIG. 3. — Distribution of *Ahaetulla mycterizans* (Linnaeus, 1758): ○, new specimen collected in Sumatra; ●, published localities.

(1997) gave a range of 115-156 SC. However, the lower limit of this refers to a specimen (BMNH 1879.10.20.19, from Java) which has obviously an incomplete tail. Nevertheless, the examination of the first specimen of *Ahaetulla mycterizans* known from Sumatra allows us to expand the variation in the number of subcaudals.

In spite of the high number of subcaudals of our specimen, we consider that other characters agree well with the definition of *Ahaetulla mycterizans* as given in the literature. At least, it agrees better with the diagnosis of *Ahaetulla mycterizans*, as currently understood, than with any other species. So, pending a revision of the genus *Ahaetulla* in Southeast Asia, we refer our specimen to this latter species.

COMPARISON WITH *AHAETULLA PRASINA*

Ahaetulla mycterizans shares with the common and widespread species *Ahaetulla prasina* a number of morphological characters, such as: 1) a thin and elongate body; 2) a short dermal appendage; 3) 15 DSR at midbody; and 4) an overall green coloration in most specimens. We compared the specimen of *Ahaetulla mycterizans* with five specimens of *Ahaetulla prasina* from Sumatra. Most important characters are summarized in Table 1. We indicate variation of these two species as given in the literature (Smith 1943; Tweedie 1983; Manthey & Grossmann 1997) and on the basis of examined specimens. In this table, values of rare occurrence are placed in brackets.

It should be noted that the specific values given for *Ahaetulla prasina* are based on the whole of the wide range of this species, known from eastern India and Nepal to southeastern China and the Indo-Australian Archipelago. In West Malaysia, Tweedie (1983) indicated that the number of subcaudals varies between 154 and 207 and that the number of ventrals is usually above 200, a value confirmed by the examination of specimens from Sumatra and Thailand.

Other differences between *A. mycterizans* and *A. prasina* not mentioned in Table 1 include: 1) upper surface of the snout convex in *A. mycterizans* vs. flat or even depressed in *A. prasina*; 2) venter with one or two light, median creamish-grey longitudi-

nal lines in *A. mycterizans* vs. uniform in *A. prasina* (or at best somewhat paler in its middle) between the two light ventrolateral stripes; and 3) chin and throat largely ivory or cream in *A. mycterizans* vs light green or light grey, yellow or buff, depending on the overall coloration. The difference in the shape of the snout is especially noteworthy. The snout shape of *A. mycterizans* is much similar to that of *Ahaetulla nasuta*, but with a shorter snout appendage.

Distribution of *Ahaetulla mycterizans* (Fig. 3)

The occurrence of *Ahaetulla mycterizans* in Sumatra redefines the distribution of the species as follows (based on De Rooij 1917; Smith 1943; Taylor 1965; Tweedie 1983; Nabhitabhata *et al*. 2004):
Indonesia: Java Island (Province of Jawa Barat [Depok, Kediri] and Jawa Tengah [Salak]); Sumatra Island (Jambi Province [near Dusunmurasekalo]).
Federation of Malaysia: West Malaysia (Pulau Pinang and seemingly present throughout the Peninsula according to Tweedie [1983] but no precise record published).
Thailand: Chumphon Province (Pak Nam, Tasan); Krabi Province (Khao Pra Bangkram); Trang Province (Trang).

CONCLUSION

The addition of *Ahaetulla mycterizans* to the snake fauna of Sumatra raises to 134 the number of species known from Sumatra, compared with the latest list established by Teynié *et al.* (2010).

Three species of the genus *Ahaetulla* are now known from the whole Indo-Malayan Region (Brunei, Indonesia, Malaysia [West Malaysia and Borneo], and Singapore). They can be distinguished by the following characters:

Key to the species of *Ahaetulla* Link, 1807 from the Indo-Malayan region

1 Anal scale entire (seldom divided); snout depressed or convex above 2
— Anal scale divided (exceptionally entire); snout depressed above, never convex ..... *Ahaetulla prasina*

2 Overall body colour brown variegated with black; head with numerous dark brown spots; snout depressed or concave above; at least 210 ventral scales ..... *Ahaetulla fasciolata*
— Overall body colour uniformly dark green; head uniform above; snout convex above; less than 200 ventral scales ..... *Ahaetulla mycterizans*

However, unpublished data suggest that more than one species can be present under the name *Ahaetulla prasina*, especially in India and in Peninsular Thailand. They perhaps even constitute species complexes (G. Vogel pers. comm., March 2009). A revision of this group of oriental vine snakes is needed.

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