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ON THE KNOWLEDGE AND SPECIFIC STATUS OF *Dendrelaphis ngansonensis* (BOURRET, 1935) (REPTILIA: SERPENTES: COLUBRIDAE)

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An overview of the currently recognized *Dendrelaphis* species, the bronzeback snakes, and their distribution is given with special emphasis on the Vietnamese taxa. We redescribe the holotype of *Dendrophis pictus ngansonensis* Bourret, 1935, a taxon from North Vietnam which was synonymized by Smith (1943) with *Dendrelaphis pictus* (Gmelin, 1789). New Vietnamese *Dendrelaphis* material, either collected by us in the field, or from several collections, proved to be identical with Bourret's taxon *ngansonensis*, and clearly distinguishable from *Dendrelaphis pictus*. We therefore rescind Smith's unfounded synonymization of these two taxa and supplement Bourret's data on morphology, coloration, and distribution of the poorly known taxon *ngansonensis*. Both taxa are sympatric in Vietnam, what confirms the specific rank of *ngansonensis*. This status seems also to be justifiable with respect to variation in other taxa of *Dendrelaphis* known so far for South East Asia. Beside the first photographs of *Dendrelaphis ngansonensis* (Bourret, 1935) we finally provide first data on its habitat.

Key words: Reptilia, Squamata, Serpentes, Colubridae, *Dendrelaphis*, *D. ngansonensis* (Bourret, 1935), *D. pictus* (Gmelin, 1789), Taxonomy, Morphology, Coloration, Distribution, Habitat, Vietnam.

1. INTRODUCTION

The colubrid genus *Dendrelaphis* Boulenger, 1890 is widely distributed from Pakistan in the West to the northern and eastern coast of Australia in the East and South and to China in the North. Currently 20 species of these arboreal, mainly diurnal, oviparous bronzeback snakes are recognized (for distributional references, see below): *Dendrelaphis bifrenalis* (Boulenger, 1890) from India and Sri Lanka; *D. calligaster* (Günther, 1867) from Australia, New Guinea, and adjacent islands; *D. caudolineatus* (Gray, 1834) from Myanmar, South Thailand, Malaysia, Singapore, Brunei, Philippines, and Indonesia; *D. caudolineolatus* (Günther, 1869) from India and Sri Lanka; *D. cyanochloris* (Wall, 1921) from northeastern India, including Andaman and Nicobar Islands, Bangladesh, Myanmar, and Thailand; *D. formosus* (Boie, 1827) from Thailand, Malaysia, Singapore, Brunei, and Indonesia; *D. gastrostictus* (Boulenger, 1894), including *meeki*, from New Guinea; *D. gorei* (Wall, 1910), including *biloreatus*, from India (Assam), Myanmar, Tibet, and China; *D. grandoculis* (Boulenger, 1890) from India; *D. humayuni* Tiwari & Biswas, 1973 from India (Nicobar Islands); *D. inornatus* Boulenger, 1897, including *timorensis*, from Indonesia; *D. lorentzi* (Lidth de Jeude, 1911) from New Guinea; *D. oliveri* (Taylor, 1950) from Sri Lanka; *D. papuanus* (Boulenger, 1895) from New Guinea; *D. pictus* (Gmelin, 1789) from India, including Andaman and Nicobar Islands, Nepal, Bangladesh, Myanmar, Thailand, Cambodia, Laos, Vietnam, South China, Malaysia, Singapore, Brunei, Indonesia, and the Philippines; *D. punctulatus* (Gray, 1827) from Australia, New Guinea, and adjacent islands; *D. salomonis* (Günther, 1872) from New Guinea, and the Solomon Islands; *D. striatus* (Cohn, 1905) from Indonesia, Malaysia, and Thailand; *D. subocularis* (Boulenger, 1888) from Myanmar, Thailand, Cambodia, Laos, Vietnam, and China; *D. tristis* (Daudin, 1803) from Pakistan, Nepal, India, Sri Lanka, Bangladesh, and Myanmar (Smith, 1943; McDowell, 1984; Dowling and Jenner, 1988; Vogel, 1990; Cox, 1991; Wilson and Knowles, 1992; Zhao and Adler, 1993; Cogger, 1994; Das, 1996; David and Vogel, 1996; How et al., 1996; O'Shea, 1996; Cox et al., 1998).

Only two species, *Dendrelaphis pictus* and *D. subocularis* are currently known from Vietnam (Campden-Main, 1970; Nguyen and Ho, 1996). Zhao and Adler (1993) also listed *D. gorei* for Vietnam, but

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with a question mark; *D. cyanochloris* is mentioned in the project report of VQNR (1998) for the Hin Nam No Conservation Area in Laos, bordering on the Vietnamese Phong Nha Nature Reserve in Quang Binh province (see Ziegler and Herrmann, 1999); both records require further confirmation. Beside *D. pictus* and *subocularis* ("Indochine") Bourret (1936) also listed *formosus* ("Cochinchine") for Vietnam. Bourret (1936) recognized two subspecies of *D. pictus* in "Indochine," *Dendrophis p. pictus* Gmelin, 1789, which is distributed in whole "Indochine," and *D. p. ngansonensis* Bourret, 1935, which was only known from a single locality in North Vietnam (Bourret, 1935, 1936, 1937). Later, Smith (1943) subsequently synonymized *Dendrophis pictus ngansonensis* Bourret, 1935, despite his statement "not seen by me," with *Ahaetulla ahaetulla*, currently *Dendrelaphis pictus*.

We located and examined the holotype of *Dendrophis pictus ngansonensis* Bourret, 1935 in Hanoi. Likewise, one of the six further specimens of *ngansonensis* mentioned by Bourret (1937, 1939) could be found in Paris. In addition, further Vietnamese material, either collected by us in the field, or deposited in collections, could be referred to the taxon *ngansonensis*. We herein provide detailed results of the examination of theses specimens and their distribution compared with the nominal form of *Dendrelaphis pictus*. We also present the habitat of the poorly known bronzeback taxon *ngansonensis* for the first time.

2. MATERIAL

The Vietnamese *Dendrelaphis* material studied by us is deposited in the following collections:

Centre for Natural Resources Management and Environmental Studies, Hanoi (CRES)

ngansonensis

M. 449 (holotype of *Dendrophis pictus ngansonensis* Bourret, 1935), "Ngan-Son, Tonkin (altitude 700 m), envoyé par M. Clémençon."

Muséum National d'Histoire Naturelle, Paris (MNHN)

ngansonensis

MNHN 1948.0083, Ngan Son, "Tonkin," coll. Bourret;
MNHN 1974.1318, "Col des Nuages, near Tourane, Annam," coll. Poilane.

pictus

MNHN 1885.0287 – 0289, "Cochinchine," coll. Pavie;
MNHN 1908.0202, "Tonkin," coll. Eberhardt.

Staatliches Museum für Tierkunde, Dresden (MTKD)

ngansonensis

MTKD 39427, Cuc Phuong, leg. Nadler, June 29, 1996.

Zoologisches Forschungsinstitut und Museum Alexander Koenig, Bonn (ZFMK)

ngansonensis

ZFMK 68540, Tam Dao, North Vietnam, coll. Vogel, 1998;
ZFMK 71697, Tam Dao, North Vietnam, coll. Vogel, 1998;
ZFMK 71698, Ky Anh – Ke Go protected area: Chin Xai area (18°04′ N, 105°58′ E), Ha Tinh, 170 m above sea level (a.s.l.), leg. Ziegler, August 2, 1997;
ZFMK 71699, "Chuc A," Ha Tinh, between Vu Quang and Nghe An, about 200 m a.s.l., coll. Hoang Xuan Quang;
ZFMK 71700, Bach Ma, Thua Tien – Hue, coll. Hoang Xuan Quang.

pictus

ZFMK 68541, between Pho Lu and Lao Cai, North Vietnam, coll. Vogel, 1998;
ZFMK 71701, Bach Ma, Thua Tien – Hue, coll. Hoang Xuan Quang.

3. RESULTS AND DISCUSSION

3.1. Bourret's Specimens and his Description of *Dendrophis pictus ngansonensis*

The description of *Dendrophis pictus ngansonensis* by Bourret (1935) was based on a single specimen (M. 449) from "Ngan-Son, Tonkin," now in Cao Bang province, North Vietnam, collected at 700 m a.s.l. Bourret (1936) distinguished *ngansonensis* from *pictus* by the presence of generally more than 190 ventrals, and in lacking the yellowish lateral stripe typical for *pictus*. Bourret (1937, 1939) mentioned six other specimens (X. 1342 – 1346 and X. 1824) from the type locality. Their scale counts and lengths, together with these of the holotype M. 449, are listed in Table 1. Bourret (1935) described the holotype of *Dendrophis pictus ngansonensis* as follows (our translation): dorsal scales distinctly enlarged; dorsum and upper side of head bronze brown; a broad black lateral stripe starting behind the eyes, then becoming more bronze brown, and covering all lateral scales; neck with partly blackish lateral scales; lateral scales framed with blue; no dark stripe between ventrals and first row of dorsals; the external rank of scales blackish anteriorly, then bronze green, and caudally dark bronze green; externally the ventrals are dark green anteriorly, then bronze green; medially the ventrals are distinctly yellow green, as well as the supralabials; the

coloration of the ventrals abruptly changes from their keels on.

The senior author located the holotype (M. 449) of *Dendrophis pictus ngansonensis* in October 1998 in the Centre for Natural Resources Management and Environmental Studies (CRES), Hanoi National University. Both from the label on the jar and from a hand-written label inside (M. 449) it is evident, that it is indeed Bourret's (1935) type (Figs. 1 and 2). Because the well-closed jar was not allowed to be opened, only scale counts discernible through the glass could be taken in addition to the few data provided by Bourret (1935) (see Table 1). Most probably due to the long-lasting formaldehyde preservation, the holotype seemed to have darkened. Additionally, Bourret's (1937) specimen X. 1345 was found in the herpetological collection of the Muséum National d'Histoire Naturelle in Paris, registered there as MNHN 1948.0083. Based on the scale counts and measurements provided by Bourret (l.c.), the likewise distinctly darkened MNHN specimen is unambiguously Bourret's specimen X. 1345 (see Table 1).

3.2. New Distributional Records, Morphology, Coloration, and Specific Status of *Dendrelaphis ngansonensis* (Bourret, 1935), with First Notes on the Habitat

During recent field studies in Vietnam we obtained altogether three living *Dendrelaphis* specimens from Tam Dao (ZFMK 68540, 71697) and from Ha Tinh province (Ky Anh – Ke Go protected area: Chin Xai; ZFMK 71698) in North Vietnam (Figs. 3 – 5), which proved to be clearly assignable to *Dendrophis pictus ngansonensis* Bourret, 1935, on the basis of morphology, scalation, coloration, and patterning (see below and Table 1). Among them is the hitherto longest known specimen (ZFMK 71697), with a total length of 150 cm. Among preserved Vietnamese *Dendrelaphis* specimens from different collections studied by us, we further could assign the following specimens to the taxon *ngansonensis*: MNHN 1974.1318 from "Col des Nuages, near Tourane, Annam," beside MNHN 1948.0083, which was already mentioned above, and MTKD 39427 from Cuc Phuong National Park. Also two additional spec-

TABLE 1. Scale Counts and Measurements of *Dendrelaphis ngansonensis*

Parameter	M. 449	X. 1342	X. 1343	X. 1344	X. 1345*	X. 1346	X. 1824	MNHN 1974.1318	MTKD 39427	ZFMK 68540	ZFMK 71697	ZFMK 71698	ZFMK 71699	ZFMK 71700
Dorsals at midbody		13			15			15	15	15	15	15	15	15
Ventrals	199	181	197	198	193	192	193	180	183	183	182	186	181	165
Anal					div.			div.	div.	div.	div.	div.	div.	div.
Subcaudals	148	153	147	140	119 (div.)	144		145 (div.)	133 (div.)	117 + (div.)	132 (div.)	141 (div.)	143 (div.)	151 (div.)
Supralabials*	9 (4, 5, 6)				9 (4, 5, 6)			9 (4, 5, 6)	9 (4, 5, 6)	9 (5, 6)	9 (4, 5, 6)	9 (4, 5, 6)	9 (4, 5, 6)	9 (4, 5, 6)
Infralabials	10				10			10	10	10	10	8 – 10	10	10
Loreal	1				1			1	1	1	1	1	1	1
Preoculars	1				1			1	1	1	2	1	1	1
Postoculars	2				2			2	2	2	2	2	2	2
T_1					2			1 – 2	1 – 2	2	1 – 2	2	2	1
T_2					2			2	2	2	1 – 2	2	2	1 – 2
T_3					2 – 3			2 – 3	2	2	2 – 3	3	3	2 – 3
Snout-vent length, mm					700			650	820	1020	1030	960	500	365
Tail length, mm					290			335	380	440+	470	460	255	215
Total length, mm	1067	1200	1027	1055	990	1275	790+	985	1200	1460+	1500	1420	755	580

Note. M. 449 holotype from Ngan Son (according to Bourret, 1935, supplemented by our data); X. 1342 – 1346 and X. 1824 further material from Ngan Son listed in Bourret (1937, 1939); X. 1345* = MNHN 1948.0083; MNHN 1974.1318 from "near Tourane"; MTKD 39427 from Cuc Phuong; ZFMK 68540 and 71697 from Tam Dao; ZFMK 71698 – 71699 from Ha Tinh province; ZFMK 71700 from Bach Ma. div.) Divided; $T_1 - T_3$) first to third temporals.
* In brackets are those touching orbit.

Fig. 1. The holotype of *Dendrophis pictus ngansonensis* Bourret, 1935 (M. 449) in the CRES, Hanoi. Note the handwritten label in the jar. Photograph by T. Ziegler.

imens of the herpetological collection of Dr. Hoang Xuan Quang (Vinh Univ., Vietnam), each from Ha Tinh and Thua Tien – Hue provinces, proved to be *ngansonensis*, and which were in the meantime deposited in the ZFMK (ZFMK 71699 – 71700).

Originally restricted to the single locality Ngan Son in the North of Vietnam, now the distribution of the taxon *ngansonensis* can be extended up to Da Nang/Quang Nam provinces in the South (Fig. 6).

The scale counts and measurements, of Bourret's (1935, 1937, 1939) specimens and of the *ngansonensis* material investigated by us, are listed in Table 1. The scale counts agree well, but with altogether 165 to 199 ventrals in *ngansonensis* (mean 187 ± 9) Bourret's (1936) diagnostic character to separate *ngansonensis* from *pictus* (see above), namely more or less than 190 ventrals, does not longer fit exactly (see Tables 1 and 2). The obviously low ventral count (165) of the specimen ZFMK 71700 could be connected with the fact that there are some anomalies of the ventrals (e.g., fusions). Anyhow, if this specimen is not included, ventral scales are reaching from 180 to 199 (mean 188 ± 7). Also each the two preoculars in the specimen ZFMK 71697 seem to be an anomaly. Noticeable are also the 13 midbody dorsals in the specimen X. 1342, but already Bourret (1937) em-

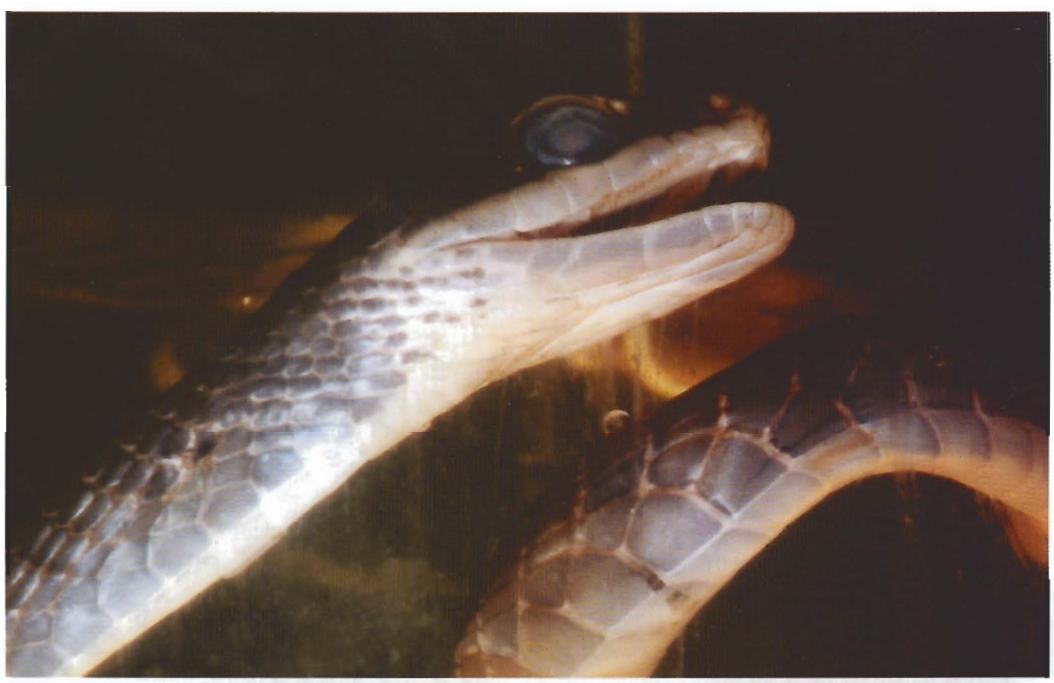

Fig. 2. Portrait of the holotype M. 449. Photograph by T. Ziegler.

phasized this fact as an exception: "Le No. X. 1342 n'a que 13 C au milieu du corps."

Concerning the teeth of the holotype M. 449, Bourret (1935) mentioned "20 dents maxillaires." We could investigate the following teeth numbers (including Bourret's 1937 specimen X. 1345, now MNHN 1948.0083): 24 – 25 maxillary teeth (mean 24), 13 – 17 palatine teeth (mean 15), 22 – 25 pterygoid teeth (mean 23), and 24 – 27 dentary teeth (mean 26) (n = 8: MNHN 1948.0083, 1974.1318, MTKD 39427, ZFMK 68540, 71697 – 71700).

Our specimens obtained in the field (Figs. 3 – 5) correspond well also in live coloration and patterning with the description provided by Bourret (1935). The upper side of head and body of the three females ZFMK 68540, 71697, and 71698 is olive bronze, the vertebral scales of the neck are partly somewhat lighter. Each from the eyes there extends a broad black stripe over the neck. From the neck on the black stripe is each replaced by few to several blackish more or less distinct transversal stripes. Supralabials and adjoining neck region are yellowish. The flanks, that means the dorsal scale row adjoining the ventrals is somewhat lighter than the remaining dorsals, the ventrals are light greyish to yellowish green. The tongue is red, somewhat lighter at the bifurcation point, with blackish tips. The light, partly greenish to bluish inner part of the neck and forebody scales is visible only when the neck region is inflated (Fig. 5).

The preserved specimens MNHN 1974.1318 and MTKD 39427 also show the typical *ngansonensis* coloration and patterning. Furthermore, the alcohol preserved juvenile ZFMK 71699 corresponds well to the coloration and patterning described above, whereas the formaldehyde preserved juvenile ZFMK 71700 seems to be heavily darkened. However, due to the short formaldehyde preservation, in comparison with Bourret's specimens, which were partly preserved in formaldehyde for more than 60 years, the transversal neck stripes are quite distinct in the specimen ZFMK 71700.

Principally due to the constant differences in coloration and patterning, for example, the absence of a whitish lateral stripe along the flanks framed with black in *ngansonensis*, we regard Smith's (1943) unfounded synonymization of *Dendrophis pictus ngansonensis* Bourret, 1935 with *Ahaetulla ahaetulla*, currently *Dendrelaphis pictus*, as not justified. Furthermore, as already mentioned by Bourret (1936), *ngansonensis* has relatively high ventral counts as compared with *pictus*, even if Bourret's separation between *pictus* and *ngansonensis* does not longer fit exactly (see above). In view of the scale counts of *Dendrelaphis pictus* given in Table 2 it has to be taken into account, that these data are mainly from older literature, where also other taxa are involved, thus considerably extending the listed scale counts of *pictus*.

Moreover, due to our new distributional records of the taxon *ngansonensis* in Vietnam the subspecific status seems not to be longer tenable with respect to the nominal form *pictus*, which is according to Bourret (1934, 1936) distributed in whole "Annam," and "Indochine," respectively. Due to a sympatric record of *ngansonensis* (ZFMK 71700) and *pictus* (ZFMK 71701) in Bach Ma (Thua Tien – Hue province) we herein consequently elevate the taxon *ngansonensis*, described by Bourret (1935) as "variété" of *pictus*, to specific status.

Also compared with the other South East Asian *Dendrelaphis* species known so far the specific status of *Dendrelaphis ngansonensis* (Bourret, 1935) seems to be justified (Tables 2 and 3; for photograps compare, e.g., Vogel, 1990; but we refrain from detailed comparisons with *D. calligaster*, *D. gastrostictus*, *D. lorentzi*, *D. papuanus*, *D. punctulatus*, and *D. salomonis* from Australia, New Guinea, and the Solomons, and *D. inornatus* from north of Bali, due to the wide geographical distances): *Dendrelaphis ngansonensis* is distinguishable from *D. caudolineatus*, *D. caudolineolatus*, and *D. gorei* in having more dorsal scales at midbody (15 vs. 13); from *D. bifrenalis*, and *D. oliveri* in having a single loreal scale (vs. 2, and 0, respectively); from *D. subocularis* in having several suboculars (vs. a single one); from *D. striatus* in having higher ventral counts (165 – 199 vs. 152 – 163), and in having more supralabials (9 vs. 8); from *D. grandoculis* in having a postocular stripe, and in lacking three distinct stripes along the tail; from *D. formosus* in lacking red skin between the neck scales; from *D. humayuni* in having a broad and distinct postocular stripe, and in having transversal nuchal stripes; from *D. pictus* mainly in lacking a light lateral stripe along the flanks framed with black, and in having a stronger (larger and longer) body; from *D. cyanochloris* in having more dentary teeth (24 – 27 vs. 20 – 23), and in having a stronger (larger and longer) body, further, *D. cyanochloris* has distinctly bluish flanks; and from *D. tristis* in having a distinct, broad postocular stripe, more maxillary teeth (24 – 25 vs. 17 – 22), more supralabials in contact with the eye (4 – 6, rarely 5 – 6 vs. 5 – 6), and in having strongly enlarged, and compared with the other dorsals, partly only feebly lighter vertebrals in the neck region, further, the eyes of *D. tristis* are often

Fig. 3. *Dendrelaphis ngansonensis* (ZFMK 71698) from Chin Xai. Photograph by T. Ziegler.

Fig. 4. Portrait of ZFMK 71698. Photograph by T. Ziegler.

Fig. 5. Tongue-flicking *Dendrelaphis ngansonensis* (ZFMK 68540) from Tam Dao in defensive position. Note the light scale edges of the intlated neck. Photograph by G. Vogel.

yellowish framed. Last, *Dendrelaphis ngansonensis* together with *D. caudolineatus* currently are the largest bronzebacks of the species listed above.

As additional comments Bourret (1935) mentioned only the height of 700 m a.s.l., at which the holotype of *Dendrelaphis ngansonensis* was collected. Herein we are able to provide first data about the habitat of this poorly known bronzeback snake. In the Ky Anh – Ke Go protected area in Ha Tinh province the specimen ZFMK 71698 was collected in early August 1997 (end of dry season) at about 170 m a.s.l. in the humid forest area of "Chin Xai" (Vietn.: "nine waterfalls"). The female was found at daytime in the semi-evergreen tropical lowland humid forest (~200 – 300 m away from a clearing, Fig. 7) in the dense undergrowth in about 1 m height (Fig. 8). A further specimen from Ha Tinh province (ZFMK 71699) was found according to Dr. Hoang Xuan Quang at about 200 m a.s.l. in the humid forest. The female specimen MTKD 39427, killed on the road at Cuc Phuong National Park in late June 1996, contained four large, elongated, about 3.8 × 1.3 cm, eggs.

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TABLE 2. Scale Counts of 13 South East Asian *Dendrelaphis* Species

Dendrelaphis species	Dorsals	Ventrals	Anal	Subcaudals	Supralabials	Supralabials touching orbit	Loreal	Preoculars	Postoculars	Posterior temporals	References
bifrenalis	15	154 – 176	+	144 – 175	9	4 – 6	2			1 – 2	Wall, 1921; Smith, 1943
caudolineatus	13	171 – 188 159 – 190[1]	+	100 – 170 91 – 114[1]	9 (10[1])	5, 6	1	1	2	2 (1)	Taylor, 1965; Tweedy, 1983; Cox, 1991
caudolineolatus	13	149 – 175	+	111 – 129	8 (9)	4, 5 (5, 6)	1			1 – 2	Wall, 1921; Meise and Henning, 1932; Smith, 1943
cyanochloris	15	175 – 211	+	125 – 159	9 (8, 10)	4 – 6	1				Wall, 1921; Meise and Henning, 1932; Smith, 1943
formosus	15	174 – 205	+	132 – 158	9 (8)	(4), 5, 6	1	1	3 (2, 4)	2	Meise and Henning, 1932; Taylor, 1965
gorei[2]	13	187 – 199	+ (–)	139 – 154	8 (9)	4, 5	1	1	2	1	Wall, 1910, 1921; Smith, 1943
grandoculis	15	167 – 189	+	167 – 189 117 – 124[5]	9	4 – 6	1			1 – 2	Wall, 1921; Meise and Henning, 1932; Smith, 1943
inornatus[3]	15	186 – 199		132 – 153	9 – 10						Meise and Henning, 1932; How et al., 1996
oliveri	15	173	+	134	9	4 – 6	0	1	2		Taylor, 1950
pictus	15	151 – 204[4] 166 – 189[1]	+	122 – 174[4] 139 – 169[1]	9 (8, 10, 11)	4 – 6 5 – 6	1	1 (2[1])	2 (1 – 3[1])	1 – 2	Meise and Henning, 1932; Mertens, 1934; Pope, 1935; Smith, 1943; Taylor, 1965; Leviton, 1968; Tweedy, 1983
striatus	15	152 – 163	+	103 – 142	8	4, 5	1	1	2		Vogel, 1995
subocularis	15	153 – 185	+	74 – 105	7 – 8	4 or 5	1			2	Wall, 1921; Smith, 1943; Taylor, 1965
tristis	15	163 – 205	+	105 – 150	9 (8)	5 – 6	1	1	2	2	Wall, 1921; Meise and Henning, 1932; Mertens, 1934; Smith, 1943

Abbreviations: anal divided (+), single (–).
[1] From the Philippines (see Leviton, 1968); [2] Including *biloreatus*; [3] including *timorensis*; [4] might include other species, formerly regarded as conspecific with *D. pictus*; [5] Meise and Henning, 1932.

TABLE 3. Teeth, Existence of Lateral Stripe, Coloration of Skin between Scales, and Total Lengths of 13 South East Asian *Dendrelaphis* species

Dendrelaphis species	Maxillary teeth	Palatine teeth	Pterygoid teeth	Dentary teeth	Lateral stripe	Skin	Total length, mm	References
bifrenalis	22 – 25	10 – 14	21 – 27	23 – 27	(faint)		1030	Wall, 1921
caudolineatus	18 – 23					white (?)	1500	Tweedy, 1983; Kahn, 1988; Vogel, 1990
caudolineolatus	28 – 33	18 – 21	32 – 34	27 – 30	distinct		876	Wall, 1921; Meise and Henning, 1932
cyanochloris	20 – 21	13 – 14	18 – 26	20 – 23	absent	blue	1087	Wall, 1921; Vogel, 1990
formosus					absent	red/blue		Vogel, 1990
gorei[1]	24 – 25	13 (?)-15	21	24 (?)-25	weak		699	Wall, 1921
grandoculis	29 (?)				absent			Wall, 1921
inornatus[2]	20 – 22				absent-faint	blue		Meise and Henning, 1932
oliveri					distinct			Taylor, 1950
pictus	19 – 28	14 – 18	24 – 29	22 – 29	distinct	blue	1343	Wall, 1921; Mertens, 1934
striatus						yellow/blue		Vogel, 1990
subocularis	18 – 22				buff		820	Wall, 1921; Meise and Henning, 1932
tristis	17 – 22	11 – 14	19 – 30	20 – 25	distinct	blue/purple	1320	Wall, 1921; Mertens, 1934

[1] Including *biloreatus* (with distinct lateral stripe); [2] including *timorensis*.

Fig. 7. *Dendrelaphis ngansonensis* ZFMK 71698 was collected in the humid forest near this clearing in Chin Xai, Ha Tinh province. Photograph by T. Ziegler.

Fig. 6. Distribution of *Dendrelaphis ngansonensis* in Vietnam. *1*) Ngan Son (type locality); *2*) Tam Dao; *3*) Cuc Phuong; *4*) approximate location of "Chuc A," Ha Tinh, between Vu Quang and Nghe An; *5*) Chin Xai; *6*) Bach Ma; *7*) approximate location of "Col des Nuages, near Tourane."

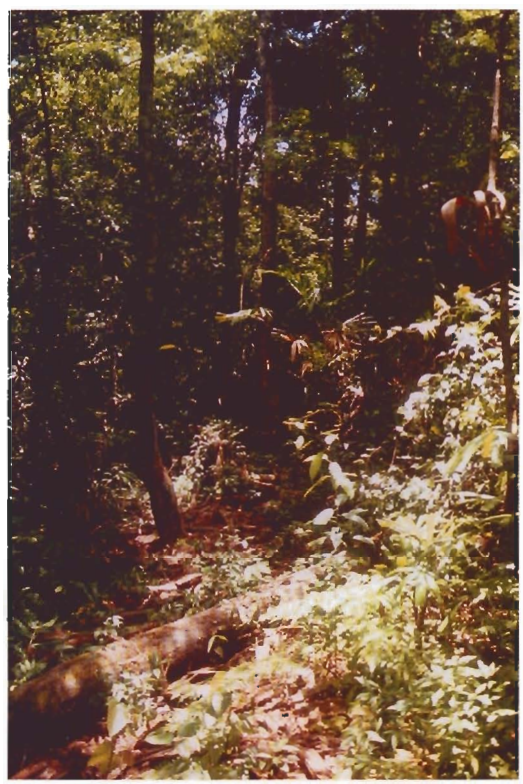

Fig. 8. Biotope of *Dendrelaphis ngansonensis* (ZFMK 71698) in Chin Xai. Photograph by T. Ziegler.

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