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CONTRIBUTIONS TO A REVIEW OF PHILIPPINE  
SNAKES, X

THE SNAKES OF THE GENUS AHÆTULA

By ALAN E. LEVITON

*California Academy of Sciences, San Francisco, California 94118*

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THE SNAKES OF THE GENUS *AHAETULLA*

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ONE TEXT FIGURE

The colubrid snakes of the genus *Ahaetulla*, known formerly as *Dryophis* and *Passerita*, are rear-fanged arboreal snakes. Widely distributed throughout southeastern Asia, where eight species are recognized currently, only one species enters the Philippines. *Ahaetulla prasina* is found on almost every island of significant size, its absence from some such as Mindoro, Catanduanes, Tablas, and Masbate reflecting simply the lack of adequate collections from these places.

Three nominal species have been heretofore recognized in the Philippines. This has of necessity been reduced to one polytypic species and two subspecies: *Ahaetulla prasina prasina* (Reinwardt) and *Ahaetulla prasina preocularis* (Taylor).

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TERMINOLOGY

*Standard length*.—Distance from tip of snout to anal opening. Data given for largest individual of each sex measured.

Tail length measurement for same individual also given.

\* : following locality listed under "Range" indicates sites from which specimens were examined.

6 (2+3[28-38]) 4: caudo-dorsal scales reduce from six to four by fusion of lateral rows 2 and 3 at level of 28 to 38 subcaudal plates.

#### Genus *AHAETULLA* Link

*Ahaetulla* LINK (1807) 73 [type species *Coluber mycterizans* Link [= *Coluber nasutus* Lacépède (1789)] by subsequent selection by Meise and Henning (1932)].

*Dryinus* [nec Latreille (1804) Hymenoptera] MERREM (1820) 136 [type species *Coluber mycterizans* Linnaeus, by subsequent selection by Gray (1825)].

*Dryophis* DALMAN (1823) 7 (substitute name for *Dryinus* Merrem).

*Passerita* GRAY (1825) 208 (substitute name for *Dryinus* Merrem).

*Dryiophis* SCHLEGEL (1837) 241 (erroneous subsequent spelling).

*Tragops* WAGLER (1830) 134 [type species *Dryophis prasinus* Reinwardt, in F. Boie (1827) by subsequent selection by Fitzinger (1843)].

*Herpetotragus* FITZINGER (1843) 27 [type species *Dryophis nasuta* F. Boie (1827) by monotypy].

*Dystyches* GISTEL (1848) (not seen; substitute name for *Tragops wagneri*).

*Tropidococcyx* GÜNTHER (1860) 428 [type species *Psammophis perroteti* Duméril, Bibron, Duméril (1854) by monotypy].

*Gephyrinus* COPE (1886) 492 [type species *Dryophis fronticinctus* Günther (1858) by original designation].

*Definition*.—Maxillary teeth 12 to 16, anterior six or seven gradually enlarged posteriorly or last two abruptly enlarged, followed by a short interspace and two or three small teeth; one or two posterior grooved fangs, usually placed below posterior border of eye; ectopterygoid more or less distinctly forked anteriorly, the two branches articulating with the maxilla; head elongate, distinct from neck, with well-developed canthus rostralis and deeply concave lores; eye large, with elongate, horizontal pupil; nostril horizontally oval, in undivided elongate nasal; frontal narrow, elongate, more or less bell-shaped; body elongate, compressed; tail long; scales usually smooth, in 15 longitudinal rows at midbody, disposed obliquely, vertebral row usually enlarged; ventrals rounded or with lateral keel; subcaudals paired; hypapophyses absent from posterior vertebrae; hemipenes unforked, spinose throughout, calyculate distally. [After Smith (1943) 370-371].

*Remarks.*—The complicated nomenclatural problem involving the name *Ahaetulla*, which has been applied to several groups of arboreal colubrid snakes from both Asia and South America, and which has been the subject of discussion by a number of authors [Meise and Henning (1932); Mertens (1933); Stejneger (1933); Smith (1943); Savage (1952); Savage and Oliver (1956)], has recently been reviewed by the International Commission in Zoological Nomenclature. In Opinion 524, the Commission fixed the type species of *Ahaetulla* as *Ahaetulla mycterizans* Link (1807). In view of this the nominal genus *Ahaetulla* must be applied to a group of rear-fanged arboreal tree snakes from Asia formerly known as *Dyrophis* or *Passerita*.

Taylor [(1922a) 218–224] recognized three species of *Ahaetulla* in the Philippines: *Dyrophis prasinus* from the Palawan Archipelago, *D. preocularis* from Mindanao to Luzon, and *D. griseus* from Luzon and the Camiguin Island. As a result of recent studies it is necessary to alter this arrangement, for it has been determined that *Dyrophis griseus* and *D. preocularis*, both described by Taylor, are conspecific. Inasmuch as both nominal species are described in the same work by Taylor, the name *Dyrophis preocularis* is hereby selected to stand as senior synonym, in spite of the fact that the name appears on a later page than *D. griseus* (application of Article 24a(i), IRZN).

Comparison of *A. preocularis* (*sensu lato*) with *A. prasinus* from the Palawan Archipelago and Indonesia leaves no doubt that the former has been derived from the latter, and at best is distinguished from that species by a combination of several variable characters. *Ahaetulla preocularis* is treated here as a subspecies of *A. prasinus*.

*Key to the Philippine subspecies of Ahaetulla prasina*

- 1a. Fourth upper labial rarely divided by a horizontal suture; anal plate usually divided (Palawan Archipelago)... *A. p. prasina*
- 1b. Fourth upper labial usually divided by a horizontal suture; anal plate usually single (from Jolo to Luzon and Camiguin).

*A. p. preocularis*

**AHAETULLA PRASINA.**

*Dyrophis prasinus* REINWARDT (1827) column 545.

*Taxonomic notes.*—The two nominal species which Taylor described, *Dyrophis griseus* and *D. preocularis*, were said to differ

in the number of loreals and in color. In the type specimens of *D. griseus* a large loreal shield was found to be present below the small loreals; in *D. preocularis* only a series of two to three small loreals were present. The large lower loreal, which is referred to by Taylor, was derived from the third upper labial. In specimens from Luzon (including a paratype of *D. griseus*), Mindanao, and elsewhere examined in the course of the present study the third upper labial was found to be divided by a horizontal suture only in an occasional specimen. Sometimes the shield was divided on both sides of the head; sometimes it was divided on one side and undivided on the other. The divided or undivided third upper labial cannot be associated with other characters, and it is thought to be an individual variation of no taxonomic significance.

In regard to color, Taylor states that *D. griseus* is gray, *D. preocularis* is green, bluish-green or reddish. The paratype of *D. griseus*, which I examined (listed by Taylor [(1922a) 222, Table 47] as R 663) is light green. A large series of *D. preocularis* [*sensu* Taylor (1922a)] was found to vary in color from light grayish brown to dark slate, depending on age and method of preservation. It seems reasonable to conclude that *Dryophis griseus* and *D. preocularis* are conspecific.

Taylor distinguished *Ahaetulla prasina* from his two new nominal species on the basis of its divided anal plate, one preocular, and three labials which border the orbit. *Ahaetulla preocularis* (*sensu lato*), on the other hand, has a single anal plate, two preoculars, and only two labials bordering the orbit. Considerable variation in these characters has been noted in the sample of *A. preocularis* from Mindanao and the Sulu islands. A number of specimens in these samples, as well as a few drawn from samples from Luzon, Negros, and other islands, were found to combine characters of both *A. prasina* and *A. preocularis*. However, if the Philippine populations of *Ahaetulla* (excluding those from Palawan Archipelago which are typical *A. prasina*) are treated as a single sample, then the characters noted by Taylor predominate. It is therefore inferred that *A. preocularis* should be treated as a subspecies of *A. prasina*.

It is worth noting that ventral and subcaudal counts differ between Philippine and non-Philippine samples of *A. prasina*. How-

ever, there is some suggestion in the available data (see p. 50) that the number of shields is subject to a north-south cline in the Philippines. A similar cline seems to be in evidence also among specimens of this species from the Indo-Chinese subregion. Mell [(1930) 323, and (1931) 213] described two new subspecies of *A. prasina*, one from China and one from Indo-China. These were distinguished from typical *A. prasina* from Malaya by lower ventral and subcaudal counts. The Chinese subspecies was characterized by 188 to 204 ventrals and 167 to 183 subcaudals, the Indo-Chinese (Tonkin) subspecies by 192 to 228 ventrals and 151 to 191 subcaudals, and the typical subspecies from Malaya by 200 to 235 ventrals and 165 to 207 subcaudals [Bourret (1936) 331]. It is obvious that there is a north-south cline with fewer ventrals and subcaudals in specimens from China and Indo-China, and an increase in the number of those shields southward in Malaya.

Examination of any recent work on the herpetology of Asia in which the species of *Ahaetulla* are treated immediately suggests that there is a definite need for an extensive review of the genus. Variability of principal taxonomic characters, especially the division of the anal plate and fourth upper labial, and the obvious clinical character of the number of ventral shields, makes recognition of species difficult. Indeed, it is possible to distinguish species only when sympatric or adjacent allopatric populations are compared and clinal differences in ventral shield counts discounted.

*Diagnosis.*—Snout about twice as long as horizontal diameter of eye (in adults), without projecting dermal appendage; ventrals more than 190; subcaudals more than 150. Standard length: ♂ 866, ♀ 1,090; tail length: ♂ 483, ♀ 612.

*Description.*—Maxillary teeth 12 to 16; snout acuminate, projecting, without dermal appendage, about twice as long as horizontal diameter of eye (1.8 to 2.4 in adults; 1.2 to 1.7 in young individuals of less than 500 mm in standard length); rostral visible from above as a narrow straight edge; internasals longer than wide, about two-thirds as large as prefrontals, frequently in contact with second and upper labial behind nasal; frontal shorter than its distance to tip of snout, almost equal to distance to edge of rostral, longer than wide, as wide as supraocular, shorter than parietal; nasal single, narrow, elongate; nostril in

center of nasal, horizontally elongate; one to four loreals, a large loreal formed from the upper portion of a horizontally divided third upper labial occasionally present; preocular 1 or 2, the upper portion in contact with frontal, when 2 in number the lower shield formed from upper portion of a horizontally divided fourth upper labial; 2 or 3 postoculars; temporals usually 2+3, occasionally 2+2, rarely 1+2, 2+4, 3+3, 3+2, or 3+4; usually 9 upper labials, occasionally 7 or 8, two or three shields (usually some combination of third, fourth, fifth and sixth shields) border orbit; 8 or 9 lower labials, the first pair in contact behind mental, 3 or 4 in contact with anterior chin shields; posterior chin shields almost twice as long as anterior pair; dorsal scales reduce 17 (-4 [7-8]) 15 (-4 [142-160]) 13; caudodorsal scales reduce 6 (2+3 [10-13]) 4 (1+2 [95-127]) 2; ventral and subcaudal counts see Tables 1 and 2; anal plate variable.

TABLE 1. — Variation in the number of ventral shields in *Ahaetulla prasina*.

Island	Male			Female		
	N	Mean	Range	N	Mean	Range
Busuanga .....	2	216.5	213-220	.....	.....	.....
Coron .....	2	213.5	212-215	.....	.....	.....
Culion .....	2	218.0	216-220	2	215.0	214-216
Palawan .....	6	212.8	210-217	2	215.0	213-217
Balabac .....	4	216.3	212-218	2	214.5	212-217
Jolo .....	3	209.3	208-211	1	212.0	.....
Basilan .....	.....	.....	.....	1	223.0	.....
Mindanao .....	10	221.0	219-227	10	221.1	212-233
Bohol .....	1	228.0	.....	.....	.....	.....
Samar .....	1	229.0	.....	.....	.....	.....
Negros .....	3	219.6	219-220	3	217.0	210-221
Panay .....	1	223.0	.....	.....	.....	.....
Luzon .....	6	214.3	212-217	9	212.6	208-217
Polilio .....	1	214.0	.....	1	219.0	.....
Borneo .....	2	228.0	223-233	4	216.3	213-218
Riou Archipelago	1	228.0	.....	.....	.....	.....
Malaya .....	.....	.....	.....	1	232.0	.....

TABLE 2. — Summary of variation in the number of ventral shields in *Ahaetulla prasina*.<sup>1</sup>

Island	Male			Female		
	N	Mean $\pm$ SD $\pm$ SE	Range	N	Mean $\pm$ SD $\pm$ SE	Range
Luzon and Polillo	7	214.3 $\pm$ 1.87 $\pm$ 0.707	212–217	10	213.3 $\pm$ 3.62 $\pm$ 1.14	208–218
Mindanao	10	221.0 $\pm$ 5.83 $\pm$ 1.84	210–229	10	221.1 $\pm$ 6.62 $\pm$ 2.09	212–233
Negros	4	220.5 $\pm$ 1.32 $\pm$ 0.66	219–223	3	217.0 $\pm$ 4.90 $\pm$ 2.83	210–221
Palawan Arch <sup>2</sup>	20 <sup>3</sup>	215.3 $\pm$ 3.80 $\pm$ 0.85	209–222	9 <sup>3</sup>	215.2 $\pm$ 2.74 $\pm$ 0.91	211–219

<sup>1</sup>With the limited material available it is difficult to interpret the variation found in ventral and subcaudal shields. The variation in the Mindanao sample encompasses the range of variation noted among all of the Philippines together. Specimens from single localities tend to vary less than 10 shields within sexes, but the variation between samples from different localities may be large (MINDANAO: Davao Province: 217 to 223 ♂, 220 to 223 ♀; Cotobato Province: 215 to 225 ♂, 212 to 218 ♀; Zamboanga Province: 223 to 229 ♂, 221 to 233 ♀; Bukidnon Province: 210 ♂, 212 ♀).

<sup>2</sup>Including Culion, Busuanga, Balabac, and Palawan islands.

<sup>3</sup>Including Taylor's records [(1922a) 220] not duplicated by Taylor's material examined.

Hemipenes extend to sixth subcaudal plate, forked at end of fifth plate; sulcus spermaticus unforked; proximal third with minute spines set into longitudinal ridges; central third spinose with at least one large spine arising near middle of organ; distal one-third to one-half calyculate and minutely spinose, with a thick, elongate, spinose ridge present on medial wall.

Color (in alcohol) highly variable and frequently dependent upon initial preservation (alcohol or formalin). Color green, blue-green, gray, brown, slate, bluish black, purple, red (light to medium), or reddish brown; adults usually lack markings although occasionally numerous short diagonal black lines may be present; the dark lines and small discrete dark spots frequently present in young individuals; a light longitudinal stripe (in alcohol-preserved specimens; stripe is dark in formalin specimens) almost always present on either side of ventrals and subcaudals.

*Interisland variation.*—A divided anal plate is present among all specimens forming the "Palawan sample" (including specimens from Busuanga, Culion, Coron, Palawan, and Balabac islands). The samples from other Philippines are not so uniform. In a sample of 20 specimens from Mindanao, the anal plate is single in 15, divided in five. One of 13 specimens from Luzon, one of six from Negros, and one of five from Jolo also have divided anal plates. Species from Panay, Samar, and Bohol were found to have single plates; however, the samples available from these localities are very small.



In the Palawan sample, all specimens have one preocular shield and three upper labials bordering the orbit. These represent, in fact, only one character, because when the fourth upper labial is divided by a horizontal suture, as is frequently the case among specimens from most of the Philippines, then the upper portion of the shield is counted as a preocular and the lower portion, which no longer contacts the orbit, is counted as an upper labial. Therefore, it is only necessary to state the number of preoculars, either one or two, to determine whether there are three or two upper labials bordering the orbit.

Among the specimens from Mindanao, a single preocular is present in 11 specimens, nine of which have undivided anal plates, and two preoculars are present in six specimens, three of which have undivided anal plates, and three specimens, two with undivided anal plates, two preoculars on one side and one on the other side.

In the series of specimens from Luzon, all but one have undivided anal plates. In the one specimen with the divided anal shield there is a single preocular. However, two individuals with undivided anal shields also have single preoculars. A single specimen from Negros Island has a divided anal plate and a single preocular while six other specimens from that island have undivided anal plates. In one of these there is a single preocular, in two there are two preoculars on one side and a single preocular on the other side.

In summary, of 49 specimens from the Philippines, excluding the Palawan Archipelago, 39 have single anal plates, 10 have divided shields; 24 specimens have two preocular shields, 14 have single preoculars, and seven have one preocular on one side and two preoculars on the other side.

Comparison of the ventral shields among samples from each of the islands suggests that the number of those shields is subject to a north-south cline. The average of the Luzon-Polillo island samples is slightly lower than that for the samples from the southern islands. In a like manner, the Palawan Archipelago sample averages fewer ventrals than Bornean or Malayan populations. Ventral count data are summarized in Tables 1 and 2; subcaudal counts in Table 3. Variation in the tail length, standard ratio is summarized in Table 4.

TABLE 3.—Variation in the number of subcaudal shields in *Ahaetulla prasina*.

Island	Male			Female		
	N	Mean	Range	N	Mean	Range
Busuanga .....	2	207.4	207–208	.....	.....	.....
Coron .....	2	210.5	208–213	.....	.....	.....
Culion .....	2	202.5	199–206	2	198.0	189–207
Palawan .....	6	184.2	172–209	1	187.0	.....
Balabac .....	3	197.7	196–201	2	189.0	187–191
Jolo .....	3	195.0	191–202	1	180.0	.....
Basilan .....	.....	.....	.....	1	171.0	.....
Mindanao .....	10	204.1	193–213	6	184.5	172–194
Bohol .....	.....	.....	.....	.....	.....	.....
Samar .....	1	208.0	.....	.....	.....	.....
Negros .....	3	189.3	185–197	3	180.0	174–186
Panay .....	1	181.0	.....	.....	.....	.....
Luzon .....	7	183.6	173–190	9	174.8	168–186
Polilio .....	1	193.0	.....	.....	.....	.....
Borneo .....	2	186.5	173–200	4	165.5	161–175
Riou Archipelago	1	194.0	.....	.....	.....	.....
Malaya .....	.....	.....	.....	1	194.0	.....

In 1922, Taylor suggested that a red phase of *Dryophis preocularis* appeared to be confined to Negros and Panay. I find that the red phase referred to by Taylor is found among young specimens only; adults are green. A few red-colored individuals from other islands, including Basilan, Mindanao and Luzon, have been seen but all have been young individuals. Several brown specimens, including young and adults, have been seen from Jolo and Mindanao islands. The predominant color is green, however, although many of the specimens examined were dark bluish-black because of initial formalin preservation. There is no evidence to indicate correlation of color forms with geographic distribution.

**AHAETULLA PRASINA PRASINA (Reinwardt).**

*Dryophis prasinus* Reinwardt in H. BOIE (1826) 238 (*nomen nudum*);  
in F. BOIE (1827) column 545 (type loc: Java; type in Leiden Museum; original description); JAN (1869) Livr. 33, pl. 5, fig. 1; Bou-

LENGER (1896) 181 (in part; many non-Philippine localities listed, those from the Philippines belong to *A. p. preocularis*; synonymy, description, counts of material examined); BOETTGER (1895) 4, 5 (in part; Calamian Island; scutellation, distribution); (1898) 106 (in part; many non-Philippine localities listed, those from Philippines referable to *A. p. preocularis* with exception of Culion Island; listed); GRIFFIN (1909) 600 (Palawan Island [Iwahig]; listed); (1911) 264 (in part; distribution compiled; except for Palawan Island, and probably Sibutu, records should be assigned to *A. p. preocularis*; TAYLOR (1922a) 219 (Palawan Island; synonymy, description, measurements and counts of material examined).

*Range.*—(Philippine localities only). BUSUANGA: Borac\*; Coron\*. CULION: San Pedro\*. PALAWAN: Brooke's Point\*; Iwahig\*; Nakoda Bay\*; Puerto Princesa\*. BALABAC: Balabac\*. SIBUTU.

*Material examined* (32).—BALABAC: Balabac (CNHM 5351, CM 2600 to 2605). BUSUANGA: Coron (CNHM 15067); Borac (SU 13083). CORON: without exact locality (CAS 60578 to 60579). CULION: San Pedro (CNHM 53519 to 53522). PALA-

TABLE 4.—Variation in the ratio of tail length/standard length in *Ahaetulla prasina*.

Island	Male			Female		
	N	Mean	Range	N	Mean	Range
Busuanga .....	1	0.708	.....	.....	.....	.....
Coron .....	2	0.677	0.675—0.679	.....	.....	.....
Culion .....	1	0.630	.....	2	0.631	0.617—0.645
Palawan .....	5	0.619	0.600—0.642	1	0.595	.....
Balabac .....	3	0.617	0.591—0.630	2	0.572	0.555—0.588
Jolo .....	3	0.653	0.617—0.714	1	0.601	.....
Basilan .....	.....	.....	.....	1	0.537	.....
Mindanao .....	10	0.628	0.548—0.674	7	0.580	0.540—0.626
Bohol .....	.....	.....	.....	.....	.....	.....
Samar .....	1	0.646	.....	.....	.....	.....
Negros .....	3	0.588	0.560—0.614	3	0.572	0.528—0.636
Panay .....	.....	.....	.....	.....	.....	.....
Luzon .....	5	0.575	0.510—0.632	7	0.571	0.527—0.668
Polillo .....	1	0.607	.....	1	0.539	.....
Borneo .....	2	0.539	0.517—0.560	4	0.500	0.491—0.515
Riou Archipelago	1	0.550	.....	.....	.....	.....
Malaya .....	.....	.....	.....	1	0.516	.....

WAN: Brooke's Point (CNHM 53517 to 53518); Iwahig (CAS 73755); Nakoda Bay (USNM 39957); Puerto Princesa (CAS 15809, CNHM 53515); without exact locality (CAS 62154 to 62155). PHILIPPINES: without exact locality (CM 2618). BORNEO: British North Borneo (SU 7240, 7276); Mt. Kina Balo (USNM 130241); Lo Bon Bon (USNM 49982); Rontianak (USNM 36280); Pulo Sekuda (USNM 38297). RIOU ARCHIPELAGO: without exact locality (SU 8528). MALAYA: Singapore (CAS 16773).

*Diagnosis.*—Anal plate usually divided: usually one preocular shield.

*Supplemental description.*—(For Philippine populations only.) Upper labials usually 9, three border the orbit; two or three loreals; one preocular; ventrals 210 to 233; subcaudals 172 to 213; anal plate divided, rarely single. (See Table 5.) Standard length: ♂ 866, ♀ 1,018; tail length: ♂ 483, ♀ 609.

TABLE 5.—Summary of variation in head shields in *Ahaetulla prasina prasina*.

Anal plate .....	1 (1) <sup>a</sup>	2 (25)	.....	.....	.....
Upper labials ....	7 (1)	8 (2)	9 (18)	8/9 (2)	9/10 (3)
Upper labials bordering eye	4-6 (19)	3-5 (1)	3-5 (1)	4-6/3-5 (1)	4-6/5-7 (2)
Loreals .....	2 (8)	1 (25)	2/3 (6)	.....	.....
Preoculars .....	1 (25)	.....	.....	.....	.....
Temporals .....	2+2 (6)	2+3 (15)	1+2 (1)	3+3 (4)	.....

<sup>a</sup>The number of specimens showing a certain characteristic is indicated by the number in parentheses.

TABLE 6.—Summary of variation in head shields *Ahaetulla prasina preocularis*.

Anal plate	1 (39)	2 (8)	part. divided	(4)	.....	.....
Upper labials	7 (3)	7/8 (2)	8 (5)	8/9 (9)	9 (32)	10 (1)
Upper labials border eye	3-5 (5)	4-5 (9)	4-6 (19)	5 (5)	5-6 (9)	6-7 (1)
	4-6/5-6 (6)	5/5-6 (2)	.....	.....	2-3 (2)	.....
Loreals	1 (1)	2 (34)	3 (12)	4 (1)	.....	3-4 (2)
Preoculars	1 (20)	1/2 (5)	2 (26)	.....	.....	.....
Temporals	2+3 (24)	2+2 (1)	3+3 (2)	2+2/2+3 (7)	2+3/3+3(3)	2+4 (3)
	2+4/2+3 (2)	3+4 (2)	2+3/3+5 (1)	.....	.....	.....

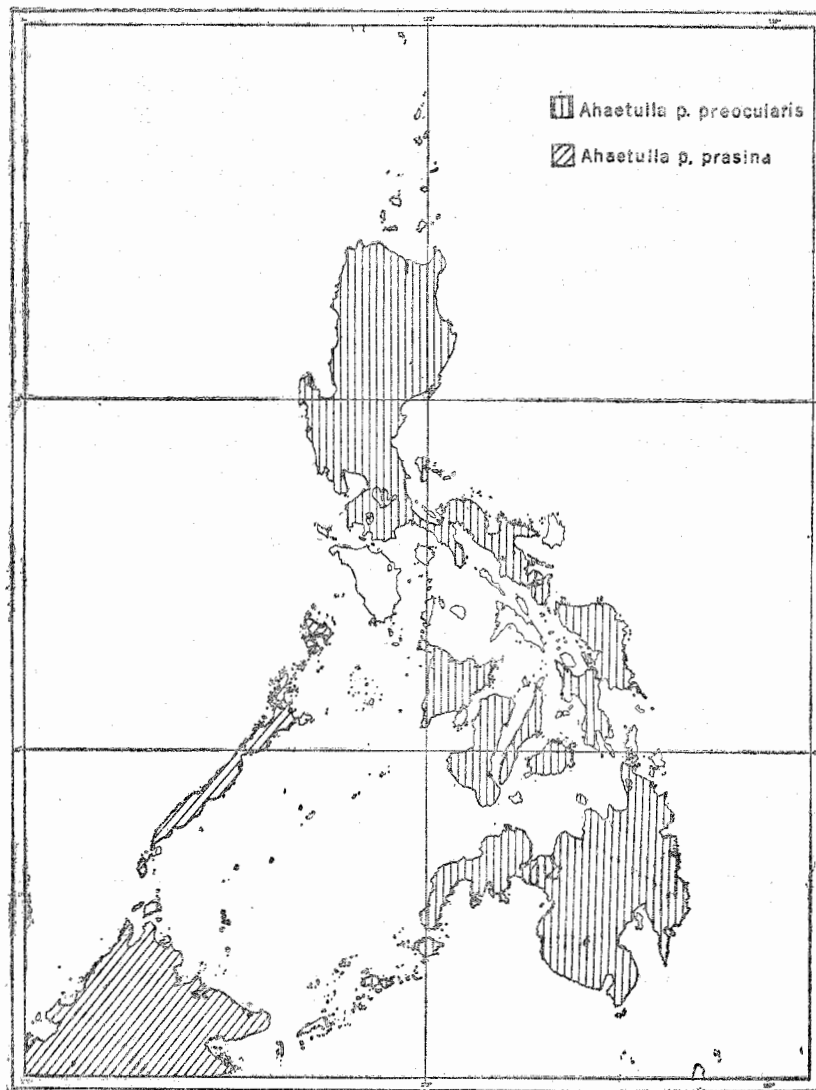


FIG. 1. Map showing the distribution of *Ahaetulla prasina*.

*Sexual dimorphism.*—In the very small sample of these snakes available there is no clear indication of sexual dimorphism in subcaudal counts or in the tail length/body length ratio. It seems likely that these characters will be found to differ between sexes in about the same degree that they differ in populations of *A. p. preocularis* (see below).

Among the adult specimens, males have well-developed keels on the vertebral and paravertebral scale rows at the level of the vent; no keels are present in female specimens.

*Ecological notes.*—Pope [(1935) 323] cites several authors who state that this snake is found in forested areas as well as on the open plains (in China and Burma) at altitudes from 800 to 5,000 feet. Several of the specimens reported on here were taken at sea level; all were taken in and about forested areas, however.

Wall [(1910) 834] records a gecko in the stomach of one specimen; Boulenger [(1912) 175] states the snake consumes both lizards and frogs, while Mertens [(1930) 319] suggests the snake shows preference for frogs rather than lizards, and in 1933 (p. 31) lists frogs of the genera *Rhacophorus* and *Rana* in the diet. Only one specimen that I examined had any food in its stomach; the remains were identified as a lizard of the genus *Mabuya*.

Pope [(1935) 323] cites the records of Wall and Evans [(1901) 616], Evans [(1904) 169], and Wall [(1910) 834] who record securing gravid females during the months of April, May and June, in Burma. Kopstein [(1938) 133] obtained a gravid female which laid eggs in August 1934. The eggs hatched in January 1935, five months later. A second individual laid eggs in December 1935, which hatched in March 1936, a little more than three months after laying. According to Kopstein [(1938) 162] newly hatched young measure 490 mm in total length.

*AHAETULLA PRASINA PREOCULARIS* (Taylor).

*Dryophis prasinus* COPE (1860) 554 (Philippines); Peters (1861) 688 (Luzon Island [Daraga], Samar Island [Calbiga]; listed; BOETTGER (1895) 4, 5 (in part; Cebu, Leyte, Luzon, and Mindanao islands; scale counts; BOULENGER (1896) 181 (Luzon Island [Cape Engaño], Mindanao [Zamboanga]; synonymy, description [part], counts of material examined); BOETTGER (1898) 106 (in part; Cebu Island, [Manila]; listed); GRIFFIN, (1910) 214 (Polillo Island; listed); (1911) 264 (in part; Batan, Camiguin, Luzon, Mindanao, Negros, Polillo, Samar [distribution compiled]; listed in key); TAYLOR, (1917) 366 (Negros Island [Mt. Canlaon]; listed).

*Tragops prasinus* GÜNTHER (1879) 78 (northern Mindanao Island; listed); FISCHER (1885) 80 (southern Mindanao Island; listed).

*Dryophis preocularis* TAYLOR (1922a) 222, text-fig. 19a-b, pl. 28 (type loc.: Bunawan, Agusan Province, Mindanao Island; type in Carnegie Museum; original description, counts and measurements of material examined); (1922b) 138 (Luzon Island [Mt. Makiling]; common name).

*Range.*—**BASILAN:** Abung-Abung\*; **BATAN.** **BOHOL:** Sierra Bullones (Sandayong Sitio\*). **CAMIGUIN.** **CEBU:** without exact locality. **JOLO:** without exact locality\*. **LEYTE:** without exact locality. **LUZON:** Albay Province (Daraga); Camarines Sur Province (Pasacao\*); Cagayan Province (Cape Engaño); Ifugao Province (Nayon\*); Laguna Province (Los Baños\*; Mt. Makiling\*); Rizal Province (Bosoboso\*; Manila\*; Montalban\*); Zambales Province (Binanga\*, Olongapo\*). **MINDANAO:** Agusan Province (Bunawan\*); Bukidnon Province (Del Monte Plantation\*); Cotobato Province (Sputon\*; Tatayan\* [=? Talagan]; Upi\*); Davao Province (Caburan\*; Calian\*; Lapuan\*); Lanao Province (Sigayan\*); Zamboanga Province (Katipunan\*; San Ramon\*; Zamboanga City\*). **NEGROS:** Negros Occidental Province (about 15 km. south of Barrio Toyum\*); Negros Oriental Province (Inubungan\*; Natiang\*; Pagyabunan\*; Mt. Canlaon; ridge on north side of Maite River, 5 to 6 km. west of Luzuriaga\*); Panay: without exact locality\*. **POLILLO:** without exact locality\*. **SAMAR:** Calbiga.

*Material examined* (56).—**BASILAN:** Abung-Abung (CAS 60345). **BOHOL:** Sierra Bullones: Sandayong Sitio (SU 18902). **JOLO:** without exact locality (CAS 60793; SU 13084, 15974 to 15976). **LUZON:** Camarines Sur Province; Pasacao (USNM 27779 to 27780); Ifugao Province: Nayon (CAS 61382). Laguna Province: Los Baños (CAS 61168 to 61170, 62545; MCZ 25304); Mt. Makiling (CAS 61309 to 61311); Rizal Province: Bosoboso (CNHM 15069); Manila (CAS 15321); Montalban (CAS 62557 [indicated as "cotype," = paratype, in Academy records of *Dryophis griseus*: data supplied by E. H. Taylor, author of the nominal species]). Zambales Province: Binanga (CAS 15323); Olongapo (CAS 15322). **MINDANAO:** Agusan Province: Bunawan (CM 2617, Holotype of *Dryophis preocularis*); Bukidnon Province: Del Monte Plantation (SU 15978 to 15979). Cotobato Province: Sputon (CNHM 53514); Tatayan [=? Talagan] (MCZ 25805); Upi (CNHM 53506, 53523). Davao Province: Caburan (CNHM 53511); Calian (CNHM 53509); Lapuan (CNHM 53507 to 53508, 53510, 53512 to 53513); Lanao Province: Sigayan (CNHM 63163 to 63164); Zamboanga Province: Katipunan (CNHM 68903); San Ramon (CNHM 14950); Zamboanga City (CNHM 14978, 14981). **NEGROS:** Negros Occidental Province: about 15 km. south of Barrio Toyum (SU 21039 to 21040); Negros Oriental Province: Inubungan (CNHM 61414); Pagyabunan (CNHM 61619); Natiang (CNHM 62914); ridge on north side Maite River, 5 to 6

km. west of Luzuriaga (SU 19369); without exact locality (CNHM 15063). PANAY: without exact locality (CNHM 41108). PULILO: without exact locality (CAS 62414 to 62415). SAMAR: without exact locality (USNM 36425). PHILIPPINES: without exact locality (CAS 15324).

*Diagnosis*.—Anal plate usually single; usually two preocular shields.

*Supplemental description*.—One to four loreals, occasionally including a large loreal formed by the division by a horizontal suture of the third upper labial; usually 2 preoculars; 9 upper labials, occasionally 7 or 8, usually two shields border orbit, occasionally three; ventrals 210 to 229; subcaudals 172 to 213; anal plate usually undivided. (See also Table 6.) Standard length: ♂ 826, ♀ 1,090; tail length: ♂ 506, ♀ 612.

*Sexual dimorphism*.—Females tend to have shorter tails, and fewer subcaudal shields than males (comparisons must be made between sexes within each island sample and not between grouped samples because of interisland variation), but they do not seem to have more ventrals or longer bodies as must be expected. Ventral and subcaudal count data are summarized in Tables 1 and 2; a comparison of the tail length/standard length ratio among island samples is present in Table 4.

One secondary sexual character, a well-developed keel on the mid-dorsal scale rows in the vicinity of the vent, readily distinguishes adult males from females, which lack the keels. Young male individuals, generally those less than 600 mm in standard length, lack the keels as do all females.

*Ecological notes*.—Almost nothing has been written about the habits of this subspecies. Of the specimens seen here those for which accurate data are available were taken between sea level and 2,500 feet. Insofar as is known, all were taken in forested areas; however, several specimens were collected while on the ground, which seems unusual for a snake which obviously is highly adapted to the arboreal habitat. It is noteworthy that among the stomach contents, which included remains of geckos and several slender skinks, were the remains of several skinks of the genus *Mabuya*, a heavy-bodied ground skink. It may be that the snake descends onto the forest floor to forage for food. Two adult females, collected in January 1947, were found to be gravid. Seven eggs were found in the oviducts of one individual, four in the other. The largest egg measured 31 mm



long by 12 mm width. Several young specimens, between 300 and 400 mm in standard length and presumably newly born of at most a week or two old, were collected during the months of April and May on several islands, and progressively older and larger specimens were taken in successive months (e.g., 500 mm in standard length during August–November, 700 mm standard length during January–April) suggests a breeding season during the winter months followed by perhaps three or four months' gestation period with the new born appearing in the spring.

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