

## THE COLUBRID SNAKES OF LAOS

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### PROLOGUE

The following is largely translated from 'Les Serpents du Laos', an important work written by J. Deuve and published by ORSTOM (Paris) in 1970 (with permission). Where more recent work is available the text has been updated. The original work covers all the snakes of Laos with extensive treatment of the venomous species and other interesting sections such as vernacular names and the distribution of ethnic peoples.

### THE SNAKES OF LAOS

Sixty-four species of snake have already been recorded in Laos. Another thirty or so species have been recorded near the borders of Laos, and these are likely to be recorded with the country sooner or later. The species of Laos originate from two faunas: the Indo-Malaysian fauna of the south (Malaysia, south Burma, Thailand, Cambodia, South Vietnam) and the Palearctic fauna (China, Himalaya, Assam, north Burma, North Vietnam). In accordance with the geographic configuration, the numbers of species from respective faunas vary quite markedly. The Annam Highlands are inhabited by species of the Palearctic fauna (e.g. *Rhabdophis himalayanus*) at a very low latitude. Whilst, on the other hand, the Mekong valley provides a corridor for species of the Indo-Malaysian fauna to extend further into the north, close to Luang Prabang, or even by the tributaries of the river, up to Xieng Khouang (*Gonyosoma oxycephala*, *Oligodon herberti*, *Dryophis mycterizans*, *Agkistrodon rhodostoma*). In the province of Vientiane, over thirty species have been identified, 17 species have an Indo-Malaysian dominance, five species a Palearctic dominance and eight species show a large extension of the range from the north Indo-Malaysian fauna. A short distance along the Mekong valley up to a latitude of 19° north (between Vientiane and Luang Prabang) the fauna is Indo-Malaysian. In the mountains, the provinces of Namtha, Phong Saly, SamNeua, clearly have a predominantly Palearctic fauna. The provinces of Attopeu, Saravane, Pakse and Savannakhet have a predominantly Indo-Malaysian fauna. The provinces of Xieng Khouang, Vientiane and Takhek have faunas predominantly one or the other, depending on the locality.

Of the sixty-four species identified in Laos, nine species are extremely venomous: *Bungarus fasciata* and *Bungarus candidus*, *Naja naja* and *Naja hannah*, *Calliophis maculiceps* and *Calliophis maccllelandi*, *Agkistrodon acutus* and *Agkistrodon rhodostoma*, *Trimeresurus gramineus*. Seven other species from the subfamily *Boigines* have venomous fangs situated at the rear of the mouth and are occasionally dangerous; the venom of the others is not virulent (*Boiga*, *Chrysopelea*, *Dryophis*, *Psammodynastes*). Finally, four species of the sub-family *Homalopsines* have equally venomous rear fangs but present no danger to a healthy adult. Up to

now the longest snake scientifically measured in Laos is 5.05 m (*Python*), although reports are sometimes received of individuals measuring 7 m. Errors are frequently made when measuring the length of a snake skin after skinning. The length of a skin can increase by 20% after tanning. It is difficult to precisely measure the length of the smallest. When they leave the egg, the snakes are very small (sometimes centimetres for the *Typhlopidae*). Laos has a greater proportion of large individual snakes than neighbouring countries; especially among *Bungarus fasciatus*, *Agkistrodon rhodostoma*, and *Boiga cyanea*. The case is particularly striking in *Elaphe radiata* with a large number of examples attaining 1.8 m, and the proportion of *Chrysopelea ornata* which attains lengths of over 1.2 m.

#### DEFINITIONS USED

Anterior: half towards the snout.  
 Posterior: half towards the tail.  
 Length: total length from the tip of the snout to the tip of the tail, the body stretched out but not distended.

Relationship of length: (length of tail/length of body) is a factor fairly constant within limits for a given species but provides little aid for identification when, in many species, the relationship is different for the young and the adults. This is referred to as relationship A in the text.

Scalation: The difficulty in establishing exact measurements makes use of the relationship between the number of ventrals/number of sub-caudals preferable. This relationship is much more constant and eliminates a large part of the errors in relationship A. This relationship is referred to in the text as relationship B.

In this work the length is generally given in centimetres with the length of the tail in parentheses. Readers should consult other texts such as Wright & Wright (1976) for diagrams of the head plates and scalation referred to in this text.

#### GENUS *ELAPHE*

12-24 maxillary teeth equal length; anterior mandibular teeth longer; head distinct from neck, elongated; eye medium with round pupil; body elongated; 6 species are encountered, or likely to be, in Laos.

The vernacular names are in general Ngou Sa, sometimes Ngou Sing, followed by another qualifying name which varies widely from village to village.

#### Key

1  
 costals in the middle of the body. . . . . 17-19;  
 ventrals . . . . . rounded;  
 anal . . . . . divided;  
 frenal . . . . . 1.  
*Elaphe porphyracea*.

ventrals . . . . . rounded;  
 anal . . . . . divided;  
 frenal . . . . . absent.

*Elaphe leonardi*.

ventrals ..... keeled;  
anal ..... divided;

*Elaphe prasina*.

ventrals ..... keeled;  
anal ..... undivided.

*Elaphe radiata*.

2

costals in the middle of the body ..... 21-27;  
subcaudals ..... 59-84.

*Elaphe mandarina*.

subcaudals ..... 84-115.

*Elaphe taeniura*.

*ELAPHE PORPHYRACEA* (Cantor)

Bourret (1936, 1937) (*Elaphe porphyracea*)  
Deuve (1961) (*Elaphe porphyracea*)  
Tweedie (*Elaphe porphyracea*)  
Bourret (1943) (*Elaphe porphyracea porphyracea*, *Elaphe porphyracea nigrofasciata*)  
Rendahl (*Coluber porphyraceus*)  
Pope (1934, 1935) (*Elaphe porphyracea nigrofasciata*)  
Taylor (*Elaphe porphyracea*)

Rostral noticeably wider than high, visible from above; 2 internasals shorter than prefrontals; frontal wide, roughly equals the distance to the tip of the snout, shorter than the parietals; frenal longer than high; 1 preocular; 2 postoculars; 1+2 temporals; 8(4.5) supralabials; 4(5) infralabials in contact with the anterior chin scales which are longer than the posteriors. 17-19 smooth costals; 109-218 rounded ventrals; anal divided; 48-79 double sub-caudals; length 106 cm; relationship  $A = 0.14$  to  $0.19$ .

General appearance.

Two subspecies are found in Laos, both in mountainous regions.

*Elaphe porphyracea porphyracea*

Top brown, red, pale greyish or ochre, with 7 to 13 transverse bars on the back and 1 to 4 on the tail. These bars are made up of 2 black transverse lines edged by a thin light strip at the base. Between these two lines is the ground colour. These bars stop at the ventrals. The width of the bars reaches 4 to 6 scale lengths. Towards the posterior these bars become irregular and vague. In the posterior part of the body a black longitudinal line on each flank is interrupted by the transverse bars.

Head brown-red or light brown. One thin black line runs down the length of the head in the middle. One thin black line on each side of the head, going from the eye to the neck.

Vent yellowish.

*Elaphe porphyracea nigrofasciata*

Coloration and pattern resembles *Elaphe porphyracea porphyracea*. The difference between the two subspecies is the continued presence of the black longitudinal line on both flanks from the neck to the tail.

Distribution in Laos.

*Elaphe porphyracea porphyracea* is found in the mountains of North Laos (Xieng Khouang and Sam Neua). *Elaphe porphyracea nigrofasciata* is found between Xieng Khouang and Paksane, in the mountains of the upper Nam Nhiep region.

Distribution.

The area of the species comprises South China, Formosa, Hainan, North Burma, Assam, Eastern Himalayas, Thailand, Indo-Malaysian Archipelago, Malaysia, mountains of North Vietnam. The subspecies *nigrofasciata* is known from South China.

*ELAPHE LEONARDI* (Wall)

Bourret (1936, 1937, 1939(a)) (*Elaphe leonardi*)  
Bourret (1943) (*Elaphe leonardi chapa*)

Rostral very visible from above; 2 internasals shorter or roughly equal in length to the prefrontals; frontal base wide, entering fairly deeply into the occipitals; frenal absent; 1 preocular; 2 postoculars; 2(1)+2 temporals; 7(3.4) supralabials; 3 or 4 infralabials in contact with the anterior chin scales which are much longer than the posterior. 17-19 smooth or keeled costals; 204-223 rounded ventrals; anal divided; 40-56 double sub-caudals; length 92.7 cm; relationship  $A = 0.14$  to  $0.16$ .

General appearance.

The head is light brown or brown-red. A light patch in the shape of a 'V' of which the arms leave the prefrontals and the point reaches the nape of the neck.

The body has a brown or reddish-brown base (red in young specimens), 25-30 purplish-red patches, lighter in the middle. Between 5 and 8 of these patches on the tail. The patches are all edged with black. The patches cover the back and the sides and stop at the ventrals. Small patches of the same colour between these larger patches, on the sides. Young specimens have saffron-coloured patches.

The vent is yellowish, with black patches of varying clarity.

Distribution in Laos.

Not yet recorded in Laos, this snake is likely to be seen in North Laos.

Distribution.

North Vietnam, Burma, Assam.

*ELAPHE PRASINA* (Blyth)

Bourret (1936) (*Elaphe prasina*)  
Tweedie (*Elaphe prasina*)  
Rendahl (*Coluber prasinus*)

Rostral visible from above; internasals wider than they are long or as wide as they are long; frontal longer than wide, as long as the distance to the tip of the snout, shorter than the parietals; 1 frenal; 1 preocular; 2 postoculars; 2 (1)+2 temporals; 9 (4.5.6) supralabials, sometimes 9 (4.5.6) on one side and 10 (5.6.7) on the other; 5 infralabials in contact with the anterior chin scales which are longer or roughly the same length as the posterior. 17-19 smooth or keeled costals; 191-208 laterally keeled ventrals; anal divided; 91-111 double sub-caudals; length 114 cm; relationship A = 0.23 to 0.28.

General appearance.

Bright green. Vent green-white or pale yellow.

Distribution in Laos.

Not yet recorded in Laos. Arboreal. Could be seen in North Laos.

Distribution.

Malaysia, North Vietnam, Yunnan, Burma, Assam.

*ELAPHE RADIATA* (Schlegel)

Bourret (1936, 1937, 1941, 1943)	( <i>Elaphe radiata</i> )
Gharpurey	( <i>Coluber radiatus</i> )
Tweedie	( <i>Elaphe radiata</i> )
Taylor	( <i>Elaphe radiata</i> )
Deuve (1961, 1962 (a), 1962 (b), 1963)	( <i>Elaphe radiata</i> )
Rendahl	( <i>Coluber radiatus</i> )
Boulenger	( <i>Coluber radiatus</i> )
Curran	( <i>Coluber radiatus</i> )

Head distinct from neck; eye small, medium in young; pupil round; nostril line enters both nasals; rostral wider than it is high, visible from above; internasals as wide as they are long but shorter than the prefrontals; supraoculaires as wide as the frontal in the middle; frontal a little longer than it is wide, longer than prefrontals, shorter than distance to tip of snout (rarely longer), shorter than the parietals, generally with a wide anterior base; frenal longer than it is high; 1 large preocular; 2 postoculars; in general 2+2 temporals, sometimes 2+3, occasionally 1+2+2; It often shows dissymetry (1+2 and 2+2 or 2+2 and 2+3 or 1+2 and 2+3); 8 or 9 supralabials, (3.(4.5) or (4.5) or (4.5.6) or (5.6.7) or dissymetry); 9-12 infralabials of which 4 or 5, rarely 6 (occasionally the number is different on each side) are in contact with the anterior chin scales which are almost as long, or longer, than the posterior.

Scales: (17) 19 (21) - 19 - 17 (15). In the posterior half of the body the scales are generally keeled on the back and smooth on the sides. In the anterior half of the body the scales of the back and the flanks are smooth. At the level of the anal scale, the scales of the back and flanks are sometimes entirely keeled, except the outer. The scales of the upper part of the tail are generally smooth or very slightly keeled.

209-257 ventrals with a lateral keel that is obtuse or very obtuse (average in Laos 230-253); single anal; 77-108 sub-caudals (average in Laos 86-104); relationship A = 0.16 to 0.22 (the tail accounts for 1/4 to 1/6 of the total length of the snake; in the young the relationship sometimes attains 0.26; maximum length recorded 200 cm; maximum in Laos 191.3 cm (male from Paksane); specimens of 180 cm are frequently recorded; relationship B is almost entirely in the range 2.2 to 2.7; a higher figure indicates damage to the tail which is not uncommon.

### General appearance.

The head is brown, ochre or orange; 3 black lines radiate from the eye; black collar on the neck. Back and flanks brownish changing to grey at the posterior; wide black longitudinal stripes on the flanks. Vent white or yellow changing to grey-blue at the posterior.

Head: all specimens collected in Laos in the Mekong valley and its tributaries are the same characteristic colour, whatever the season, sex or environment. The essential characteristic is the presence of 3 black lines radiating from the eye. One line leaves the eye and reaches the infralabials more or less vertically; one line leaves the eye at 45° and joins the supralabials near the corner of the mouth; one line leaves the eye horizontally along the parietals where it crosses the supratemporals and joins the black collar on the neck, which is broadest at the nape. In general, 2 fine black longitudinal lines start at the collar (1 each side of the body) and disappear about 20 scales along the nape. Some specimens have black borders on the anterior of the parietals. The cephalic plate is vivid orange (young individuals), ginger, reddish brown, dark brown or dark ochre. The sides of the head are light. The supralabials are clear fawn, yellowish, brown-yellow or dirty yellow. The infralabials are dirty white, pale yellowish or very clear brown. The chin is white or creamy-white. The iris is yellow.

Body: the anterior back and flanks are reddish, light brown, light sienna or greyish brown, gradually changing to olive-grey, brown-grey, pale blue-grey or even purplish in the posterior part of the body. These colours are often paler at the base of the flanks. The general colouration of the snake often appears as blue or pale blue-grey with black longitudinal stripes. 3 black longitudinal stripes on each flank disappearing towards the posterior, sometimes within the first quarter of the body's length, which are often interrupted or discontinued. Starting from the ventrals there is: the first stripe overlapping the outer borders of the ventrals and the outer costals, the second band occupying 1 or 2 costals (on the third and fourth costals in general) and a third band between 3 and 5 scales wide generally occupying the costals 6 to 8 starting from the ventrals. The interstitial skin between the costals is dark grey, greyish or bluish.

Ventrals: the ventrals are white, yellowish or pale olive towards the anterior, becoming more and more stained with a bluish-grey. Posteriorly, the ventrals are clear grey-blue, marbled grey or clear slate-grey, the centre much clearer than the outer borders.

Tail: the greater part of the tail is brown, dark brown or brown-grey. The sub-caudals are yellowish, clear brown or brownish-yellow.

## DESCRIPTION OF *ELAPHE RADIATA* YOUNG

1

The general colouration of the head and body is brown-red to brown (posteriorly). The sides of the head are brown-yellow or yellow (supralabials). The underside of the head is whitish-yellow, the ventrals and sub-caudals are yellow anteriorly changing to brown then fiery brown on the tail.

The markings of the head are the same as those of the adults (three lines radiating from the eye and a thin black collar).

2

The markings of one flank comprise:

- a: A first black longitudinal line is situated near the vertebral column which only appears 3 or 4 head lengths after the neck, irregular, interrupted by white transverse bars. This line becomes progressively, developing a longitudinal white line within it, then it disappears.

- b: A black longitudinal line made up of elongated patches, (at intervals of 4 to 5 and then 5 to 6 scales) more or less bordered by white. In the posterior the black patches become thinner and disappear.
- c: A longitudinal line of little black elongated patches, bordered by white, which rapidly disappear.
- d: As the black lines get thinner and disappear the white transverse marks (every 5 or 6 scales) become more distinct and remain after the disappearance of the black bands, in the form of more or less regular white transverse bars. They also disappear towards the posterior.

Vernacular names.

Mekong Thai and North Thai: Ngou Sing Sa (Luang-Prabang). Ngou Sa Pouak (north province of Vientiane). Ngou Pouak, Ngou Sing and Ngou Sa (commonly used almost everywhere).

Distribution in Laos.

This snake is encountered on all plains (Mekong and tributaries) and on the high plateaus up to an altitude of 1200 m (Xieng Khouang and Pak Song). Examples from the Mekong valley show a remarkable consistency as much in their patterning as in the characteristics of their scales.

Distribution.

East Himalaya, Bengal, Assam, India, South China, Thailand, Burma, Malaysia, Java, Sumatra, Cambodia, South Vietnam and the plains of North Vietnam.

Observations.

*Elaphe radiata* is generally encountered near human habitation including gardens, paddy fields, hen houses and the roofs of houses. This snake lives in barns, in holes at the bottom of trees and in wood piles. It hunts rodents, climbs well and is a big predator of bird eggs and chicks. It is equally active day and night. If attacked it angers easily and strikes. The young have been captured several times, in the town of Vientiane, hiding in the bottom of wardrobes; one of them bit a person rummaging in their wardrobe. It is the species of *Elaphe* most frequently encountered on the plains. Young aged 1 to 3 months have only been found during August and September (the 'Rainy Season'). At hatching, the young measure 15 cm long. They can attain a length of 48 cm in 2 months. According to Curran and Kauffeld, *Elaphe radiata* may inflate the neck region.

*ELAPHE MANDARINA* (Cantor)

Bourret (1936, 1937, 1939(b), 1941)

Rostral wider than high, visible from above; 2 internasals shorter than the prefrontals; frontal longer than wide or of a length roughly equal to its width, barely shorter than the parietals; frenal small (sometimes absent or only on one side); 1 preocular; 2 (1) postoculars; 1 (2)+2(3) temporals; (6) 7 (8)(3.4) supralabials; 4 infralabials in contact with the anterior chin scales which are longer than the posterior.

Costals (21)23, 23(21), (21)19(17); 198-241 rounded ventrals; anal divided; 58-84 double sub-caudals; length 164 cm; relationship  $A = 0.16$  to  $0.20$ .

General appearance.

Back scarlet with black markings and a dorsal series of large black lozenge shaped markings with yellow centres. Head brown-red with a black band across the snout, a black band traverses the eyes and a black mark in the shape of a blunted 'V' of which the point is on the posterior part of the frontal with the arms reaching the neck. Vent yellow with black transverse markings.

Distribution in Laos.

This is a snake of the mountains and is encountered at the northern limits of Laos.

Distribution.

North Vietnam, Yunnan, Southeast China, Hainan.

*ELAPHE TAENIURA* (Cope)

(*Elaphe taeniura* and *Coluber taeniurus*)

Bourret (1936, 1937, 1939(a), 1939(b), 1941, 1944)

Deuve (1961)

Loveridge

Taylor

Tweedie

Rostral wider than high, visible from above; 2 internasals slightly wider than long or width roughly equal to length; frontal longer than wide, shorter than the parietals or equal; frenal longer than high; 1 preocular, with a subocular or 2 preoculars; 2 postoculars; 2+2(3) temporals; 9(8)(5.6, 4.5 or 4.5.6.) supralabials; 5 or 6 infralabials in contact with the anterior chin scales which are longer than the posterior.

21-27 smooth or keeled costals, mostly 23 or 21; 225-290 ventrals, angular on the side; anal divided; 84-123 double sub-caudals; length 260 cm; relationship  $A = 0.17$  to  $0.24$ .

General appearance.

Head olive. Black band starts at the frenal, traverses the eye and covers the temporals. Back and flanks ash-grey. In the front third of the body there are black 'H' markings along the back, on the flanks the black markings form elongated ovals. These marks disappear to give rise to a blackish longitudinal stripe on each flank. The entire length of the tail is covered by 2 black bands on each side separated by an area of yellow-olive or yellow-grey.

Observations.

This snake may give out a sound similar to meowing.

Distribution in Laos.

Northeast provinces of Xieng Khouang, Sam Neua, Phong Saly.

Distribution.

Manchuria, Sikkim, Siberia, Korea, Burma, Yunnan, Southeast China, Hainan, Thailand, Malaysia, Indo-Malaysian Archipelago, Japanese Archipelago, North Vietnam.



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