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Taxonomic notes on the wolf snakes *Lycodon* (Fitzinger, 1826) of Myanmar: new records, redescriptions, and an annotated key (Squamata: Colubridae)

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ABSTRACT

This study provides an updated taxonomic and distributional account of the wolf snakes (*Lycodon* Fitzinger) inhabiting Myanmar (Burma) based on an examination of preserved specimens and photo-documented observations. A detailed morphological re-description of *Lycodon kundui* Smith is provided. Three species, *Lycodon chapaensis* Angel & Bourret, *Lycodon laoensis* Günther, and *Lycodon zayuensis* Jiang, Wang, Jin & Che in Che, Jiang, Yan & Zhang are confirmed as country records, and range extensions are reported for two more species: *Lycodon davisoni* Blanford and *Lycodon zawi* Slowinski, Pawar, Htun Win, Thin Thin, Sai Wanna Gyi, San Lwin Oo & Hla Tun. In addition, the distributional limits between *L. chapaensis* and *Lycodon septentrionalis* Günther within Myanmar are clarified. A previous record of *Lycodon gracilis* Günther (formerly *Dryocalamus gracilis*) from present-day Rakhine State is considered erroneous. The total number of *Lycodon* species native to Myanmar is increased to 16, while two species, *Lycodon flavozonatus* (Pope) and the aforementioned *L. gracilis*, are removed from the country's snake fauna. An updated key to all *Lycodon* native to Myanmar is presented.

Keywords: Indo-Burma; Reptilia; Wallacean shortfalls; Geographic distribution

INTRODUCTION

Wolf Snakes (*Lycodon* Fitzinger) are a genus of small to

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medium-sized colubrids containing 75 recognized species that range across tropical and subtropical regions of the Asian continent (Uetz et al., 2025; Nguyen et al., 2025; Nguyen & Vogel, 2025). Taxonomic diversity within *Lycodon* has increased dramatically over the past two centuries. This productivity is largely a result of recent morphological and molecular studies that have revised species complexes (Amarasinghe et al., 2023; Nguyen & Vogel, 2025; Vogel et al., 2009; Wang et al., 2021) and phylogenetic analyses that led to the combination of multiple genera into *Lycodon* (Figueroa et al., 2016; Siler et al., 2013). Since 2020, over eleven new species of *Lycodon* have been described to science and many others have been resurrected from synonymy (Ganesh et al., 2020; Jiang et al., 2020; Nguyen et al., 2022; Nguyen et al., 2024b; Nguyen et al., 2025; Nguyen & Vogel, 2025; Vogel et al., 2024; Wang et al., 2020; Wang et al., 2021; Wickramasinghe et al., 2020). While systematic studies of this genus have seen a resurgence, the distributional limits of most *Lycodon* are poorly understood, and most species are known from a limited number of specimens.

Knowledge of the *Lycodon* inhabiting Myanmar is poorly understood relative to other countries in Southeast Asia, yet the past few years has seen a several new contributions. Prior to 2025, thirteen species were known to inhabit the country (Lee et al., 2018; Mulcahy & Zug, 2019; Nguyen et al., 2024b; Nguyen et al., 2025.) Two species, *Lycodon effraenis* Cantor and *Lycodon subannulatus* Günther, represent new additions that were discovered during herpetological surveys in the Tanintharyi Region (Lee et al., 2018; Mulcahy & Zug, 2019). Another nomenclatural change made by Nguyen et al. (2024b), led to a reclassification of *Lycodon subcinctus* F.

Received: 09 February 2025; Accepted: 06 June 2025; Online: 26 August 2025

Foundation items: This work was supported by the Rufford Foundation (Grant No. 45888-2: data analysis) and the Russian Science Foundation (RSF grant No. 22-14-00037-P: data analysis).

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Boie populations north of the Isthmus of Kra region. This necessitated the removal of *L. subcinctus* from the snake fauna of Myanmar, and the name *Lycodon neomaculatus* Nguyen, Lee, Pauwels, Kennedy-Gold, Poyarkov, David & Vogel was erected in its place. Most recently, Nguyen et al. (2025) described a new species inhabiting the Sagaing Region of northern Myanmar, and recorded *Lycodon gongshan* Vogel & Luo as a new country record from Kachin State. Aside from these new discoveries, the last major taxonomic and distributional updates made to the *Lycodon* of Myanmar include the description of *Lycodon zawi* Slowinski, Pawar, Htun Win, Thin Thin, Sai Wana Gyi, San Lwin Oo & Hla Tun and a country record of *Lycodon jara* (Shaw) in northern Kachin State (Slowinski et al., 2001; Wogan et al., 2008). During visits to examine *Lycodon* specimens in museum collections, we found several specimens from Myanmar that could be assigned to species described from adjacent countries. Enough records were agglomerated to prompt a broader overview of *Lycodon* inhabiting the country. In particular, we focus on providing redescriptions of poorly known species and report significant range extensions of other taxa. Furthermore, we summarize photo-documented specimens of *Lycodon* that were recorded on citizen scientist websites or personally observed by us during field expeditions within Myanmar. This review summarizes these findings in hopes that they assist herpetologists in the future and improve distributional shortfalls that are prevalent across the snake fauna of Myanmar.

MATERIALS AND METHODS

Sampling and geographic localities

We examined voucher specimens and tissue samples of *Lycodon* in natural history collections to identify and compare species from Myanmar. Several specimens were collected during field expeditions conducted by the Myanmar Herpetology Survey (CAS-MHS) between 1999–2011. Subsequent herpetofaunal inventories were conducted between 2014–2019, and also include data collected by two of the authors (NAP, MTC) from the Mandalay Region and Zalon Taung National Park, Sagaing Region. Additional distributional data used in this study were obtained from examined specimens, records in the historical literature, museum specimens available on the Global Biodiversity Information Facility (<https://gbif.org>), and photo-documented observations from local naturalists, many of which were recorded on the citizen scientist website iNaturalist (<https://www.inaturalist.org/home>). All iNaturalist observations submitted on or before 31 December 2024 were inspected by one of the authors, though some records may not be listed as “research grade”. Records from specimens and literature sources were manually georeferenced based on museum catalog information and historical maps whenever possible. Generally, township and district data follow the gazetteers published by the Myanmar Information Management Unit (MIMU; <https://www.themimu.info/baseline-datasets>). All distribution records were cross-checked to ensure that no observations were represented by duplicates. A full list of records for each *Lycodon* species can be found in Appendix I.

DNA sequences and phylogenetic relationships

DNA sequences were generated from vouchered specimens housed in the herpetology collections of the California

Academy of Sciences, San Francisco, USA (CAS) and Zoological Museum of Moscow State University (ZMMU), Moscow, Russia. Efforts were focused on amplifying the mitochondrial cytochrome b (cyt *b*) gene, though an additional mitochondrial marker (16S ribosomal RNA; 16S) and one nuclear marker (recombination activation gene 1; Rag1) were also sequenced as part of this study but were not included in phylogenetic analyses (see Appendix II). New sequences were combined with existing data published on GenBank (<https://www.ncbi.nlm.nih.gov/genbank/>). Outgroup taxa include *Boiga kraepelini* Stejneger, *Dasypeltis atra* Sternfeld and *Dipsadoboa unicolor* Günther, three members of Colubridae that are considered close relatives of *Lycodon* and have been used in other recent phylogenetic studies of the genus (Siler et al., 2013; Nguyen et al., 2024b; Wang et al., 2021). Refer to Nguyen et al. (2025) for PCR and sequencing protocols for CAS samples and Pawangkhanant et al. (2024) for protocols used for ZMMU samples. DNA from subsampled tissues was extracted using DNeasy Blood and Tissue Kits (Qiagen, Germany) following manufacturer protocols. The following primers were used to amplify each gene: L14910 (forward) and H16064 (reverse) for cyt *b* (Burbrink et al., 2000); 16s-ab (forward) and 16s-bh (reverse) for 16S rRNA (Palumbi et al., 2002); and MartFL1 (forward) and AmpR1 (reverse) for Rag1 (Chiari et al., 2004). All polymerase chain reactions (PCR) were conducted on thermocyclers at an annealing temperature of 50°C. Successful PCR products were examined under 1.5% agarose gel electrophoresis with GelRed or Ethidium Bromide (all Thermo Fisher Scientific, USA). For CAS samples, final sequence reactions and sequence products were performed using BigDye Terminator v.3.1 Cycle Sequencing Kits (Applied Biosystems, USA) and subsequently moved to a SeqStudio™ Flex-Genetic Analyzer (Thermo Fisher Scientific, USA). PCR products of ZMMU samples were outsourced to the Evrogen® corporation (Moscow) for final sequencing. The resulting DNA chromatograms were *de-novo* assembled and edited using Geneious Prime (Biomatters). New gene sequences were aligned with GenBank material using MAFFT v.7.0 (Katoh & Standley, 2013) under default settings and manually edited to ensure proper translation. The concatenated molecular dataset contained 2566 base pairs (bp) with 1002 distinct patterns and 660 parsimony-informative sites. Lengths of respective gene alignments were 598 bp (16S), 1118 bp (cyt *b*), and 850 bp (Rag1). Phylogenetic estimations using maximum likelihood (ML) approaches were conducted after concatenating all three gene alignments. The ML phylogeny was performed in the command-line version of IQ-TREE v.2.1.2 (Minh et al., 2020) after partitioning the alignment by first+second and third codon positions. We used ModelFinder in IQ-TREE to test for the best-fitting substitution model (Kalyaanamoorthy et al., 2017). The best supported model was the GTR+F+I+G4 model for the first+second codon position and the TIM2+F+I+G4 model for third codon position. An ML consensus tree was built using 1000 Ultrafast bootstrap (UFBoot) replicates and 1000 Shimodaira–Hasegawa approximate likelihood ratio test replicates (SH-aLRT). Following Guindon et al. (2010) and Hoang et al. (2018), Shimodaira–Hasegawa approximate likelihood ratio test values (SH-aLRT) ≥ 80.0%, Ultrafast bootstrap values (UFBoot) ≥ 95% were considered strongly supported, all other values were considered poorly supported. Uncorrected pairwise genetic distances were calculated for the cyt *b*

alignment using the *dna.dist()* function in the R-package *ape* v.5.8 (Paradis & Schliep, 2019) under a raw model and pairwise deletion set to "TRUE". Newly generated sequences were submitted under the GenBank accession numbers PV495697.1–PV495702.1 and PV505175.1–PV505188.1 (see Appendix II and Appendix III, respectively).

Morphology

Morphological protocols follow earlier taxonomic treatises of *Lycodon* (Lanza, 1999; Vogel et al., 2009; Vogel & David, 2019). Head measurements were taken with digital or slide calipers to the nearest 0.1 mm. Body measurements were made to the nearest millimeter with a flexible ruler. Relative tail length was calculated by dividing tail length by the total length of each specimen. Ventral scales were counted according to Dowling (1951); half ventrals were not counted except when present on both sides of the ventral surface. The terminal scale was not included in the number of subcaudals. Dorsal scale row counts were taken at one head length behind the head, at midbody (i.e., half of the SVL), and one head length before the cloaca. Infralabials were considered scales below the lip that were fully covered by at least one supralabial. All paired head characters are given in left/right order. We used ImageJ (Schneider et al., 2012) to measure the proportions and angles of head scale sutures from digital images of examined specimens. Terminology for angles of head scale sutures was adapted from Kaiser et al. (2019). Following Savage (1973), we consider the loreal scale to be any single, elongate scale located between the posterior edge of nasal and the eye. Thus, if a fusion between the true loreal and preocular was present, we still consider that scale to be the loreal. One exception is *L. effraenis*, where the loreal is fused with the prefrontal, and is therefore considered absent.

To maintain consistency, light or pale colored crossbands were only counted on the left side of each specimen. Hardly visible or incomplete crossbands were counted as one, whereas obviously fused crossbands were counted as two. Crossbands that cover the cloacal plate were included in the number of body bands. The nuchal collar or bands covering the tail terminus were not included in crossband counts. Measurements in-text (in mm) include snout-vent length (SVL) measured from the tip of the snout to the posterior edge of the cloaca; tail length (TaL) measured from the posterior edge of the cloaca to the tail tip; total length (TL) measured by adding SVL and TaL together; relative tail length (TaL/TL); head length (HL) measured from the posterior end of the retroarticular process of the mandible to the tip of the snout; head width (HW) measured at the widest point of the head; snout length (SnL) measured from the anterior end of the eye to the snout tip; eye diameter (EyeD) the horizontal diameter of the eye; snout width (SnW) measured between the midpoint of each nostril; frontal length (FrontalL) the longest measurement of the frontal scale; frontal width (FrontalW) the widest measurement of the frontal scale; and interorbital distance (InterorbD) measured between each eye in dorsal profile. Meristic character acronyms mentioned include ventral scales (VEN); subcaudal scales (SC); cloacal plate (CP) given as entire or divided; number of total body scales (TOTAL) the combined sum of VEN+CP+SC; subcaudal ratio (SCR), namely the SC count divided by TOTAL for each specimen; loreal (LOR), and whether the loreal contacts with eye given as a yes or no value (LOR-E); supralabials (SL); number of supralabials in contact with eye (SL-E); infralabials (IL);

number of infralabials in contact with the anterior pair of chin shields (IL-CS); preocular scales (PrO); postocular scales (PtO); anterior dorsal scale rows (ASR); dorsal scale rows at midbody (MSR); posterior dorsal scale rows (PSR); dorsal scale row formula (DSR); number of body crossbands (BBand); number of tail crossbands (TBand).

Abbreviations and other notes

AR=Autonomous Region; NP.=National Park; NR.=Nature Reserve; Mt.=Mountains; WS=Wildlife Sanctuary; bp=base pairs; a.s.l.=above sea level. All museum collection or tissue biorepository acronyms follow Sabaj (2020) unless specifically noted. Refer to captions of tables or supplementary materials for additional acronyms of field series or personal collections. Full Burmese names are used for taxon authorities but are abbreviated according to the metadata provided in the collection database of the California Academy of Sciences for the "Examined specimens" section of each species account.

RESULTS

Phylogenetic relationships across *Lycodon* were consistent with earlier genus-wide estimations (Luu et al., 2020; Siler et al., 2013; Wang et al., 2021; Wostl et al., 2017). Most species of *Lycodon* were strongly supported as monophyletic, though relationships between some species were poorly resolved (Figure 1). With respect to species native to Myanmar, the ML phylogeny strongly supported two clades corresponding to *Lycodon chapaensis* Angel & Bourret and *Lycodon septentrionalis* Günther, with Burmese genetic samples clustering in each of these lineages (Figure 1). Unlike Wang et al. (2021), *L. chapaensis* and *L. septentrionalis* did not form a sister relationship. Instead, *L. septentrionalis* was recovered as sister to *Lycodon futsingensis* Pope and *Lycodon truongi* Nguyen, Duong, Wood, & Grismer with low support (SH-aLRT=79.8/ UF BS=93), while *L. chapaensis* was recovered as a strongly supported outgroup to all three of these aforementioned taxa (88.7/96). A sample originally identified as *Dinodon flavozonatum* Pope from Kachin State, Myanmar (CAS 224364) was recovered as sister to three topotypic sequences of *Lycodon zayuensis* Jiang, Wang, Jin & Che in Che, Jiang, Yan & Zhang from Xizang AR, China (63.9/95). Pairwise genetic distances between *L. chapaensis* and *L. septentrionalis* ranged from 3.37–8.99% (mean=6.09%), while samples of *L. zayuensis* had a mean cyt *b* p-distance of 4.49–5.62% (4.78%) from *Lycodon flavozonatus* and *Lycodon meridionalis* Bourret. Intraspecific genetic divergences based on cyt *b* sequences were high in several *Lycodon* but are particularly obvious in subclades of *L. septentrionalis* (0.0–5.27%; mean=3.37%) and our sample of *L. zayuensis* (CAS 224364), which was 3.37% divergent from the topotypic sequences of Che et al. (2020) and Lyu et al. (2022).

Almost all *Lycodon* specimens dealt in this review are morphologically assignable to previously recognized taxa. Three species of *Lycodon* represent significant distribution extensions that have not been confirmed from Myanmar before: *L. chapaensis*, *Lycodon laoensis* Günther and *L. zayuensis*. The occurrence of two species (*L. chapaensis* and *L. zayuensis*) was hinted at by earlier authors (David et al., 2023; Jiang et al., 2020; Wang et al., 2021) but specific details on morphological and/or molecular data on Myanmar material was lacking until now. Records of *L. laoensis* are not represented by voucher specimens, yet existing photo-

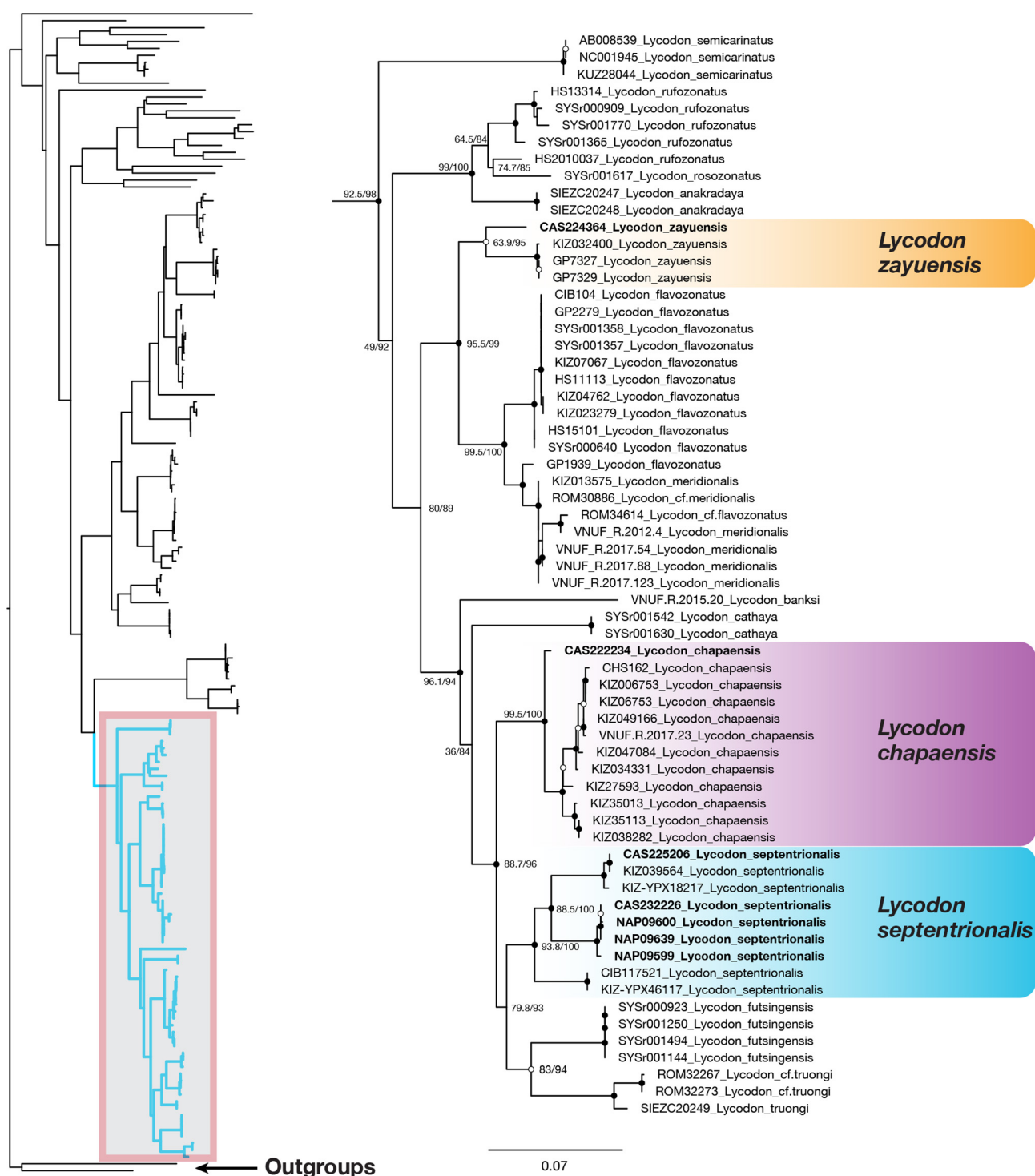


Figure 1 Maximum likelihood (ML) phylogeny of *Lycodon* inferred from mitochondrial DNA sequences (cyt b) showing the phylogenetic positions of *Lycodon chapaensis*, *Lycodon septentrionalis* and *Lycodon zayuensis*

Samples in bold include newly sequenced material. Numbers before slashes are SH-aLRT values and numbers after slashes are UF BS values. Nodes filled with black circles indicate strong support by both ML analyses, whereas nodes filled in with white circles indicate strong support only in one analysis.

documented records provide enough color pattern and scalation features to confidently identify them to this species. Lastly, we observed a specimen of *Lycodon* that is morphologically referable to *Lycodon davisoni* Blanford far north of all previous documented observations of this species within the country from Bat Cave, Kanbalu District, Sagaing Region.

Species accounts

Our investigation of voucher specimens and photo-documented records indicate the presence of 16 species of *Lycodon* in Myanmar, of which three represent new additions. Two other species should be removed from the snake fauna of the country, largely owing to taxonomic and nomenclatural updates. To summarize these changes, we provide accounts of each species below and include updated distributional information and general comments on both natural history and

taxonomy when necessary. Only specimens that we have examined in-person or through photographs are included in each account. Other museum or literature records we were unable to examine are provided in Appendix I. Detailed morphological descriptions and updated diagnoses are only included in cases when our material expands known intraspecific variation. In other cases, brief morphological definitions summarizing key characters are provided. Primary types are only noted if they are located within Myanmar. Additionally, we supply a summary of this paper's abstract in Burmese in Appendix IV.

***Lycodon aulicus* (Linnaeus, 1758)**

(Figures 5A–C, 8B, Appendix I)

Examined specimens (N=19): Ayeyarwady Region: CAS 211934 (adult male) from Mwe Hauk Village, Labutta Township, Labutta District (N16.27675°, E94.75214°; 17 m a.s.l.) collected 22 April 2000 by J.B. Slowinski, G.R. Zug, R.S. Lucas and J.V. Vindum; CAS 215387 (adult female) from Meinmahla Kyun WS, Mi Gyaung Gaung Pok Camp, Bogale Township, Pyapon District (N15.96533°, E95.33339°; 1 m a.s.l.) collected 20 January 2001 by H. Win, T. Thin, K.S. Lwin, A.K. Shein and H. Tun. Bago Region: CAS 222122 (adult male) from Ka Baung Reserve, Oktwin (Aok Twin) Township, Taungoo District (N18.85358°, E96.17903°; 140 m a.s.l.) collected 30 July 2001 by H. Win, A.K. Shein and H. Tun; MSNG 30282 (one adult male, one adult female) from Minhla [=Minhla Township, Tharrawaddy District] (N17.97778°, E95.70694°; 25 m a.s.l.) collected by G. Comoto. Chin State: CAS 233284 (adult male) from Vaar village, Falam (Phalum) Township, Falam (Phalum) District (N22.96108°, E93.68625°; 327 m a.s.l.) collected 28 July 2003 by K.S. Lwin, A.K. Shein and H. Tun. Kachin State: NHMW 21699.1 (adult male) from Bhamo Township, Bhamo District (N24.26298°, E97.23830°; 117 m a.s.l.) collector and collection date unknown; CAS 230344 (adult male) from Pidaung Wildlife Sanctuary, Gart-Shan-Yan Camp (18 Mile Camp), Myitkyina Township, Myitkyina District (N25.27406°, E97.15531°; 170 m a.s.l.) collected 27 June 2002 by H. Tun and K.S. Lwin. Magway Region: CAS 243094 (adult male) from Po Oo village, Gangaw Township, Gangaw District (N22.20869°, E94.17181°; 230 m a.s.l.) collected 3 September 2008 by M. Win, Z.H. Aung, and K.T. Kyaw; Mandalay Region: CAS 215969 (adult male) from Minsontaung WS, Shout Taw Yoe Camp, Natogyi Township, Myingyan District (N21.40556°, E95.80614°; 213 m a.s.l.) collected 3 September 2000 by T. Thin and S.W. Kyi; UF 48859 (adult, sex unknown) from Mandalay Township, Mandalay Division (N21.95000°, E96.08000°; 78 m a.s.l.) collected 17 June 1980 by S. Telford. Rakhine State: CAS 205000 (adult female) from Pleasant Beach Resort, Gwa Township, Thandwe District (N17.72467°, E94.54336°; 13 m a.s.l.) collected 13 March 1998 by J.B. Slowinski, C.L. Spencer, H.E. Robeck and J.V. Vindum. Sagaing Region: CAS 210131 (adult male) from Alaungdaw Kathapa NP, along main rd in vicinity of Payawa Sakhon (Elephant Camp), Kani Township, Yinmarbin District (N22.31700°, E94.48847°; 359 m a.s.l.) collected 7 July 1999 by J.B. Slowinski, K.D. Wiseman, J.M. Lovette and J.V. Vindum; CAS 215387 (adult male) from Yinpaungtaing Village, Yinmarbin Township, Yinmarbin District (N22.08594°, E94.76778°; 131 m a.s.l.) collected 7 May 2000 by S.L. Oo, H. Tun and Z. Htun. Yangon Region: UF 48857 (adult, sex unknown) from Sabu-Daung Village, Hlegu Township, Yangon

North District (N17.21223°, E96.22834°; 18 m a.s.l.) collected 16 June 1979 by S. Telford; UF 48858 (adult, sex unknown) from "Rangoon" "Rangoon" [=Thanlyin Township, Yangon South District] (N16.75000°, E96.25000°; 14 m a.s.l.) collected 18 April 1980 by S. Telford; UF 48859 (adult, sex unknown) 9 km north of Taikkyi, Gyobu Reservoir, Taikkyi Township, Yangon North District (N17.37621°, E96.03508°; 55 m a.s.l.) collected 13 March 1980; CAS 230418 (adult female) from Hlawga Wildlife Park, Mingalardon Township, Yangon North District (N17.04606°, E96.09389°; 24 m a.s.l.) collected 8 July 2002 by J.V. Vindum, H. Win, T. Thin, K.S. Lwin, and A.K. Shein; MSNG 31979 (A) from Palon [=Palon, Taikkyi Township, Yangon North District] (N17.43938°, E95.89967°; 26 m a.s.l.) collector and collection date unknown. Appendix I provides a full list of voucher specimens identified as *L. aulicus* from Myanmar.

Photographic records (N=18): Ayeyarwady Region: One adult (iNaturalist obs. 139972524) from Hinthada Township, Hinthada District (N17.64699°, E95.45157°; 18 m a.s.l.) observed 16 March 2022 by Zaw Win Shein. Bago Region: One adult (iNaturalist obs. 142732658) from Yangon-Pyay Road, Pyay District (N18.80041°, E95.21873°; 32 m a.s.l.) observed 24 November 2022 by Su Latt Mon. Kachin State: One adult (iNaturalist obs. 142898693) from Bhamo Township, Bhamo District (N24.22276°, E97.24848°; 113 m a.s.l.) observed 20 September 2022 by Aung Ko Min. Magway Region: One adult (iNaturalist obs. 150487887) from Pakkoku Township, Pakkoku District (N21.33473°, E95.08343°; 64 m a.s.l.) observed 7 March 2023 by user htin_lin_ko. Mandalay Region: One adult (iNaturalist obs. 185267087) from Mandalay Township, Mandalay District (N21.95881°, E96.08910°; 76 m a.s.l.) observed by Thu Zar (observation date possibly erroneous); three adults (iNaturalist obs. 147193441, 147193537, and 147193605) from Old Bagan, Myingyan District (N21.16991°, E94.85891°; 74 m a.s.l.) observed 27 August 2022 (obs. 147193441) and 30 December 2022 (obs. 147193537 and 147193605) by user nandawinmaung; one adult (iNaturalist obs. 140052835) south of Thitsein Village, Mandalay Township, Mandalay District (N21.96770°, E96.20779°; 117 m a.s.l.) observed 13 September 2022 by Nyein Chan May; and one adult (no voucher) from University of Mandalay, Mahaaungmyay Township, Mandalay District (N21.96770°, E96.20779°; 77 m a.s.l.) observed 27 July 2019 by May Thu Chit. Naypyidaw Union Territory: One juvenile (iNaturalist obs. 201248658) from Naypyidaw District (N19.76330°, E96.07851°; 152 m a.s.l.) observed 21 July 2023 by Nay Nyo. Rakhine State: One adult (iNaturalist obs. 135231325) from Kyauk Ka Lat, Thandwe District (N18.29668°, E94.32948°; 9 m a.s.l.) observed 16 September 2022 by Sully Choudhury. Sagaing Region: One adult (iNaturalist obs. 125966245) from Yinmarbin Township, Monywa District (N22.06864°, E94.89448°; 112 m a.s.l.) observed 28 August 2006 by Thet Zaw Naing. Yangon Region: One adult (iNaturalist obs. 201248363) from Hlegu, Yangon North District (N17.10950°, E96.22141°) observed 24 September 2023 by Zaw Phyto Aung; one juvenile (iNaturalist obs. 227183198) from Inya Lake, Yangon South District (N16.83693°, E96.14498°; 15 m a.s.l.) observed 5 July 2024 by user myothantun; one adult (iNaturalist obs. 170607263) from Inya Road, Kamayut Township, Yangon West District (N16.82401°, E96.13998°; 32 m a.s.l.) observed 22 March 2022 by Scott Edmunds; one adult (iNaturalist obs. 178528706) from Kala-Ywa Village,

Yangon South District (N16.52220°, E96.45271°; 8 m a.s.l.) observed 15 August 2023 by user myomyintthu; and one juvenile (iNaturalist obs. 189112936) from Pyay Lan (East) Ward, Yangon West District observed 27 October 2023 by user chimik. Refer to Appendix I for additional details.

Description: Myanmar specimens have subcylindrical bodies, adult SVL 282–422 mm, TaL 64–93 mm, TaL/TotalL 0.159–0.198. Head oblong, distinct from neck, temporal region raised. Snout truncated in dorsal profile, slightly depressed and sloped in lateral profile. Eyes moderately sized, pupil round. Dorsal scales in 17–17–15 rows, all smooth. Ventral scales 176–194, not angulate, smooth. Cloacal plate divided. Subcaudals 59–66, paired. Total body scales 240–255 (subcaudal ratio 0.235–0.269). Dentition not recorded. Internasals smaller than prefrontals, in contact with loreal. Supraoculars normally blocked from contacting prefrontals. Supralabials 9/9, third to fifth in contact with eye, first scale largest, sixth or fifth scale largest. Infralabials 9–10, usually 10/10, but rarely 9/10; first four or five scales in contact with anterior pair of chin shields. Loreal 1/1, longer than high, blocked from contacting eye by preocular. Preocular 1/1, normally in contact with frontal (rarely separate). Postoculars 2/2. Temporals 2+3. Paraparietal scale 3–4 scale rows behind postocular, surrounded by 5–7 scales, 1–3 scales between paraparietal. Anterior chin shields equal or slightly larger than posterior chin shields.

Dorsum dark brown or brown with a discrete series of 9–27 white transverse crossbars. These crossbands may dissipate by midbody, but in some specimens the crossbands extend across the whole dorsum. A broad yellow or white nuchal collar present across the dorsal surface of the nape, its length varying from narrow (1–2 occipital scales in length) to broad (encompassing the posterior portion of the parietal and temporal region and up to 5–6 adjacent occipital scale lengths). In Kachin State, Rakhine State and Yangon Region, specimens may have patterns intermediate between typical *L. aulicus* and *Lycodon capucinus*, bearing a series of narrow crossbands anteriorly but also with white and black-edged marbling along the lateral portion of the dorsum.

Distribution and natural history: This species inhabits a majority of Myanmar. Records encompass all states except for the southeastern portion of the country, where it is putatively replaced by *L. capucinus*. Its vertical distribution within the country ranges from sea level to approximately 359 m a.s.l. Elsewhere, native populations of *L. aulicus* are found from Bangladesh, China (Yingjiang County, Yunnan Province), India, Nepal, Pakistan and Sri Lanka. Introduced populations are known from the Maldives and the Mascarene Islands (O'Shea et al., 2018; Vogel et al., 2021; Yang & Yeung, 2024).

Field notes from CAS specimens note collection events during daytime and nighttime hours. Several individuals were found as roadkill while driving small dirt/paved roads. Others were found uncovered underneath the bark of dead trees (i.e., CAS 213771 and CAS 213788) or crawling on small branches and tree trunks. CAS 239452 was uncovered eating an unidentified gecko (*Hemidactylus* sp.), and the stomachs of two other specimens (CAS 213315 and CAS 215463) had remains of *Hemidactylus*, one of which was swallowed head-first (CAS 215463). Stomach contents of a specimen (CAS 230344) from Kachin State had an unidentified skink (*Sphenomorphus* sp.), and another from the Yangon Region (CAS 230418) had eaten a *Lygosoma* sensu lato. Notably, one photo-documented specimen from the Bago Region

(iNaturalist obs. 142732658) has an albino color mutation, bearing a completely yellow/white dorsal surface with red eyes. Albinism and leucism has been recorded previously in *L. aulicus* from India (Hoshing et al., 2013), but this observation represents the first documented report of this rare color aberrancy from Myanmar. No reproductive data was recorded for any specimens.

Comments: The primary difference between *L. aulicus* and *L. capucinus* pertains to color pattern (Ganesh & Vogel, 2018; Vogel et al., 2021). *L. aulicus* has well-defined transverse crossbars, whereas *L. capucinus* has a dorsum that lacks well-defined crossbars and instead has a plain dorsum with white marbling or speckling concentrated anteriorly. As noted above, several specimens in Myanmar possess color pattern characteristics that are intermediate between *L. aulicus* and *L. capucinus* (Lanza, 1999; O'Shea et al., 2018). Siler et al. (2013) included one sample (CAS 205000) from Rakhine State, Myanmar with an intermediate color pattern in their multilocus phylogeny of *Lycodon* and recovered it within a clade containing *L. capucinus* from the core of its range in Southeast Asia. Mitochondrial DNA samples also exist for 'true' *L. aulicus* in Peninsular India (Madhya Pradesh State), and those samples are recovered separate from *L. capucinus* samples from Southeast Asia (Dubey et al., 2012; Kalki et al., 2020). However, sequences from India do not have voucher specimens available and the genetic assignment of other *L. aulicus* and *L. capucinus* populations outside of Rakhine State, Myanmar are uncertain. As a result, we tentatively accept that *L. aulicus* and *L. capucinus* are two separate evolutionary units, although it is clear that the boundaries between each species are unsatisfactory and require more detailed investigation from both a molecular and morphological perspective.

Lycodon capucinus Boie, 1827

(Figure 5D, Figure 8B; Appendix I)

Examined specimens (N=4): Mon State: CAS 240647 (adult male) from 10 Minutes camp, Kadat stream, Kyaikto Township, Thaton District (N17.44161°, E97.09914°; 362 m a.s.l.) collected 3 February 2008 by A.K. Shein, S.L. Oo, K.S. Lwin, and Y.M. Win. Tanintharyi Region: CAS 245960 (adult female) from Tanintharyi NR, vicinity of Khotama military camp, along Khotama stream, Yebyu Township, Yebyu District (N14.73306°, E98.25042°; 81 m a.s.l.) collected 10 October 2009 by J.V. Vindum, J.A. Wilkinson, K.S. Lwin, and Y.M. Win; CAS 245754 (adult male) from Tanintharyi NR, vicinity of Khotama military camp, Yebyu Township, Yebyu District (N14.72950°, E98.24594°; 80 m a.s.l.) collected 5 October 2009 by M. Hlaing, S.L. Oo, and Z.H. Aung; MSNG 31979 (B) (juvenile female) from Malewoon [=Maliwan, Kawthaung Township, Kawthaung District] (N10.24449°, E98.60423°; 23 m a.s.l.) collected by L. Fea, collection date unknown. Appendix I provides a full list of voucher specimens identified as *L. capucinus* from Myanmar.

Photographic records (N=5): Kayin State: One adult (iNaturalist obs. 201248061) from Payathonzu Township, Kawkaik District (N15.31385°, E98.38005°; 242 m a.s.l.) observed 13 January 2024 by Thandar Soe. Mon State: One adult (iNaturalist obs. 145808206) from Mudon Township, Mawlamyine District (N16.25841°, E97.72537°; 20 m a.s.l.) observed 4 January 2023 by user garytropic; one adult (iNaturalist obs. 201247737) from Thaton Township, Thaton District (N16.94086°, E97.36614°; 23 m a.s.l.) observed 11

August 2023 by Paing Zay; one adult (iNaturalist obs. 144137932) from Zayar 2 (5) Road, Mawlamyine Township, Mawlamyine District (N16.49453°, E97.65930°; 5 m a.s.l.) observed 8 December 2022 by Nyi Nyi Aung. Tanintharyi Region: One adult from (iNaturalist obs. 140803791) Aung Mingalar Street, Dawei Township, Dawei District (N14.09233°, E98.19620°; 13 m a.s.l.) observed 1 November 2022 by Sa Kyaw Win Tun. Refer to Appendix I for additional details.

Description: Myanmar specimens have subcylindrical bodies, adult SVL 344–458 mm (juvenile SVL 183 mm, TaL 42 mm), TaL 84–111 mm, TaL/TotalL 0.187–0.196. Head oblong, distinct from neck, temporal region raised. Snout truncated in dorsal profile, slightly depressed in lateral profile. Eyes moderately sized, pupil round. Dorsal scales in 17–17–15 rows, all smooth. Ventral scales 190–195, not angulate, smooth. Cloacal plate divided. Subcaudals 64–68, paired. Total body scales 255–262 (subcaudal ratio 0.251–0.262). Dentition not recorded. Internasals smaller than prefrontals, supraoculars normally blocked from contacting prefrontals. Supralabials 9/9 (one specimen 8/9), third to fifth in contact with eye, first scale largest, sixth or fifth scale largest. Infralabials 10/10; first four or five scales in contact with anterior pair of chin shields. Loreal 1/1, longer than high, blocked from contacting eye by preocular, in contact with internasals. Preocular 1/1, normally in contact with frontal (rarely separate). Postoculars 2/2. Temporals 2+3. Paraparietal scale 3–4 scale rows behind postocular, surrounded by 5–6 scales, 1–2 scales between paraparietal. Anterior chin shields equal or larger than posterior chin shields.

Specimens from Myanmar we identify as *L. capucinus* have a brown dorsum with small, white or yellow marbling or speckling concentrated on the anterior and lateral portions of the body. Speckling along the dorsum may form irregular shaped crossbands along the anterior third of the body, but not elsewhere.

Distribution and natural history: In Myanmar, this species is known from the southeastern portion of the country in Kayin State, Mon State and the Tanintharyi Region, including islands within the Myeik Archipelago. Its vertical distribution within the country stretches from sea level (approximate) to 362 m a.s.l. Elsewhere, *L. capucinus* exhibits a wide distribution across most of Indochina (Cambodia, Laos, Thailand, and Vietnam), Malaysia (Peninsular Malaysia, Sarawak and Sabah), Indonesia, the Philippines, and Timor-Leste. Introduced populations have been established in Australia on Christmas Island and elsewhere in the Indo-Pacific (Kraus, 2009). Yang & Yeung (2024) suggested that populations of wolf snakes from southeastern China (namely, Hong Kong) also represent introduced populations. Like *L. aulicus*, specimens from Myanmar were recorded during the day and night and were encountered under natural cover, on the surface on top of tree branches or tree trunks or crossing roads at night. No other specific natural history information was recorded from Myanmar specimens.

Comments: Refer to comments made in the account of *L. aulicus* for additional discussion of species boundaries.

***Lycodon chapaensis* Angel & Bourret, 1933**

(Figure 2, Figure 8D; Appendix I)

Dinodon septentrionalis — Boulenger (1893: 308, in part); Smith (1943: 270, in part); Dowling & Jenner (1988: 8, in part); Wogan et al. (2008: 90, in part)

Dinodon septentrionalis septentrionalis — Hallermann et al. (2002: 150, Figure 6).

Examined specimens (N=7): Kayin State: MSNG 31999 and ZMH R05369 (two adult males) from “Mt. Carin, Bia-po” (=Karen Hills), Thandaunggyi Township, Hpa-An District (N19.28300°, E96.55000°; 1000–1100 m a.s.l.) collected between 22 May and 5 November 1888 by L. Fea; NHMUK 93.10.9.11 (subadult male) from “Cobapo” (=one of the mountains between Leik Tho and Meik Tha Lin Taung), Thandaunggyi Township, Hpa-An District (N19.26667°, E96.60000°; 781 m a.s.l.) collected between 22 May and 5 November 1888 by L. Fea. Mandalay Region: NHMUK 1904.4.25.5–6 (two adult females) from Mogok Township, Pyin Oo Lwin District (N22.92000°, E96.50000°; 1100 m a.s.l.) collected by H. Hampton. Mon State: CAS 222234 (adult male) from the vicinity the Nga Bat Camp, Kyaik-Hti-Yo Pagoda, Kyaik Hti Yo WS, Kyaiktyo Township, Thaton District (N17.47931°, E97.10364°; 925 m a.s.l.) collected on 25 Nov 2001 by H. Win, K.S. Lwin and A.K. Shein. Shan State: NHMUK 1908.6.23.101 (adult male) from Loilem Township, Loilem District (N20.92500°, E97.56389°; 1350 m a.s.l.) collected by F. Wall. Appendix I provides a full list of voucher specimens identified as *L. chapaensis* from Myanmar.

Photographic records (N=1): Kachin State: One adult (sex unknown) from Chipwi Village, Chipwe Township, Myitkyina District (ca. N25.89368°, E98.11962°; 1782 m a.s.l.) observed on 25 April 2009 by Thet Zaw Naing.

Description: Based on Myanmar specimens (N=7). Adult SVL 782–1018 mm (juvenile SVL 401 mm, TaL 103 mm), TaL 192–247 mm, TaL/TotalL 0.195–0.204. Head ovate, distinct from neck, temporal region slightly raised, but overall flat in lateral profile. Snout slightly depressed and sloped in lateral profile. Eyes moderate, pupil elliptical and oriented vertically. Dorsal scales in 17–17–15 rows, all smooth anteriorly and at midbody, in 2/7 specimens feebly keeled except for outermost five to seven rows, which are smooth. Ventral scales 209–224, not angulate, smooth or feebly keeled. Cloacal plate entire. Subcaudals 80–87, paired. Total body scales 291–305 (subcaudal ratio 0.272–0.292; N=5). Maxillary teeth 11–12 (N=3), first 6–7 gradually enlarged, followed by 3–4 smaller then 2 slightly enlarged teeth, each separated by a small diastema. Internasals smaller than prefrontals, supraoculars blocked from contacting frontal, in contact with prefrontal, loreal and supraocular. Supralabials 8/8 (8/7 in one specimen), third to fifth in contact with eye (third and fourth on one side of head in one specimen), first scale smallest, sixth and seventh supralabial largest. Infralabials 8–10, normally 10/10, first 4–5 scales in contact with anterior chin shields. Loreal 1/1, longer than high, blocked from contacting eye. Preocular 1/1, separate from frontal. Postoculars 2/2 (rarely 2/1). Temporals normally 2+3, occasionally 2+2 on one side of head in 3/7 specimens. Paraparietal scale 2–3 scale rows behind postocular, surrounded by 5–8 scales, with 1–4 scales between paraparietal. Anterior chin shields larger than posterior chin shields, 1–3 gular scale rows.

Dorsal surface black in life, dark brown in preservative with 20–35 narrow white body crossbands, 8–17 crossbands on tail. Position of first body crossband begins at ventral scale 17–26, its length 5–8 ventral scales at base, and 1.0–2.0 vertebral dorsal scales. Remaining crossbands on body 3.0–5.0 ventral scales long at base, and 1.0–2.0 vertebral dorsal scales long. Head immaculate black, occasional gray-brown mottling along parietal and temporal region in adults.

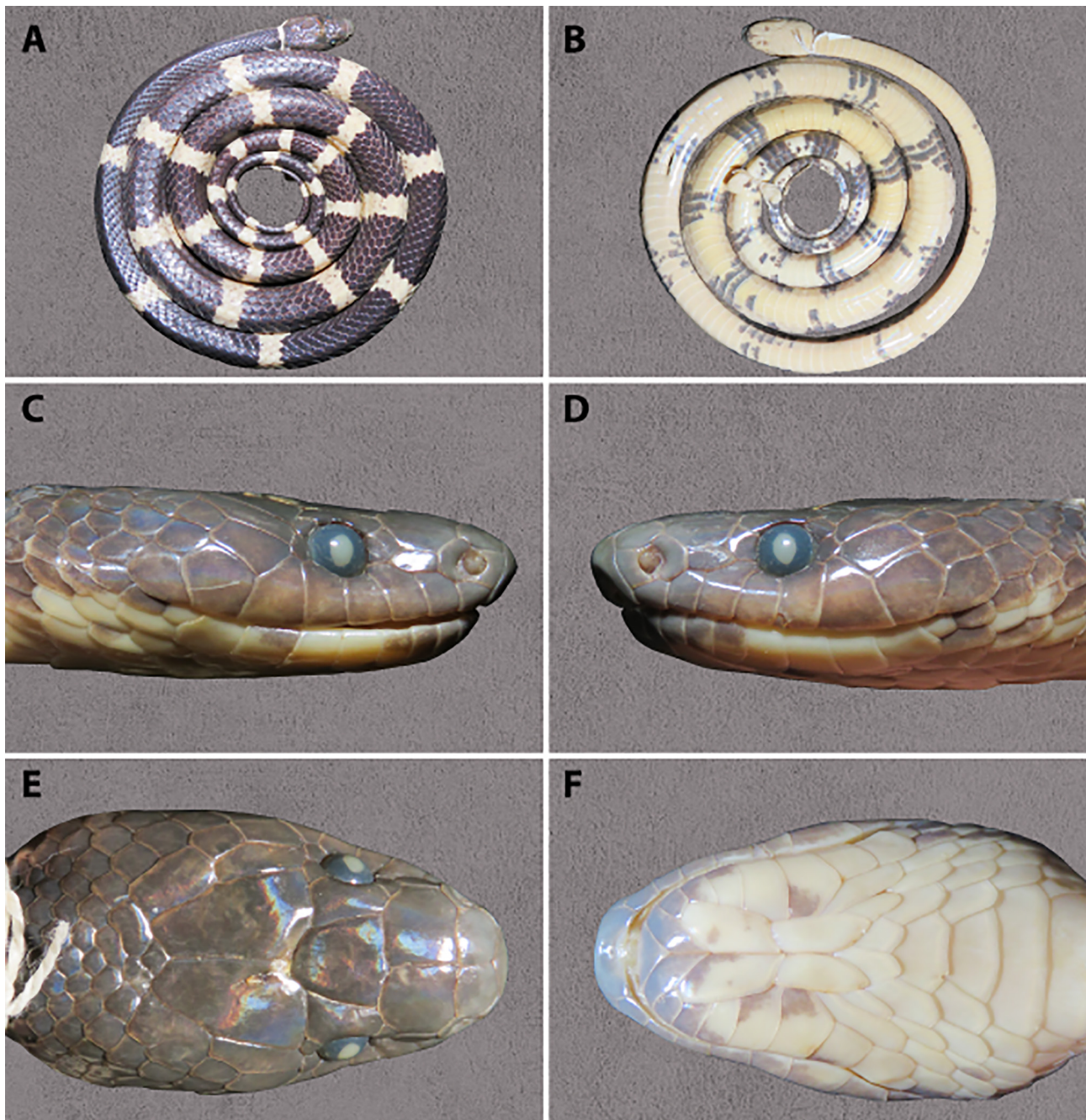


Figure 2 *Lycodon chapaensis*, preserved specimen (CAS 222234, adult male) from Kyaik Hti Yo WS, Mon State, Myanmar

A: General dorsal view. B: General ventral view. C: Lateral view of head, right side. D: Lateral view of head, left side. E: Dorsal view of head. F: Ventral view of head. Photos by Justin L. Lee.

Supralabial region usually brown or black, white pigment may intrude onto the last three or four scales in juvenile and subadult specimens. A pronounced white or light gray nuchal collar present along posterior edges of parietals and temporals in juveniles, extending occipitally across nape before terminating laterally along the throat. Ventral surface plain white with irregular dark brown or black pigment forming concentrated arrangements of bands or spots. Pale white crossbands from dorsal surface may intrude onto underside of tail.

Distribution and natural history: In Myanmar, populations of *L. chapaensis* were previously confused with *L. septentrionalis* in Kachin, Kayin, Mon, and Shan States as well as the Mandalay Region (Boulenger, 1893; Dowling & Jenner, 1988; Hallermann et al., 2002; Smith, 1943; Wogan et al., 2008; this

study). Its vertical distribution in Myanmar ranges from 781–1782 m a.s.l. Elsewhere this species is known from southeastern China, northern Vietnam, Laos, and north and western Thailand (David et al., 2023; Wang et al., 2021). Specimen CAS 222234 was collected at 1305h local time at 51% relative humidity. No other natural history observations were reported from Myanmar specimens.

Comments: Wang et al. (2021) resurrected the name *Dinodon septentrionale chapaensis* to species status and demoted the recently described *Lycodon namdongensis* Luu, Ziegler, Ha, Le & Hoang to its junior synonymy. David et al. (2023) considered former records of *L. septentrionalis* from Laos, Vietnam, Thailand, and Myanmar to represent *L. chapaensis* and referred two Burmese specimens collected by Leonardo Fea from the MNHN collection to that species.

Hallermann et al. (2002) correctly listed specimen ZMH R05369 as *Dinodon septentrionale septentrionale* in their historical review of Fea specimens in the ZMH collection but figured a specimen of *L. flavozonatus* by mistake (J. Hallermann pers. comm). By all accounts, ZMH R05369 is referable to *L. chapaensis*. All specimens from Myanmar share the diagnostic characteristics of *L. chapaensis* that were first reported by Wang et al. (2021), namely the absence of strongly keeled dorsal scale rows, and maxillary tooth counts of 12–15 (whenever the ability to take dentary data was available). Since the number of maxillary teeth are very difficult to discern in live specimens, the degree of dorsal scale keeling at midbody and posteriorly seems to be the best method to differentiate the two species. Recent reports of *L. septentrionalis* sensu stricto from Yunnan Province, China, suggest that *L. chapaensis* may occur in sympatry or parapatry with this species in northern Myanmar (Zhang et al., 2024a).

***Lycodon davisoni* Blanford, 1878**

(Figure 4A, Figure 8A; Appendix I)

Holotype: Tanintharyi Region: ZSI 3201 (formerly IMC 3201) (sex unknown) from the foot of Nawlabú Hill, east of Tavoy, in evergreen forest, at an elevation of about 1500 feet (= foothills of Nwalabo Taung) Thatyetchaung Township, Dawei District (approx. N13.91667°, E98.41667°; 416 m a.s.l.) collected by W. R. Davison (specimen lost fide. Das et al., 1998; Wallach et al., 2014).

Examined specimens (N=2): Yangon Region: NHMUK 1940.3.3.5–6 (two adult females) from “Rangoon” (= Yangon) Thanlyin Township, Yangon South District (N16.75°, E96.25°; 21 m a.s.l.) donated by University College, Rangoon (= Yangon University). Additional unexamined specimens reported in Appendix I.

Photographic records (N=3): Sagaing Region: One adult (no voucher; unknown sex) from Bat Cave, Kanbalu Township, Kanbalu District, Sagaing Region, Myanmar (N23.389722°, E95.838889°; 287 m a.s.l.) observed on 1 August 2020 by Win Mar Yae and May Thu Chit. Yangon Region: One adult (iNaturalist obs. 140859972; unknown sex) from Hmawbi Village, Hmawbi Township, Yangon North District (N17.10259°, E96.04285°; 6 m a.s.l.) observed on 17 June 2021 by Thet Zaw. Tanintharyi Region: One adult (iNaturalist obs. 140860129; unknown sex) from Yebyu Village, Yebyu Township, Dawei District (N14.25129°, E98.20681°; 10 m a.s.l.) observed on 29 June 2022 by Naung Naung Soe.

Description: Based on Myanmar specimens (N=2). Adult SVL 419–615 mm, TaL 126–202 mm, TaL/TotalL 0.225–0.231. Body slender, subcylindrical. Head ovate, very distinct from neck, supraocular region slightly raised in lateral profile. Snout blunt, eyes large, pupil round. Dorsal scales in 13–13–13 rows, all smooth. Ventral scales 239–242, angulate and strongly keeled. Cloacal plate entire. Subcaudals 98–99, paired. Total body scales 338–342 (subcaudal ratio 0.289–0.290). Maxillary dentition not recorded. Internasals slightly smaller than prefrontals, supraoculars in broad contact with prefrontals and loreal scale. Supralabials 7/7, third to fourth in contact with eye, first scale smallest, sixth supralabial largest. Infralabials 8/8, 4/4 scales in contact with anterior chin shields. Loreal rectangular, longer than high, preocular fused with loreal. Postoculars 1/1. Temporals 1+2. Paraparietal present three rows behind postocular, surrounded by 5–7 scales, with 2–3 scales between paraparietal. Anterior chin

shields larger than posterior chin shields, 2–3 gular scale rows.

Dorsal surface black in life, dark brown in preservative with 27–34 broad white or yellow crossbands, 19–20 crossbands on tail. Occasional dark brown or gray mottling interspersed within each light crossband. Head immaculate with white bridle-shaped marking on each side of head extending from supraoculars through the edge of each parietal and merging with the underside of the throat. Supralabial region with small white spots on each supralabial. Underside of snout black in preservative. Ventral surface cream with irregular dark brown pigment across the body, concentrated as small spots.

Distribution and natural history: Distributed along the central, southern and eastern edge of Myanmar, where it is known from the Sagaing Region, the city limits of the Yangon Region, and re-confirmed near the type locality in the northern Tanintharyi Region. The vertical distribution of this species ranges from sea level to 416 m a.s.l.. Elsewhere widespread across the greater Indochinese Region, including Cambodia, Laos, Thailand and Vietnam. No natural history information specific to Burmese specimens has been recorded.

Comments: The record we report from Bat Cave in the Sagaing Region represents a significant range extension of this species and is ~431 km north of the closest record from Hmawbi Township, Yangon North District, Yangon Region. The holotype is presumed to be lost (Das et al., 1998).

***Lycodon effraenis* Cantor, 1847**

(Figure 4C, Figure 8B; Appendix I)

Examined specimens (N=1): Tanintharyi Region: USNM 594419 (USNM-FS 245238) (one juvenile, unknown sex) from Nint Tenku Camp, near Nint Tenku village, 17.1 km north of the road between Lenya and 27 Mile Village, Proposed Lenya NP, Bokpyin District (N11.4519°, E99.2259°; 70 m a.s.l.) collected on 15 May 2016 by D.G. Mulcahy and company.

Description: Description below based on the single Myanmar specimen known. Adult SVL 270 mm, TaL 63 mm, TaL/TotalL 0.189. Body subcylindrical. Head oblong, distinct from neck, temporal region raised in lateral profile. Snout truncated in dorsal profile, slightly sloped downwards, eyes large, pupil vertical and elliptical. Dorsal scales in 17–17–15 rows, all smooth. Ventral scales 225, smooth. Cloacal plate entire. Subcaudals 86, paired. Total body scales 311 (subcaudal ratio 0.277). Maxillary teeth 22, first five enlarged and increasing in size. Remaining 17 teeth small and equal sized, separated from anterior five by a broad diastema. Internasals slightly smaller than prefrontals, prefrontals in broad contact with supraocular and preocular. Supralabials 9/9, third to fifth in contact with eye, first scale smallest, second supralabial largest. Infralabials 10/10, 5/5 scales in contact with anterior chin shields. Loreal fused with preocular, higher than long. Postoculars 2/2. Temporals 3+4. Paraparietal present four rows behind postocular, surrounded by 7/5 scales, with 3/3 scales between paraparietal. Anterior chin shields larger than posterior chin shields, 3/3 gular scale rows.

Dorsal surface plain brown in life, 9 white broad crossbands on body, 4 crossbands on tail. Borders of each crossband forming jagged edges. Head brown, tip of snout gray. A narrow supraocular streak on either side of head starting from the lateral edge of the prefrontals and continuing above the eye to the posterior temporals. Underside of head gray with small black speckling. Remaining ventral surface with alternating series of brown and gray crossbands, each

connected midventrally by an indistinct gray stripe.

Distribution and natural history: Within Myanmar, known only from the Tanintharyi Region in proposed Lenya NP. The specimen from the Tanintharyi Region is the northernmost record of this species, with previous vouchered specimens known from Peninsular Thailand (Krabi Province fide. [Chanhome et al., 2001](#)). Elsewhere from scattered localities in Indonesia (Sumatra and Kalimantan), and Malaysia (including Peninsular Malaysia and Borneo).

Comments: A very significant genetic divergence exists (cyt b p-distance>10%) between samples of *L. effraenis* from Peninsular Thailand and Peninsular Malaysia ([Siler et al., 2013](#)), which likely points to the existence of two separate species. Based on geographic proximity, the specimen from Myanmar is likely conspecific with the lineage present in Nakhon Si Thammarat Province, Thailand.

***Lycodon fasciatus* Anderson, 1879**

(Figure 5E, Figure 8C; Appendix I)

Examined specimens (N=24): Chin State: CAS 234957 (adult female) from Hlaing Took village, Kan Pet Let Township, Min Dat District (N20.98547°, E93.89133°; 1840 m a.s.l.) collected 2 January 2006 by T. Nyo and L. Shein. Kachin State: MSNG 30290 (adult female) and NHMUK 1925.4.2.28 (juvenile female) from Bhamo Township, Bhamo District (N24.26298°, E97.23830°; 117 m a.s.l.) collected by L. Fea, collection dates unknown; CAS 245498 (adult female) from Myitkyina District, Chipwi Township, 16 miles camp (between Pamwa and Chipwi) (N25.79467°, E98.20606°; 1208 m a.s.l.) collected 7 August 2009 by M. Hlaing, S.L. Oo, Z.H. Aung, K.S. Lwin and Y.M. Win; NHMUK 1926.9.17.10–11 (two adult females) from "Huton, Kachin Hills" [vicinity of Hutung village, Momauk Township, Bhamo District] (N24.25000°, E97.53000°; 1652 m a.s.l.) collected in 1925 by F. Wall. Kayin State: NHMUK 1937.2.1.12 (adult female) from "Mt. Carin, Bia-po" (=Karen Hills), Thandaunggyi Township, Hpa-An District (N19.28300°, E96.55000°; 1000–1100 m a.s.l.) collected between 22 May and 5 November 1888 by L. Fea. Mandalay Region: BNHS 1221 (adult male), NHMUK 1900.9.20.5–6 (one adult female, and adult male, respectively), NHMUK 1901.4.26.1 (adult male; neotype of *Ophites fasciatus* Anderson, 1879), NHMUK 1904.4.26.7 (adult female) all from Mogok [=Mogok Township, Pyin Oo Lwin District] (N22.92000°, E96.50000°) collected by H. Hampton (NHMUK) and F. Wall (BNHS); BNHS 1222–23 (two adult females), BNHS 1224 (one adult male) and NHMUK 1925.12.22.15–16 (one adult male and adult female, respectively) from Maymyo, Burma [= Pyin Oo Lwin Township, Pyin Oo Lwin District] (N21.98333°, E96.56667°; 917 m a.s.l.) collected prior to 1925 by F. Wall; Shan State: NHMUK 91.11.26.31 (adult female) and BNHS 1228 from "Toungyi, Shan State" [= Taunggyi Township, Taunggyi District] (N20.66667°, E97.00000°; 1401 m a.s.l.) collected by Lt. Blakeway (NHMUK only), date unknown; NHMUK 1908.6.23.9–11 (adult males) from "Loilen" [= Loilem Township, Loilem District] (N20.92500°, E97.56389°; 1358 m a.s.l.) collected by F. Wall, date unknown. Yangon Region: NHMUK 1940.3.3.3 (adult female) from "Rangoon" [Thanlyin Township, Yangon South District] (N16.75000°, E96.25000°; 12 m a.s.l.) collector and date unknown.

Photographic records (N=12): Kachin State: One adult (iNaturalist obs. 144728977) from 7.5 km N of Chipwi Village, Chipwe Township, Myitkyina District (N25.95881°, E98.13731°; 450 m a.s.l.) observed 25 April 2009 by Thet Zaw Naing; one adult (iNaturalist obs. 131707416) from Chipwi Village, Chipwe Township, Myitkyina District (N25.88982°, E98.12177°; 244 m a.s.l.) observed 28 April 2009 by Thet Zaw Naing; one adult (iNaturalist obs. 144728976) from Injangyang Township, Myitkyina District (N26.21558°, E98.14176°; 2024 m a.s.l.) observed 25 April 2009 by Thet Zaw Naing. Mandalay Region: Two adults (iNaturalist obs. 140878361 and obs. 140812478) from Pyin Oo Lwin Township, Pyin Oo Lwin District (N22.02523°, E96.46655°; 1075 m a.s.l.) both observed 2 November 2022 by Nan Ko and Hu San, respectively; one juvenile (sex unknown) from National Kan Daw Gyi Botanical Gardens, Pyin Oo Lwin Township, Pyin Oo Lwin District (N21.99417°, E96.46947°; 1107 m a.s.l.) observed 7 September 2024 by Moe Set, photo by Thu Zar. Shan State: One juvenile (iNaturalist obs. 140881469) from Hpa-Paik, Pindaya Township, Danu Self-Administered Zone (N21.10380°, E96.65742°; 1211 m a.s.l.) observed 2 November 2022 by Ko Kyaw Zin Hein; one subadult (iNaturalist obs. 140945509) from Kawlin Village, Kawlin Township, Kawlin District (N23.79535°, E95.67988°; 191 m a.s.l.) observed 30 November 2021 by Kim Ma Lin; one adult (iNaturalist obs. 140890973) from Kyaukme Township, Kyaukme District (N22.53706°, E97.08064°; 726 m a.s.l.) observed 31 August 2022 by Wai Yan Phyo; one adult (iNaturalist obs. 166991265) from Lashio-Muse Rd, Hseni Township, Lashio District (N23.19158°, E97.88643°; 663 m a.s.l.) observed 10 May 2023 by Khat Khat; one juvenile (iNaturalist obs. 140888535) from Loilem Township, Loilem District (N20.92639°, E97.56333°; 1357 m a.s.l.) observed 1 July 2022 by Hein Pyae; one adult (iNaturalist obs. 140945060) from Muse Township, Muse District (N23.99496°, E97.91658°; 839 m a.s.l.) observed 11 July 2022, reported by Win Paing Oo.

Description: Variation in Myanmar specimens is summarized below, description adapted from Vogel & Luo(2011) and David et al. (2023). Moderate body size, adult SVL 360–706 mm (juveniles 227–333 mm); TaL 88–188 mm (juveniles 62–89 mm); TaL/TL 0.202–0.222, no sexual dimorphism. Body elongate, laterally compressed. Head oblong, distinct from neck, temporal region raised in lateral profile. Snout depressed and sloped downwards in lateral profile, eyes moderate, pupil vertical and elliptical. Dorsal scales in 17–17–15 rows, all keeled except for outermost 3–5 rows anteriorly and at midbody, and outermost two rows posteriorly. Ventral scales 200–219, usually angulate, smooth or feebly keeled. Cloacal plate entire. Subcaudals 79–90 (N=21), paired. Total body scales 282–300 (subcaudal ratio 0.272–0.300; N=21). Maxillary teeth 12 (N=1), first five gradually increasing in size, three enlarged teeth, then four smaller teeth of equal size, each separated by a diastema. Internasals slightly smaller than prefrontals, supraoculars normally in narrow contact with prefrontals (rarely separate). Supralabials 8/8, third to fifth in contact with eye, first scale smallest, sixth and seventh supralabial largest (rarely just seventh or sixth scale largest). Infralabials 9–10, 5/5 scales in contact with anterior chin shields. Loreal rectangular, longer than high, normally blocked from contacting eye by preocular. Preocular 1/1, in contact with supraoculars, occasionally in contact with frontal. Postoculars 2/2. Temporals 2+3 or 2+2 (rarely 1+2). Paraparietal present three rows behind postocular, surrounded by 6–8 scales, 2–4 scales between paraparietal. Anterior chin shields larger than posterior chin

shields, 2/2 gular scale rows.

Dorsal ground color dark brown or black with 28–43 light crossbands on body and 12–21 on tail. Color of crossbands variable, ranging from orange, orange brown, reddish brown or light brown. Anterior crossbands narrow, plain overall; by midbody, crossbands broader in length with brown or black mottling interspersed within them, their margins frequently edged with yellow or white. Position of first body crossband begins at ventral scale 5–17, its length 5–14 ventral scales at base, 1.0–4.0 vertebral dorsal scales long, their edges jagged by midbody. Head plain, same color as body. Juveniles have a narrow light brown or cream nuchal collar extending from the posterior edges of the parietals and temporals until merging with the ventral surface near the throat. In subadults and adults, the nuchal collar darkens until it is barely visible compared to the rest of the head. Supralabial region usually with cream or white spots on each scale, in some specimens plain brown except for supralabials immediately below eye. Underside of head cream or white with dark gray pigment restricted to edges of first 4–5 infralabials and edges of anterior chin shields. Ventral surface with alternating series of dark brown and cream colored crossbands with dark brown spotting interspersed between them.

Distribution and natural history: Largely restricted to moist forested foothills within Myanmar, with records concentrated along the Arakan/Chin Hills (Chin State), lower montane regions along the Indo-Himalayas (Kachin State), Karen Hills (Kayin State), and adjacent Shan Plateau (Shan State, Mandalay Region). Its vertical distribution within the country ranges from 12 to 1840 m a.s.l., though most records are between 500–1500 m a.s.l.. A disjunct record also exists from the Yangon Region. Elsewhere inhabits moist forested portions of Bhutan, southeast China, northeastern India, Laos, Thailand and northern Vietnam (David et al., 2023; Nguyen et al. 2025; Vogel et al., 2024; Vogel & Luo, 2011; Wangyal, 2012).

***Lycodon gongshan* Vogel & Luo, 2011**

(Figure 8C; Appendix I)

Specimens examined (N=1): Kachin State: CAS 245470 (subadult male) from Lukpwi Village, Chipwe Township, Myitkyina District (N25.701333°, E98.336083°; 1845 m a.s.l.) collected on 1 Aug 2009 by M. Hlaing, S.L. Oo, Z.H. Aung, K.S. Lwin, and Y.M. Win.

Description: Data presented based on Myanmar specimen CAS 245470. Refer to Nguyen et al. (2025) for a full description of this species. SVL 404 mm; TaL 109 mm, tail broken; TaL/TL>0.212. Body elongate, laterally compressed. Head ovate, distinct from neck, temporal region slightly raised in lateral profile. Snout truncated, eyes moderate, pupil vertical and elliptical. Dorsal scales in 17–17–15 rows, all keeled except for outermost four rows anteriorly and at midbody and outermost two rows posteriorly. Ventral scales 212, smooth. Cloacal plate entire. Subcaudals>84, paired. Total body scales>297 (subcaudal ratio>0.283). Maxillary teeth 12, first five gradually increasing in size, one large tooth, five small and of equal size, each separated by a diastema. Internasals slightly smaller than prefrontals, supraoculars in contact with prefrontals. Supralabials 8/8, third to fifth in contact with eye, first scale smallest, second supralabial largest. Infralabials 8/9, 5/5 scales in contact with anterior chin shields. Loreal rectangular, longer than high, in contact with eye. Preocular 1/1, in contact with supraoculars. Postoculars 2/2. Temporals 2+3. Paraparietal present three or two rows behind postocular,

surrounded by 6/7 scales, with 4/2 scales between paraparietal. Anterior chin shields larger than posterior chin shields, 2/2 gular scale rows.

Body dark brown with 35 lighter crossbands on body and 12 on tail. Color of crossbands white anteriorly, becoming reddish brown posteriorly. First light crossband positioned under the 6th ventral scale, 3.5 ventral scales long at base, 1.0 vertebral dorsal scales long. By midbody most crossbands widen posteriorly with occasional dark brown mottling within them, their margins jagged by midbody and edged with white pigment. Head black with brown indistinct nuchal extending across posterior region of parietals before continuing towards throat. Supralabials plain black, no light spotting on scales. Underside of head white with entire anterior chin shields and first 4–5 infralabials black. Venter dark with clear black and white crossbands occasionally connected posteriorly by irregular black spots midventrally.

Distribution and natural history: In Myanmar known only from northeastern Kachin State in Chipwi Township. Previously, the distribution of *L. gongshan* was restricted to southern China in the Xizang AR (Huang et al., 2021) and Yunnan Province. Additionally, Chen et al. (2018) reported two specimens from Panzhihua City in neighboring Sichuan Province, however these records were considered questionable by Wang et al. (2021).

Comments: Specimen CAS 245470 is the first report of *L. gongshan* from Myanmar (see Nguyen et al., 2025). Nguyen et al. (2024a) hinted at the presence of this species in Myanmar upon listing specimen CAS 245470 in their referred material under *L. gongshan*. The closest documented record is ~52.6 km SW of the nearest locality in Lushui City, Yunnan Province, China (Huang et al., 2021).

***Lycodon jara* Shaw, 1802**

(Figure 8B; Appendix I)

Examined specimens (N=2): Kachin State: CAS 235387 (one adult male) and CAS 235388 (one adult female) from Machanbaw Town, Machanbaw Township, Putao District (N27.27853°, E97.58136°; 404 m a.s.l.) collected on 7 May 2002 by A.K. Shein and S. Di (CAS 235387) and on 9 May 2002 by H. Win, K.S. Lwin, A.K. Shein and Y.N.T. Na (CAS 235388).

Photographic records (N=2): Kachin State: One adult (iNaturalist obs. 137378333) from Putao Township, Putao District (N27.31827°, E97.40569°; 456 m a.s.l.) observed by Junia Nway Oo on 1 Oct 2022; and one adult (iNaturalist obs. 133749251) from Ale-on Village, Hkakabo Razi NP, Nagmung Township, Putao District (N27.27556°, E97.58214°; 1716 m a.s.l.) observed 10 March 2009 by Thet Zaw Naing.

Description: Based on Myanmar specimens (N=2). SVL 424–427 mm; TaL 95–114 mm; TaL/TL 0.182–0.212, apparent sexual dimorphism (female 0.182; male 0.212). Body elongated, laterally compressed. Head oblong, distinct from neck, temporal region raised in lateral profile. Snout elongated, slightly depressed and sloped downwards laterally, eyes moderate, pupil vertical and elliptical. Dorsal scales in 17–17–15 rows, all smooth. Ventral scales 172–179, smooth. Cloacal plate divided. Subcaudals 63–71, paired. Total body scales 243–244 (subcaudal ratio 0.259–0.291). Maxillary teeth 10–12, first 4–5 gradually increasing in size, 4 small and equal in size, posterior 2–3 enlarged, each separated by a diastema. Internasals slightly smaller than prefrontals, supraoculars in narrow contact with prefrontals. Supralabials 8/8, third to fifth in contact with eye, first scale smallest, seventh supralabial

largest. Infralabials 10/10 or 10/9, 5/5 scales in contact with anterior chin shields. Loreal rectangular, longer than high, in contact with eye. Preocular 1/1, in contact with supraoculars. Postoculars 1/1. Temporals 1+2. Paraparietal indistinguishable from posterior temporal rows. Anterior chin shields larger than posterior chin shields, 4/4 gular scale rows.

Body olive brown or dark brown completely engulfed with one or two small yellow spots on every dorsal scale creating a speckled pattern across the body. Head same as body, also engulfed with spots. Supralabial region tan. Ventral surface tan or white, immaculate.

Distribution and natural history: Only known in Myanmar from three localities in Kachin State along the Indo-Himalayan foothills, with a vertical distribution ranging from 404–1716 m

a.s.l.. Elsewhere in Bangladesh, Bhutan, India, and Nepal (Chaudhuri et al., 2015; Schleich & K  stle, 2002; Smith, 1943; Wangyal, 2012). This species was also recently discovered in Yunnan Province, China (Zhang et al., 2024b).

Lycodon kundui Smith, 1943

Specimens examined (*N* = 1): Yangon Region: NHMUK 1946.1.13.68 (juvenile, sex unknown) from Gyobyu Reservoir, Taikkyi Township, North Yangon District (N17.376651  , E96.035663  ; 100 m a.s.l.) collected prior to 1940 by ‘‘Dr. Kundu’’.

Updated diagnosis: A *Lycodon* known from one juvenile specimen less than 225 mm total length; relative tail length approximately 0.169; dorsal scale rows 15–15–15, all smooth; ventrals 183, feebly keeled; subcaudals 70 (see description),

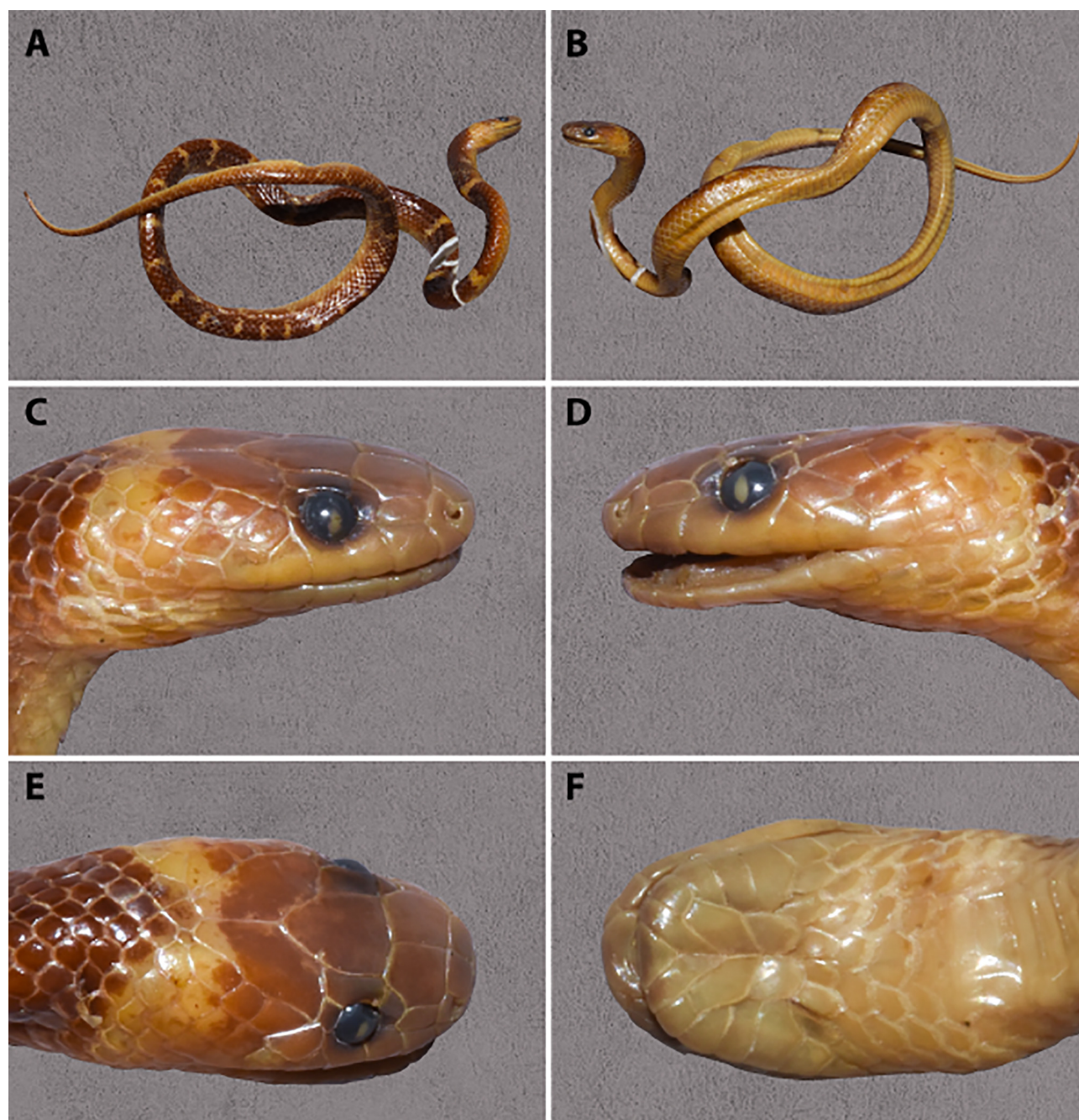


Figure 3 *Lycodon kundui* (NHMUK 1946.1.13.68, holotype) from Gyobyu Reservoir, Yangon Region, Myanmar

A: General dorsal view. B: General ventral view. C: Lateral view of head, right side. D: Lateral view of head, left side. E: Dorsal view of head. F: Ventral view of head. Photos by Gernot Vogel.

paired; cloacal plate divided; supralabials 7/7, third to fourth in contact with eye; infralabials 8/8, first four in contact with anterior chin shields; preocular 1/1, blocking prefrontals from contacting eye, in contact with frontal on one side of head; loreal 1/1, blocked from contacting eye by preocular; postoculars 1/1; temporals 1+2. Dorsum brown with 34 dark yellow crossbands on body, 14 on tail. First six anterior crossbands well separated and extend onto ventral surface, remaining bands smaller and irregular, connected by a longitudinal series of lateral spots on the outermost four dorsal scale rows. Head same color as body with a broad dark yellow nuchal collar on posterior edge of parietals and adjacent occipital scales, extending to ventral surface through temporal and posterior edges of last supralabial. Ventral surface plain tan.

Description: Based on the holotype (NHMUK 1946.1.13.68). Specimen in fair condition, no incisions on ventral surface, broken tail tip. Body and head measurements as follows: SVL 171 mm, TaL 36 mm (=38 mm; [Smith, 1943](#)), TL 207 mm (=225 mm; [Smith, 1943](#)), TaL/TL ratio 0.174, HeadL 7.8 mm, HeadW 4.7 mm, SnL 2.6 mm, SnW 2.1 mm, EyeD 1.0 mm, FrontalL 2.3 mm, FrontalW 1.7 mm, InterorbD 2.8 mm. TaL/TL 0.174 (=0.169; [Smith, 1943](#)). Body subcylindrical and elongate. Tail gracile, tapering gradually, terminal scute missing. Head distinct from neck, ovate in dorsal profile, flattened in lateral profile. Snout rounded, slightly depressed downwards in lateral profile, upper jaw projecting further than lower jaw, canthus rostralis absent. Nostrils rounded, positioned medially inside nasal. Eye size moderate relative to head with a vertical and elliptical pupil.

Dorsal scales in 15–15–15 rows, all smooth, vertebral row of scales not enlarged, apical pits absent. Ventral scales 183, slightly angulate, feebly keeled. Subcaudals paired and angulate, 70 according to [Smith \(1943\)](#), but 61 pairs counted at present due to broken tail. Cloacal plate divided. Total body scales 254, subcaudal ratio 0.276 based on [Smith's \(1943\)](#) original count. Maxillary dentition unknown.

Rostral subtriangular in dorsal profile, wider than high, barely visible from above. Posterior edge of rostral bordering internasal forms an obtuse 'gull-wing' shaped angle (~142°). Nasals vertically divided by indistinct suture above and below nostril, longer than high, in contact with internasal, loreal, prefrontal, rostral and first supralabial. Both portions of nasal subpentagonal, anterior portion slightly larger than posterior. Internasals paired, rectangular, anterior edges straightened, 1.3 times wider than length of entire scale and 1.6 times wider than medial suture, each scale in contact with rostral, nasal and prefrontal. Prefrontals paired, subpentagonal, 2.8 times larger than internasals, anterior edges straightened, entire scale 1.1 times wider than long, medial suture roughly equal (1.0 times) to width of entire scale and 2.1 times longer than internasal suture. Both prefrontals contact internasals, nasals, loreal, preocular, and frontal, prefrontal in narrow contact with supraocular on left side of head, but on right side blocked from contacting supraocular by the preocular. Supraoculars paired, subrectangular, anterior and posterior sutures concave, 2.0 times longer than wide, posterior edge same width as anterior edge, both supraoculars in contact with preocular, postocular, frontal and parietal (see above for partial contact with prefrontal). Frontal small, hexagonal, shield shaped, 1.3 times longer than wide, 1.9 times longer than medial prefrontal suture; anterior edge of frontal angled, positioned slightly past eyes in dorsal profile; posterior vertex of frontal bordering

parietals acute angled (~82°). Preocular blocked from contacting frontal on left side of head, but in very narrow contact with frontal on the right side. Parietals paired, subpentagonal, entire scale 1.8 times longer than wide, medial suture 1.1 times longer than wide and 1.4 times shorter than frontal; anterior edge of parietal straightened, its suture with frontal and supraoculars obtuse angled and directed laterally (~134°). Parietals surrounded by a total of 10 scales behind upper postoculars. Loreal 1/1, subrectangular, 1.9 times longer than high, blocked from contacting eye by preocular. Preocular 1/1, vertical and subpentagonal. No presubocular or subocular. Postocular 1/1, small, vertical, subrectangular. Temporals 1+2, uppermost posterior temporal largest. A single slightly enlarged paraparietal scale present as the fourth scale behind the postocular on each side, surrounded by 5/5 scales with 2/2 scales positioned immediately below. Supralabials 7/7, first in contact with nasal, first to third in contact with loreal, third to fourth in contact with eye; fourth supralabial largest, first supralabial smallest. Infralabials 8/8, first to fourth in contact with anterior chin shields, fourth to fifth contacting posterior chin shields. Mental triangular, 1.6 times wider than long. Anterior chin shields 1.4 times larger than posterior shields. Gular scales 2/2 (excluding two prementals) behind posterior row of chin shields.

After at least 85 years in preservative, dorsal ground color dark brown, a series of 34 dark yellow body crossbands followed by 14 crossbands on the tail. Insertion of the first crossband starts at the 12th ventral scale. First six crossbands widely interspersed across dorsum and continue downwards until reaching the ventral surface, each 1.5 vertebral dorsal scales long and two ventral scales long at their base, lacking any conspicuous edge shaped patterning along their margins. Remaining body and tail crossbands smaller, only 0.5–1.0 vertebral dorsal scales long, replaced by a longitudinal series of small dark yellow spots along the outermost four dorsal scale rows, which occasionally connect to the crossbands forming a chain-like pattern along the posterior half of the body. Color of tail crossbands same as body, irregular and less distinct than those on body. Dorsal surface of head brown, plain. A single dark yellow nuchal collar present across the posterior edges of each parietal and paraparietal before engulfing the back half of the posterior temporals, seventh supralabial and surrounding occipital scales. Supralabial region light brown, slightly paler than rest of head. Eye black, pupil tan. Underside of head and remainder of body uniform tan, completely plain. Color in life unknown.

Distribution and natural history: Known only from type locality, Gyobyu Reservoir, located in the Yangon Region, Myanmar at the southern end of the Bago Yoma Range.

Comments: This enigmatic species is still known from the name-bearing type. No specimens referable to this species were detected during an additional collecting event near the type locality in Gyobyu Reservoir, though at least one specimen of *L. aulicus* was found. The cross-banded color pattern of *L. kundui* shares several resemblances to *L. laoensis*, though *L. kundui* is differentiated from that species in several aspects of scalation: most notably by the presence of 15 dorsal scale rows across the entire body, 7 supralabials, no contact between the loreal scale and internasals, and no contact between the preocular and frontal scale.

***Lycodon laoensis* Günther, 1864**
(Figure 4F–G, Figure 8C; Appendix I)



Figure 4 Live specimens of *Lycodon* from Myanmar

A: *Lycodon davisoni* (unvouchered specimen) new record from Bat Cave, Sagaing Region. B: *Lycodon subannulatus* (USNM 581990) from Daung (Don) Island, Myeik Archipelago, Tanintharyi Region. C: *Lycodon effraenis* (USNM 594419) from Nint Tenku village, proposed Lenya NP, Tanintharyi Region. D: *Lycodon neomaculatus* (CAS 229726) from Thaye Chaung village, Tanintharyi Region. E: *Lycodon neomaculatus* (USNM 594420) from Ywahilu Camp, proposed Lenya NP, Tanintharyi Region. F: *Lycodon laoensis* from Nga Wun RF (proposed Lenya NP), Tanintharyi Region, adult specimen. G: *Lycodon laoensis* from Nga Wun RF (proposed Lenya NP), Tanintharyi Region, juvenile specimen. H: *Lycodon zawi* (CAS 216505, paratype) from Rakhine Yoma Elephant Range, Rakhine State. Photos by Win Mar Yae (A), Daniel G. Mulcahy (B–C, E), Hla Tun, courtesy of the California Academy of Sciences digitized slide collection (D, H) and Myat Zaw (F–G).

Photographic records (N=3): Tanintharyi Region: One subadult (sex unknown) from Nga Wun RF (proposed Lenya NP), Bokpyin Township, Kawthaung District (N11.77932°, E99.54665°; 63 m a.s.l.) observed 23 December 2023 by Orlando Glenwood D'Silva. One juvenile (sex unknown) from Thagyet RF, Bokpyin Township, Kawthaung District (12.108873°, E99.145060°; 20 m a.s.l.) observed 2 August 2023 by Myat Zaw. Kayin State: One adult (sex unknown) from Myawaddy Township, Myawaddy District (ca. N16.688477°, E98.447185°; 20 m a.s.l.) observed 24 July 2024 by Samuel Arr Pu.

Description: Photographed specimens agree with the descriptions of Smith (1943); David et al. (2023). Head ovate, distinct from neck. Preocular scale 1/1, in contact with frontal. Dorsum black with bright yellow crossbands in adult/subadult specimens, white in juveniles. One subadult specimen has at least 44 body+tail crossbands, while another juvenile specimen has at least 38. Crossbands expand ventrolaterally and are longer anteriorly (first crossband approximately 3–4 vertebral dorsal scales in length) than posteriorly. By midbody, each dorsal crossband connects to one another along the flanks forming a chain-like pattern in lateral profile. Ventral surface white.

Distribution and natural history: Now known from the southeastern edge of Myanmar in Kayin State and the Tanintharyi Region. All records are close to the Thai border. Previously known from Laos, Cambodia, China (Xishuangbanna, Yunnan Province), Vietnam, Thailand, and northern Peninsular Malaysia (David et al., 2023; Tweedie, 1954; Zhao et al., 1998).

Comments: The three photographed specimens represent the first documented records of this species from Myanmar. The closest records are from northern and western Thailand (i.e., Phetchaburi, Chiang Rai, and Mae Hong Son provinces).

***Lycodon latifasciatus* Nguyen, Lee, Ding, Jiang, May Thu Chit, Poyarkov & Vogel, 2025**

(Appendix I)

Holotype: CAS 245367 (adult male) from Laung Nguk Village, Lahe Township, Khandi District, Sagaing Region (N26.159833°, E95.522527°; ca. 950 m a.s.l.) collected on 19 May 2009 by M. Hlaing, S.L. Oo, Z.H. Aung, and Y.M. Win.

Examined specimens (N=2): Sagaing Region: ZMMU Re-16728 (adult male, paratype) and ZMMU Re-16729 (juvenile female) both from Zalon Taung Mt., Banmauk Township, Banmauk District, Sagaing Region (24.51628°N, 95.81705°E; 660 m a.s.l.) collected 2 August 2019 by N. A. Poyarkov, P. Pawangkhanant, V. A. Gorin, and May Thu Chit.

Description: Nguyen et al. (2025) provided a full description including the holotype, type series and referred material. Based on three specimens recorded from Myanmar: Adult SVL 391–680 mm, TaL 104–191 mm (juvenile SVL 204 mm, TaL 53 mm), TaL/TotalL 0.206–0.219. Head ovate, distinct from neck, temporal region slightly raised laterally. Snout depressed, sloped in lateral profile. Eyes moderate, pupil slightly elliptical. Dorsal scales in 17–17–15 rows, keeled except for outermost four rows at midbody and posteriorly (smooth). Ventral scales 209–216, angulate (in holotype) or non-angulate, feebly keeled. Cloacal plate entire. Subcaudals 90–96. Total body scales 300–313 (subcaudal ratio 0.300–0.310). Maxillary teeth 11 (holotype), first four small and gradually increasing in size, next three enlarged, remaining four strongly enlarged, each separated by a

diastema. Internasals smaller than prefrontals, supraoculars blocked from contacting frontal, in contact with prefrontals in all Burmese specimens. Supralabials 8/8, third to fifth in contact with eye, first scale smallest, sixth and seventh supralabial largest (occasionally only seventh scale largest). Infralabials 9/9, 8/8 in one specimen, first 5/5 scales in contact with anterior chin shields. Loreal 1/1, longer than high, blocked from contacting eye by preocular. Preocular 1/1, separate from frontal. Postoculars 2/2. Temporals normally 2+2 (2+3 on one side of head in ZMMU Re-16729). Paraparietal scale present three scale rows behind postocular, surrounded by 6–9 scales, with 3–5 scales between paraparietal. Anterior chin shields larger than posterior chin shields, 1–3 gular scale rows.

Dorsal surface dark brown or black in preservative, brown to orange brown in life. 29–36 orange or orange brown crossbands on body, 16–21 crossbands on tail. Position of first body crossband begins at ventral scale 7–11, its length 5–8 ventral scales at base, and 2.5–4.0 vertebral dorsal scales. Remaining crossbands on body 3–5 vertebral dorsal scales long. Head plain, dark brown, in most specimens light brown “M” or “Y” shape markings present from posterior edge of the parietals to temporal and paraparietal region, dissipating at nape. Supralabial region with distinct or tan spots on scales. Underside of head cream or tan, dark brown pigmentation restricted to edges of infralabials, anterior chin shields, and gular scales. Juvenile coloration similar to adults but bolder dorsal ground color and crossbands narrower in appearance. Ventral surface of body and tail dark brown with faint cream bands, first two or three indistinct, remaining bands well defined, interspersed with dark spotting by posterior portion of body.

Distribution and natural history: This recently described species is known from northern Myanmar only in two localities within the Sagaing Region (Laung Nguk Village and Zalon Taung NP) in the eastern Himalayan foothills. Outside of Myanmar is known from Medog County, Xizang AR, China.

***Lycodon neomaculatus* Nguyen, Lee, Pauwels, Kennedy-Gold, Poyarkov, David & Vogel, 2024**

(Figure 4D–E, Figure 8A; Appendix I)

Lycodon subcinctus—Wogan et al. (2008: 90), Zug & Mulcahy (2019: 143)

Examined specimens (N=4): Kachin State: CAS 235846 (adult male) from Hepu Stream, Hepu Village, Indawgyi WS, Moenyin Township, Myitkyina District (N25.09317°, E96.40019°; 254 m a.s.l.) collected on 14 May 2003 by G.O.U. Wogan, J.A. Wilkinson, J.V. Vindum, H. Win, and T. Thin. Tanintharyi Region: CAS 229726 (adult female) from East of Thaye Chaung Town, Thaye Chaung Township, Dawei District (13.86711°N, 98.28369°E; 64 m a.s.l.) collected on 19 Jan 2003 by H. Win, H. Tun, K.S. Lwin, A.K. Shein and Z.M. Naing; CAS 245971 (juvenile, unknown sex) along pipeline rd., vicinity of Khotama military camp, Tanintharyi Nature Reserve, Yebyu Township, Dawei District (N14.73728°, E98.23233°; 109 m a.s.l.) collected on 14 May 2003 by G.O.U. Wogan, J.A. Wilkinson, J.V. Vindum, H. Win, and T. Thin; USNM 594420 (adult male) 12.4 km south of Ma Lo None, Ywahilu Camp (Proposed Lenya NP), Bokpyin Township, Kawthaung District (N10.95860°, E98.94700°; 45 m a.s.l.) collected on 10 May 2016 by D.G. Mulcahy, M.K. Thura and company.

Photographic records (N=1): Mandalay Region: One adult

(DTU 508, sex unknown) from Sin Taung Village, Thazi Township, Meiktila District (N20.563850°, E96.494941°; 1192 m a.s.l.) observed 9 August 2021 by S. Sai Lu.

Description: Refer to Nguyen et al. (2024b) for a full morphological description of the type series (but see comments in species account below for clarifications), including material from Myanmar. One referred specimen (USNM 594420) from Proposed Lenya NP was not included in that paper but is briefly described below. SVL 619 mm; TaL 164 mm; TaL/TL 0.209. Body elongated, laterally compressed. Head oblong, distinct from neck, temporal region slightly raised in lateral profile. Snout truncated, eyes moderate, pupil vertical and elliptical. Dorsal scales in 17–17–15 rows, keeled except for outermost five rows at midbody and outermost row posteriorly. Ventral scales 212, smooth. Cloacal plate divided. Subcaudals 84, paired. Total body scales 297 (subcaudal ratio 0.284). Maxillary teeth 12, first 5 gradually increasing in size, 7 smaller and equal in size, separated by a diastema. Internasals smaller than prefrontals, supraoculars in contact with prefrontals. Prefrontals in contact with eye. Supralabials 8/8, third to fifth in contact with eye, first scale smallest, sixth supralabial largest. Infralabials 9/9, 4/4 scales in contact with anterior chin shields. Loreal rectangular, fused with preocular, longer than high, in contact with eye. Postoculars 2/2. Temporals 1+2. Paraparietal present as the third scale row behind postocular, surrounded by 6/7 scales, 2/3 scales between paraparietal. Anterior chin shields larger than posterior chin shields, 1/1 gular scale rows.

Dorsal ground color jet black with series of 10 visible gray bands. In each band there are small black speckles present on the posterior edge of each dorsal scale. Remaining dorsal surface gray brown and immaculate. Dorsal surface of head gray brown, edge of occipital region edged with white. Supralabial region white, plain. Underside of head and ventral surface of body plain white, underside of tail with an indistinct gray midventral stripe present across inner edges of each subcaudal.

Distribution and natural history: In Myanmar known from the vicinity of Indawgyi Lake in Kachin State, northern Mandalay Region, and the Tanintharyi Region between 45–1192 m a.s.l. Elsewhere north of the Isthmus of Kra from Cambodia, southern China (including Hong Kong), Laos, Thailand (Prachuap Khiri Khan Province and northwards), and Vietnam. The Mandalay observation from Sin Taung Village, Thazi Township, Meiktila District was first reported in Nguyen et al. (2024b) but specific locality information was not included in the geolocation appendix. This specimen was observed ca. 2030h crawling on the forest floor.

Comments: Specimen USNM 594420 agrees with the morphological diagnosis of Nguyen et al. (2024b) but has a higher ventral scale count relative to the values reported by those authors. By mistake, the number of total body scales included in the description of variation and summary table of Nguyen et al. (2024b) did not include the cloacal plate. To maintain consistency with this study and others, the range of total body scales for members of *L. subcinctus* sensu lato mentioned by Nguyen et al. (2024b) should be offset by one scale, and the range for *L. neomaculatus* should be 261–291 (= now 261–297 including USNM 594420).

***Lycodon septentrionalis* Günther, 1875**

(Figure 5F–G, Figure 8D; Appendix I)

Examined specimens (N=14): Kachin State: CM 29202

(juvenile male) from Shadazup Village, Hpakant Township, Mohnyin District (N25.918139°, E96.658594°; 197 m a.s.l.) collected in 1944 by H. J. Bergner; CAS 221512 and CAS 221527 (two adult females) from Rabaw Village, Nagmung Township, Putao District (N27.44122°, E97.91875°; 538 m a.s.l.) collected 10 September 2001 by J.B. Slowinski, D.-Q. Rao, G.O.U. Wogan, H. Win, and A.K. Shein; CAS 224505 (adult male) from Lan Sa Htu Village, Hkakabo Razi NP, Nagmung Township, Putao District (N27.52178°, E97.94542°; 586 m a.s.l.) collected on 8 April 2002 by K.S. Lwin, A.K. Shein and H. Tun; CAS 224749 (adult female) between Nagmung Town and Ta Se Htu Village, Nagmung Township, Putao District (N27.48292°, E97.84236°; 546 m a.s.l.) collected on 23 April 2002 by H. Win, T. Thin, K.S. Lwin, A.K. Shein and H. Tun; CAS 225182 (adult male) from Ba Bawt village, Nagmung Township, Putao District (N27.37272°, E97.89683°; 548 m a.s.l.) collected on 26 April 2002 by K.S. Lwin and Y.N.T. Na; CAS 225206 (adult male) from between Ba Bawt village and Au Yin Ga camp, Nagmung Township, Putao District (N27.33286°, E97.87622°; 544 m a.s.l.) collected on 29 April 2002 by H. Win, T. Thin, K.S. Lwin, A.K. Shein and H. Tun. Sagaing Region: CAS 232226 (juvenile male) from the road between Swe Khaung Ngaw village and Nansabi village, border of Htamanthi WS, Homalinn Township, Khandi District (N25.36397°, E95.35897°; 187 m a.s.l.) collected on 31 Oct 2002 by H. Win and T. Thin; USNM 595984 (adult female), USNM 595985 (juvenile, sex unknown) and USNM 595986 (adult male) from Zalon Taung NP, 7.7 km N of Zalon Taung Pagoda, Banmauk Township, Banmauk District (N27.52178°, E97.94542°; 550 m a.s.l.) collected 4–14 April 2019 by D.G. Mulcahy, M.K. Thura and company; ZMMU NAP-09639 and ZMMU NAP-09599–9600 from Zalon Taung NP, Banmauk Township, Banmauk District (same approx. coordinates as USNM specimens) collected 3–4 August 2019 by N.A. Poyarkov, P. Pawangkhanant, V.A. Gorin and May Thu Chit.

Photographic records (N=1): Sagaing Region: One adult (sex unknown) from Zalon Taung NP, Banmauk Township, Banmauk District (N24.478333°, E95.809139°; 568 m a.s.l.) observed 12 October 2019 by May Thu Chit.

Description: Based on Myanmar specimens (N=7). Adult SVL 561–959 mm, TaL 137–166 mm (juvenile SVL 207–274 mm, TaL 53–68 mm), TaL/TotalL 0.198–0.207. Head ovate, distinct from neck, temporal region slightly raised. Snout depressed and sloped in lateral profile. Eyes moderate, pupil elliptical and oriented vertically. Dorsal scales in 17–17–15 rows, keeled except for outermost 4–6 rows at midbody and outermost 1–2 rows posteriorly, which are smooth. Ventral scales 208–223, smooth or feebly keeled, not angulate. Cloacal plate entire. Subcaudals 78–87, paired (N=6). Total body scales 292–309 (subcaudal ratio 0.267–0.294; N=6). Maxillary teeth 8–10 (N=7), first 4–6 gradually enlarged, followed by 1–3 smaller, then 1–2 slightly enlarged teeth separated by a diastema. Internasals smaller than prefrontals, supraoculars blocked from contacting frontal, in contact with prefrontal, loreal and supraocular. Supralabials 8/8, third to fifth in contact with eye, first scale smallest, sixth and seventh supralabial largest (occasionally only seventh scale largest). Infralabials 9–10, normally 10/10, first 5/5 scales in contact with anterior chin shields (4/4 in one specimen). Loreal 1/1, longer than high, blocked from contacting eye. Preocular 1/1, separate from frontal. Postoculars 2/2. Temporals normally 2+3, occasionally 2+2 on one side of head in 3/7 specimens. Paraparietal scale 2–3 scale rows behind postocular, surrounded by 6–8 scales,



Figure 5 Additional live specimens of *Lycodon* from Myanmar

A: *Lycodon aulicus* (CAS 213771) from Shwesettaw WS, Magway Region. B: *Lycodon aulicus* (CAS 233284) from Vaar village, Phalum Township, Chin State. C: *Lycodon aulicus* (unvouchered specimen) from University of Mandalay, Mandalay Region. D: *Lycodon capucinus* (USNM 581992) from Langan Island, Myiek Archipelago, Tanintharyi Region. E: *Lycodon fasciatus* (unvouchered specimen) from Pyin Oo Lwin District, Mandalay Region. F: *Lycodon septentrionalis* (unvouchered specimen) from Zalon Taung NP, Sagaing Region. G: *Lycodon septentrionalis* (CAS 224505) from Hkakabo Razi NP, Kachin State. H: *Lycodon zayuensis* (CAS 224364) from Hkakabo Razi NP, Kachin State. Photos by Hla Tun, courtesy of the California Academy of Sciences digitized slide collection (A–B, G, H), May Thu Chit (C, F), Daniel G. Mulcahy (D), and Thuzar (E).

with 1–3 scales between paraparietal. Anterior chin shields larger than posterior chin shields, 1–3 gular scale rows.

Dorsal surface black in life, dark brown in preservative with

19–31 narrow white body crossbands, 7–14 crossbands on tail. Position of first body crossband begins at ventral scale 11–20, its length 5–7 ventral scales at base, and 1.5–2.0

vertebral dorsal scales. Remaining crossbands on body 2.0–4.0 ventral scales long at base, and 0.5–1.5 vertebral dorsal scales long. Head immaculate black, occasional gray-brown mottling along parietal and temporal region in adults. Supralabial region brown, lighter white or light brown pigment may intrude onto the last three or four scales in juvenile specimens. Juveniles with a white nuchal collar present along posterior edges of parietals and temporals before merging with throat. Ventral surface plain white, posterior portion of body with dark brown or black crossbands restricted on the lateral edges of each ventral scale. Black and white crossbands on tail intrude onto the ventral surface.

Distribution and natural history: Known in Myanmar from several localities in the Sagaing Region as far south as Pale, Yinmarbin District (based on genetic sample KIZ YPX-18217; Che et al., 2020) and adjacent Kachin State. Its vertical distribution within the country ranges from 197–586 m a.s.l.. Elsewhere restricted to the Indo-Himalayan foothills with records from Bhutan, northeast India, and southern China (Xizang AR and Yunnan Province).

Comments: Refer to the account of *L. chapaensis* for discussion of species boundaries with *L. septentrionalis*. Wang et al. (2021) did not consider records of *L. septentrionalis* from Yunnan Province, China to be legitimate, as most of the specimens from that region were referable to *L. chapaensis*. Genuine reports of *L. septentrionalis* from Yunnan Province were later documented by Zhang et al. (2024a), indicating both species occur in the same province.

***Lycodon subannulatus* Duméril, Bibron & Duméril, 1854**
(Figure 4B, Figure 8A; Appendix I)

Examined specimens (N=1): Tanintharyi Region: USNM 581990 (adult male) from a cove on the north side of Daung Kyun (Don Island), Mergui (Myeik) Archipelago, Thayawthadangi Island group (N12.2861°, E98.1015°; 53 m a.s.l.) collected 10 May 2017 by D.G. Mulcahy, G. Connette and K.S. Oo.

Description: Lee et al. (2021) provided a morphological description of USNM 581990. However, some key features were not included in their account. An edited description is provided below with additional information to ensure consistency with remaining species accounts: SVL 504 mm, TaL 131 mm, TaL/TotalL 0.259. Body slender, gracile and subcylindrical. Head ovate, distinct from neck, supraocular region slightly raised in lateral profile. Snout blunt, eyes large, pupil round. Dorsal scales in 15–15–15 rows, all smooth. Ventral scales 240, angulate and strongly keeled. Cloacal plate entire. Subcaudals 111, paired. Total body scales 352 (subcaudal ratio 0.315). Maxillary dentition not recorded. Internasals smaller than prefrontals, supraoculars in broad contact with prefrontals and preocular. Supralabials 7/7, third to fourth in contact with eye, first scale smallest, sixth supralabial largest. Infralabials 8/8, 4/4 scales in contact with anterior chin shields. Loreal rectangular, longer than high, in contact with prefrontals. Preocular 1/1, blocked from contacting frontal, in contact with prefrontals. Postoculars 2/3, in contrast to Lee et al. (2021), who state 2/2 postoculars were present. Temporals 2+2. Paraparietal present three rows behind postocular, surrounded by 6/6 scales, with 3/3 scales between paraparietal. Anterior chin shields larger than posterior chin shields, 3/3 gular scale rows.

Dorsal surface black anteriorly, brown posteriorly, 54 light crossbands across body, approximately 34 crossbands on tail.

Color of crossbands plain white, posterior bands frequently engulfed by brown mottling. All crossbands after 17th band interrupted by a broad middorsal stripe and lateral stripe, causing the posterior two-thirds of the dorsum to have a series of subrectangular black blotches arranged in two separate rows. Crossbands on tail more irregular, indistinct by tail terminus. Head dark brown with a white bridle-shaped marking on each side of head, partially fused together at the medial point of the frontal scale. A small dark brown temporal spot present on either side of head. Ventral surface of head and body immaculate, tail with smaller patches of light brown indistinct spots.

Distribution and natural history: In Myanmar known only from the southern end of the country in the Tanintharyi Region, where it was recorded from Daung Kyun (Don Island) in the Myeik Archipelago. Elsewhere found in Peninsular Malaysia, Indonesia (Greater Sunda Islands, excluding Borneo), Singapore, and Peninsular Thailand.

Comments: A corrigendum was published after the publication of Lee et al. (2021) to clarify the final catalog number and locality information associated with specimen USNM 581990. In addition, the non-abbreviated “Head Length” value given in the description of USNM 581990 by Lee et al. (2021) should represent the total length of the specimen. Based on the results of Fukuyama et al. (2025), populations of *L. subannulatus* known from Borneo should be referred to *Lycodon tristrigatus* Günther.

***Lycodon zawi* Slowinski, Pawar, Win, Thin, Gyi, Oo & Tun, 2001**

(Figure 4H, Figure 8B; Appendix I)

Holotype: CAS 210323 (adult male; holotype) from trailhead to Alaungdaw Kathapa Pagoda, Thabakesay (Log Cabin Camp), Alaungdaw Kathapa NP, Kani Township, Yinmarbin District, Sagaing Region, Myanmar (N22.318194°, E94.475722°; 382 m a.s.l.) collected 17 July 1999 by K. D. Wiseman, J. M. Lovette and J. V. Vindum.

Examined specimens (N = 1): Magway Region. CAS 243009 (adult male) from Mauk village, Gangaw Township, Gangaw District, (22.324278°N, 94.158194°E; 194 m a.s.l.) collected 25 August 2008 by S.L. Oo, Z.H. Aung, K.T. Kyaw, and Y.M. Win. Appendix I lists all unexamined material referable to this species.

Description: The original description of this species by Slowinski et al. (2001) provides an adequate summary of morphological variation. CAS 243009 was originally misidentified as *L. aulicus* but agrees in all aspects with *L. zawi* by lacking a distinct nuchal collar, and possessing a brown supralabial region, 23 light yellow crossbars on the body, and an internasal blocked from contacting the loreal scale by the posterior portion of the nasal.

Distribution and natural history: Known from the western edge of Myanmar along the Chin and Arakan Hills where it is known from the Bago Region, Rakhine State and Sagaing Region. Its vertical distribution ranges from sea level to 382 m a.s.l.. Elsewhere in Bangladesh, Bhutan and northeastern India.

Comments: The specimen from the Magway Region (CAS 243009) was originally misidentified as *L. aulicus*. It represents the first documented record of this species from the Magway Region.

***Lycodon zayuensis* Jiang, Wang, Jin & Che in Che, Jiang, Yan & Zhang, 2020**

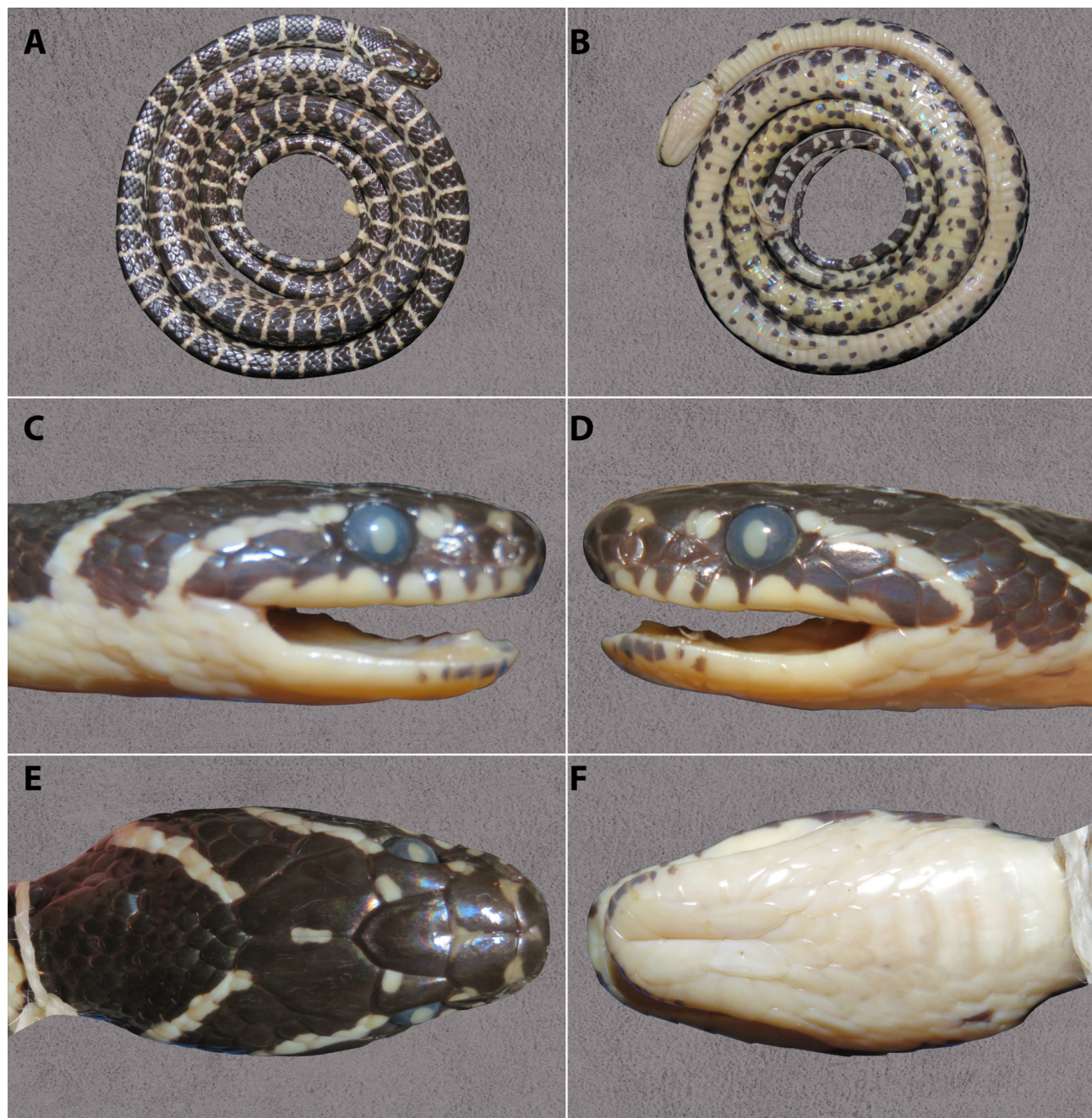


Figure 6 *Lycodon zayuensis*, preserved specimen (CAS 224364, adult male) from Pannandin Village, Kachin State, Myanmar

A: General dorsal view. B: General ventral view. C: Lateral view of head, right side. D: Lateral view of head, left side. E: Dorsal view of head. F: Ventral view of head. Photos by Justin L. Lee.

(Figure 5H, Figure 6, Figure 8D; Appendix I)

Dinodon flavozonatum — Smith (1940: 482; 1943: 271); Dowling & Jenner (1998: 8).

Specimens examined (N=6): Kachin State: CAS 224364 (adult male) near Pannandin Village, May Kha River, Hkakabo Razi NP, Nagmung Township, Putao District (N27.727250°, E97.874139°; alt. 1006 m a.s.l.) collected on 10 Mar 2002 by H. Win and T. Thin; NHMUK 1974.864 (adult male) from “Panquamdim N. Burma 4000ft” [= Pannandin Village, same general location as specimen CAS 224364; 1219 m a.s.l.] collected on 26 Sep 1938 by R. Kaulback; NHMUK 1940.6.4.65–66 [no. 21 and no. 196, respectively (two adult males), NHMUK 1940.6.4.64–67 [no. 38 and no. 229, respectively] (two adult females) from “Panquamdim W. of

Fort Hertz, Upper Burma” same location as specimen CAS 224364; collected between 1937–1939 by R. Kaulback.

Updated diagnosis: A large *Lycodon* with a maximum total length of 1600 mm, TaL/TL 0.164–0.204. Dorsal scale rows 17–17–15, all keeled except for outermost three rows at midbody and outermost row posteriorly; ventrals 219–234, feebly keeled; subcaudals 86–93, paired; cloacal plate divided or undivided (usually divided); supralabials 8/8, third to fifth in contact with eye; infralabials 10/10 or 10/9 (rarely 9/8 or 7/8), usually the first five in contact with anterior chin shields; preocular 1/1, blocking prefrontals from contacting eye; loreal present, blocked from contacting eye by preocular; postoculars 2/2; temporals 2+3. Dorsum jet black with series of 85–96 gold or yellow crossbands on body, 19–27 on tail.

Dorsal surface of head with narrow yellow postorbital streak and a V-shaped nuchal chevron starting from edge of frontal and continuing laterally across nape. Ventral surface plain yellow anteriorly, engulfed entirely by black spotting from midbody to posterior end of tail.

Description: Includes data from Burmese and Chinese specimens (fide. Jiang et al., 2020; Lyu et al., 2022; Wang et al., 2024) (Table 1). SVL 236–1338 mm, TaL 45–267 mm. Maximum total length 1600 mm (SVL 1338 mm; TaL 262 mm; YBU 20695, adult female fide. Lyu et al., 2022). Maximum male length 1399 mm (SVL 1132 mm, TaL 267 mm; NHMUK 1972.864). TaL/TL 0.164–0.204, in males 0.191–0.204, in females 0.164–0.198. Body slender, tail gradually tapering to a blunt and enlarged terminal scute. Head oblong, flattened in lateral profile, longer than wide and distinct from neck, widest posteriorly. Snout slightly rounded in lateral profile, no *canthus rostralis*. Nostrils oriented laterally, circular, dividing the nasal scale anteriorly and posteriorly. Eyes large, pupil elliptical. Head measurements of one specimen (CAS 224364) as follows: HeadL 24.7 mm, HeadW 14.6 mm, SnL 7.13 mm, EyeD 3.63 mm, SnW 5.94 mm, FrontalL 6.35 mm, FrontalW 5.11 mm, InterorBD 8.52 mm.

Dorsal scales in 17–17–15 rows, outermost row slightly enlarged. In CAS 224364, all keeled except for outermost seven rows anteriorly, outermost three rows at midbody, and outermost first row posteriorly; only outermost dorsal scale rows smooth in remaining specimens. Ventral scales 219–234, laterally angulate, smooth. Subcaudal scales 84–93, paired. Condition of the cloacal plate variable, divided in 9/11 of specimens but undivided in 2/11 (YBU 20694–95 fide. Lyu et al., 2022). Total body scales 311–324. Subcaudal ratio 0.264–0.297. 12 maxillary teeth on either side of jaw, 7 small teeth followed by a wide diastema, followed by two then three more enlarged teeth, each separated by a smaller diastema (based on CAS 224364).

Rostral wider than high, visible from above, separating internasals a short distance in dorsal profile. Angle formed by the posterior suture of rostral and internasals broadly obtuse, “gull wing” shaped. Nasal divided into two distinct scales by suture above and below the nostril. Anterior nasal rectangular, posterior half larger, pentagonal. Internasals slightly elliptical, wider than long, separate from loreal, anterior and posterior widths roughly equal. Prefrontals subpentagonal, larger than internasals, in broad contact with loreal, separate from orbit. Supraoculars subrectangular, wider posteriorly than anteriorly. Frontal hexagonal, shield shaped. Angle formed by the posterior vertex of the frontal scale acute angled. Anterior edge of frontal scale positioned past eye sockets. Parietals paired, length of medial suture slightly shorter than or equal to length of frontal. Loreal longer than high, subrectangular or subpentagonal, in broad contact with nasal and prefrontal, blocked from contacting orbit by preocular. Supralabials 8/8, 1st–2nd supralabials in contact with nasals, 2nd–3rd supralabials contact loreal, 3rd–5th contact orbit, 7th supralabial largest. Preocular 1/1, higher than long, subrectangular, anterior edge somewhat angled. Postoculars 2/2, rectangular, uppermost scale largest. Temporals 2+3. Infralabials 10/10 in three specimens (CAS 224364, NHMUK 1974.864, NHMUK 1940.6.4.67), 10/9 or 9/10 in four specimens (NHMUK 1940.6.4.65–66, YBU 20695–96), 9/9 in two specimens (KIZ 032400, YBU 20694) and 8/9 in one specimen (NHMUK 1940.6.4.64); one specimen from Yunnan Province has 7/8 infralabials (KIZ 059297); 2nd–3rd infralabials small, first pair

larger and in contact medially; 1st–5th infralabials in contact with anterior chin shields in all specimens except one (NHMUK 1940.6.4.64), which has the 1–5/1–4 infralabials in contact; 5th and 6th infralabials greatly enlarged. Mental triangular, small, anterior chin shields as long as or slightly longer than posterior chin shields, paired.

In life, dorsal surface jet black with 85–96 bright yellow crossbars on body, 19–27 crossbars on tail, beginning immediately posterior from the nape. Each crossbar less than one dorsal scale wide, separated by approximately 2–4 vertebral dorsal scales. Crossbars connect with one another laterally along third or fourth dorsal scale row, creating an irregular series of yellow chain-like markings along flanks. Tail crossbars in most specimens do not connect laterally, especially towards the tail tip. Notably, only four tail crossbars are present on the holotype (KIZ 032400); the remaining tail has an aberrant pattern where the bands are fused together creating an elongate longitudinal stripe running across the majority of the tail length. Dorsal surface of head same color as body with occasional yellow spots on the edges of each cephalic scale, these spots mostly concentrated on the supraoculars, preocular and medially along the parietal suture. Snout with occasional irregular yellow spotting encircling nostrils and internasals. First five supralabials yellow, sutures edged with black, remaining portion of supralabials black. A narrow yellow postorbital streak present, encompassing one-half of each postocular and continuing between each row of temporal scales until reaching the underside of head. An additional yellow streak present along the nape, beginning at the posterior end of each parietal and continuing occipitally until reaching the ventral surface. Underside of head plain yellow with black markings present on first four or five infralabials. Ventral surface plain yellow anteriorly and at midbody, black with irregular yellow spotting posteriorly. Underside of tail black, occasional yellow marbling on individual subcaudal scales. Coloration similar in preservative except the yellow markings across the body are paler yellow in CAS 224364 and golden brown in specimen series NHMUK 1940.6.4.64–67. Juvenile color pattern identical to adults.

Description of hemipenis: Only one specimen examined had a partially everted hemipenis available for examination (CAS 224364). In this specimen, the hemipenis is unilobed with its distal third of retracted. The proximal base of is largely nude, and the remaining visible portion of organ has small elongate rows of spinous calyces of roughly equal size.

Distribution and natural history: *Lycodon zayuensis* is endemic to the Indo-Himalayan foothills where it has been recorded from southwest China in the Xizang AR from Lower Zayü Town, Zayü County (Che et al., 2020; Lyu et al., 2022), Yunnan Province (Gaoligong Mt., see supplemental appendix of Wang et al., 2024), and adjacent northern Myanmar from Kachin State. Within Myanmar, *L. zayuensis* has been recorded from the vicinity of Pannandin Village along the banks of the May Kha River, located within the confines of Hkakabo Razi NP. Smith (1940), who based most of his writings on collector Ronald Kaulback’s field notes, noted two additional localities close to present-day Pannandin Village where *L. zayuensis* was observed (Mungdung and Renan), but did not associate any specimens with each locality. Data for Kaulback’s specimens in the NHMUK catalog state that they were collected “west of Ft. [Fort] Hertz”, a historical British military installation that is actually located directly east of all three localities Smith (1940) mentions, including

Pannandin. According to field notes from the CAS collections database, specimen CAS 224364 was collected at 1922h local time moving along a 45° slope. Smith (1940) reported that specimens Kaulback collected from Myanmar were fierce in disposition, “biting viciously and holding on when handled”. Notes associated with specimen NHMUK 1974.864 state the specimen was collected “in dense forest on the bank of a small stream”. Its vertical distribution ranges from 1000–2800 m a.s.l.. No other natural history information on this species is known.

Comments: Jiang et al. (2020) described *L. zayuensis* based on a single female collected from the vicinity Lower Zayü Town, Zayü County, Xizang AR, China. Populations of this species were previously confused with *L. flavozonatus*. Based on morphological data in Smith’s (1940) account, Jiang et al. (2020) suspected the Burmese populations were referable to *L. zayuensis* but could not examine the specimens corresponding to them. We confirm that these specimens are in fact *L. zayuensis* and add an additional referred specimen (CAS 224364) collected from the same locality in Kachin State. Genetically, CAS 224364 exhibits a high intraspecific pairwise distance from topotypic samples reported in Lyu et al. (2022), with a total cyt *b* p-distance of 3.37%. Despite this, we found no convincing morphological differences between the Kachin populations of *L. zayuensis* and topotypic material from China. Morphologically, *L. zayuensis* is most similar to *L. flavozonatus*, but both species have allopatric distributions (the latter is restricted to temperate and subtropical forested regions of eastern China). It can be distinguished from *L. flavozonatus* (characters in parentheses) by having a ventral surface with dark black and yellow markings on the posterior third of the body (vs. ventral surface plain yellow, with dark spots restricted to lateral edges of ventral scales), by having less yellow pigment along the edges of the cephalic scales (vs. yellow pigment present across the edges of almost all cephalic scales). In addition, more than 80% of all specimens of *L. zayuensis* have a divided cloacal plate, whereas all reports of *L. flavozonatus* note the cloacal plate is undivided.

The Cytochrome *b* sequences of the *L. zayuensis* holotype (KIZ 032400) submitted to GenBank by Che et al. (2020) appear to have been mislabeled. A BLAST search of the original sequence (as MW199792.1) had a 100% match to sequences identified as *L. meridionalis* Bourret compared to other sequences of *L. zayuensis* published by Lyu et al. (2022). This has since been changed and genuine sequences of KIZ 032400 have been updated under accession MW199792.2 (J. Che, pers. comm., 29 August 2024). In addition, the locality reported by Lyu et al. (2022) for the three topotypic specimens of *L. zayuensis* appears to be erroneous. While the written description of the locality in Lyu et al. (2022) is congruent with the type locality reported in Jiang et al. (2020), the GPS coordinates provided in Lyu et al. (2022) plot within Zogang County (according to Google Maps), in a location immediately south of the Nujiang River approximately 115 km northeast of the type locality in Zayü County. This geographic discrepancy is likely the result of an error when inputting the latitude and longitude of the specimens, and we presume that the authors intended to depict the location within the vicinity of Lower Zayü Town, albeit at a slightly higher elevation (2800 m a.s.l.) than the elevation reported for the holotype (1518 mm a.s.l., see Jiang et al., 2020). We consider the recent synonymization of *L. meridionalis* with *L. flavozonatus* by Li et al. (2025) to be premature and continue

to recognize both species as sister taxa despite their genetic similarity.

DISCUSSION

This study demonstrates that the species-level diversity of *Lycodon* in Myanmar is higher than previously expected. Much of the taxonomic attention devoted to *Lycodon* in Southeast Asia involve the description of new or recently resurrected species that occur close to the border of Myanmar (Jiang et al., 2020; Vogel & Luo, 2011; Wang et al., 2021), and most of the new records we report in this study fill gaps that could be observed in these earlier treatises. These new discoveries are in some ways predictable because a large quantity of habitats and geological units found within Myanmar are essentially continuous with bordering nations (Hadden, 2008). This phenomenon is reflected in other new amphibian and reptile publications that have documented species from Myanmar that were first described or reported from adjacent China and India (Köhler et al., 2025; Miller et al., 2021; Mulcahy et al., 2018; Rahman et al., 2020), or vice versa (Lee et al., 2021; Wang et al., 2024; Zhang et al., 2024a, 2024b).

In total, we recognize 16 *Lycodon* species within Myanmar: three are considered new records, whereas two other species are removed from the country’s snake fauna. The removal of the first species, *L. flavozonatus*, merely reflects a taxonomic adjustment with *L. zayuensis*. However, the second species, *L. gracilis*, deserves additional commentary. Sclater (1891) reported *L. gracilis* as *Hydrophobus davisoni* (= *Lycodon davisoni*) from “False Island, Arakan Coast?” based on an immature female specimen (ZSI K-8690) registered in the ZSI collection on 28 September 1880. Wall (1909) re-identified the same specimen as *L. gracilis* but questioned the validity of its collection information. This re-identification by Wall (1909) was followed by Smith (1943) and subsequent workers (Dowling & Jenner 1988; Wallach et al., 2014), but all accepted the collection location of the specimen in spite of Wall’s (1909) earlier speculation. The location “False Island” probably refers to a small islet near the vicinity of the Ramree Island group, Kyaukpypu District, Rakhine State, Myanmar (N19.457763°, E93.612929°). Upon re-examination, specimen ZSI K-8690 (Figure 7) is now in poor condition, but the morphological features do indeed match the description of *L. gracilis* (fide. Smith, 1943; Wall, 1909). A brief description is provided below: dorsal scale rows 15–15–15, smooth; preocular 1/1, postoculars 2/2; supralabials 7/7, third and fourth in contact with eye; eye large; temporal 2+3; ventrals strongly keeled on each side. The closest records of *L. gracilis* are an aerial distance of approximately 935 km west of Rakhine State in Brahmapur, Odisha State, eastern India (Wall, 1909). Since intermediate records between these locations have not been reported, we agree that the locality information for ZSI K-8690 is probably erroneous and recommend the removal of *L. gracilis* from the Burmese snake fauna.

The composition of *Lycodon* native to Myanmar reflects earlier zoogeographic assessments of the country and include a mixture of species that are representatives of the Indo-Himalayan, Indochinese, and Malay Peninsula herpetofauna (Das & van Dijk, 2013; Theobald, 1868; Zug, 2022). Many species appear to be partitioned geographically based on these different ecoregions. For example, *L. effraenis* and *L. subannulatus* clearly constitute elements of Malay Peninsula and their occurrence in Myanmar chiefly corresponds with the distribution of forest habitats associated in the Tanintharyi



Figure 7 Preserved specimen of *Lycodon gracilis* (ZSI K-8690) reportedly collected from “False Island, Arakan” in present-day Rakhine State, Myanmar

The locality information of this specimen is considered doubtful. A: General dorsal view. B: Dorsal view of head. C: Lateral view of head, left side. Photos by Pratyush P. Mohapatra.

Region. Similarly, the distributions of *L. gongshan*, *L. jara*, *Lycodon latifasciatus* and *L. zayuensis* appear restricted to Indo-Himalayan habitats in the northern half of the country (Kachin State and Sagaing Region). Myanmar also represents the western distributional limit for several Indochinese associated species such as *L. davisoni*, *L. neomaculatus* and *L. laoensis*, whose core ranges primarily occur further east. Unlike other speciose Burmese reptile radiations, such as *Cyrtodactylus* (Bauer, 2003; Grismer et al., 2018), endemism within *Lycodon* is currently limited. Only one species (*L. kundui*) appears to be restricted to the country, and it is still known from only a single specimen. Other landscape features within Myanmar have been invoked as putative biogeographic barriers between reptiles (Freitas et al., 2020; Klabacka et al., 2020; Zug et al., 2006), but they remain unconfirmed for *Lycodon*. Records separating *L. chapaensis* from *L. septentrionalis* weakly correspond with the eastern and

western banks of the Ayeyarwady River basin. However, both species are now known to occur in adjacent Yunnan Province, China (Zhang et al., 2024a), which suggests that the river may not currently act as a strong barrier to dispersal. Other biotic and abiotic features may play a larger role in facilitating vicariance between *Lycodon* in this region but cannot be tested until denser genetic sampling for species can be achieved.

Despite a resurgence of fieldwork during the early 21st century, the herpetofauna of Myanmar remains poorly understood by herpetologists (Borgwerth et al., 2024; Inger, 1999; Mulcahy et al., 2018). This study benefitted from a combination of multiple sources of data, including freshly collected specimens, museum material, and photo-documented records. It is notable that many of the range extensions we report in this study derive from photo-records taken by local naturalists or members of social media and

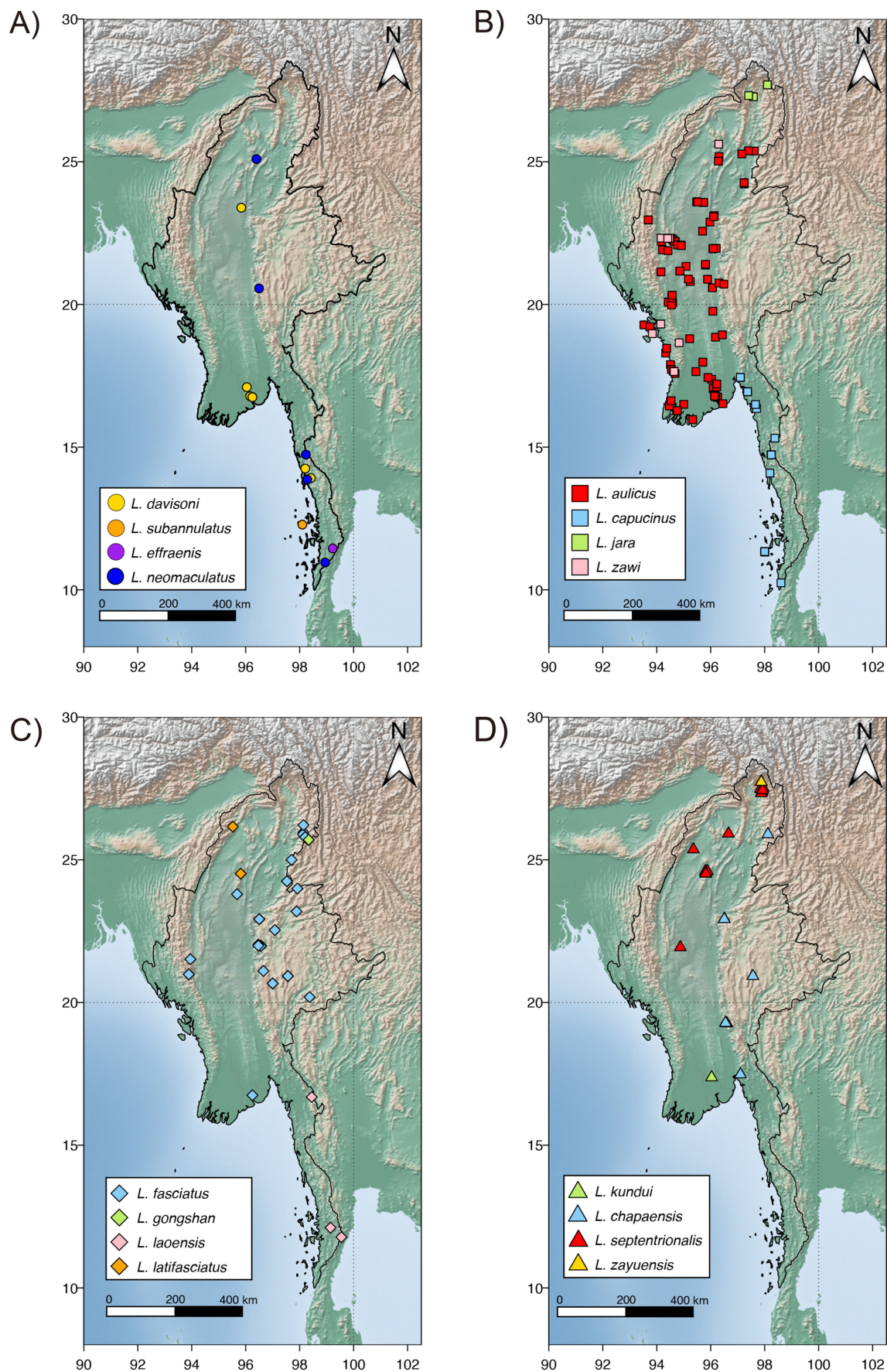


Figure 8 Distribution maps of all *Lycodon* species native to Myanmar

A: *Lycodon davisoni*, *L. subannulatus*, *L. effraenis* and *L. neomaculatus*. B: *Lycodon aulicus*, *L. capucinus*, *L. jara* and *L. zawi*. C: *Lycodon fasciatus*, *L. gongshan*, *L. laoensis* and *L. latifasciatus*. D: *Lycodon kundui*, *L. chapaensis*, *L. septentrionalis* and *L. zayuensis*. Exact locality information can be found in Appendix I.

Table 1 Morphological data from specimens of *Lycodon zayuensis* from Myanmar compared to the type specimen and topotypic material reported by Jiang et al. (2020), Lyu et al. (2022) and Wang et al. (2024), respectively. All measurements for SVL, TaL, and TotalL are given in millimeters. Data values accompanied by a “+” sign represent specimens with broken tails. Refer to the materials and methods for character acronyms.

Character	CAS 224.364	NHMK 1940.6.4.65	NHMK 1940.6.4.66	NHMK 1974.864	YBU 20.696	NHMK 1940.6.4.64	NHMK 1940.6.4.67	YBU 20.694	YBU 20.695	KIZ 032400	KIZ 059297
Sex	M	M	M	M	M	F	F	F	F	F	Juvenile
SVL	751	1193	963	1132	678	802	985	1162	1338	1170	236.4
TaL	175	—	247	267	171	198	—	255	262	240	45.6
TotalL	926	1193+	1210	1399	849	1000	985+	1417	1600	1410	282
TaL/TotalL	0.189	—	0.204	0.191	0.201	0.198	—	0.180	0.164	0.170	0.162
VEN	233	229	225	224	219	229	229	230	234	233	219
SC	87	63+	89	86	93	88	83+	90	89	84	70+
CP	Divided	Divided	Divided	Divided	Divided	Divided	Divided	Entire	Entire	Divided	Divided
TOTAL	321	292+	315	311	313	318	313+	321	324	318	289+
SCR	27.10	21.58+	28.25	27.65	29.71	27.67	26.52+	28.04	27.47	26.42	24.22+
SL	8/8	8/8	8/8	8/8	8/8	8/8	8/8	8/8	8/8	8/8	8/8
SLE	3+5/3+5	3+5/3+5	3+5/3+5	3+5/3+5	3+5/3+5	3+5/3+5	3+5/3+5	3+5/3+5	3+5/3+5	3+5/3+5	3+5/3+5
IL	10/10	10/9	10/9	10/10	9/10	9/8	10/10	9/9	10/9	9/9	8/7
TMP	2+3/2+3	2+3/2+3	2+3/2+3	2+3/2+3	2+3/2+3	2+3/2+3	2+3/2+3	2+3/2+3	2+3/2+4	2+3/2+3	—
BBand	89	85	85	86	93	96	96	88	89	90	—
TBand	19	17+	22	20	22	27	26+	23	23	4+	—

citizen science platforms. In the absence of herpetological surveys within Myanmar due to heightened safety concerns, photographic observations may help continue the documentation of herpetofauna within the region, provided that the appropriate metadata necessary for long-term archival and documentation is included. Likewise, many records of *Lycodon* reported here were obtained by investigating specimens that have already been deposited in museum collections yet remained unidentified at the species-level until more detailed examinations by herpetologists could be conducted. It is anticipated that similar sleuthing of other Burmese amphibian and reptile genera will result in an increased output of new discoveries. Such approaches may provide a small window into the distribution and species boundaries of the Myanmar herpetofauna until collaborative fieldwork by local and international research teams can continue.

A key to the *Lycodon* of Myanmar

We adapt earlier morphological keys of *Lycodon* designed for species native to China (Wang et al., 2021) and more globally (Lanza, 1999) for the Wolf Snakes of Myanmar. Data used to generate this key derive from specimens we examined, in addition to data from Lanza (1999), Slowinski et al. (2001), Wang et al. (2021), David et al. (2023) and Nguyen et al. (2024b). The utility of this key is meant to help identify specimens in the field after capture, or during the examination of preserved material in natural history collections. However, some of the morphological features provided may also be gleaned from higher-resolution photographs of snakes in the field. A note of caution must be given for some white-banded members of *Lycodon*. *Lycodon chapaensis*, *L. septentrionalis*, as well as juvenile specimens of *L. neomaculatus*, are similar in color and appearance to venomous krait species in the genus *Bungarus* Daudin. Confusion between these two taxa famously led to the tragic death of herpetologist Joseph B. Slowinski, whose assistant mistook *L. septentrionalis* for a juvenile *Bungarus* during a field expedition in Myanmar (see Donnelly & Crother, 2003; Leviton et al., 2008). *Lycodon*

chapaensis and *L. septentrionalis* lack hexagonal shaped dorsal scales present on the vertebral ridge of the body, which all white-banded *Bungarus* species in Myanmar possess (Leviton et al., 2008). Additionally, *L. chapaensis* and *L. septentrionalis* possess a loreal, and have much longer and more gracile tails, whereas *Bungarus* in Southeast Asia lack the loreal and tend to have shorter, less-tapered tails. However, the loreal scale in *L. neomaculatus* (and its relatives *Lycodon sealei* (Leviton) and *L. subcinctus*) is technically fused with the preocular, making this character state unreliable when comparing sympatric *Bungarus* (Lanza, 1999; Nguyen et al., 2024b). The enlarged, hexagonal vertebral scales and longer tail, remain reliable for distinguishing *L. neomaculatus* and its allies from white-banded *Bungarus*.

- 1a. Dorsal scales in 13–13–13 rows. Loreal fused with preocular. Eyes large, body slender and gracile. Black with white or gray crossbars across entire body. (*Lycodon davisoni*).
- 1b. Dorsal scales in 15–15–15 rows or more. Condition of loreal variable, present or absent. (2).
- 2a. Loreal absent, fused with prefrontal scale. Preocular present, in broad contact with prefrontals and supraoculars. Juveniles dark brown with white or yellow jagged crossbars, adults plain brown. Dorsal scales in 17–17–15 rows. (*Lycodon effraenis*).
- 2b. Loreal present. Condition of preocular scale variable, present or fused with loreal. (3).
- 3a. Loreal fused with preocular, in contact with prefrontal. Black with broad white crossbars anteriorly, adults lack crossbands posteriorly. Dorsal scales in 17–17–15 rows. (*Lycodon neomaculatus*).
- 3b. Loreal separate from preocular, usually blocked from contacting supraocular or prefrontal. Dorsal scale rows variable, never less than 15 at midbody. (4).
- 4a. Black or brown with light crossbars interrupted by lateral and vertebral stripes by midbody. Distinct “bridle” shaped mark on dorsal surface of head. Ventral scales strongly keeled. Dorsal scales in 15–15–15 rows. (*Lycodon subannulatus*).

- 4b. Dorsal color pattern never interrupted by stripes. No “bridle” shaped mark on dorsal surface of head. Ventral scales smooth or feebly keeled. Dorsal scale row formula variable. (5).
- 5a. Ventral surface yellow or white, immaculate except occasional dark pigment along lateral edges of ventral scales. Dorsal scales smooth. Cloacal plate divided. (6).
- 5b. Ventral surface with alternating light and dark crossbars or dark irregularly spotted pigmentation. Dorsal scales keeled (feebly keeled or smooth in *L. chapaensis*). Cloacal plate divided (rarely entire in *L. zayuensis*). (11).
- 6a. Dorsal scales in 15–15–15 rows. Supralabials 7/7. Well-developed light yellow crossbands across body, narrowing posteriorly. (*Lycodon kundui*).
- 6b. Dorsal scales more than 15 anteriorly and at midbody. More than 7 supralabials. (7).
- 7a. Light nuchal collar present on head as yellow and white striations or broad immaculate band. (8).
- 7b. Nuchal collar absent (populations of *L. jara* outside Myanmar may have a broad nuchal collar present). (10).
- 8a. Frontal in contact with preocular. Loreal usually blocked from contacting internasals. Well-developed light white or yellow crossbands across body, narrowing posteriorly. (*Lycodon laoensis*).
- 8b. Frontal blocked from contacting preocular. Loreal always in contact with internasals. (9).
- 9a. Brown or dark brown dorsum, 9–27 light transverse crossbars across the anterior body, may subdue or completely dissipate by midbody or encompass entire dorsum. In Myanmar, currently known north and west of Mon State. (*Lycodon aulicus*).
- 9b. Dark brown dorsum with small, irregular white or yellow speckling concentrated anteriorly and laterally, may form irregular shaped crossbars anteriorly. In Myanmar, currently known from Mon State and regions to its south and east. (*Lycodon capucinus*).
- 10a. Loreal in contact with internasals. Small yellow or olive green speckles present within each dorsal scale. (*Lycodon jara*).
- 10b. Loreal separate from internasals. Dorsum plain with a series of white crossbars across dorsal surface, less distinct laterally. (*Lycodon zawi*).
- 11a. Dorsum jet black, 85–96 gold or yellow crossbands on body, 19–27 on tail; crossbands absent on lateral flanks. Venter yellow anteriorly, engulfed by black spotting by midbody. (*Lycodon zayuensis*).
- 11b. Less than 50 light crossbands on body, crossbars present on lateral flanks. No yellow pigment on venter. (12).
- 12a. Dorsum with black and white series of crossbands on body and tail, less than 2.0–3.0 vertebral scales long at midbody. Loreal in contact with eye. (13).
- 12b. Color of dorsal crossbands variable, greater than or equal to 3.0 vertebral dorsal scales long at midbody. Loreal normally blocked from contacting eye. (14).
- 13a. Dorsal scales smooth or feebly keeled, maxillary teeth 12–15. In Myanmar known east of Ayeyarwady River in Kachin State, Kayin State, Mandalay Region and Mon State. (*Lycodon chapaensis*).
- 13b. Dorsal scales keeled, maxillary teeth less than 12. In Myanmar known west of Ayeyarwady River in Kachin State and Sagaing Region. (*Lycodon septentrionalis*).
- 14a. Black pigment engulfing entirety of chin. Supralabials

uniform black except immediately below eye. Anterior crossbars plain white, 1.0–2.0 vertebral dorsal scales long. Four infralabials contacting anterior chin shields on at least one side of head. (*Lycodon gongshan*).

- 14b. Gray or brown pigment restricted to margins of infralabials and chin shields. Supralabials with light brown or tan spots. Anterior crossbars orange, reddish brown or light brown (rarely white), usually ≤ 2.0 scales long. Five infralabials contacting anterior chin shields on at least one side of head (rarely 4/4 in *L. fasciatus*). (15).
- 15a. Subcaudals ≥ 90 . Dorsum with orange or orange brown crossbands that do not darken posteriorly. (*Lycodon latifasciatus*).
- 15b. Subcaudals ≤ 90 . Color of crossbars variable (orange, reddish brown or light brown) but normally darken posteriorly. (*Lycodon fasciatus*).

Note added after acceptance

Four days after this manuscript was accepted for publication (6 June 2025), a new article documenting the presence of *Lycodon laoensis* in Myanmar was published (Soe Thandar Aung et al., 2025) (10 June 2025). These authors reported *L. laoensis* from eight localities in three state/provincial-level regions based on photo-documented records from a citizen science data collection effort. These include two localities in Shan State, three localities in Karen (=Kayin) State, and three localities in the Tanintharyi Region. The results from their study greatly expand the distribution of *L. laoensis*. Because the printed release of their publication has temporal precedence, the number of *Lycodon* country records we document in our study should be reduced from three to two.

SCIENTIFIC FIELD SURVEY PERMISSION INFORMATION

Fieldwork in Myanmar by NAP and MTC was permitted under a Memorandum of Understanding (MOU) between Mandalay University, ZMMU, the Ministry of Natural Resources and Environmental Conservation Forest Department of Myanmar. Access to Zalon Taung NP was permitted with the help and support of Mr. Thaw Moon Ko, Forest Department, the Ministry of Natural Resources and Environmental Conservation in Ban Mauk and Mr. Win Ko Ko Naing Tun, Mr. Wai Yan Tun and Mr. Soe Htike Aung, the Friends of Wildlife Association in Ban Mauk.

SUPPLEMENTARY DATA

Appendix I. A complete list of documented *Lycodon* observations from Myanmar, including literature, specimen and photo-documented records. Refer to the materials and methods for abbreviations used in-text, and Sabaj (2020) for natural history collection acronyms. Catalog numbers following iNaturalist records represent observation IDs that can be viewed by inputting each observation as a uniform resource locator (URL).

Appendix II. List of new *Lycodon* sequences generated as part of this study for 16S ribosomal RNA (16S) and the nuclear Recombination Activation Gene 1 (Rag1).

Appendix III. List of *Lycodon* and outgroup sequences for the mitochondrial Cytochrome B gene used in the phylogenetic analysis of this study, including specimen, locality and GenBank accession numbers. Refer to the materials and methods for abbreviations used, and Sabaj (2020) for natural history collection acronyms. Other acronyms: GP (Guo Peng personal collection), HS (Huang Song personal collection), JAM (Jimmy A. McGuire field series), RAP (R. Alexander Pyron Field Series). Acronyms not mentioned are unknown.

Appendix IV. Translation of the abstract for this paper into from English to Burmese. Translation was written by May Thu Chit.

COMPETING INTERESTS

The authors declare that they have no competing interests.

AUTHORS' CONTRIBUTIONS

J.L.L., T.V.N., and G.V. designed the study; J.L.L., T.V.N., and M.T.C. wrote and prepared the original draft of the manuscript; J.L.L., N.A.P., and M.T.C., provided resources and collected materials; G.V., J.L.L., N.A.P., and T.V.N. examined specimens; J.L.L. and N.A.P. performed molecular analyses. All authors read and approved the final version of the manuscript.

ACKNOWLEDGEMENTS

We thank the following collections staff for facilitating tissue and specimen loans and permission to examine specimens: Lauren Scheinberg, Erica Ely, Robert C. Drewes and Jens V. Vindum (CAS); Jennifer Sheridan and Mariana Marques (CM); Colin J. McCarthy and Patrick Campbell (NHMUK); Ivan Ineich and Annemarie Ohler (MNH); Giuliano Doria and Massimo Petri (MSNG); Silke Schweiger and Georg Gassner (NHMW); Jakob Hallermann (ZMH); Coleman Sheehy III (UF); Gregory E. Schneider (UMMZ); Esther Langan, Addison Wynn, and George R. Zug (USNM). We thank Orlando Glenwood D'Silva, Myat Zaw, S. Sai Lu, Samuel Arr Pu, Thet Zaw Naing, Win Paing Oo, and many iNaturalist users for sharing records of *Lycodon* they observed. Additionally, we are grateful to Parinya Pawangkhanant (Rabbit in the Moon Foundation, Thailand) and Pratyush P. Mohapatra (ZSI) for sharing data and photographs of *Lycodon* specimens from the field and in collections that were not accessible to us. Special thanks to Daniel G. Mulcahy (Museum für Naturkunde, Berlin), Win Mar Yae, and Thuzar for permission to use their photographs in this study, as well as Jing Che (KIZ) for clarifying some issues with sequences of *L. zayuensis* on GenBank. TVN is grateful to Ngoc Quynh Nguyen and Duc Trong Nguyen (SIFASV, Vietnam) for assistance preparing figures. NAP and MTC are grateful to Parinya Pawangkhanant, Vladislav A. Gorin and Evgeniy S. Popov for assistance in the field. JLL is grateful to Todd Jackman, Aaron M. Bauer, and Mustafa Erkaya for laboratory help. Lastly, we thank Kai Wang (KIZ) for the invitation to contribute to this issue, as well as Jin-Long Ren, Shuo Qi, and Patrick David for constructive reviews that improved the manuscript. This research was supported in part by the Rufford Foundation (Grant No. 45888-2: data analysis) and the Russian Science Foundation (RSF grant No. 22-14-00037-P: data analysis).

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