Zoosyst. Evol. 91 (1) 2015, 71–80 | DOI 10.3897/zse.91.4971

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museum für naturkunde

Systematics and ecology of *Oligodon sublineatus* Duméril, Bibron & Duméril, 1854, an endemic snake of Sri Lanka, including the designation of a lectotype

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http://zoobank.org/8D420E93-4EA6-4CD7-9885-F522A0296288

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Received 24 March 2015
Accepted 25 March 2015
Published 22 April 2015

Guest academic editor:
Johannes Penner

Key Words

Colubridae
distribution
kukri snake
natural history
systematic
taxonomy
Sri Lanka

Abstract

The description of *Oligodon sublineatus* Duméril, Bibron & Duméril, 1854 was based on two syntypes located at Paris Natural History Museum (MNHN). The larger specimen (SVL 254 mm) was described in detail, but erroneously labelled as originating from the Philippines, the second specimen (SVL 150 mm) was labelled as originating from 'Ceylan' (=Sri Lanka). The smaller specimen, up to this point, has always been considered as the holotype by monotypy. Since recognising the larger specimen in the collection of MNHN as a syntype, we hereby designate it as the lectotype of *Oligodon sublineatus* and redescribe comprehensively both syntypes. *Oligodon sublineatus* (SVL 152–310 mm) has 130–161 ventral scales, 23–42 divided subcaudals, a divided anal plate, a loreal, seven supralabials, and 1+2 temporals. Furthermore, we provide a detailed account of the distribution and natural history of this widely distributed Sri Lankan endemic snake.

Introduction

The colubrid genus *Oligodon* Fitzinger, 1826 is currently known to include 75 valid species (Uetz and Hallermann 2014, 1st September 2014). Only four species have been recorded from Sri Lanka: *Oligodon calamarius* (Linnaeus, 1758); *Oligodon arnensis* (Shaw, 1802); *Oligodon taeniolatus* (Jerdon, 1853); and *Oligodon sublineatus* Duméril, Bibron & Duméril, 1854. Following the description of *Oligodon sublineatus* in 1854, this species has since been recorded from various locations in Sri Lanka (Boulenger 1890, 1894; Wall 1921; Smith 1943; Deraniyagala 1955; Taylor 1953; De Silva 1980; de Silva 1990; Das and de Silva 2005; Somaweera 2006; Green 2010; Green et al. 2010; David and Vogel 2012; Deepak and Harikrishnan 2013; Pyron et al. 2013). The original description of *O. sublineatus* was clearly based on two syntypes, the first and larger of the two having no collector details associated with it, and labelled as coming from the Philippines, obviously in error. The second syntype came from Ceylan (= Ceylon) and was collected by Leschenault according to the original description. The larger specimen (MNHN 3238) has been correctly identified as *O. sublineatus* in the MNHN collections but,

until now, was not recognized as a syntype. However the smaller specimen (MNHN 3239) has been mistakenly considered as the holotype by Wallach et al. (2014). We have identified the large specimen as being one of the syntypes, so we hereby designate it as a lectotype, and redescribe it in detail in order to stabilize that name with a recognised type specimen.

Methods

Museum acronyms follow Sabaj Pérez (2014). Specimens were examined in the collections of the British Museum of Natural History, UK (BMNH); Muséum national d'Histoire naturelle, France (MNHN); Naturhistorisches Museum Basel, Switzerland (NMB); and National Museum of Sri Lanka (NMSL). Morphometric and meristic data for species comparisons were obtained from examined specimens (see Appendix 1). We checked the external morphology of specimens with a Wild M3Z stereomicroscope and photographed them with a Canon EOS 7D SLR digital camera. The map was constructed based on Cooray (1967). The conservation status of the species was evaluated using Red List Categories and Criteria in IUCN Standards and Petitions Subcommittee (2013: version 10.1) to assess their risk of extinction. Sex was determined by ventral tail incision of adult specimens followed by the checking for the presence or absence of hemipenes. All the natural history data were taken from our own field observation notes made during the last ten years.

The following characters were measured with a digital caliper (±0.1 mm) on the left side of the body for symmetrical characters: eye diameter (ED, horizontal diameter of eye); eye–nostril length (EN, distance between anterior most point of eye and middle of nostril); snout length (ES, distance between anterior most point of eye and snout); nostril diameter (ND, horizontal diameter of nostril); internarial distance (IN, least distance between nostrils); mandible–posterior eye distance (MPE, distance between posterior edge of mandible and posterior most edge of eye); interorbital width (IO, least distance between upper margins of orbits); head length (HL, distance between posterior edge of mandible and tip of snout); head width (HW, maximum width of head); snout–vent length (SVL, measured from tip of snout to anterior margin of vent); tail length (TAL, measured from anterior margin of vent to tail tip). Meristic characters were taken as follows: supralabials and infralabials (SUP and INF, first labial scale to last labial scale bordering gape); costal scales (COS, counted around the body from one side of ventrals to the other in three positions, on one head length behind neck, at mid body and at one ventral scale prior to preanal); when counting the number of ventral scales (MVS), we scored specimens according to method described by Dowling (1951). We counted subcaudal scales (SUB) from first postcloacal scale to the scale before the tip of the tail.

Results

Oligodon sublineatus Duméril, Bibron & Duméril, 1854

Figs 1–3; Tables 1, 2

Remarks. Standard morphometric and meristic data of the two syntypes are presented in Table 1. We hereby recognise two syntypes: the larger specimen (MNHN 3238) and the smaller specimen (MNHN 3239). Uncertainties still exist in *Oligodon* taxonomy and *O. sublineatus* may represent a cryptic species complex in Sri Lanka (see table 2 showing the wide range of subcaudal and ventral counts within *O. sublineatus*), therefore it is necessary to stabilize the name with a recognised lectotype. There are two main reasons for selecting MNHN 3238 as the lectotype: (1) it was used in the original description and its morphometric data has been provided and (2) it is a fully grown, well-developed and well preserved adult specimen in good shape.

Lectotype (here designated)**.** MNHN 3238, adult female collected from the Philippines (mistakenly so in the original description) [from Java (also in error) according to the museum registry] by an unknown collector [by Bosc (in error) according to the museum registry].

Paralectotype. MNHN 3239, sub adult male collected at 'Ceylan' [= Sri Lanka] by Leschenault. This specimen was previously erroneously considered as the holotype by Wallach et al. (2014).

Diagnosis. *Oligodon sublineatus* shows sexual dimorphism in scalation (Table 2) and is distinguished from all congeners by the following characters: SVL 152–310 mm; TAL 20.0–42.0 mm; 130–161 ventrals; 23–42 subcaudals (divided); anal plate divided; loreal present; seven supralabials; temporals 1+2; ventral side with three series of dark brown points forming almost continuous stripes, with the middle series of points absent on the tail; dorsal coloration (live or in alcohol) greyish brown, speckled with small elongated spots irregularly placed; posterior part of the jaws has a large, oblique spot extending along the neck posteriorly; dorsally a "^" shaped marking between the eyes, which continues laterally across them; an irregular, brown, transversal band from the frontal to the post-parietal region.

English translation of the original French description in Duméril, Bibron & Duméril (1854: 57). Characters. Ventral side with three series of points forming stripes.

This species is mostly characteristic, as its specific name, by having three black stripes along the ventral side, which are made up of a series of points, meeting together. The two stripes outside the ventral plates form a continuous line up to the ventral surface of the tail, but the central one is made up of distinct points in the centre of the ventral plates. These points are quite large, round and wide posteriorly, and are as notched at the front; the median stripe does not prolongate onto the ventral side of the tail.

Figure 1. A live male of *Oligodon sublineatus* (not collected) at Sinharaja Forest Reserve, Sri Lanka (photo: H. Jayasinghe).

Table 1. Morphometric and meristic characters of *Oligodon sublineatus* lectotype (MNHN 3238) and paralectotype (MNHN 3239).

Character	MNHN 3238 Lectotype (female)	MNHN 3239 Paralectotype (male)
snout–vent length (SVL)	254.0	150.0
tail length (TAL)	35.0	27.0
head length (HL)	10.8	8.1
head width (HW)	4.7	4.1
internarial distance (IN)	2.1	1.5
interorbital width (IO)	3.7	3.3
eye–nostril length (EN)	1.9	1.7
eye–snout length (ES)	3.4	2.7
mandible–posterior eye distance (MPE)	5.8	4.1
nostril diameter (ND)	0.3	0.4
eye diameter (ED)	1.7	1.4
costals (COS)	17-15-15	17-15-15
subcaudals (SUB)	28	36
ventrals (MVS)	150	138
supralabials (SUP)	7 (3, 4 touch eye)	7 (3, 4 touch eye)
infralabials (INF)	8	8

Dorsal coloration grey, speckled with lines or with small elongated spots irregularly placed; however, around the anterior third of the body and laterally, three of those spots appear enlarged with increased width, having a circular border. The spots are constricted centrally and have white borders. The posterior section of the jaws has a large, oblique patch along the neck posteriorly where it forms a tip pointing in the opposite direction to the characteristic collar of the first species [note from the translator: *Oligodon sub-quadratum*].

Dorsal scales are very smooth, and are close to each other; they are slightly overlapping, like roof tiles, mostly around the tail area, and in this respect, very skink-like in appearance.

Rostral plate is notched, and crescent shaped; other plates covering the head are large and clearly distinct as in colubrids.

We were only able to examine one well preserved specimen, having no clues as to the origin of the specimen [the Philippines] and the name '*Oligodon torquatus'* appears along with the letter "R" on the jar.

Another specimen, younger and obviously added much later, had a median stripe made up of numerous spots which were less distinct, was collected from Ceylan by Mr. Leschenault. This specimen bears all the characters previously described: the large, brown, post-maxillary mark set posteriorly on the neck forming a croissant shape; with a laterally set, black mark extending onto the anterior third of the body.

We counted 15 scale rows on that specimen, 155 ventrals and 25 subcaudals.

Total length was 180 cm [sic]; among them 155 for SVL and 25 for the tail.

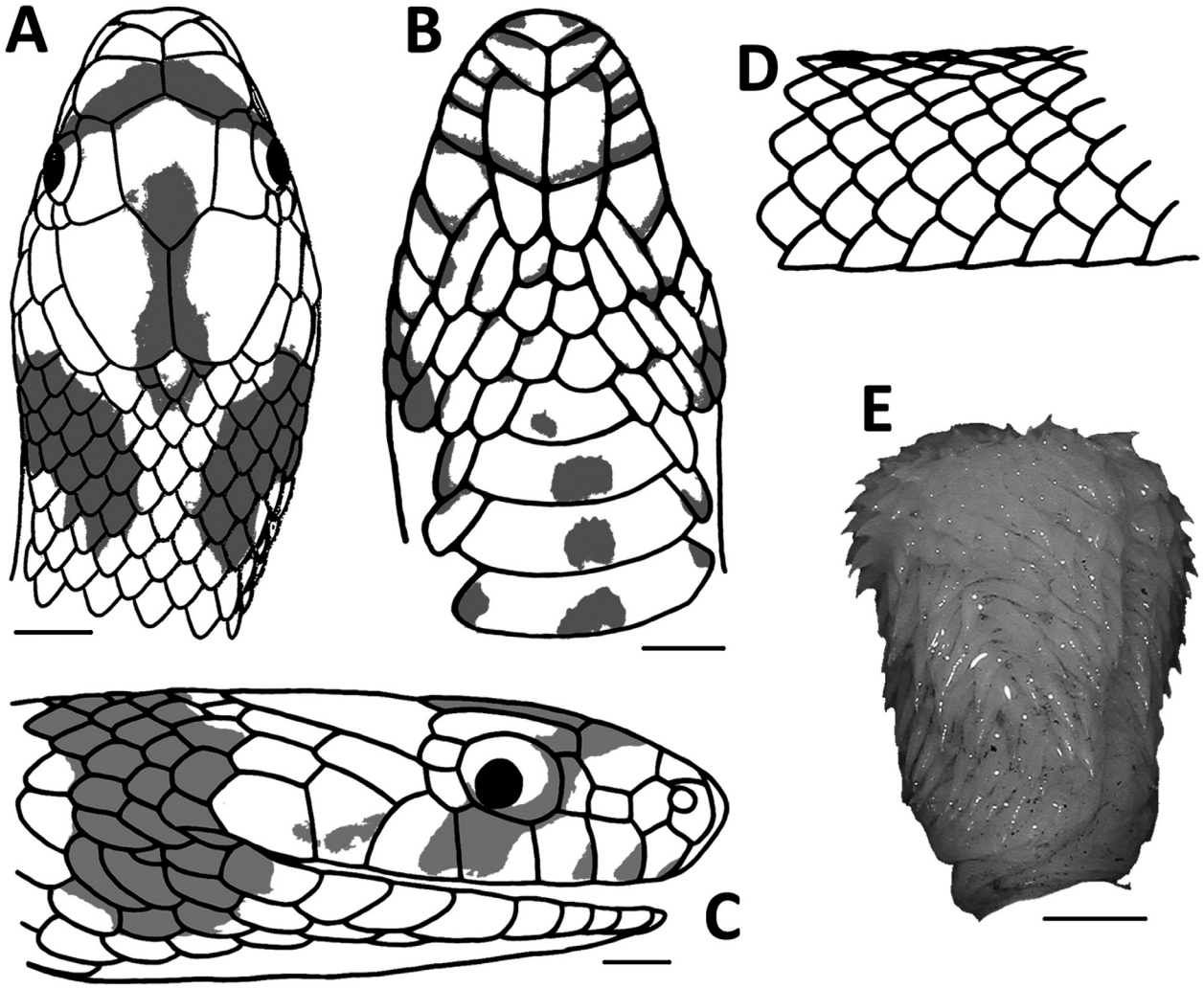

Figure 2. *Oligodon sublineatus* male, NMSL 5161 collected from Nuwara Eliya (1600 m a.s.l.), Sri Lanka: **A** dorsal aspect of head **B** ventral aspect of head **C** lateral aspect of head **D** lateral aspect of midbody **E** dorso-lateral aspect of right hemipenis (scale = 1 mm).

Table 2. Some sexual dimorphic characters of *Oligodon sublineatus* based on examined material. See Methods for abbreviations.

sex	SVL (mm)	TAL (mm)	VEN	SUB
male	152.0–227.0 (*n*=12)	25.0–38.0 (*n*=12)	135–151 (*n*=18)	30–42 (*n*=18)
female	156.5–295.0 (*n*=17)	20.0–42.0 (*n*=17)	145–159 (*n*=21)	24–29 (*n*=21)

Description of the designated lectotype, MNHN 3238. Adult female, SVL 254 mm; tail length 35 mm; head elongate (HL 4.3% of SVL), twice as long as wide (HW 43.5% of HL), slightly flattened, distinct from neck; snout elongate (ES 31.5% of HL), moderate, blunt in dorsal view, rounded in lateral profile, forming an oval shape, rather depressed.

Rostral shield large, hemispherical, distinctly visible from above, pointed posteriorly; interorbital width broad (IO 78.7% of HW); internasals semicircular; nostrils rather large; nasals completely divided by nostrils into two scales unequal in size; anterior nasal larger, in anterior contact with rostral, internasal dorsally, 1st SUP ventrally; posterior nasal in contact with internasal and prefrontal dorsally, loreal posteriorly, 1st and 2nd SUP ventrally; prefrontal rather large, broader than long, and subhexagonal; frontal large, subhexagonal, elongate posteriorly and longer than its width; supraoculars narrow, elongated, subrectangular, posteriorly wider; parietals large, butterfly wing-like in shape, bordered by supraoculars, frontal, upper postoculars anteriorly, anterior and upper posterior temporals, and six dorso-nuchal scales posteriorly; loreal large, slightly elongated, subrectangular, in contact with prefrontal dorsally and preoculars posteriorly, ventrally only touching the 2nd SUP; one preocular (both sides), vertically elongated, subrectangular, in contact with prefrontal and loreal anteriorly, supraocular dorsally, and 3rd SUP ventrally; eye moderate (ED 15.7% of HL), ellip-

tical, nearly a half of the size of snout length (ED 50% of ES), pupil rounded; two postoculars, upper postocular smaller, quadrangular, contact with supraocular and parietal broad, in narrow contact with anterior temporal; lower postocular crescent in contact with 4th and 5th SUP ventrally, anterior temporal posteriorly; temporals 1+2, elongated, hexagonal; anterior temporal larger and longer than posterior temporals, in contact with parietal dorsally, 5th and 6th SUP ventrally; posterior temporals smaller, lower one in contact with 6th and 7th supralabials ventrally.

Supralabials 7 (on both sides), 4th–7th larger in size; 1st SUP in contact with rostral anteriorly, nasals dorsally, 2nd supralabial with posterior nasal and loreal dorsally, 3rd SUP with preocular and orbit dorsally, 4th SUP with orbit and the lower postocular dorsally, 5th SUP with lower postocular and anterior temporal dorsally, 6th supralabial with anterior temporal and lower posterior temporal dorsally, and 7th SUP with lower posterior temporal dorsally and body scales posteriorly.

Mental of moderate size, triangular; first infralabial pair larger than mental plate and in broad contact with each other, in contact with anterior chin shield posteriorly; eight infralabials, 1st–5th in contact with first chin shield, 5th infralabial largest in size in narrow contact with the anterior chin shield and in broader contact with the posterior chin shield; 6th–8th infralabials in contact with gular scales; two larger anterior chin shields, and two smaller posterior chinshields all in broad contact; posterior chin shield bordered posteriorly by six gular scales.

Body robust, elongate and sub cylindrical; costal scales in 17-15-15 rows, all smooth and bluntly pointed; 150 ventral scales; anal plate divided. Tail comparatively short (TL 13.8% of SVL), robust and thick; subcaudals 28, divided.

Description of the paralectotype, MNHN 3239, and an additional specimen, NMSL 5161. The values of NMSL 5161 (when different) included within parenthesis. Sub adult male (adult male), SVL 150.0 (183.3) mm; head elongate, HL 5.4 (5.6)% of SVL, twice as long as wide, HW 50.6 (53.9)% of HL, slightly flattened, distinct from neck; snout elongate, ES 31.4 (33.3)% of HL, moderate, blunt in dorsal view, rounded in lateral profile, forming an oval shape, rather depressed.

Rostral shield large, hemispherical, distinctly visible from above, pointed posteriorly; interorbital width broader, IO 80.5% of HW; internasals semicircular; nostrils rather large; nasals divided into two scales unequal in size; anterior nasal larger, in contact with the rostral plate anteriorly, internasal dorsally, 1st SUP ventrally; posterior nasal in contact with internasal and prefrontal dorsally, loreal posteriorly, 1st and 2nd SUP ventrally; prefrontal rather large, broad, and subhexagonal; frontal large, subhexagonal, elongate posteriorly and longer than its width; supraoculars narrow, elongated, subrectangular, posteriorly wider; parietals large, butterfly-like in shape, bordered by supraoculars, frontal, upper postoculars anteriorly, anterior and upper posterior temporals, and six dorso-nuchal scales posteriorly; loreal large, slightly elongated, subrectangular, in contact with prefrontal dorsally, preoculars posteriorly, posterior nasal anteriorly, ventrally just meets the 2nd SUP; one preocular in both sides, vertically elongated, subrectangular, in contact with prefrontal and loreal anteriorly, supraocular dorsally, and 3rd SUP ventrally; eye moderate, ED 17.3 (17.6)% of HL, elliptical, nearly a quarter of the snout length, ED 51.9 (56.2)% of ES, pupil rounded; two postoculars, upper postocular smaller, quadrangular, in contact with supraocular and parietal broad, in narrow contact with anterior temporal; lower postocular crescent in contact with 4th and 5th SUP ventrally, anterior temporal posteriorly; temporals 1+2, elongated, hexagonal; anterior temporal larger and longer than posterior temporals, in contact with parietal dorsally, 5th and 6th SUP ventrally; posterior temporals smaller, lower one in contact with 6th and 7th SUP ventrally.

Supralabials 7 on both sides, 4th–7th larger in size; 1st SUP in contact with rostral anteriorly, nasals dorsally, 2nd SUP with posterior nasal and loreal dorsally, 3rd SUP with preocular and orbit dorsally, 4th SUP with orbit and the lower postocular dorsally, 5th SUP with lower postocular and anterior temporal dorsally, 6th SUP with anterior temporal and lower posterior temporal, and 7th SUP with lower posterior temporal dorsally and body scales posteriorly.

Mental moderate, triangular; first infralabial pair larger than mental and contact with each other broad, in contact with anterior chin shield posteriorly; eight infralabials, 1st–5th in contact with first chin shield, 5th infralabial largest in size in narrow contact with anterior chin shield and contact with posterior chin shield broad; 6th–8th infralabials in contact with gular scales; two larger anterior chin shields, and two smaller posterior chinshields all in broad contact; posterior chin shield bordered posteriorly by six gular scales.

Body robust, elongate and sub cylindrical; costal scales in 17-15-15 rows, all smooth and bluntly pointed; 138 (142) ventral scales; anal plate divided. NMSL 5161 has an everted hemipenis covered by lobes, non-bifurcated, slightly clavate; base naked; *sulcus spermaticus* single and deep; spinous ornamentation present on each lobe, shorter spines at the apex; apex not divided into segments (Fig. 2E); tail comparatively short, TL 18.0 (20.5)% of SVL, robust and thick; subcaudals 36 in both specimens, divided.

Distribution. This species has never been recorded outside of Sri Lanka, hence we here restrict terra-typica to Sri Lanka. Wall (1921), Smith (1943), Deraniyagala (1955), De Silva (1980), de Silva (1990), Das and de Silva (2005), Somaweera (2006), Karunarathna and Amarasinghe (2010, 2011, 2012), Botejue and Wattavidanage (2012), and Karunarathna et al. (2010, 2013) recorded this species from Bellanwila–Attidiya, Beraliya, Colombo, Galle, Gammaduwa (Knuckles), Kitulgala, Kotmale, Kukulugala, Matugama, Nilgala, Peradeniya, Ratnapura, Veyangoda, Welimada, and Yatiyantota (Fig. 3). In addition to the above locations, during our

fieldwork operations of the last decade we have recorded (not collected) *O. sublineatus* from a 10–1600 m altitude range, including all vegetational zones of Sri Lanka: Ambalangoda (6°14'42.35''N, 80°03'44.56''E), Anuradhapura (8°20'46.43''N, 80°25'43.77''E), Atweltota (6°31'33.87''N, 80°18'12.02''E), Baduraliya (6°30'53.70''N, 80°13'41.81''E), Bibile (7°10'58.02''N, 81°13'43.61''E),Chilaw(7°35'11.49''N,79°49'16.54''E), Deniyaya (6°20'11.54''N, 80°34'10.44''E), Elpitiya (6°17'39.31''N, 80°08'44.78''E), Eluwankulama (6°20'11.54''N, 80°34'10.44''E), Gampaha (7°05'03.68''N, 79°58'25.66''E), Habarana (8°11'12.43''N, 80°50'17.89''E), Horana (6°42'24.74''N, 80°03'02.77''E), Illukkumbura (Knuckles) (7°35'46.09''N, 80°46'14.10''E), Kalutara (6°35'13.29''N, 80°58'21.49''E), Kanneliya (6°12'37.49''N, 80°24'04.60''E), Kegalle (7°14'10.26''N, 80°19'57.27''E), Kottawa-Homagama (6°47'07.00''N, 79°57'52.17''E), Kurunegala (7°30'25.80''N, 80°23'46.95''E), Kuruwita (6°46'29.02''N, 80°22'35.50''E), Maharagama (6°50'52.54''N, 79°55'45.54''E), Mahiyanganaya (7°20'06.03''N, 81°00'34.51''E), Matara (5°57'08.63''N, 80°31'59.74''E), Monaragala (6°52'40.25''N, 80°20'27.39''E), Naula (7°44'18.42''N, 80°43'38.22''E), Nugegoda (6°51'35.26''N, 79°53'08.19''E), Panadura (6°42'42.76''N, 79°54'24.44''E), Pidurutalagala (7°01'08.11''N, 80°47'23.47''E), Polonnaruwa (7°56'15.64''N, 81°01'15.38''E), Puttalam (8°02'42.88''N, 79°51'38.84''E), Rakwana (6°28'03.23''N, 80°36'32.84''E), Ritigala (8°12'35.71''N, 80°35'02.78''E), Sinharaja (6°24'59.18''N, 80°24'28.33''E), Tanamalwila (6°27'00.66''N, 81°09'07.66''E), Tissamaharamaya (6°16'52.45''N, 81°16'41.40''E), Trincomalee (8°35'57.38''N, 81°10'15.73''E), Udawalawe (6°26'48.46''N, 80°52'26.25''E), Wasgomuwa (7°43'23.36''N, 80°58'06.01''E), Wilpattu (8°30'51.13''N, 79°57'44.67''E), Yagirala (6°22'47.13'' N, 80°10'23.93'' E) (see Fig. 3 for the distribution map).

The result of the application of the IUCN (2013) B2 a, b (iii) Red List criteria shows that *O. sublineatus* as Least Concern (LC): recorded from an altitude range of 10–1600 m in all vegetation zones of Sri Lanka. Its area of occupancy is 6,000 km^2, and its extent of occurrence is 40,000 km^2.

Natural history. A nocturnal snake, sometimes active during day time. Temperature, humidity, and light intensities for daytime activity were respectively measured at 24.8–27.2 °C, 67–82%, and 38–365 lux, based on 50 observations in dense forested areas. It usually does not bite, but if this does occur then it will lead to soreness, pain and temporary bleeding in the victim. Biting has been occasionally observed during touching or handling attempts by the victim. When frightened, the snake either coils up and hides its head within its coiled up body; or it quickly tries to escape to a safe hiding place inside the leaf litter. When the snake coils, it enlarges its body and displays its vivid skin colours (white, pink and brown), which is visible between the scales around the mid body. We observed, on a number of occasions, the snake practicing thanatosis (death mimicry) for up to 10–15 minutes after carrying out our own handling attempts. Once the snake had noticed that threat had disappeared, it quickly escaped and hid itself in the leaf litter. We have observed this species living in sympatry with other snakes of several families such as *Aspidura guentheri* Ferguson, 1876 (Natricidae); *Hypnale zara* (Gray, 1849) (Viperidae); and *Sibynophis subpunctatus* (Duméril, Bibron & Duméril, 1854) (Colubridae).

Based on our observations, its diet consists mostly of lizards (saurophagy) and small snakes eggs (oophagy), small spiders, beetles, other insects and the larvae of other invertebrates. More specifically, we observed the snake feeding on ground dwelling skinks (*Lankascincus* sp.) and geckos (*Hemidactylus frenatus* and *Cnemaspis* sp.). If the prey is large, the snake wraps itself around it and squeezes it until it suffocates. In captivity, it was fed with jumping spiders, small wild cockroaches, annelid worms, meal-worms, small frogs, and the freshly detached tail tips of geckos.

During the breeding season (May–June) 3–5 individuals can be observed close by and we observed several copulations in the evenings just after dark (18.0–19.0 hrs). The species lays 3–5 eggs at a time on dry, cool, loose soil or under decaying logs on the ground (soil temperature 26.2–27.9 °C; humidity 58–73%; light intensity 0–27 lux, based on observations of 10 ovipositions). Eggs are cream in colour and oval in shape (12–14 mm long and 4–5 mm wide, n = 40). The lectotype MNHN 3238 is a gravid female with three eggs in its genital tract. The incubation period is 38–45 days (based on observations of 10 incubating clutches). We did not see the parents close by during the incubation nor shortly afterwards, indicating the lack of parental care of the eggs or hatchlings. The new born juveniles were 4–5 cm in total length and their body colour varied from dark brown to black. We noticed that ants were their main egg predators on about ten occasions. We also observed on several occasions, this snake attempting to avoid ant-nests when moving or resting.

We have found this species inside termite mounds on many occasions, an observation also made by Smith (1943). This may indicate either a strategy used by the snake to avoid ants (because we never observed ant nests in or around termite mounts) or a neat way for the snake to have instant access to food (may be feeding on termite eggs). Further studies on habitat ecology would be interesting. Even though this is a ground dwelling species, we observed it climbing on rock boulders which have crevices, indicating that this snake may be searching for geckos or their eggs for food. During floods, the snake is usually found off the floor, in trees at 1–2 m above ground level. It is also found deep inside forests, and has been observed under old coconut harnesses, decaying logs on the ground, and inside termite mounds (as mentioned earlier) set in well maintained home gardens.

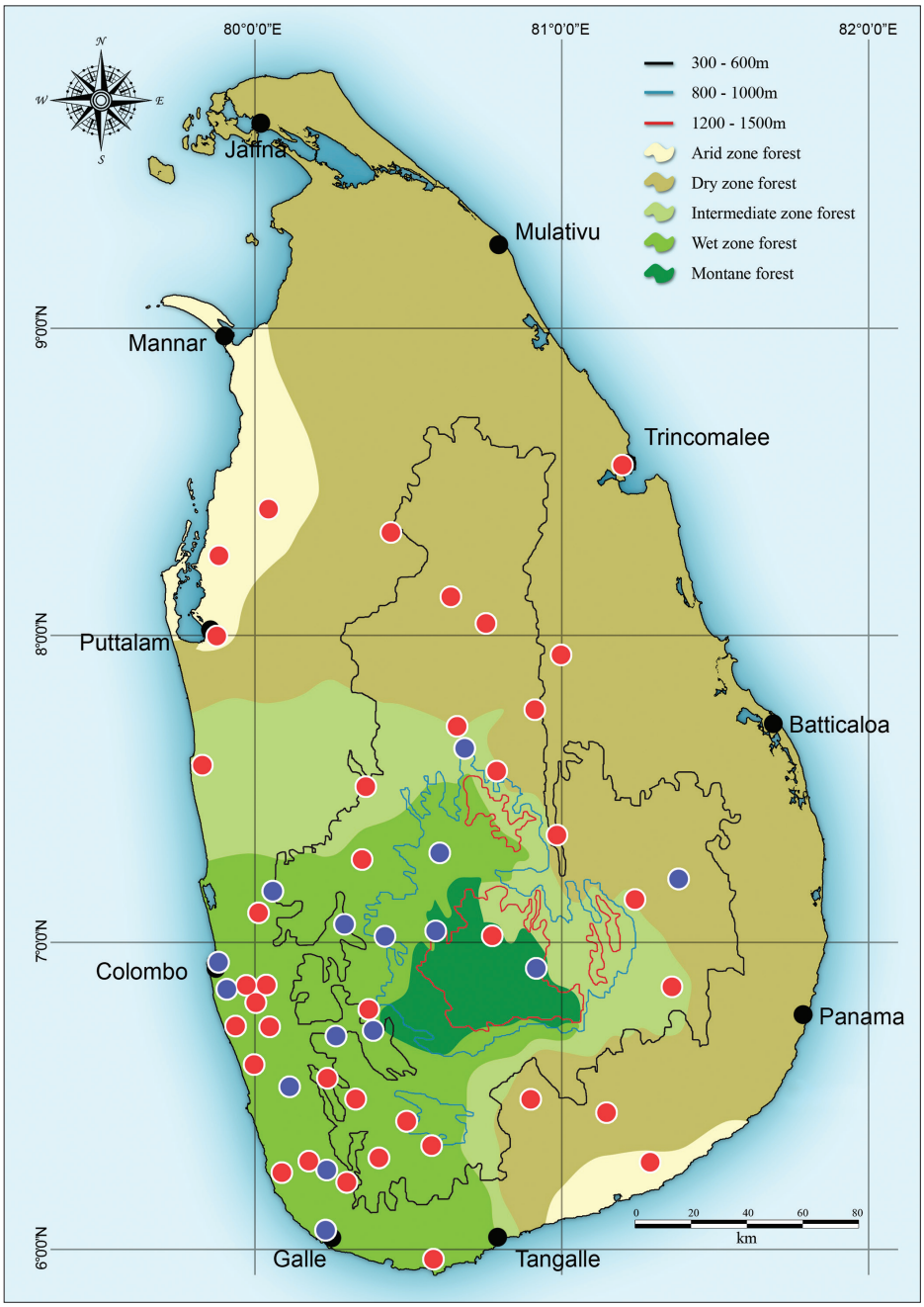

Figure 3. Distribution pattern of *Oligodon sublineatus*: blue dots, previous records and red dots, our observations; major towns are displayed on the map (map source: Cooray 1967).

Road kills are identified as a major growing threat in addition to forest fragmentation and habitat loss. People are also a threat, killing the snake out of fear, believing that it to be venomous, especially because as it displays such vivid head and body colours. We observed natural predators including birds: the yellow-billed babbler [*Turdoides affinis* (Jerdon, 1845)], southern coucal (*Centropus parroti* Stresemann, 1913), common mynah [*Acridotheres tristis* (Linnaeus, 1766)], white-throated kingfisher [*Halcyon smyrnensis* (Linnaeus, 1758)], and the Sri Lankan grey hornbill (*Ocyceros gingalensis* Shaw, 1811); ophiophagous snakes including: two elapids, the Sri Lankan krait (*Bungarus ceylonicus* Günther, 1864), and the Indian krait (*Bungarus caeruleus* Schneider, 1801); and amphibians including forest toads (*Duttaphrynus* sp.). In addition, Karunarathna and Asela (2007), and Karunarathna (2009) have observed the common rat snake (*Ptyas mucosus* Linnaeus, 1758) feeding on *Oligodon sublineatus* and *Oligodon calamarius* (Linnaeus, 1758) in Sri Lanka

Discussion

In the description of *Oligodon sublineatus*, Duméril et al. (1854) clearly states the following “We only have ob-

served one specimen well preserved …..", they further stated "We counted 15 scale rows on that specimen, 155 ventrals and 25 subcaudals". Those counts are in accordance with MNHN 3238 (respectively 150 and 28) hence; we hereby designate it as the lectotype. However, the measurements given in the last line "Total length was 180 cm; among them 155 for SVL and 25 for the tail." is a mistake; we believe that the wrong units of measurements were chosen in error; it should have been in millimeters and not centimeters! In addition, the newly recognized syntype (MNHN 3238) had a total length of about 289 mm with 254 mm SVL and 35 mm for the tail. Again we are making the assumption that Duméril et al. (1854) must have mistakenly typed the total length as "180cm" instead of ~280 mm and "SVL 155cm" instead of ~255 mm (typing a '1' instead of a '2'). Interestingly, the syntype MNHN 3239 (now paralectotype) measured 177 mm total length with SVL 150 mm but its ventral and subcaudal counts do not match those of the original description (respectively 138 and 36 [typical of a male] versus 155 and 25 in the description [typical of a female]). However, the most probable explanation of this is that they mistyped, rather than used (which may seem the obvious explanation here) the measurement of the second specimen, because Duméril et al. (1854) clearly stated that they had examined only one specimen (the largest of both syntypes), even though they compared the colour patterns of both specimens, thus both are here considered as syntypes. Furthermore, the scale counts in the smaller specimen (MNHN 3239) do not match the original scale description of Duméril et al. (1854), and the spots of the larger specimen (MNHN 3238) are much more narrowed towards the middle of the body compared to the spots of the smaller specimen (MNHN 3239), which is in accordance with the details of the examined specimen in the original description. Thus Duméril et al. (1854) made a mistake when describing characteristics of the examined specimens and their ventral and subcaudal counts also reflect the classical mistake often seen when one single, old and very small specimen is examined by many different researchers over time. We have no doubt that MNHN 3238 is the Philippines (in error) specimen of the original description and MNHN 3239 the Ceylan specimen of Leschenault as reported in the original description, both being the only two syntypes of *O. sublineatus*.

To be sure that there are no other specimens which could possibly be a syntype, we examined all the available *Oligodon sublineatus* specimens and all the specimens of *Oligodon* collected from Sri Lanka and the Philippines which were registered on or before 1864 in the MNHN collection (1864 is the date of the oldest handwritten register available for the MNHN herpetological collections). Among the available specimens (except MNHN 3238–39), MNHN 0611, 3537, 5768, 1900.0381–385, and 1900.0381, 1900.0381A–B are *O. ancorus* from the Philippines, MNHN 1012 is *O. modestus* from the Philippines and MNHN 6129 is *O. calamarius* from Sri Lanka. In the 1864 unpublished catalogue, there were five specimens of *O. sublineatus* registered. However out of the three other available specimens of *O. sublineatus* (MNHN 1747, 4234, and 4234A) two do not match the original description. The third specimen MNHN 4234 closely matches the original description, however we believe that it does not qualify as the larger syntype based on the following statement from the original description: "Another specimen, obviously younger, ….." which clearly means that the former specimen is considerably larger (being older by inference, or fully grown), than the latter. The specimen MNHN 4234 is slightly smaller, than the younger specimen (MNHN 3239) of Leschenault. It also has a definite collector's name (Janssen), and a definite locality (Sri Lanka) associated with it. Therefore, we can confidently reject this specimen MNHN 4234 as a syntype and can confirm MNHN 3238-39 as the syntypes of *O. sublineatus*. The location "Philippine" was never included in any of the MNHN registers for *O. sublineatus*, not even in the 1864 register, so it could be that subsequent curators have corrected the error adding "Java, collector Bosc" in the register (which is also wrong). These were probably changed sometime between 1854 and 1864. Therefore, here we correct the locality of the designated lectotype as "Sri Lanka".

Louis-Augustin-Guillaume Bosc (1759–1828) was a French botanist, zoologist, and politician during the Revolution, who described many amphibians and reptiles of eastern North America. He also described the Savanna Monitor (*Varanus exanthematicus* Bosc, 1792) from Senegal in West Africa (Adler et al. 2012). Bosc never visited Sri Lanka. As MNHN 3238 belongs to an endemic Sri Lankan species with incorrect collection locality details (Philippines or even Java), we also agree that the collectors name, Bosc, is a mistake and we follow Duméril et al. (1854) and believe that the collector details for this specimen is not known.

Duméril et al. (1854), in the original description states that "on the jar there was no other indication that the [data] one on its origin, Philippines and the name *Oligodon torquatus* with the letter "R""; no such indication was found on any jar that we examined in MNHN collections. It is strange that *O. torquatus* was mentioned in the original description, a species which was described by Boulenger in 1888, 34 years after *O. sublineatus*. However, based on the characters mentioned in the original description of *O. sublineatus*, we can be sure that both examined syntypes of Duméril et al. (1854) belong to the same endemic species of Sri Lanka, *O. sublineatus*, and neither match any of the species from the Philippines (see Leviton 1963). This is also confirmed by the existence of ventral scales having a series of dark brown spots arranged in three lines in the syntypes of *O. sublineatus* [*vs.* uniform in *O. ancorus* (Girard, 1858) and *O. notospilus* Günther, 1873], and 25 subcaudals in our lectotype [*vs.* 28–49 in *O. meyerinkii* (Steindachner, 1891); 52–54 in *O. maculatus* (Taylor, 1918); 27–44 in *O. modestus* Günther, 1864; 48–60 in *O. octolineatus* (Schneider, 1801), and 34–45 in *O. perkinsi* (Taylor, 1925); scale counts

after Leviton (1963)]. Furthermore, based on the description, it can also be easily distinguished from *O. torquatus* (Boulenger, 1888) by having ventrals with a series of dark brown spots in three lines (vs. uniform).

Boulenger (1894) recorded *Oligodon sublineatus* from Nicobar Island. Deepak and Harikrishnan (2013) observed a couple of specimens (ZSI 8899 and 8900) of *O. sublineatus* deposited at ZSI-Kolkata, which were labelled as "Camorta, Nicobars". They confirmed that both the collection locality and the identity were wrong. The species is definitively absent from Nicobar Islands, as originally stated by Wall (1921) and has to be considered as a species strictly endemic to Sri Lanka, but widespread over the forested areas of the country.

Acknowledgments

We are very grateful to Gernot Vogel, A. de Silva, P. Uetz, W.M.S. Botejue, D.E. Gabadage, N. Gamage, M.M. Bahir, M.C. De Silva, H. Jayasinghe, V. Weeratunga, M. Madawala, S. Fernando, S. Wellapulliarachchi, P. Samarawickrama, M. Wickramasighe, D. Kandambi, P. Pieris, and G.N. Karunarathna who provided valuable support which enabled us to complete this study. We also thank N. Wickramasinghe, S. Kasthuriarachchi, M. Nandasena, C. Munasinghe, L. Somaratne, R. Dasanayake, M.B. Vaidyasekara, C. Kotalawala, A. Samanthika, P. Gunasiri and R. Wickramanayake at National Museum of Sri Lanka (NMSL) for assisting us while examining collections under their care. Special thanks to D. Vallan for providing information linked to the specimens at NMB. We thank J. Supriatna and the staff of the Research Center for Climate Change of the University of Indonesia (RCCC-UI) for their support. Finally, we thank the field staff of Forest Department and Department of Wildlife Conservation, Sri Lanka.

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Appendix 1

Other materials examined

***O. ancorus*:** Philippines: MNHN 0611, 3537, 5768, 1900.0381–385, 1900.0381A–B.

***O. calamarius*:** Sri Lanka: MNHN 6129.

***O. modestus*:** Philippines: MNHN 1012, BMNH 1946.1.5.54 (type).

***O. sublineatus*:** Java (in error): MNHN 1747; Sri Lanka: MNHN 4234, 4234A; NMB 21366–7, 1595–9, 10775, 21364–5; BMNH 1841.1.7.12, 1858.10.19.29, 1858.10.19.37–38, 1852.9.13.41, 1845.8.7.6, 1846.12.2, 1853.3.30.53, 1852.2.19.90, 1852.2.19.95, 1969.2769–2771, 1890.11.8.21–22, 1895.7.23.29, 1897.10.20.14, 1915.5.3.6, 1920.5.6.3, 1951.1.8.36, 1955.1.9.81–82, 1862.8.14.31, 1968.875.

***Oligodon torquatus*:** Burma: BMNH 1946.1.4.21–22 (syntypes).