REPTILES & AMPHIBIANS

Checklist of Snakes from Dang District, Lumbini Province, Nepal

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Abstract—We herein present a checklist of 28 species of snakes in 20 genera and seven families recorded as rescues or opportunistic sightings between July 2018 and December 2024 in Dang District, Lumbini Province, Nepal. Fifteen species are in the family Colubridae, five in the family Elapidae, two each in the families Erycidae, Natricidae, and Viperidae, and one each in the families Pythonidae and Typhlopidae. We provide photographic evidence of the Streaked Kukri Snake (*Oligodon taeniolatus*) from the Deukhuri Valley as a new record for Nepal and an additional 13 species were new records for Dang District. The major threats observed during the study period were forest fires, forest encroachment, construction activities, and intentional killing of snakes.

Globally, 21% of all reptiles are facing extinction risks (Cox et al. 2022). Protected Areas (PAs) in Nepal are established to conserve biodiversity; however, unprotected areas are generally targeted for resources such as firewood extraction and mining. Such actions could lead to the alterations of habitat mosaics and changes in the composition of species (Balaji et al. 2014; Rawat et al. 2020). Herpetofaunal studies and conservation outside the PAs in Nepal are negligible. The number of snake species present in Nepal has a conflicting record: Shrestha (2001) listed 89 species and Schleich and Kastle (2002) listed 82, of which 68 were confirmed and 14 represented doubtful occurrences. Similarly, Shah and Tiwari (2004) listed 79 species of snakes with distribution records and Rai et al. (2022) listed 84 species from Nepal. Since the work by Shah and Tiwari (2004), limited field research has focused on snake diversity in Nepal. Most recent articles rely largely on older literature, with only a few adding new species records for the country. However, some recent reports documented comprehensive field surveys (Bhattarai et al. 2017; Bhattarai et al. 2018; Bhattarai et al. 2020; Gautam et al. 2020; Rawat et al. 2020), which recorded snake species either from PAs or from a limited geographic landscape.

Detailed studies of snake species richness at a district level in Nepal is limited to four districts: 40 species of snakes were reported from Kaski District (Baral et al. 2020), 19 species from Jhapa District (Rai 2019), 25 from Sarlahi District (Chettri and Thapa Chhetry 2014), and 24 from Palpa District (Nepali and Singh 2022).

The Dang District encompasses the Dang and Deukhuri Valleys, which span both the Siwalik and Mahabharat Hills and are primarily outside the PA system. A comprehensive checklist of snake species of the Dang District is currently unavailable. Although Bhattarai et al. (2020) conducted a survey, it was restricted to parts of the Siwalik Hills of Dang. Another report from the Dang District by Shah and Tiwari (2004) listed eight species of snakes.

The Deukhuri Valley was designated as the capital of Lumbini Province in 2020 and is expected to undergo major infrastructure construction that could alter habitats. Lacking a comprehensive list of snake species from the area (Biodiversity International 2025) and given the impending construction in the newly designated capital, documenting snake species richness in Dang and Deukhuri Valleys is crucial. Snakes have not been prioritized for conservation initiatives in Nepal, particularly outside the PAs (Bhattarai et al. 2020). We herein document the occurrence of snake species and provide a comprehensive checklist from Dang District.

Study Area

The Dang District encompasses both the Dang and Deukhuri Valleys of Lumbini Province, Nepal (Fig. 1). The district spans an area of 2,955 km^2 in the Inner Terai Region of Nepal and is bordered by India to the south. The Deukhuri Valley (27.84232, 82.76159; elev. 200–900 m asl) has a lower tropical climate (K.C. 2019), whereas the Dang Valley (28.00000, 82.26667; elev. 600–2,058 m asl) has an upper tropical and sub-tropical climate (Lillesø et al. 2005). The

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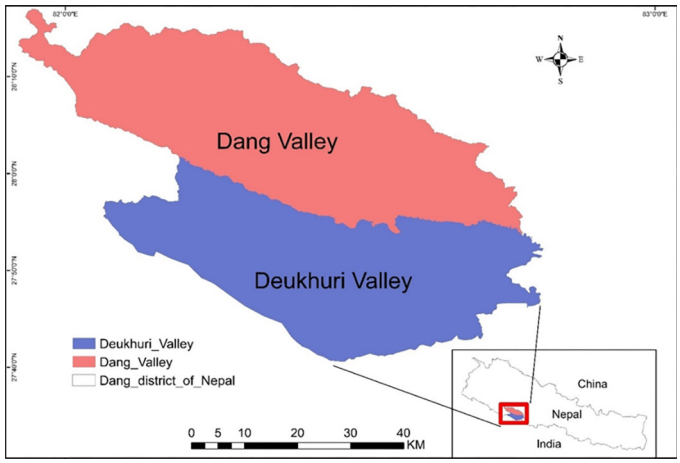

Figure 1. Map showing the Dang and Deukhuri Valleys of Dang District, Nepal.

Deukhuri Valley is surrounded by the Siwalik Hills, whereas the Dang Valley is bordered by the Siwalik Hills on its southern, western, and eastern sides, and by the Mahabharat Range to the north (Regmi et al. 2009). The varying elevational gradients create distinct microclimatic conditions with unique vegetation structure. The Deukhuri Valley is hotter and more humid than the Dang Valley, although both have similar principal vegetation of *Shorea robusta* or *Dalbergia-Acacia* along with patches of *Emblica officinalis* and *Lagerstroemia parviflora.* The Deukhuri Valley is drained by the Rapti River and has degraded grasslands of *Typha angustifolia* and *Saccharum spontaneum* (BCN et al. 2024), whereas the Dang Valley is drained by the Babai River (Regmi et al. 2009) and lacks distinct grassland areas.

Methods

The species of snakes listed herein are based on direct field observations made by our team during rescue operations between 2018 and 2024. Before rescuing snakes, we inquired where a snake was located. The snake was rescued only if it was inside a house or within the compound of a house. Materials used during rescues were hooks, tongs, cotton bags, plastic bags, gloves, boots, and pipes. Normally, hooks were used for handling snakes but when snakes could not be reached with hooks, tongs were used. Cotton bags along with

Table 1. Checklist of snakes from Dang District, Nepal. IUCN Red List Status: LC = Least Concern, NT = Near Threatened, VU = Vulnerable. Species recorded in studies by Shah and Tiwari (2004) and Bhattarai et al. (2020) are marked with a plus symbol (+) when a voucher exists and with a minus symbol (–) when no voucher has been recorded.

Species	Shah and Tiwari 2004	Bhattarai et al. 2020	This Study Dang Valley	This Study Deukhuri Valley	IUCN Status	Remarks
Family Colubridae						
Long-snouted Vinesnake/Green Vinesnake (*Ahaetulla* cf. *longirostris*)	+	–	–	–	LC	
Tawny Catsnake (*Boiga stoliczkae*)	–	–	+	–	LC	New for Dang
Forsten's Catsnake (*Boiga forsteni*)	–	–	+	–	LC	New for Dang
Common Catsnake/Indian Gamma Snake (*Boiga trigonata*)	+	–	+	+	LC	
Ornate Flying Snake/Paradise Flying Snake (*Chrysopelea ornata*)	+	+	+	+	LC	
Common Trinket Snake (*Coelognathus helena*)	–	–	+	+	LC	New for Dang
Copper-headed Trinket Snake/Radiated Ratsnake (*Coelognathus radiatus*)	–	–	+	+	LC	New for Dang
Common Bronzeback Treesnake (*Dendrelaphis tristis*)	–	+	+	+	LC	
Himalayan Trinket Snake (*Elaphe hodgsoni*)	–	–	+	–	LC	New for Dang
Common Wolfsnake (*Lycodon aulicus*)	–	+	+	+	LC	

(Table 1 continued)

Twin-spotted Wolfsnake (*Lycodon jara*)	–	–	–	+	LC	New for Dang
Russell's Kukri Snake (*Oligodon russelius*)	–	–	+	+	LC	New for Dang
Streaked Kukri Snake (*Oligodon taeniolatus*)	–	–	–	+	LC	New for Nepal
Common Ratsnake/Oriental Ratsnake (*Ptyas mucosa*)	+	+	+	+	LC	
Cantor's Black-headed Snake (*Sibynophis sagittarius*)	+	–	+	+	LC	
Family Elapidae						
Common Krait (*Bungarus caeruleus*)	+	+	+	+	LC	
Banded Krait (*Bungarus fasciatus*)	–	+	–	–	LC	
Monocled Cobra/Indian Spitting Cobra (*Naja kaouthia*)	–	–	+	+	LC	New for Dang
Common Cobra/Spectacled Cobra (*Naja naja*)	+	+	+	+	LC	
King Cobra (*Ophiophagus hannah*)	–	+	+	+	VU	
Family Erycidae						
Common Sandboa/Rough-tailed Sandboa (*Eryx conicus*)	–	–	–	+	NT	New for Dang
Red Sandboa (*Eryx johnii*)	–	–	–	+	NT	New for Dang
Family Natricidae						
Buff-striped Keelback (*Amphiesma stolatum*)	+	+	+	+	LC	
Checkered Keelback (*Fowlea piscator*)	–	+	+	+	LC	
Family Pythonidae						
Burmese Python (*Python bivittatus*)	+	–	+	+	VU	
Family Typhlopidae						
Brahminy Blindsnake (*Indotyphlops braminus*)	–	–	+	+	LC	New for Dang
Family Viperidae						
Russel's Viper (*Daboia russelii*)	–	–	+	+	LC	New for Dang
Nepal Pitviper/Himalayan White-lipped Pitviper (*Trimeresurus septentrionalis*)	–	–	+	+	LC	New for Dang

pipe (hook, pipe, and bag method), plastic bags, or perforated plastic jars were used as available to temporarily house rescued snakes before relocating and releasing them. Gloves and boots were used for personal safety. We used the field guide by Shah and Tiwari (2004) to identify species. Snakes were released on the same day if they were rescued during morning hours and released on the following morning after sunrise if they were rescued in the late evening or at night. Most of the rescued non-venomous snakes were released outside the premises if local residents were convinced that they were harmless after an onsite outreach session. If homeowners were not convinced, snakes were released in the nearest suitable habitat. All venomous snakes were released at safe sites with suitable habitat away from human habitation. We documented rescues with photographs either prior to rescue inside houses or during relocation and release. In addition to rescue records, we also included opportunistic sightings from both valleys.

Results

We recorded 28 species of snakes, 21 of which were non-venomous, in 20 genera and seven families (Table 1; Fig. 2), 22 species in the Dang Valley and 23 in the Deukhuri Valley, with 19 common to both valleys. Fifteen species in 10 genera were in the family Colubridae, five species in three genera were in the family Elapidae, two species from two genera in the families Natricidae and Viperidae, two species from one genus in the family Erycidae, and one species each from the families Pythonidae and Typhlopidae (Figs. 3–9).

The Streaked Kukri Snake (*Oligodon taeniolatus*) from Lalmatiya, Deukhuri, on 5 July 2023 was the first record from Nepal and an additional 13 species of snakes were reported for the first time from Dang District (Table 1). Photographic vouchers have been deposited in the Lee Kong Chian Natural History Museum at the National University of Singapore (ZRC(IMG)2.707) and the identities of the new records were confirmed by Vivek Sharma.

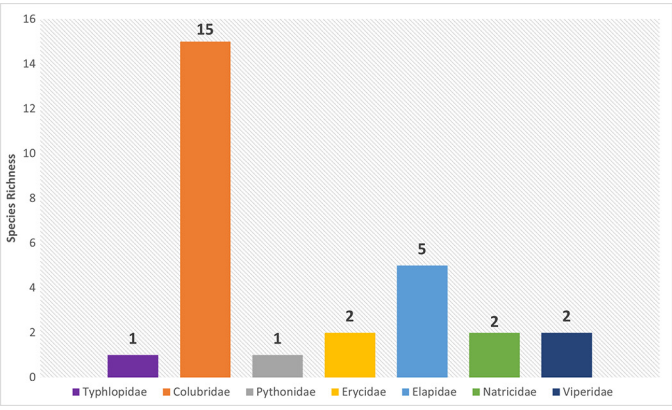

Figure 2. Species richness by family of snakes in Dang District, Nepal.

Forsten's Catsnake (*Boiga forsteni*), Tawny Catsnake (*Boiga stoliczkae*), and Himalayan Trinket Snake (*Elaphe hodgsoni*) were recorded only from the Dang Valley, whereas the Common Sandboa (*Eryx conicus*), Red Sandboa (*Eryx johnii*), and Twin-spotted Wolfsnake (*Lycodon jara*) were recorded only from the Deukhuri Valley (Table 1). The majority of species were rescues, but Cantor's Black-headed Snake (*Sibynophis sagittarius*), Tawny Catsnake, and Himalayan Trinket Snake were sighted opportunistically. We recorded snakes at elevations of 300–1,500 m asl; the highest elevation was for the Himalayan Trinket Snake from Banglachuli in the Mahabharat Hills of the Dang Valley. The most frequently encountered non-venomous snake was the Common Ratsnake (*Ptyas mucosa*) followed by the Checkered Keelback (*Fowlea piscator*); whereas the most frequently encountered venomous snake was the Common Cobra (*Naja naja*). Most rescue calls for cobras were received at dusk, whereas those for ratsnakes were largely during the day. The Common Krait, a common species in the Terai, was rescued only 11 times in the six-year period; the King Cobra (*Ophiophagus hannah*), the longest venomous snake in the world, only six times (one a juvenile); and the nationally protected Burmese Python (*Python bivittatus*) was rescued eight times from both valleys.

Discussion

Over a period of six years, we recorded 14 new species for the Dang District, including one species new for Nepal. Of 28 species recorded, 75% were non-venomous and 25% were venomous, indicating that, like other districts of Nepal, the Dang District had a higher richness of non-venomous species (Chettri and Thapa Chhetry 2014; Baral et al. 2020; Nepali and Singh 2022). We received the most rescue calls from Panaura Village, where agriculture with home gardens is common. Over half of all rescues were for Common Ratsnakes and Spectacled Cobras. Snakes were rescued mostly from storerooms or kitchens during daytime hours, which we attributed to the presence of prey (Salim et al. 2024). During nighttime hours, snakes were rescued from beds, where they might have been seeking warmth. Soon after rescues, we conducted onsite outreach to highlight the ecological significance of snakes, resulting in increased awareness, reducing the spread of myths, and developing a more positive attitude toward snakes in general. However, we also observed instances of intentional killing of snakes in both valleys when we were unable to conduct rescues, which warrants a need for dedicated conservation outreach sessions on the vital roles of snakes in ecosystems.

The Divisional Forest Offices from both valleys have initiated some conservation practices that include staff training and distribution of rescue equipment for snake rescuers, which likely will have a positive impact on future conserva-

Figure 3. Species of snakes in the family Colubridae in Dang District, Nepal: (A) Forsten's Catsnake (*Boiga forsteni*), (B) Tawny Catsnake (*Boiga stoliczkae*), (C) Common Catsnake (*Boiga trigonata*), (D) Ornate Flying Snake (*Chrysopelea ornata*), (E) Common Trinket Snake (*Coelognathus helena*), (F) Copper-headed Trinket Snake (*Coelognathus radiatus*), (G) Common Bronzeback Treesnake (*Dendrelaphis tristis*), (H) Himalayan Trinket Snake (*Elaphe hodgsoni*), (I) Common Wolfsnake (*Lycodon aulicus*), (J) Twin-spotted Wolfsnake (*Lycodon jara*), (K) Russell's Kukri Snake (*Oligodon russelius*), (L) Streaked Kukri Snake (*Oligodon taeniolatus*), (M) Asiatic Rat Snake (*Ptyas mucosa*), (N) Cantor's Black-headed Snake (*Sibynophis sagittarius*). Photographs by Binod Sharma (J), Kuldip Neupane (G), Tarapati Chaudhary (L), and Lokendra Chand (N).

Figure 4. Species of snakes in the family Elapidae in Dang District, Nepal: (A) Common Krait (*Bungarus caeruleus*), (B) Monocled Cobra (*Naja kaouthia*), (C) Common Cobra (*Naja naja*), (D) King Cobra (*Ophiophagus hannah*).

Figure 5. Species of snakes in the family Erycidae in Dang District, Nepal: (A) Common Sandboa (*Eryx conicus*), (B) Red Sandboa (*Eryx johnii*).

tion efforts. Also, as our records were based primarily on rescue calls and opportunistic observations, our list of species almost certainly represents only a portion of the snake diversity in both valleys. We strongly recommend additional dedicated surveys of the snake faunas across all potential habitats to understand the complete diversity of snakes in both valleys.

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Figure 6. Species of snakes in the family Natricidae in Dang District, Nepal: (A) Buff-striped Keelback (*Amphiesma stolatum*), (B) Checkered Keelback (*Fowlea piscator*).

Figure 7. The species of snake in the family Pythonidae in Dang District, Nepal: Burmese Python (*Python bivittatus*). Photograph by Kuldip Neupane.

Figure 8. The species of snake in the family Typhlopidae in Dang District, Nepal: Brahminy Blindsnake (*Indotyphlops braminus*).

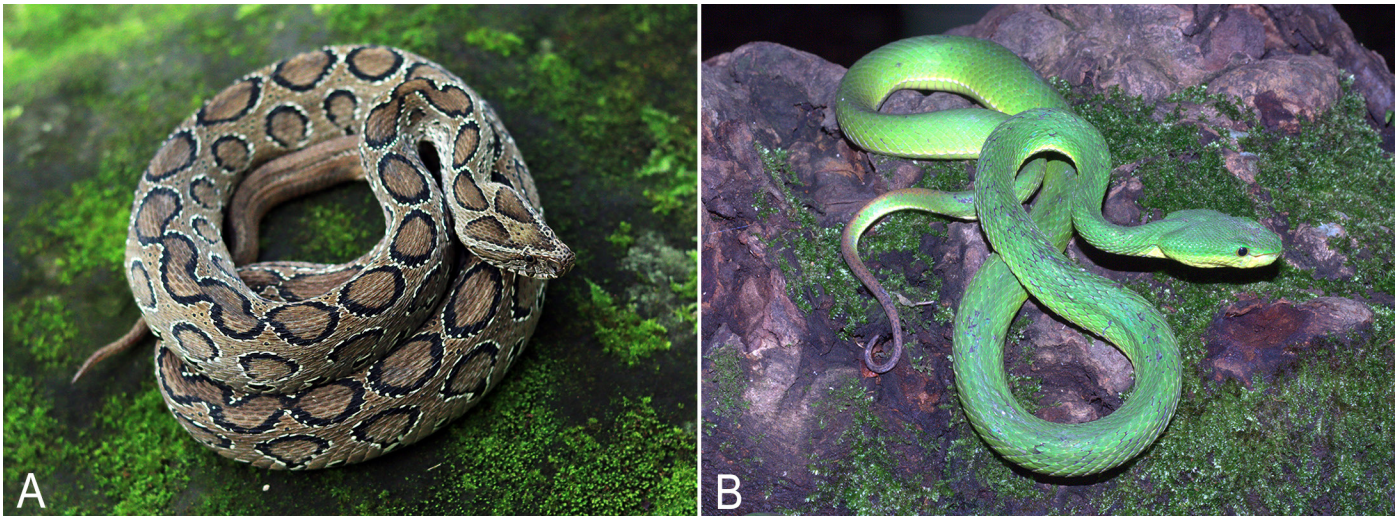

Figure 9. Species of snakes in the family Viperidae in Dang District, Nepal: (A) Russel's Viper (*Daboia russelii*), (B) Nepal Pitviper (*Trimeresurus septentrionalis*).

during snake rescues. Kuldip Neupane and Prakash Bahadur Saud helped during rescue work. SB thanks the Katie Adamson Conservation Fund, USA, for supporting research and conservation of reptiles and amphibians in Nepal.

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