

Six new species of Asian Vine Snake in the *Ahaetulla prasina* (Boie, 1827) species complex from south-east Asia.

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ABSTRACT

It has long been recognised that the south Asian snake genus *Ahaetulla* Link, 1807 has underestimated species diversity. The purpose of this paper is to formally identify and name six divergent species in the *A. prasina* (Boie, 1827) species complex.

These newly named and identified snakes, all being until now treated as populations of putative *Ahaetulla prasina* (Boie, 1827) or *A. mycterizans* (Linnaeus, 1758) are as follows:

The population from Palawan, Philippines, is herein formally named as *Ahaetulla palawanensis* sp. nov.,

The population from Sulawesi, Indonesia is herein formally named as *A. niceone* sp. nov.,

The population from Lombok in the Lesser Sundas, Indonesia is herein formally named as *A. schmick* sp. nov.,

The population from North and West Sumatra, Indonesia of putative *A. prasina* is herein formally named as *A. aah* sp. nov.,

A population from Borneo, until now treated as a divergent population of *A. mycterizans* (Linnaeus, 1758) is herein formally named as *A. bagus* sp. nov. and,

A population from southern parts of Vietnam is herein formally named as *A. dep.* sp. nov..

These are all formally named in accordance with the rules of the *International Code of Zoological Nomenclature* (Ride *et al.* 1999) as part of the permanent scientific record.

Formally identifying and naming biodiversity is the essential first step in ensuring its long-term conservation.

Keywords: Snake; *Ahaetulla*; *prasina*; *mycterizans*; Palawan; Sulawesi; Lombok; Sumatra; Borneo; Vietnam; new species; *palawanensis*; *niceone*; *schmick*; *aah*; *bagus*; *dep.*

INTRODUCTION

It has long been recognised that the south Asian snake genus *Ahaetulla* Link, 1807 has underestimated species diversity.

This has repeatedly been confirmed in various molecular studies, showing populations of putative species to have deep divergences.

This has especially been the case in terms of species typically placed within the *Ahaetulla prasina* (Boie, 1827) species complex of southern Asia.

In recent years a number of newly identified species from the Indian subcontinent and nearby have been formally identified and named.

Obvious species from elsewhere already flagged in molecular studies remain unnamed.

Therefore, the purpose of this paper is to formally identify and name six divergent species in the *A. prasina* (Boie, 1827) species complex.

These newly named and identified snakes, all being until now treated as populations of putative *Ahaetulla prasina* (Boie, 1827)

or *A. mycterizans* (Linnaeus, 1758) are as follows:

The population from Palawan, Philippines, is herein formally named as *Ahaetulla palawanensis* sp. nov.,

The population from Sulawesi, Indonesia is herein formally named as *A. niceone* sp. nov.,

The population from Lombok in the Lesser Sundas, Indonesia is herein formally named as *A. schmick* sp. nov.,

The population of putative *A. prasina* from North and West Sumatra, Indonesia is herein formally named as *A. aah* sp. nov.,

A population from Borneo, until now treated as a divergent population of *A. mycterizans* (Linnaeus, 1758) is herein formally named as *A. bagus* sp. nov. and:

A population from southern parts of Vietnam is herein formally named as *A. dep.* sp. nov..

These are all formally named in accordance with the rules of the *International Code of Zoological Nomenclature* (Ride *et al.* 1999) as part of the permanent scientific record.

Formally identifying and naming biodiversity is the essential first step in ensuring its long-term conservation.

MATERIALS AND METHODS

Following the flagging of the preceding listed taxa by way of molecular studies published previously and/or significant biogeographic isolation and divergence, a multidisciplinary approach was taken to confirm that the six flagged populations did in fact represent divergent and identifiable species.

Available specimens, papers and photos of the relevant putative species were inspected.

They were checked for differences between other populations of putative *Ahaetulla prasina* (Boie, 1827) or *A. mycterizans* (Linnaeus, 1758) in all aspects of morphology.

They were also re-checked for morphological divergences and/or any obvious biogeographical barriers separating the populations. Disjunct distributions were checked for absences caused by non-collection versus absences of collection caused by absence of specimens.

However an important feature checked was sea barriers including at times of glacial maxima.

Noting the many thousands of years of human activities in the region, possibilities of translocation of specimens could not be discounted and was factored in the assessment, as was the ever-present issue of specimens rafting between islands.

Added to this was an assessment of climate oscillations between glacial and interglacial periods, including impacts on vegetations, drainages and habitats overall, to assess the potential creation of migratory pathways for the relevant putative species, be this along a coastal strip, through elevated habitats or across what are presently intensively farmed valley areas.

Also assessed were habitat constraints preceding human activities over the past 5K years as well as the interplay of other species including similar competing forms, including those from the same or other closely related genera.

Specimens inspected included dead and live specimens as well as images with good locality data including photo sharing sites online like "iNaturalist", "Twitter" (AKA "X"), "Flickr", "Facebook" and "Instagram".

A sweep of the published literature and museum databases, photo sharing sites and the like was done to properly ascertain relevant distributions of all known populations of the six putative species and all that is currently known about them in terms of morphology, genetics, distribution and so on.

References relevant to the taxonomic and nomenclatural decisions herein included Anderson (1971), Ao *et al.* (2004), Badli-Sham *et al.* (2019), Basfore *et al.* (2024), Boie (1827), Bong Heang (1987), Boulenger (1897), Brown *et al.* (1996, 2012, 2013), Bulian (2000), Chan-ard *et al.* (1999, 2015), Cox *et al.* (1998, 2012), Das (2012), Das and Chaturvedi (1998), Dau *et al.* (2024), David and Vogel (1996), De Lang (2011, 2012, 2013, 2017), De Lang and Vogel (2005), De Rooij (1917), Deuve (1961), Dowling and Jenner (12988), Dunbar and Dunbar (2015), Evans (1905), Ferner *et al.* (2000), Fischer (1886), Gaulke (1994a-b, 1999, 2001, 2011, 2019), Gawor *et al.* (2016), Geissler *et al.* (2011, 2019), Glässer-Trobisch and Trobisch (2023), Gojo-Cruz and Afuang (2018), Gojo-Cruz *et al.* (2018), Goldberg and Grismer (2015), Grismer (2011), Grismer *et al.* (2008a-b, 2010), Grossmann and Tillack (2001a-b), Günther (1859), Harrington *et al.* (2018), Hecht *et al.* (2013), Herlambang *et al.* (2022), Hien *et al.* (2001), Hnizdo (2000), Hnizdo and Krug (1997), Hörold (2020), How and Kitchener (1997), How *et al.* (1996), Indahsari *et al.* (2020), Janzen (2022), Karin *et al.* (2023), Koch (2012), Kopstein (1938), Kurniawan *et al.* (2022), Lazell (2002), Lazell and Lu (1990), Lenz (2012), Leo and Supriatna (2020), Leo *et al.* (2020), Leviton (1968), Leviton *et al.* (2018), Lidth De Juede (1922), Lim and Ng (1999), Linnaeus (1758), Malkmus *et al.* (2002), Manthey and Grossmann (1997), Mertens (1930), Merz (2020), Milto (2025), Milto and Lukin (2020), Miralles and David (2010), Mirza *et al.* (2024), Mohapatra *et al.* (2017), Nguyen *et al.* (2009), Peters (1867), Purkayastha *et al.* (2021), Reilly *et al.* (2019), Ride *et al.* (1999), Savage and Oliver (1957), Sharma (2004), Shaw (1802), Smith (1993), Smith (1943), Stejneger

(1933), Stuebing and Inger (1999, 2014), Supsup *et al.* (2017), Tang *et al.* (2013), Taylor (1965), Teynie *et al.* (2010), Trutnau (1986), Wall (1906, 1919, 1921), Wanger *et al.* (2011), Weinell *et al.* (2019), Whitaker and Captain (2004), Woning (2004), Zhao (2006), Zhao and Adler (1993), and sources cited therein.

Online references relied upon were most recently checked as correct in terms of content cited on 6 May 2025.

RESULTS

The six newly identified species as listed in the abstract and introduction were confirmed as valid identifiable taxa.

They are therefore formally named as new species herein.

All are believed to be at least 1.5 MYA divergent from nearest relatives, which are usually allopatrically distributed and with no evidence of cross breeding or introgression in the relevant geological past, including times of recent glacial maxima.

Lowland areas, now inundated by shallow seas are believed to have mainly consisted of unsuitable habitat for species in the *A. prasina* complex.

INFORMATION RELEVANT TO THE FORMAL DESCRIPTIONS THAT FOLLOW

There is no conflict of interest in terms of this paper, or the conclusions arrived at herein.

Several people including anonymous peer reviewers who revised the manuscript prior to publication are also thanked as are relevant staff at museums who made specimens and records available in line with international obligations.

In terms of the following formal descriptions, spelling of names should not be altered in any way for any purpose unless expressly and exclusively called for by the rules governing Zoological Nomenclature as administered by the International Commission of Zoological Nomenclature (see Ride *et al.* 1999 and ICZN 2012).

Material downloaded from the internet and cited anywhere in this paper was downloaded and checked most recently as of 6 May 2025, unless otherwise stated and were accurate in terms of the context cited herein as of that date.

Unless otherwise stated explicitly, colour descriptions apply to living adult male specimens of generally good health and not under any form of stress by means such as excessive cool, heat, dehydration, excessive aging or abnormal skin reaction to chemical or other input.

This includes the descriptions of the snakes not including pre-sloughing snakes, which are often significantly different to the usual colouration for the specimen or species, being usually more whitish or dull.

Note that there is ordinarily some sexual dimorphism between adults of species within the relevant taxa and colour changes from young to adult.

While numerous texts and references were consulted prior to publication of this paper, the criteria used to separate the relevant species has already been spelt out and/or is done so within each formal description and does not rely on material within publications not explicitly cited herein.

The "version of record" is the printed version and not pdf version. Both are identical in all materially relevant ways except for the fact that the images in the printed version may be in black and white, as opposed to colour as seen in the pdf version.

The people who assisted with provision of photos and other materials used within this paper or for research by me are also thanked for their assistances, for which they sought nothing in return.

The use of provocative and interesting etymologies is deliberate and designed to further public interest in the relevant species, which will aid conservation outcomes and/or to highlight other matters of public importance that may otherwise be overlooked. The conservation status of the newly named taxa is thought to be stable and secure as can be in the modern world, but this is by no means certain.

Immediate recognition of and monitoring of the new taxa will be the best way to secure them into the future. Each are significant units for conservation management.

The relevant comments of Hoser (2015a-f, 2019a-b) and sources cited therein apply.

AHAETULLA PALAWANENSIS SP. NOV.

LSIDurn:lsid:zoobank.org:act:0ECCC8A5-29D9-4570-A737-B96A9DFC7A5C

Holotype: A preserved specimen at the California Academy of Sciences, San Francisco, California, USA, specimen number CAS SUR 28679 collected from Puerto Princesa City, Palawan Island, Palawan Province, Philippines, Asia, Latitude 9.748881 N., Longitude 118.626000 E.

This facility allows access to its holdings.

Paratypes: 1/ A preserved specimen at The California Academy of Sciences, San Francisco, California, USA, specimen number CAS HERP 15809 collected from Puerto Princesa City, Palawan Island, Palawan Province, Philippines, Asia, Latitude 9.748881 N., Longitude 118.626000 E., and 2/ A preserved specimen at the USA National Museum of Natural History, Smithsonian Institution, Washington, DC, USA, specimen number USNM Amphibians and Reptiles 39957 collected from Nakoda Bay, Palawan Island, Palawan Province, Philippines, Asia.

Diagnosis: *Ahaetulla palawanensis* sp. nov. is readily separated from all other species in the *Ahaetulla prasina* (Boie, 1827) or *A. mycterizans* (Linnaeus, 1758) complex by the fact that the supraocular has a uniformly curved edge adjoining the frontal shield. In turn the frontal is wide at the anterior end and curves evenly inwards on either edge as one goes to the distal part of the scale. The frontal shield is also raised noticeably on the outer edges. In most of the other species, the supraocular has an edge that is not evenly curved, but rather zig-zags and expands slightly in an outwards direction as it moves posteriorly. This reflects in the shape of the adjoining frontal shield that is bulbous at the anterior end, narrows sharply at the lower edge of the circular area and is extended in a panhandle shape distally. The outer edges of the frontal is also not noticeably raised in the other species.

The tongue is yellowish in colour.

Exceptional to the preceding is *A. niceone* sp. nov. which has an obviously triangular-shaped frontal shield that is also relatively flat edged at the anterior edge. *A. niceone* sp. nov. is also defined by having an aqua blue tongue.

The taxon *Ahaetulla palawanensis* sp. nov. is also defined as follows:

Head narrow, elongate; snout projecting; rostral small, barely visible above; anterior edge of nasals also visible above; internasals much longer than wide, either in contact with second labial or not so; prefrontal about twice as long as wide, posterior edges rounding, overlapping frontal; frontal elongate, much narrowed posteriorly, but not bulbous at the anterior part, shorter than its distance to end of nose; supraoculars are very large, nearly as wide as long, wider than the frontal; parietals long, somewhat longer than frontal; nasal three times as long as wide; 3 and 4 very small loreals; 1 large, irregular preocular; 2 postoculars, upper larger; temporals 2+3+3, third upper largest; 9 upper labials, fourth, fifth, and sixth entering the eye, seventh largest, ninth much elongate; mental small, as wide as the rostral; 8 or 9 lower labials, first 4 in contact with first pair of chin shields which are very much shorter than second pair; latter bordered by 2 labials; eye large, pupil horizontal; a deep elongate depression from eye to nostril; scales in 15 rows, the median somewhat enlarged toward posterior part of body; scales on back above the anal region are keeled; 209 to 222 ventrals, each with indistinct keels laterally; 174 to 202 subcaudals; anal divided.

Dorsally green in colour, most brilliant anteriorly; skin between the scales is a lavender colour with the skin whitish between alternating transverse rows; belly is grayish or greenish, with two distinct cream stripes running the entire length of the body on

the outer side of the ventrals; The tongue is yellowish in colour (modified from Taylor, 1922 and most is in line with the other species in the complex).

Members of the *Ahaetulla prasina* (Boie, 1827) complex (excluding those in the *A. mycterizans* (Linnaeus, 1758) complex) are separated from all other members of the genus *Ahaetulla* Link, 1807, type species being *Coluber mycterizans* Linnaeus, 1758 by the following characters: Snout without an obvious dermal appendage formed by one enlarged rostral scale or a series of smaller scales; 203-235 ventrals and 168-207 subcaudals; Anal divided (or extremely rarely entire).

The species in the *A. mycterizans* (Linnaeus, 1758) complex are in turn separated by having an obvious dermal appendage formed by one enlarged rostral scale or a series of smaller scales, no loreal scale and a single anal plate.

Ahaetulla palawanensis sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/220547471>

and

<https://www.inaturalist.org/observations/191272399>

and

<https://www.inaturalist.org/observations/190765909>

Distribution: *Ahaetulla palawanensis* sp. nov. is confined to Palawan Island in the Palawan Province, Philippines, including immediately adjacent islets.

Etymology: The species name *Ahaetulla palawanensis* sp. nov. is a Latinised identifier of where this taxon comes from.

AHAETULLA NICEONE SP. NOV.

LSIDurn:lsid:zoobank.org:act:1FB95C7D-1F74-46A8-A5F9-B770B5E8DD9D

Holotype: A preserved female specimen at the Museum of Vertebrate Zoology, University of California, Berkeley, California, USA, specimen number MVZ:Herp:253493 (snout-vent length=712 mm; tail length=443 mm; weight=27 g) collected from Desa Manembo, Kecamatan Passi, Kabupaten Bolaang Mongondow, Propinsi Sulawesi Utara, Sulawesi Island, Indonesia at 624 m ASL, Latitude .78688 N., Longitude 124.35941 E.

This facility allows access to its holdings.

Paratype: A preserved specimen at the Museum of Vertebrate Zoology, University of California, Berkeley, California, USA, specimen number MVZ:Herp:253507 (snout-vent length=813 mm; tail length=453 mm; weight=38.50 g) collected from Tangkoko Nature Reserve, Kabupaten Minahasa, Propinsi Sulawesi Utara, Indonesia at 29 m ASL, Latitude 1.56675 N., Longitude 125.16637 E.

Diagnosis: *Ahaetulla niceone* sp. nov. is readily separated from all other species in the *Ahaetulla prasina* (Boie, 1827) or *A. mycterizans* (Linnaeus, 1758) complex by the fact that the frontal is obviously triangular-shaped, with a relatively flat line at the anterior edge; the outer edge of the supraocular is also relatively straight in line, expanding out from the anterior to the posterior and the tongue is aqua-blue in colour.

Ahaetulla palawanensis sp. nov. of Palawan in the Philippines is readily separated from all other species in the *Ahaetulla prasina* (Boie, 1827) or *A. mycterizans* (Linnaeus, 1758) complex except for *Ahaetulla niceone* sp. nov. by the fact that the supraocular has a uniformly curved edge adjoining the frontal shield. In turn the frontal is wide at the anterior end and curves evenly inwards on either edge as one goes to the distal part of the scale. The frontal shield is also raised noticeably on the outer edges. In all of the other species, the supraocular has an edge that is not evenly curved, but rather zig-zags and expands slightly in an outwards direction as it moves posteriorly. This reflects in the shape of the adjoining frontal shield that is bulbous at the anterior end, narrows sharply at the lower edge of the circular area and is extended in a panhandle shape distally. The outer edges of the frontal is also not noticeably raised.

The taxon *Ahaetulla niceone* sp. nov. is also defined as follows: Head narrow, elongate; snout projecting; rostral small, barely

visible above; anterior edge of nasals also visible above; internasals much longer than wide, either in contact with second labial or not so; prefrontal about twice as long as wide, posterior edges rounding, overlapping frontal; frontal triangular in shape, the apex being posteriorly, and not bulbous at the anterior part, shorter than its distance to end of nose; supraoculars are very large, nearly as wide as long, wider than the frontal; parietals long, somewhat longer than frontal; nasal three times as long as wide; 3 and 4 very small loreals; 1 large, irregular preocular; 2 postoculars, upper larger; temporals 2+3+3, third upper largest; 9 upper labials, fourth, fifth, and sixth entering the eye, seventh largest, ninth much elongate; mental small, as wide as the rostral; 8 or 9 lower labials, first 4 in contact with first pair of chin shields which are very much shorter than second pair; latter bordered by 2 labials; eye large, pupil horizontal; a deep elongate depression from eye to nostril; scales in 15 rows, the median somewhat enlarged toward posterior part of body; scales on back above the anal region are keeled; 197 to 224 ventrals, each with indistinct keels laterally; 156-192 subcaudals; anal divided.

Dorsally green in colour, most brilliant anteriorly; skin between the scales a purplish to reddish-orange with the skin whitish between alternating transverse rows; belly is grayish or greenish, with two distinct cream or yellow stripes running the entire length of the body on the outer side of the ventrals, this line being broken at the edges of each scale; the tongue is aqua blue (general description was modified from Taylor, 1922 and altered accordingly and is mainly in line with the other species in the complex).

Specimens in the *Ahaetulla prasina* (Boie, 1827) complex from the nearby Philippines Islands are readily separated from *Ahaetulla niceone* sp. nov. by their bright yellow tongue.

Members of the *Ahaetulla prasina* (Boie, 1827) complex (excluding those in the *A. mycterizans* (Linnaeus, 1758) complex) are separated from all other members of the genus *Ahaetulla* Link, 1807, type species being *Coluber mycterizans* Linnaeus, 1758 by the following characters: Snout without an obvious dermal appendage formed by one enlarged rostral scale or a series of smaller scales; 203-235 ventrals and 168-207 subcaudals; Anal divided (rarely entire).

The species in the *A. mycterizans* (Linnaeus, 1758) complex are in turn separated by having an obvious dermal appendage formed by one enlarged rostral scale or a series of smaller scales, no loreal scale and a single anal plate.

Ahaetulla niceone sp. nov. is depicted in life online at:

<https://www.alamy.com/vine-snake-ahaetulla-prasina-from-tomohon-north-sulawesi-image184076435.html>

and

<https://blog.mongabay.com/2011/02/06/photos-green-vine-snake/>

and

<https://www.inaturalist.org/observations/242687090>

and

<https://www.inaturalist.org/observations/246753853>

Distribution: *Ahaetulla niceone* sp. nov. is a taxon from Sulawesi, Indonesia, including immediately adjacent islets as well as Kepulauan Sangihe, Sulawesi Utara, Indonesia.

Specimens in the *Ahaetulla prasina* (Boie, 1827) species complex from the nearby Philippines are readily separated from *Ahaetulla niceone* sp. nov. by their bright yellow tongue.

Etymology: The species name *Ahaetulla niceone* sp. nov. is a straight take of the words "nice one" which accurately describes the amazing appearance of these snakes.

AHAETULLA SCHMICK SP. NOV.

LSIDurn:lsid:zoobank.org:act:C38D9005-E1D4-4F37-BB68-459DF72E86A6

Holotype: A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number WAM REPT R98331 collected from Kuta, Lombok Island, West Nusa Tenggara, Indonesia, Latitude -8.916667 S., Longitude

116.283333 E.

This government-owned facility allows access to its holdings.

Paratype: A preserved specimen at the Louisiana State University Museum of Natural Science, Louisiana, USA, LSUMZ Herps Collection, specimen number LSUMZ Herps 81718 collected from Desa Suranadi, near Pura Suranadi, Kecamatan Narmada, Desa Suranadi, Kabupaten Lombok Barat, Lombok Island, Indonesia.

Diagnosis: *Ahaetulla schmick* sp. nov. of Lombok and West Nusa Tenggara is similar in most respects to the type form of *A. mycterizans* (Linnaeus, 1758), being that from central Java but is separated from that taxon (in females) by its lower ventral count (under 185, vs over 190), 15:15:13 dorsal scale rows, versus 15:16:13 and more than 160 subcaudals, versus less than 140, snout is 1.9 times the diameter of the eye, versus 1.8 times; only the tip of the snout has white, versus most of snout white and a yellowish-brown tongue, versus beige/brown tongue.

The morphologically similar species *Ahaetulla bagus* sp. nov. of Sarawak, Borneo is separated from the two preceding species by having a light green anterior snout rather than whitish or whitish tipped as well as semi-distinct darker green spotting on the back of the head.

The three preceding species, namely *A. mycterizans*, *A. schmick* sp. nov. and *A. bagus* sp. nov. are separated from all other species in the *Ahaetulla prasina* (Boie, 1827) complex by the fact that the loreal scale is in contact with the internasal scale, while that of *A. prasina* complex species is not; anal is entire, versus usually divided in the *A. prasina* complex; there is a well-defined unbroken white line along the outer margin of the ventrals, versus not so in the *A. prasina* complex; upper surface of the snout is convex (versus flat or depressed in the *A. prasina* complex); and the snout is less than twice the diameter of the eye, versus more so in the *A. prasina* complex.

Members of the *Ahaetulla prasina* (Boie, 1827) complex (excluding those in the *A. mycterizans* (Linnaeus, 1758) complex) are separated from all other members of the genus *Ahaetulla* Link, 1807, type species being *Coluber mycterizans* Linnaeus, 1758 by the following characters: Snout without an obvious dermal appendage formed by one enlarged rostral scale or a series of smaller scales; 203-235 ventrals and 168-207 subcaudals; Anal divided (rarely entire).

The species in the *A. mycterizans* (Linnaeus, 1758) complex are in turn separated by having an obvious dermal appendage formed by one enlarged rostral scale or a series of smaller scales, no loreal scale and a single anal plate.

Ahaetulla schmick sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/100482941>

and

<https://www.inaturalist.org/observations/65175599>

and

<https://www.inaturalist.org/observations/194192207>

and

<https://www.inaturalist.org/observations/148357585>

Distribution: *Ahaetulla schmick* sp. nov. is a taxon confined to Lombok and West Nusa Tenggara, Indonesia, being east of Wallace's line.

Etymology: The word Schmick means Smart, stylish and/or excellent, being a reflection of the appearance of this snake and so is an apt scientific nomen.

AHAETULLA BAGUS SP. NOV.

LSIDurn:lsid:zoobank.org:act:1274836F-200B-4EA1-8A96-8A90F8B8D47A

Holotype: A preserved specimen at the Field Museum of Natural History (FMNH), Chicago, Illinois, USA, specimen number FMNH Amphibians and Reptiles 269042 collected from Bintulu Division, Sarawak, Borneo, Malaysia.

This facility allows access to its holdings.

Diagnosis: *Ahaetulla schmick* sp. nov. of Lombok and West

Nusa Tenggara is similar in most respects to the type form of *A. mycterizans* (Linnaeus, 1758), being that from central Java but is separated from that taxon (in females) by its lower ventral count (under 185, vs over 190), 15:15:13 dorsal scale rows, versus 15:16:13 and more than 160 subcaudals, versus less than 140, snout is 1.9 times the diameter of the eye, versus 1.8 times; only the tip of the snout has white, versus most of snout white and a yellowish-brown tongue, versus beige/brown tongue.

The morphologically similar species *Ahaetulla bagus* sp. nov. of Sarawak, Borneo is separated from the two preceding species by having a light green anterior snout rather than whitish or whitish tipped as well as semi-distinct darker green spotting on the back of the head.

The three preceding species, namely *A. mycterizans*, *A. schmick* sp. nov. and *A. bagus* sp. nov. are separated from all other species in the *Ahaetulla prasina* (Boie, 1827) complex by the fact that the loreal scale is in contact with the internasal scale, while that of *A. prasina* complex species is not; anal is entire, versus usually divided in the *A. prasina* complex; there is a well-defined unbroken white line along the outer margin of the ventrals, versus not so in the *A. prasina* complex; upper surface of the snout is convex (versus flat or depressed in the *A. prasina* complex); and the snout is less than twice the diameter of the eye, versus more so in the *A. prasina* complex.

Members of the *Ahaetulla prasina* (Boie, 1827) complex (excluding those in the *A. mycterizans* (Linnaeus, 1758) complex) are separated from all other members of the genus *Ahaetulla* Link, 1807, type species being *Coluber mycterizans* Linnaeus, 1758 by the following characters: Snout without an obvious dermal appendage formed by one enlarged rostral scale or a series of smaller scales; 203-235 ventrals and 168-207 subcaudals; Anal divided (rarely entire).

The species in the *A. mycterizans* (Linnaeus, 1758) complex are in turn separated by having an obvious dermal appendage formed by one enlarged rostral scale or a series of smaller scales, no loreal scale and a single anal plate.

Ahaetulla bagus sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/270171681>

and

<https://www.inaturalist.org/observations/254671855>

and

<https://www.inaturalist.org/observations/230058581>

Distribution: *Ahaetulla bagus* sp. nov. is presently only known from Sarawak, Malaysia (Borneo), but may occur elsewhere on the island. It appears to be locally common.

Etymology: The word "Bagus" means "nice" in Indonesian and is a fitting description for the appearance of this species.

AHAETULLA AAH SP. NOV.

LSIDurn:lsid:zoobank.org:act:88076A8D-F8CD-424A-B0F1-0B08180D923E

Holotype: A preserved specimen at the Museum of Vertebrate Zoology, Herp Collection, University of California, Berkeley, California, USA, specimen number MVZ:Herp:270142 collected from Cagar Alam Rimbo Panti, Kabupaten Pasaman, Propinsi Sumatera Barat, Sumatra Island, Indonesia, at 509 m ASL, Latitude .35136 N., Longitude 100.04317 E.

This facility allows access to its holdings.

Paratype: A preserved specimen at the Museum of Vertebrate Zoology, Herp Collection, University of California, Berkeley, California, USA, specimen number MVZ:Herp:270143 collected from Cagar Alam Rimbo Panti, Kabupaten Pasaman, Propinsi Sumatera Barat, Sumatra Island, Indonesia, at 509 m ASL, Latitude .35136 N., Longitude 100.04317 E.

Diagnosis: *Ahaetulla aah* sp. nov. is readily separated from all other species in the *Ahaetulla prasina* (Boie, 1827) complex by the following character combination (both sexes), 213-228 ventrals, 178-190 subcaudals, divided anal, no white lines or markings on scales of the lower flank or near venter and a tongue that is mainly white, but blue on the tip.

The taxon *Ahaetulla aah* sp. nov. is also defined as follows:

Head narrow, elongate; snout projecting; rostral small, barely visible above; anterior edge of nasals also visible above; internasals much longer than wide, either in contact with second labial or not so; prefrontal about twice as long as wide, posterior edges rounding, overlapping frontal; frontal itself is bulbous at the anterior end with a well-defined panhandle at the posterior part this having a well-rounded rear edge, being shorter than its distance to end of nose; supraoculars are very large, nearly as wide as long, wider than the frontal; parietals long, somewhat longer than frontal; nasal three times as long as wide; 3 and 4 very small loreals; 1 large, irregular preocular; 2 postoculars, upper larger; temporals 2+3+3, third upper largest; 9 upper labials, fourth, fifth, and sixth entering the eye, seventh largest, ninth much elongate; mental small, as wide as the rostral; 8 or 9 lower labials, first 4 in contact with first pair of chin shields which are very much shorter than second pair; latter bordered by 2 labials; eye large, pupil horizontal; a deep elongate depression from eye to nostril; scales in 15 rows, the median somewhat enlarged toward posterior part of body; scales on back above the anal region are keeled; 197 to 224 ventrals, each with indistinct keels laterally; 156-192 subcaudals; anal divided.

Dorsally green in colour, most brilliant anteriorly; skin between the scales a purplish to reddish-orange with the skin whitish between alternating transverse rows; belly is grayish or greenish, without two distinct cream or yellow stripes running the entire length of the body on the outer side of the ventrals, this line being broken at the edges of each scale; the tongue is mainly white, but a dark blue at the very tip (general description was modified from Taylor, 1922 and altered accordingly and is mainly in line with the other species in the complex).

Members of the *Ahaetulla prasina* (Boie, 1827) complex (excluding those in the *A. mycterizans* (Linnaeus, 1758) complex) are separated from all other members of the genus *Ahaetulla* Link, 1807, type species being *Coluber mycterizans* Linnaeus, 1758 by the following characters: Snout without an obvious dermal appendage formed by one enlarged rostral scale or a series of smaller scales; 203-235 ventrals and 168-207 subcaudals; Anal divided (rarely entire).

The species in the *A. mycterizans* (Linnaeus, 1758) complex are in turn separated by having an obvious dermal appendage formed by one enlarged rostral scale or a series of smaller scales, no loreal scale and a single anal plate.

Ahaetulla aah sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/7775113>

and

<https://www.inaturalist.org/observations/3806463>

and

<https://www.inaturalist.org/observations/127808337>

Distribution: *Ahaetulla aah* sp. nov. is a taxon from west and north Sumatra, Indonesia, mainly of the hilly areas on the western side of the island.

Etymology: When a herpetologist sees the beauty of this snake for the first time, they exclaim "aah" and hence the species name etymology.

AHAETULLA DEP SP. NOV.

LSIDurn:lsid:zoobank.org:act:A569F588-B509-40F4-B796-A88DC232925D

Holotype: A preserved specimen at the Louisiana State University, Museum of Natural Science, Baton Rouge, Louisiana, USA, herpetology collection, specimen number LSUHC8586 collected from Vietnam.

This facility allows access to its holdings.

Diagnosis: *Ahaetulla dep* sp. nov. is readily separated from all other species in the *Ahaetulla prasina* (Boie, 1827) complex by the following combination of characters: Dorsal colouration is essentially yellow, orange, brown or grey as opposed to green. The frontal shield is particularly large and wide, with the anterior part being nearly as wide as the top of the head, this also

meaning that the size of the supraoculars, are far smaller than seen in all other species in the complex.

The taxon *Ahaetulla dep* sp. nov. is also defined as follows:

Head narrow, elongate; snout projecting; rostral small, barely visible above; anterior edge of nasals also visible above; internasals much longer than wide, either in contact with second labial or not so; prefrontal about twice as long as wide, posterior edges rounding, overlapping frontal; frontal itself is very wide but not bulbous as such at the anterior end with a poorly-defined and widened panhandle at the posterior part this having a somewhat triangular lower edge, being shorter than its distance to end of nose; supraoculars are very large, nearly as wide as long, wider than the frontal; parietals long, somewhat longer than frontal; nasal three times as long as wide; 3 and 4 very small loreals; 1 large, irregular preocular; 2 postoculars, upper larger; temporals 2+3+3, third upper largest; 9 upper labials, fourth, fifth, and sixth entering the eye, seventh largest, ninth much elongate; mental small, as wide as the rostral; 8 or 9 lower labials, first 4 in contact with first pair of chin shields which are very much shorter than second pair; latter bordered by 2 labials; eye large, pupil horizontal; a deep elongate depression from eye to nostril; scales in 15 rows, the median somewhat enlarged toward posterior part of body; scales on back above the anal region are keeled; 200 to 228 ventrals, each with indistinct keels laterally; 154-198 subcaudals; anal divided.

Dorsally essentially yellow, orange, brown or grey as opposed to green; skin between the scales a purplish to reddish-orange or greyish-white with the skin whitish between alternating transverse rows; belly is grayish or greenish, with two semi-distinct cream or yellow stripes running the entire length of the body on the outer side of the ventrals, this line being broken at the edges of each scale; the tongue is mainly white, but a dark blue at the very tip (general description was modified from Taylor, 1922 and altered accordingly and is mainly in line with the other species in the complex).

Members of the *Ahaetulla prasina* (Boie, 1827) complex (excluding those in the *A. mycterizans* (Linnaeus, 1758) complex) are separated from all other members of the genus *Ahaetulla* Link, 1807, type species being *Coluber mycterizans* Linnaeus, 1758 by the following characters: Snout without an obvious dermal appendage formed by one enlarged rostral scale or a series of smaller scales; 203-235 ventrals and 168-207 subcaudals; Anal divided (rarely entire).

The species in the *A. mycterizans* (Linnaeus, 1758) complex are in turn separated by having an obvious dermal appendage formed by one enlarged rostral scale or a series of smaller scales, no loreal scale and a single anal plate.

Ahaetulla dep sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/257503082>

and

<https://www.inaturalist.org/observations/68743718>

and

<https://www.inaturalist.org/observations/160903133>

and

<https://www.inaturalist.org/observations/268898060>

and

<https://www.inaturalist.org/observations/193675833>

and

<https://www.inaturalist.org/observations/193587367>

Distribution: South Vietnam only.

Etymology: The word "dep" in Vietnamese means "nice", befitting this snake.

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CONFLICT OF INTEREST

None.

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