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Cover: A Warty Hammer Orchid *Drakaea livida* gets pollinated by a male thynnine wasp through 'sexual deception' — a colour pencil reproduction of photos by ron_n_beths (flickr.com) and Rod Peakall; Water colour reproduction of Flame Lily *Gloriosa superba* -- photo by Passakoran_14; and a bag worm and its architectural genius (source unknown). Art work by Pannagasri G.

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ARTICLE

Amphibians and reptiles of Chitwan National Park, Nepal: an updated checklist and conservation issues

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Abstract: An updated checklist of amphibians and reptiles of Chitwan National Park and its buffer zone is presented, which is essential for conservation management decision-making as the area is experiencing frequent stochastic events in recent years. A total of 89 species is listed from Chitwan National Park including—20 frogs & toads, 42 snakes, 14 lizards, 11 turtles, and two crocodile species. The confirmed record of Dudhwa Reed Frog *Chirixalus dudhwaensis* in Nepal is provided, and the occurrence of Eastern Bronze-back Tree Snake *Dendrelaphis proarchos* from Chitwan National Park, representing its westernmost known distribution in Nepal. In addition the presence of *Hylarana tytleri* and *Sitana sivalensis* is confirmed from Chitwan National Park. These findings contribute to filling critical knowledge gaps in species richness and offer updated insights into the taxonomy, natural history, and conservation status of herpetofauna in the park. Recent IUCN Red List mentions the geographic range of the Torrent Paha Frog *Nanorana ercepeae* from Chitwan National Park; based on the absence of verified records, we exclude it from updated checklist. We also suggest integrative taxonomic and ecological studies to uncover hidden diversity, and to inform evidence-based conservation strategies for amphibians and reptiles in Nepal.

Keywords: *Chirixalus dudhwaensis*, Chitwan-Annapurna Landscape, conservation, *Dendrelaphis proarchos*, diversity, herpetofauna, *Hylarana tytleri*, *Nanorana ercepeae*, new records, *Sitana sivalensis*, Terai-Arc Landscape.

Nepalese: सारांश: चितवन राष्ट्रिय निकुञ्ज र यसको मध्यवर्ती क्षेत्रमा पाइने उभयचर र सरीसृपहरूको अद्यावधिक सूची प्रस्तुत गरिएको छ, जसले विशेष गरी हालका वर्षहरूमा यस क्षेत्रले बारम्बार अनपेक्षित प्राकृतिक घटनाहरूको सामना गरिरहेको सन्दर्भमा संरक्षण व्यवस्थापनका निर्णयहरूमा आधार प्रदान गर्नेछ । चितवन राष्ट्रिय निकुञ्जमा हालसम्म कुल ८९ प्रजाति अभिलेखित छन्, जसमा २० थरी भ्यागुता प्रजाति, ४२ थरी सर्प प्रजाति, १४ थरी छेपारो प्रजाति, ११ थरी कछुवा प्रजाति, र २ थरी गोहि प्रजाति समावेश छन्। यस अध्ययनले नेपालमा दूधवा रिड भ्यागुता (*Chirixalus dudhwaensis*) को पहिलो पटक प्रमाणित अभिलेख प्रस्तुत गरेको छ। साथै, चितवन राष्ट्रिय निकुञ्जबाट ईस्टर्न ब्रोंज-ब्याक ट्री स्नेक (*Dendrelaphis proarchos*) को उपस्थिति पनि पुष्टि गरिएको छ, जुन नेपालभित्र यसको सबैभन्दा पश्चिमी वितरण सीमाको प्रतिनिधित्व गर्दछ। त्यसैगरी, *Hylarana tytleri* र *Sitana sivalensis* को उपस्थिति पनि निकुञ्जमा पुष्टि गरिएको छ। यी नयाँ विवरणहरूले प्रजातिगत विविधताको जान सुदृढीकरणमा सहयोग पुऱ्याउँछन् र चितवनका उभयचर र सरीसृपहरूको संरक्षण अवस्थाबारे अद्यावधिक जानकारी प्रदान गर्छन्। पछिल्लो आईयूसीएन रातो सूचीमा टोर्रेन्ट पाहा (*Nanorana ercepeae*) लाई चितवन राष्ट्रिय निकुञ्जमा वितरण भएको उल्लेख गरिएको भए पनि, प्रमाणित अभिलेख नभएकाले यसलाई यस अद्यावधिक सूचीबाट हटाइएको छ। नेपालका उभयचर र सरीसृपहरूको संरक्षणका लागि एकीकृत र पारिस्थितिक अनुसन्धानात्मक अध्ययनहरूलाई प्राथमिकता दिनु आवश्यक छ, जसले प्रमाणमा आधारित संरक्षण रणनीतिहरू बनाउन सहयोग पुऱ्याउनेछ।

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INTRODUCTION

Nepal's protected area network was designed and established to safeguard the country's rich biodiversity, encompassing species, ecosystems, habitats, and genetic resources (MPFS 1988). At present, Nepal comprises 20 protected areas, including 12 national parks, six conservation areas, one wildlife reserve, and one hunting reserve (DNPWC 2025). The Department of National Parks and Wildlife Conservation (DNPWC) is the central authority responsible for the management and conservation of wildlife and their habitats within these areas. An essential prerequisite for effective wildlife conservation and management is that park managers possess a comprehensive understanding of the existing faunal diversity within their jurisdictional areas. Such knowledge is critical to identify species and populations that are in urgent need of targeted conservation interventions. Biodiversity documentation and periodic inventories, supported by validated scientific information, are foundational to evidence-based conservation planning (Boone et al. 2005). Conversely, gaps in biodiversity knowledge can hinder progress toward national and international biodiversity targets (Girardello et al. 2018).

In Nepal, wildlife conservation efforts have predominantly focused on large charismatic megafauna such as the Royal Bengal Tiger *Panthera tigris*, Greater One-horned Rhinoceros *Rhinoceros unicornis*, Asian Elephant *Elephas maximus* in the lowlands, and Snow Leopard *Panthera uncia* in the high Himalaya (Bhattarai et al. 2017a; Gautam et al. 2022). The increase in the population sizes of these species is often cited as indicators of conservation success (Rawat et al. 2020). Non-charismatic taxa, particularly herpetofauna (amphibians and reptiles), remain comparatively understudied, and largely neglected in conservation priorities (Bhattarai et al. 2017a, 2020; Gautam et al. 2020). Despite this general oversight, some targeted conservation actions have been implemented for select herpetofauna species. For instance, the conservation of the Gharial *Gavialis gangeticus* involves both in situ, and ex situ strategies, and its population status is relatively well documented (Acharya et al. 2017; Bhattarai et al. 2018; Poudyal et al. 2018; Yadav et al. 2022).

The present study aims to update the checklist of amphibians and reptiles of Chitwan National Park (CNP) and its buffer zone, thereby contributing to the broader understanding of the herpetofauna diversity in the park. The foundational work on the herpetofauna of CNP was conducted by Zug & Mitchell (1995), who reported 55 species. Earlier records, such as those by Fleming & Fleming (1973), and Kramer (1977), also documented snake species in Chitwan. Subsequent field guides and inventories (Schleich & Kästle 2002; Shah & Tiwari 2004; Kästle et al. 2013) enriched the knowledge base by including species with known distributions in the park.

More recently, efforts have been made to compile species-specific and locality-based lists, particularly of snakes (Pandey 2012), including the first record of the Siamese Cat Snake *Boiga siamensis* in Nepal (Pandey et al. 2018). Additionally, *Psammodynastes pulverulentus* was recently recorded for the first time in CNP (Bhattarai et al. 2017b). Many herpetological surveys have been locality or taxonomically restricted. For example, Lamsal (2014) conducted surveys exclusively in the Madi Valley of Chitwan, while Bhattarai et al. (2017a) focused on the Beeshazar and associated lakes complex – a Ramsar site of international importance. Other notable contributions include the descriptions of *Rana chitwanensis* (now treated as *Hylarana chitwanensis*) and *Sphaerotheca maskeyi* from the CNP (Das 1998; Schleich & Anders 1998), life history observations of turtles (Mitchell & Rhodin 1996), studies on turtle distribution (Khadka & Lamichhane 2020), studies on population and determinants of crocodile distribution and their socioeconomics (Nishan et al. 2023; Pathak et al. 2023) and post release growth of gharial (Khadka et al. 2022).

Importantly, herpetofauna taxonomy and nomenclature have undergone significant revisions in recent years. These changes, have yet to be incorporated into key conservation and management documents, including the official management plan of the Chitwan National Park (see CNP 2018). To address this gap, the present study provides an updated, taxonomically revised checklist of amphibians & reptiles of the CNP, and its buffer zone. The aim is to deliver up-to-date species list to support evidence-based management decisions and to highlight emerging conservation priorities.

MATERIAL AND METHODS

Study area

Chitwan National Park is the oldest national park of Nepal (Established in 1973, area 952.63 km^2, buffer zone 730 km^2) and designated as UNESCO's World Heritage Site in 1984 (under the criteria vii, ix, & x) for its exceptional natural beauty, supporting outstanding natural & biological systems, and processes, and for providing natural habitats for endangered fauna

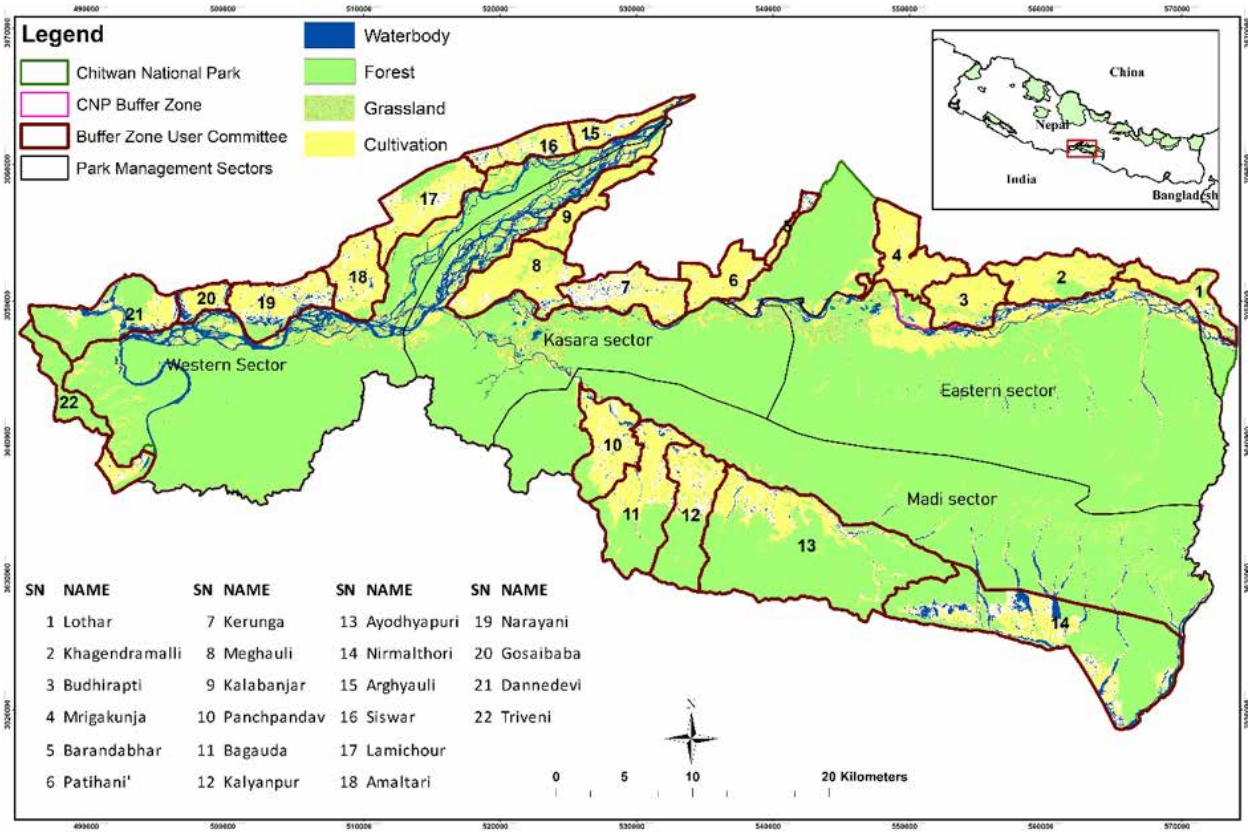

Image 1. Map showing study area Chitwan National Park and the buffer zone area.

& flora (Image 1). The park comprises a mosaic of physiographic regions, including the Himalayan foothills, floodplains, Dun valleys, and the Siwalik (Chure) hills, with elevations ranging 100–900 m. The vegetation is primarily dominated by Sal *Shorea robusta* forests (DNPWC 2020), interspersed with 425 grassland patches that cover about 6.24% of the park's area (CNP 2016). Additionally, 58 small and large natural wetlands within the park serve as critical habitats for numerous aquatic and semi-aquatic species, including a wide range of herpetofauna (CNP 2018). The landscape of the CNP has been shaped by three river systems: the Narayani, Rapti, and Reu rivers. Among these, the Narayani River—also known as the Gandaki and Trishuli Rivers upstream and as Gandak downstream in India—is of Himalayan origin, carrying a significant volume of meltwater from the Himalayas and serving as a perennial watercourse with substantial influence on the park's hydrology, and sediment dynamics (Dahal et al. 2015). In contrast, the Rapti and Reu rivers originate from the Siwalik, and mid-hill regions to the east, and south of the park, respectively. These rivers are primarily rain-fed and exhibit strong seasonal fluctuations in discharge, particularly during the monsoon period (Gurung & Thapa 2016). Collectively, these river systems support a mosaic of aquatic and riparian habitats that are critical for the park's biodiversity, including the 'Critically Endangered' Gharial *Gavialis gangeticus* (Bhuju et al. 2007; Poudyal et al. 2018; Yadav et al. 2022).

In 2003, the Beeshazar and associated lakes, located within the buffer zone of the CNP, were designated as a Ramsar Site—a wetland of international importance—further emphasizing the conservation value of the CNP's aquatic habitats.

Methods

The data presented in this study are derived from a combination of field observations, rescue call records, and existing literature. Diurnal and nocturnal visual encounter surveys (VES) were conducted following Heyer et al. (1994) during multiple field visits across various habitats within both the core and buffer zones of CNP (Image 2). Surveys were conducted during the following periods: 02–08 August 2018, 17–30 July 2019, 8–15 August 2019, 3–14 September 2019, 2–5 February 2020, 16–24 June 2020, 14–29 July 2020, 10–21 August

Image 2. Some representative habitats where surveys were conducted: a—Rapti River | b—Baikuntha Tal | c—Jay Mangala Phanta | d—Riverine grassland | e—Beeshazar lake | f—Triveni Dham area. © Santosh Bhattarai.

2020, 5–15 June 2021, 19–25 July 2021, 11–19 August 2021, and 15–25 July 2023.

Survey teams consisted of three to four observers, who systematically searched all potential microhabitats that likely support amphibians and reptiles. This included active searches involving the turning of logs & stones, inspecting under leaf litter, peeling bark from fallen dead trees, and examining vegetation near water bodies, and forest edges. Diurnal surveys were conducted at 0900–1700 h, while nocturnal surveys were conducted at 1900–2300 h. In addition to systematic surveys, opportunistic data were also collected from rescue

calls, mainly involving snakes, and crocodiles, received from local communities in the buffer zone. These opportunistic records contributed to the overall species richness data.

All individuals observed during surveys and rescue calls were identified to species level based on morphological characteristics, and photographic documentation, using standard field guides, and taxonomic literature (Smith 1935; Schleich & Kästle 2002; Shah & Tiwari 2004; Whitaker & Captain 2004; Lajmi et al. 2016; Das & Das 2017; David & Vogel 2021; Garg & Biju 2021; Gowande et al. 2021; Khatiwada et al. 2021; Vogel et al. 2022; Köhler et al. 2023). For taxonomic nomenclature, Frost (2025) for amphibians, and Uetz et al. (2025) for reptiles was followed.

RESULTS

Species richness

The herpetofauna of CNP comprises 89 species, including 20 species of amphibians representing 14 genera, and five families; two species of crocodilians from two genera and two families; 11 species of turtles in seven genera and three families; 14 species of lizards across eight genera and four families; and 42 species of snakes representing 30 genera and 10 families (Table 1; Images 7–11). The Dhudhwa Reed Frog *Chirixalus dudhwaensis* Ray, 1992, is reported as a new species record for Nepal. Additionally, confirmed locality records of the Eastern Bronze-back Tree Snake *Dendrelaphis proarchos* (Wall, 1909), representing CNP as the westernmost known distribution of the species in Nepal is provided.

Among the 20 amphibian species recorded, three are classified as Vulnerable, 15 as Least Concern, one as Data Deficient, and one remains Not Evaluated, based on the IUCN Red List of Threatened Species. Similarly, among the 69 recorded reptile species, three species are classified as Critically Endangered, five species as Endangered, six species as Vulnerable, and four species as Near Threatened according to the IUCN Red List. Additionally, six species have not yet been evaluated, while the remaining 45 species are currently listed as Least Concern. These assessments reflect the varying conservation needs of amphibians and reptiles in the park, and underscore the importance of targeted conservation actions, especially for species at risk.

New records from Chitwan National Park, Nepal

Dhudhwa Reed Frog *Chirixalus dudhwaensis* Ray, 1992 is reported as a confirmed new country record for Nepal based on observation from CNP (Image 3). This record is located approximately 365 km east (air distance) from its type locality in Dudhwa National Park in India. The individual was observed calling in sympatry with *Uperodon globulosus*, *Uperodon taprobanicus,* and *Microhyla nilphamarensis* after a heavy rainfall. Later, we also recorded this frog from Dhangadhi, Kailali in Sudoorpaschim Province.

The occurrence of Eastern Bronze-back Tree Snake *Dendrelaphis proarchos* (Wall, 1909) from Chitwan National Park is documented, representing the westernmost known distribution of the species in Nepal (Image 4). The *D. proarchos* were frequently observed in the Sauraha and Amaltari of the park. The record from CNP is approximately 900 km west of its type locality in Assam, India. *D. proarchos* was also observed from eastern Nepal, from Dharan forest, Miklajung, and Pathari, Morang in Koshi Province. Furthermore, *Hylarana tytleri* in Bandevi buffer zone community forest was also observed, which is a part of Barandabhar corridor forest (Image 5), and the Siwalik Fan-throated Lizard *Sitana sivalensis* from Triveni area of the park connected with Valmiki Tiger Reserve in India (Image 6).

DISCUSSION

The present study provides an update in the understanding of amphibian and reptile diversity in the CNP and its buffer zone. The documentation of 89 species underscores the park and buffer zone as a critical stronghold for amphibians and reptiles. This update represents a significant increase from earlier works, notably the 55 species of herpetofauna reported by Zug & Mitchell (1995), and 32 species of snakes reported by Pandey et al. (2018), and highlights the need for continuous, and systematic biodiversity assessments. The documentation of the Dudhwa Reed Frog *Chirixalus dudhwaensis* from the CNP as a new country record for Nepal indicates that suitable habitats for this species may be more continuous across the lowland Terai. Similarly, the observations of Eastern Bronze-back Tree Snake *Dendrelaphis proarchos* in the park's Sauraha and Amaltari extends the known distribution of this species by nearly 900 km westward from its type locality in Assam, India. Although the occurrence of *D. proarchos* in Nepal was previously mentioned by Das & Das (2017), it lacked specific locality data; therefore, the observations from Chitwan National Park and from eastern Nepal provide

Table 1. Checklist of amphibians and reptiles of Chitwan National Park, Nepal with their current IUCN Red List status.

	Species name	Common name	Red List status
AMPHIBIANS			
Family: Bufonidae Gray, 1825			
1	*Duttaphrynus melanostictus* (Schneider, 1799)	Common Asian Toad	LC
2	*Firouzophrynus stomaticus* (Lütken, 1864)	Marbled Toad	LC
Family: Microhylidae Günther, 1858 (1843)			
3	*Microhyla nilphamariensis* Howlader, Nair, Gopalan, & Merilä, 2015	Nilphamari Narrow-mouth Frog	LC
4	*Uperodon globulosus* (Günther, 1864)	Globular Balloon Frog	LC
5	*Uperodon taprobanicus* (Parker, 1934)	Painted Frog	LC
Family: Dicroglossidae Anderson, 1871			
6	*Euphlyctis adolfi* (Gunther, 1860)	Skittering Frog	LC
7	*Fejervarya orissaensis* (Dutta, 1997)	Odisha Cricket Frog	LC
8	*Hoplobatrachus tigerinus* (Daudin, 1802)	Indian Bull Frog	LC
9	*Minervarya chilapata* Ohler, Deuti, Grosjean, Paul, Ayyaswamy, Ahmed, & Dutta, 2009	Chilapata Rainpool Frog	VU
10	*Minervarya nepalensis* (Dubois, 1975)	Nepal Cricket Frog	LC
11	*Minervarya pierrei* (Dubois, 1975)	Pierre's Cricket Frog	LC
12	*Minervarya* cf. *syhadrensis* (Annandale, 1919)	Syhadra Cricket Frog	LC
13	*Minervarya teraiensis* (Dubois, 1984)	Terai Cricket Frog	LC
14	*Sphaerotheca maskeyi* (Schleich & Anders, 1998)	Maskey's Burrowing Frog	LC
Family: Ranidae Batsch, 1796			
15	*Amolops mahabharatensis* Khatiwada, Shu, Wang, Zhao, Xie, & Jiang, 2020	Mahabharat Cascade Frog	VU
16	*Hylarana chitwanensis* (Das, 1998)	Chitwan Frog	DD
17	*Hylarana tytleri* Theobald, 1868	Yellow-striped Frog	LC
Family: Rhacophoridae Hoffman, 1932 (1858)			
18	*Chirixalus dudhwaensis* Ray, 1992	Dudhwa Reed Frog	VU
19	*Polypedates maculatus* (Gray, 1830*)*	Common Tree Frog	LC
20	*Polypedates taeniatus* (Boulenger, 1906)	Six-lined Bush Frog	LC
REPTILES			
Family: Crocodylidae Cuvier, 1807			
21	*Crocodylus palustris* (Lesson, 1831)	Mugger Crocodile	VU
Family: Gavialidae Adams 1854			
22	*Gavialis gangeticus* (Gmelin, 1789)	Gharial	CR
Family: Geoemydidae Theobald 1868			
23	*Batagur dhongoka* (Gray, 1834)	Three-striped Roofed Turtle	CR
24	*Melanochelys tricarinata* (Blyth, 1856)	Tricarinate Hill Turtle	EN
25	*Melanochelys trijuga* (Schweigger, 1812)	Black Pond Turtle	LC
26	*Pangshura smithii* (Gray, 1863)	Brown Roofed Turtle	NT
27	*Pangshura tecta* (Gray, 1830)	Indian Roofed Turtle	VU
28	*Pangshura tentoria* (Gray, 1834)	Indian Tent Turtle	LC
Family: Testudinidae Batsch, 1788			
29	*Indotestudo elongata* (Blyth, 1854)	Elongated tortoise	CR
Family: Trionychidae Gray, 1835			
30	*Chitra indica* (Gray 1831)	Narrow-headed Softshell Turtle	EN
31	*Lissemys punctata* (Bonnaterre, 1789)	Indian Flapshell Turtle	VU

	Species name	Common name	Red List status
32	*Nilssonia gangetica* (Cuvier, 1825)	Gangetic Softshell Turtle	EN
33	*Nilssonia hurum* (Gray, 1830)	Peacock Softshell Turtle	EN
Family: Agamidae Gray, 1827			
34	*Calotes vultuosus* (Harlan, 1825)	Changeable Lizard	LC
35	*Sitana sivalensis* Schleich, Kästle, & Shah, 1998	Sivalik Fan-throated Lizard	LC
Family: Gekkonidae Gray, 1825			
36	*Hemidactylus* cf. *kushmorensis* Murray, 1884	Kushmore House Gecko	
37	*Hemidactylus flaviviridis* Rüppell, 1835	Yellow-bellied House Gecko	LC
38	*Hemidactylus frenatus* Duméril & Bibron, 1836	Common House Gecko	LC
39	*Hemidactylus garnotii* Duméril & Bibron, 1836	Fox Gecko	LC
Family: Scincidae Gray, 1825			
40	*Ablepharus sikimmensis* (Blyth, 1854)	Sikkim Ground Skink	LC
41	*Eutropis carinata* (Schneider, 1801)	Common Ground Skink	LC
42	*Eutropis macularia* (Blyth, 1853)	Bronze Ground Skink	LC
43	*Eutropis trivittata* (Hardwicke & Gray, 1827)	Striped Ground skink	LC
44	*Riopa albopunctata* Gray, 1846	White-spotted Supple Skink	LC
45	*Sphenomorphus maculatus* (Blyth, 1853)	Spotted Forest Skink	LC
Family: Varanidae Merrem, 1820			
46	*Varanus bengalensis* (Daudin, 1802)	Bengal Monitor	NT
47	*Varanus flavescens* (Hardwicke & Gray, 1827)	Golden Monitor	EN
Family: Erycidae Bonaparte, 1831			
48	*Eryx conicus* (Schneider, 1801)	Common Sand Boa	NT
49	*Eryx johnii* (Russell, 1801)	Red Sand Boa	NT
Family: Pythonidae Fitzinger, 1826			
50	*Python bivittatus* Kuhl, 1820	Burmese Python	VU
Family: Colubridae Oppell, 1811			
51	*Ahaetulla laudankia* Deepak, Narayanan, Sarkar, Dutta & Mohapatra, 2019	Laudanka Vine Snake	LC
52	*Ahaetulla longirostris* Mirza, Pattekar, Verma, Stuart, Purkayastha, Mohapatra, & Patel, 2024	Long-snout Vine Snake	
53	*Boiga stoliczkae* (Wall, 1909)	Tawny Cat Snake	LC
54	*Boiga siamensis* Nootphand, 1971	Siamese Cat Snake	LC
55	*Boiga trigonata* (Schneider, 1802)	Common Cat Snake	LC
56	*Boiga westermanni* (Reinhardt, 1863)	Indian Egg-eating Snake	LC
57	*Chrysopelea ornata* (Shaw, 1802)	Ornate Flying Snake	LC
58	*Coelognathus helena* (Daudin, 1803)	Common Trinket Snake	LC
59	*Coelognathus radiatus* (Boie, 1827)	Copper-headed Trinket Snake	LC
60	*Dendrelaphis tristis* (Daudin, 1803)	Common Bronze-back Tree Snake	LC
61	*Dendrelaphis proarchos* Wall, 1909	Eastern Bronze-back Tree Snake	
62	*Gongylosoma calamaria* (Günther, 1858)	Calamaria Reed Snake	LC
63	*Lycodon aulicus* (Linnaeus, 1758)	Common Wolf Snake	LC
64	*Lycodon jara* (Shaw, 1802)	Twin-spotted Wolf Snake	LC
65	*Lycodon striatus* (Shaw, 1802)	Barred Wolf Snake	LC
66	*Oligodon kheriensis* Acharji & Ray, 1836	Coral Red Kukri Snake	LC
67	*Oligodon russelius* (Daudin, 1803)	Russell's Kukri Snake	
68	*Ptyas mucosa* (Linnaeus, 1758)	Common Rat Snake	LC

	Species name	Common name	Red List status
69	*Sibynophis sagittarius* (Cantor, 1839)		LC
Family: Homalopsidae Bonaparte, 1845			
70	*Enhydris enhydris* (Schneider, 1799)	Rainbow Water Snake	LC
71	*Ferania sieboldii* (Schlegel, 1837)	Siebold's Water Snake	LC
Family: Psammophidae Bourgeois, 1968			
72	*Psammophis condanarus* (Merrem, 1820)	Common Sand Snake	LC
Family: Psammodynastidae Das, Greenbaum, Brecko, Pauwels, Ruane, Pirro, & Merilä, 2024			
73	*Psammodynastes pulverulentus* (Boie, 1827)	Common Mock Viper	LC
Family: Natricidae Bonaparte, 1838			
74	*Amphiesma stolatum* (Linnaeus, 1758)	Striped Keelback Snake	LC
75	*Fowlea piscator* (Schneider, 1799)	Checkered Keelback Snake	LC
76	*Herpetoreas platyceps* (Blyth, 1854)	Mountain Keelback Snake	LC
77	*Rhabdophis helleri* Schmidt, 1925	Red-necked Keelback Snake	
78	*Xenochrophis cerasogaster* (Cantor, 1839)	Painted Keelback Snake	VU
Family: Elapidae F. Boie, 1827			
79	*Bungarus caeruleus* (Schneider, 1801)	Common Krait	LC
80	*Bungarus fasciatus* (Schneider, 1801)	Banded Krait	LC
81	*Bungarus lividus* Cantor, 1839	Lesser Black Krait	LC
82	*Naja kaouthia* Lesson, 1831	Monocled Cobra	LC
83	*Naja naja* (Linnaeus, 1758)	Common Cobra	LC
84	*Ophiophagus hannah* (Cantor, 1836)	King Cobra	VU
85	*Sinomicrurus macclellandi* (Reinhardt, 1844)	MacClelland's Coral Snake	LC
Family: Typhopidae Merrem, 1820			
86	*Argyrophis diardii* (Schlegel, 1839)	Diard's Blind Snake	LC
87	*Indotyphlops braminus* (Daudin, 1803)	Common Blind Snake	LC
Family: Viperidae Oppel, 1811			
88	*Daboia russelii* (Shaw & Nodder, 1797)	Russell's Viper	LC
89	*Trimeresurus salazar* Mirza, Bhosale, Phansalkar, Sawant, Gowande, & Patel, 2020	Salazar Pit-viper	

LC—Least Concern | DD—Data Deficient | VU—Vulnerable | NT—Near Threatened | EN—Endangered | CR—Critically Endangered.

the confirmed locality records for the species within the country. Likewise, the observation of *Hylarana tytleri* and *Sitana sivalensis* in CNP underpins the need for fine-scale herpetofauna surveys in the region. *Hylarana tytleri*, previously reported primarily from eastern Nepal (Schleich & Kästle 2002; Shah & Tiwari 2004) and with a single record from the Ghodaghodi Lake Complex in far-western Nepal (Shah & Tiwari 2004), warrants further confirmation to validate its occurrence in the far-western region.

The record of *Sitana sivalensis* from the Triveni area of the CNP is ca. 105 km east (air distance) from its type locality, Shivapur, Kapilbastu, Nepal, emphasizing the need for further targeted surveys along the Siwalik foothills. Given that the Triveni area is contiguous with the Valmiki Tiger Reserve in Bihar, India, species likely to be *S. sivalensis* from Valmiki Tiger Reserve was also observed during the transboundary rhino rescue.

Recently, Mirza et al. (2024) described a new species of a vine snake, *Ahaetulla longirostris*, from adjoining Valmiki Tiger Reserve. Accordingly, *Ahaetulla* cf. *nasuta* can be recognized from Chitwan National Park as *A. longirostris*, since the true *A. nasuta* is now considered restricted to Sri Lanka (Mallik et al. 2020). Similarly, Gowande et al. (2021) reassessed the taxonomy of the *Calotes versicolor* complex in southern Asia and assigned the populations from the Gangetic plains to *Calotes vultuosus* (Harlan, 1825), based on a combination of morphological characters, including a smaller to medium body size, and a dorsal crest composed of relatively

Image 3. Dudhwa Reed Frog *Chirixalus dudhwaensis* from Sauraha, Chitwan. © Santosh Bhattarai.

Image 4. Eastern Bronze-back Tree Snake *Dendrelaphis proarchos* in Nepal: a—from Chitwan National Park | b—from Pathari, Morang. © a—Santosh Bhattarai | b—Bivek Gautam.

smaller scales that gradually decrease in size towards the tail compared to *C. versicolor*. The observations of *Calotes* from CNP agree with the diagnostic characters of *C. vultuosus*. Therefore, the Chitwan population is considered to represent *C. vultuosus*. Likewise, the Banded Kukri Snake *Oligodon arnensis* is treated as *O. russelius,* as suggested by Bandara et al. (2022), for *Eutropis macularia* as *E. trivittata* (Amarsinghe et al. 2022), *Rabdophis subminiatus* as *R. helleri* (David & Vogel 2021),*Hemidactylus brookii* as *H. kushmorensis* (Lajmi et al. 2016) and *Boiga ochracea* as *B. stoliczkae* (Köhler et al. 2023). A detailed specimen-based study is recommended, incorporating both morphological and molecular approaches, to confirm the taxonomic status of above-mentioned species in Nepal.

Malhotra et al. (2025) recently downgraded *Trimeresurus salazar* to a subspecies of *Trimeresurus septentrionalis*, noting that whole genome analyses are currently underway. The field observations of *Trimeresurus* populations from CNP and other lowland regions of Nepal, differ from *T. septentrionalis* specimens collected from its type locality in Pokhara, situated in the mid-mountain region of Nepal, and are more consistent with the description provided by Vogel et al. (2022). Accordingly, the Chitwan population is treated as *T. salazar* (Mirza et al. 2020). Furthermore, earlier literature reports a GenBank accession number (AF171909) for a specimen collected from Mahottari District in Madhesh Province located in the lowland Terai region of Nepal (Malhotra & Thorpe 2004), mentioned as *Trimerusurus albolabris*. To resolve these uncertainties, a comprehensive sampling of *Trimerusurus* from lowland, mountains, and valleys are needed for a detailed comparative study to clarify taxonomic status, and evolutionary relationship within *Trimeresurus sepentrionalis* complex.

Two frog species, namely, *Sphaerotheca maskeyi* (Schleich & Anders, 1998) and *Rana chitwanensis* (now *Hylarana chitwanensis*) (Das, 1998), were described from CNP, while Narayanghat Whipping Frog *Polypedates zed* (Dubois, 1987) was described from Narayanghat, Chitwan; hardly 5 km away from the CNP, and Barandabhar (Bhattarai et al. 2017a). The known distributions of *H. chitwanensis* and *Polypedates zed* remain restricted to their respective type localities at Kasara, CNP, and Narayanghat, respectively. *Hylarana chitwanensis* was recorded from the Temple Tiger area and the Bagai area of the CNP, and observed calling males from Bagai during the monsoon season. These observations provide additional locality records for *Hylarana chitwanensis*, a species that has been poorly documented since its description. No *Polypedates zed* were detected during the survey, although *P. maculatus* was observed from the area. Given the significant urban

Image 5. Yellow-striped Frog *Hylarana tytleri* from Bandevi Buffer Zone Community Forest, Barandabhar Corridor. © Dip Prasad Chaudhary.

Image 6. Siwalik Fan-threated Lizard *Sitana sivalensis* from Triveni. © Dip P. Chaudhary.

expansion of Narayanghat into a metropolitan area, it is imperative to conduct targeted surveys combining fieldwork, and molecular methods, including comparison with the holotype, and related congeners, to ascertain the continued presence of *P. zed* in the wild. As for the dicroglossid frog *Minervarya syhadrensis* (Annandale, 1919), current scholarship suggests that it may be restricted to the hills of Peninsular India, especially the Western Ghats (Phuge et al. 2020). Some publications (Khatiwada et al. 2021) report *M. syhadrensis* also from Nepal, which may require additional re-confirmation. Hence, the sightings are conservatively represented from Nepal as *M.* cf. *syhadrensis*, requiring additional confirmation of their species identity.

Conservation concerns

This article highlights the erroneous inclusion of Torrent Paha Frog *Nanorana ercepeae* in the CNP and Shuklaphanta National Park in the recent IUCN Red List assessment. *Nanorana ercepeae* was originally described from Bajhang in far-western Nepal. The species is known to inhabit temperate forests associated with montane streams in the proximity of coniferous forests; occurring at elevations of 1700–2700 m (Schleich & Kästle 2002; Shah & Tiwari 2004; Alley et al. 2013). In contrast, CNP is characterized by sub-tropical forests with a known elevation of approximately 100–900 m (DNPWC 2020), which likely represent unsuitable habitats for *Nanorana ercepeae*. Furthermore, no verified records for the species exist within the park. This correction is crucial, as inaccurate species lists can mislead conservation priorities, and management interventions.

Many reptile species such as Yellow Tortoise *Indutestudo elongata*, Three Striped-roofed Turtle *Batagur dhongoka* face critical endangerment similar to the gharial *Gavialis gangeticus*. These species, unlike the Gharial, receive no conservation attention in Nepal. This neglect is particularly concerning for *Batagur dhongoka*; for which further verification is needed to confirm its occurrence in Nepal. Likewise, earlier literature reports the occurrence of Red-crowned Roofed Turtle *Batagur kachuga* from Nepal (Schleich & Kästle 2002; Shah & Tiwari 2004; Aryal et al. 2010). The known population of *Batagur dhongoka* and *B. kachuga* is not known from Nepal (Das et al. 2019; Praschag et al. 2019) and the distribution of *B. kachuga* in Nepal is erroneous, and unlikely to occur as its known distribution is only from Chambal River system in India, and Ganga River is the northern-most distribution limit (S. Singh pers. comm.). Similarly, 'Endangered' species such as *Chitra indica*; *Nilssonia gangetica*, *N. hurum*, and *Varanus flavscens* also require urgent conservation attention due to continuing threats such as habitat loss, pollution, and illegal exploitation similar to those impacting Gharials (Poudyal et al. 2018; Yadav et al. 2022).

Conservation implications

The tigers and rhinos are the nucleus of conservation interventions in the CNP. All the conservation activities such as grassland management through cutting, slash & burn practices, and wetland restoration are primarily designed, and implemented to support these species. Additionally, community engagement activities such as outreach sessions, and involvement of community-

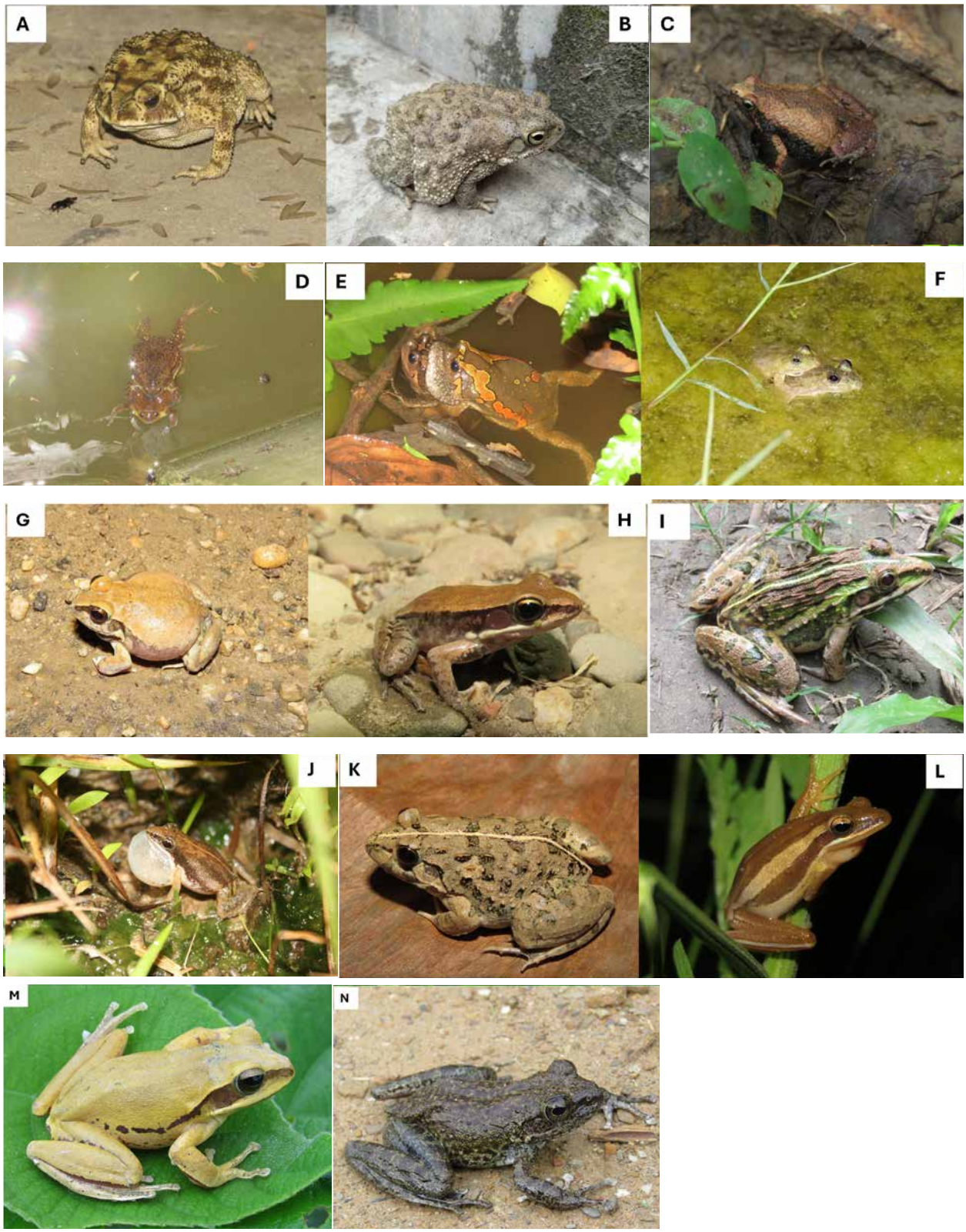

Image 7. Amphibian species from Chitwan National Park. A—Common Asian Toad *Duttaphrynus melanostictus* | B—Marbled Taod *Firouzophrynus stomaticus* | C—Nilphamari Narrow-mouth Frog *Microhyla nilphamarensis* | D—Globular Balloon Frog *Uperodon globulosus* | E—Painted Frog *Uperodon taprobanicus* | F—Skittering Frog *Euphlyctis adolfi* | G—Maskey's Burrowing Frog *Sphaerotheca maskeyi* | H—Chitwan Frog *Hylarana chitwanensis* | I—Common Bull Frog *Hoplobatrachus tigerinus* | J—Chilapata Rain-pool Frog *Minervarya chilapata* | K—Terai Cricket Frog *Minervarya teraiensis* | L—Six-lined Bush Frog *Polypedates taeniatus* | M—Common Tree Frog *Polypedates maculatus* | N—Mahabharat Cascade Frog *Amolops mahabharatensis*. © Santosh Bhattarai.

Image 8. Lizards of Chitwan National Park: A—Changeable Lizard *Calotes vultousus* | B—Yellow-bellied House Gecko *Hemidactylus flaviviridis* | C—Kushmore House Gecko *Hemidactlylus* cf. *kushmorensis* | D—Common House Gecko *Hemidactylus frenatus* | E—Common Grass Skink *Eutropis carinata* | F—Bronze-grass Skink *Eutropis macularia* | G—Striped-grass Skink *Eutropis trivittata* | H—White-spotted Supple Skink *Riopa albopunctata* | I—Bengal Monitor Lizard *Varanus bengalensis* | J—Golden Monitor Lizard *Varanus flavescens*. © A-F,H,J—Santosh Bhattarai; G,I—Dip Prasad Chaudhary.

based anti-poaching units, focus mainly on these priority taxa. These units receive frequent specialized training in species-specific conservation practices, particularly for tigers and rhinos.

The 'Critically Endangered' Gharial has attracted targeted conservation efforts such as population monitoring, nest monitoring, protection, and nest relocation have been implemented to safeguard the Gharial population in the rivers of the CNP and at Gharial Conservation and Breeding Center (GCBC), located at the headquarters of the CNP at Kasara (Poudyal et al 2018; Khadka et al. 2022a). The GCBC is well managed, with hundreds of Gharials reared annually, and released into the wild through a head-start program. In contrast, management efforts at the Turtle Breeding Center (TBC) remain limited, with only a few documented initiatives, such as the successful nest relocation of *Chitra indica* (Khadka et al. 2022b). Despite these initiatives, the aquatic habitats of the CNP remain under significant anthropogenic pressure. Both legal and illegal activities, including the distribution of fishing licenses to selected river-dependent communities, and the widespread illegal use of gill nets threaten the Gharial's survival. Entanglement in fishing nets is among the greatest direct

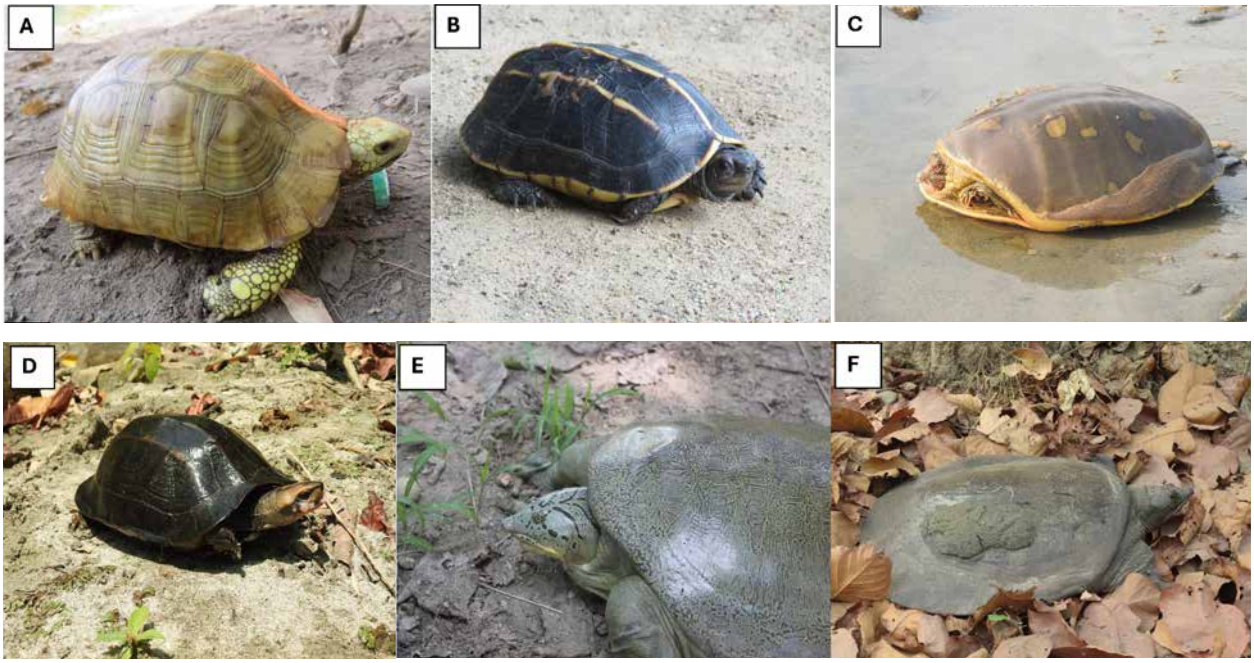

Image 9. Tortoise and some turtle species of Chitwan National Park: A—Yellow Tortoise *Indotestudo elongata* | B—Tricarinate Hill Turtle *Melanochelys tricarinata* | C—Flapshell Turtle *Lissemys punctata* | D—Black pond Turtle *Menanochelys trijuga* | E—Peacock Softshell Turtle *Nilssonia hurum* | F—Gangetic Softshell turtle *Nilssonia gangetica*. © B,C,E—Santosh Bhattarai; A,D,F—Dip Prasad Chaudhary.

threats, often resulting in injury or mortality. Given these challenges, it is imperative that conservation efforts in the CNP adopt more inclusive activities that address the shared threats faced by amphibians and reptiles, beyond the priority taxa.

The updated checklist in this study offers a baseline for future herpetological research and conservation planning in the CNP. The findings highlight the herpetofauna richness of the CNP and its buffer zone. Given the increasing frequency of stochastic events such as floods, wildfires, and anthropogenic pressures, maintaining updated information, and implementing adaptive management strategies are essential to ensure the long-term persistence of herpetofauna communities in the park. Therefore, it is recommended to use integrative taxonomic approaches, combining molecular, morphological, and ecological data to resolve cryptic diversity for effective conservation actions.

REFERENCES

Acharya, K.P., B.K. Khadka, S.R. Jnawali, S. Malla, S. Bhattarai, E. Wikramanayake & M. Kohl (2017). Conservation and population recovery of Gharials *Gavialis gangeticus* in Nepal. *Herpetologica* 73(2): 129–135.

Alley, L., D. Musahary & S. Sengupta (2013). Amphibians of east district of Sikkim, with notes on their natural history. *NeBIO* 4(3): 28–31.

Amarasinghe, A.A.T., S.R. Ganesh, Z.A. Mirza, P.D. Campbell, O.S.G. Pauwels, S. Schweiger, A. Kupfer, H. Patel, S. Karunarathna, K. Deuti, I. Ineich, J. Hallermann, A. Abinawanto & J. Supriatna (2022). The delusion of stripes: a century-old mystery of five-lined sun skinks (Reptilia: Scincidae: *Eutropis*) of Peninsular India elucidated. *Zoologischer Anzeiger* 296: 71–90. https://doi.org/10.1016/j.jcz.2021.11.004

Aryal, P.C., M.K. Dhamala, B.B. Bhurtel, M.K. Suwal & B. Rijal (2010). *Turtles of Nepal: A field Guide for Species Accounts and Distribution*. Environmental Graduates in Himalaya, Resources Himalaya Foundation, and Companions for Amphibians and Reptiles. Kathmandu, Nepal, 37 pp.

Bandara, S.K., S.R. Ganesh, A.S. Kanishka, A.D. Danushka, V.R. Sharma, P.D. Campbell & A.T. Amarasinghe (2022). Taxonomic composition of the *Oligodon arnensis* (Shaw, 1802) species complex (Squamata: Colubridae) with the description of a new species from India. *Herpetologica* 78(1): 51–73. https://doi.org/10.1655/Herpetologica-D-21-00026.1

Bhattarai, S., C.P. Pokheral, B.R. Lamichhane & N. Subedi (2017a). Herpetofauna of a Ramsar Site: Beeshazar and associated lakes, Chitwan National Park Nepal. *Reptiles and Amphibians* 24(1): 17–29.

Bhattarai, S., A. Gurung, L. Chalise & C.P. Pokheral (2017b). Geographic distribution: *Psammodynastes pulverulentus* (Mock Viper). *Herpetological Review* 48(1): 129.

Bhattarai, S., C.P. Pokheral, B.R. Lamichhane, U.R. Regmi, A.K. Ram & N. Subedi (2018). Amphibians and reptiles of Parsa National Park, Nepal. *Amphibian and Reptile Conservation* 12(1): 35–48 (e155).

Bhattarai, S., A. Gurung, B.R. Lamichhane, R. Regmi, M. Dhungana, B. Kumpakha & N. Subedi (2020). *Amphibians and Reptiles of Chure Range, Nepal*. President Chure Terai-Madhesh Conservation Development Board and National Trust for Nature Conservation, Khumaltar, Lalitpur, Nepal, 60 pp.

Bhuju, U.R., P.R. Shakya, T.B. Basnet & S. Shrestha (2007). *Nepal Biodiversity Resource Book: Protected Areas, Ramsar Sites, and World Heritage Sites.* International Centre for Integrated Mountain

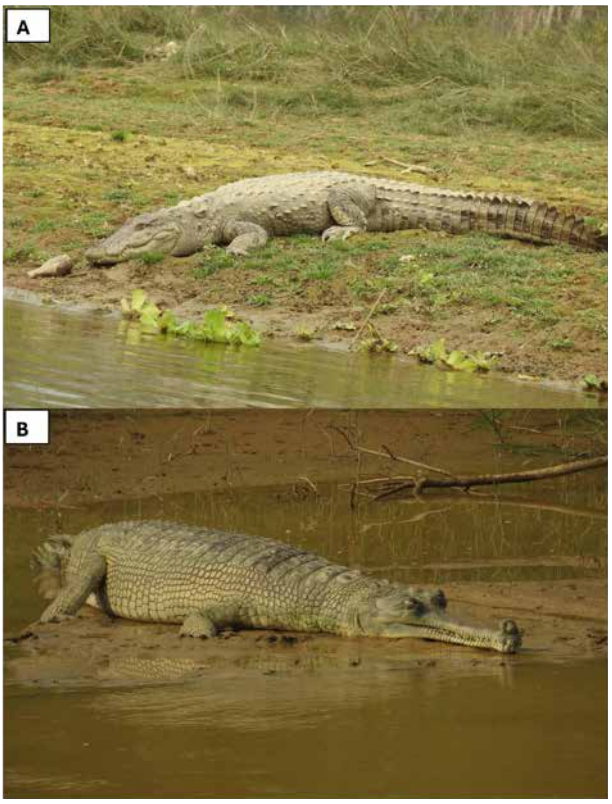

Image 10. Crocodiles of Chitwan National Park: A—Mugger Crocodile *Crocodylus palustris* | B—Male Gharial *Gavialis gangeticus*. © A—Santosh Bhattarai; B—Dip Prasad Chaudhary.

Development (ICIMOD), Ministry of Environment, Science and Technology (MOEST), and United Nations Environment Programme (UNEP), Kathmandu, Nepal, 160 pp.

Boone, J.H., C.G. Mahan & K.C. Kim (2005). Biodiversity Inventory: Approaches, Analysis, and Synthesis. Technical Report NPS/NER/NRTR--2005/015. National Park Service, Philadelphia, 54 pp.

CNP (2016). *Grassland Habitat Mapping in Chitwan National Park*. Chitwan National Park, Kasara, Chitwan.

CNP (2018). *Management Plan of Chitwan National Park and its Buffer Zone (2075/76-2079/80)*. Chitwan National Park Office, Kasara, Chitwan, 192 pp.

Dahal, N., M. Bista & A. Aryal (2015). Hydrological and geomorphological dynamics of the Narayani River system in Nepal. *Journal of Hydrology and Meteorology* 9(1): 23–34.

Das, I. (1998). A new species of *Rana* from the Terai of Nepal. *Journal of Herpetology* 32(2): 223–229.

Das, I. & A. Das (2017). *A Naturalist's Guide to Reptiles of India*. Prakash Books. New Delhi, India, 176 pp.

Das, I., B.C. Choudhury, P. Praschag, M.F. Ahmed & S. Singh (2019). *Batagur dhongoka*. The IUCN Red List of Threatened Species 2019: e.T10953A152042542. https://doi.org/10.2305/IUCN.UK.2019-1.RLTS.T10953A152042542.en. Accessed on 28.i.2025.

David, P. & G. Vogel (2021). Taxonomic composition of the *Rhabdophis subminiatus* (Schlegel, 1837) species complex (Reptilia: Natricidae) with the description of a new species from China. *Taprobanica* 10(2): 89–120.

DNPWC (2020). Assessment of Ecological Carrying Capacity of Royal Bengal Tiger in Chitwan-Parsa Complex, Nepal. Department of National Parks and Wildlife Conservation, Babarmahal, Kathmandu, 36 pp.

DNPWC (2025). Protected Areas of Nepal. https://dnpwc.gov.np/en/. Accessed on 08.ii.2025.

Dubois, A. (1987). Miscellanea taxonornica batrachologica (I). *Alytes* 5: 7–95.

Fleming, R.L. Jr. & R.L. Fleming Sr. (1973). Some snakes from Nepal. *Journal of Bombay Natural History Society*. 3: 426–437.

Frost, D.R. (2025). Amphibian Species of the World: An Online Reference. Version 6.0. American Museum of Natural History, New York http://research.amnh.org/vz/herpetology/amphibia/. Accessed on 08.ii.2025.

Garg, S. & S.D. Biju (2021). DNA barcoding and systematic review of minervaryan frogs (Dicroglossidae: *Minervarya*) of peninsular India: resolution of a taxonomic conundrum with description of a new species. *Asian Herpetological Research* 12(4): 345–378. https://doi.org/10.16373/j.cnki.ahr.210023

Gautam, B., M.K. Chalise, K.B. Thapa & S. Bhattarai (2020). Distributional patterns of amphibians and reptiles in Ghandruk, Annapurna Conservation Area, Nepal. *Reptiles & Amphibians* 27(1): 18–28. https://doi.org/10.17161/randa.v27i1.14440

Gautam, B., S. Bhattarai & R.C. Kandel (2022). First record of *Takydromus sikkimensis* Günther, 1888 (Squamata, Lacertidae) from Nepal. *Herpetozoa* 35: 159–163. https://doi.org/10.3897/herpetozoa.35.e89497

Girardello, M., S. Martellos, A. Pardo & S. Bertolino (2018). Gaps in biodiversity occurrence information may hamper the achievement of international biodiversity targets: insights from a cross-taxon analysis. *Environmental Conservation* 45(4): 370–377. https://doi.org/10.1017/S0376892918000115

Gowande, G., S. Pal, D. Jablonski, R. Masroor, P.U. Phansalkar, P. Dsouza, A. Jayarajan & K. Shanker (2021). Molecular phylogenetics and taxonomic reassessment of the widespread agamid Lizard *Calotes versicolor* (Daudin, 1802) (Squamata: Agamidae) across South Asia. *Vertebrate Zoology* 71: 669–696. https://doi.org/10.3897/vz.71.e62787

Gurung, S. & R. Thapa (2016). Seasonal variation in water discharge and sediment load of the Rapti and Reu Rivers in Chitwan. *Nepal Journal of Environmental Science* 4(2): 45–52.

Heyer, W.R., M.A. Donnelly, R.W. McDiarmid, L.C. Hayek & M.S. Foster (1994). *Measuring and Monitoring Biological Diversity: Standard Methods for Amphibians*. Smithsonian Institution Press. Washington, DC, 364 pp.

Kästle, W., K. Rai & H.H. Schleich (2013). *Reptiles of Nepal*. ARCO-Nepal e.V. Munich, Germany, 625 pp.

Khadka, B.B., A. Bashyal & P. Griffith (2022a). Post-release growth of captive-reared Gharial *Gavialis gangeticus* (Gmelin, 1789) (Reptilia: Crocodilia: Gavialidae) in Chitwan National Park, Nepal. *Journal of Threatened Taxa* 14(5): 21002–21009. https://doi.org/10.11609/jott.6692.14.5.21002-21009

Khadka, B.B., S. Lamichhane & S. Bhattarai (2022b). Notes on successful nest relocation of *Chitra indica* (Gray, 1831) from Chitwan National Park, Nepal. *Tropical Natural History* 22: 51–55.

Khadka, B.B. & S. Lamichhane (2020). First distribution records of *Pangshura tentoria, Chitra indica,* and *Nilssonia gangetica* in the major rivers of Chitwan National Park, Nepal. *Herpetology Notes* 13: 157–159.

Khatiwada, J.R., B. Wang, T. Zhao, F. Xie & J.P. Jiang (2021). An integrative taxonomy of amphibians of Nepal: an updated status and distribution. *Asian Herpetological Research* 12(1): 1–35. https://doi.org/10.16373/j.cnki.ahr.200050

Köhler, G., P.T. Charunrochana, L. Mogk, N.L. Than, N. Kurniawan, A.M. Kadafi, A. Das, F. Tillack & M. O'Shea (2023). A taxonomic revision of *Boiga multomaculata* (Boie, 1827) and *B. ochracea* (Theobald, 1868), with the description of a new subspecies (Squamata: Serpentes: Colubridae). *Zootaxa* 5270(2): 151–193. https://doi.org/10.11646/zootaxa.5270.2.1

Kramer, E. (1977). Zur Schlangenfauna Nepals. *Revue Suisse de Zoologie* 84: 721–761.

Lajmi, A., V.B. Giri & K.P. Karanth (2016). Molecular data in conjunction with morphology help resolve the *Hemidactylus brookii* complex (Squamata: Gekkonidae). *Organisms Diversity & Evolution* 16(3):

Image 11. Some snakes of Chitwan National Park: A—Striped Keelback snake *Amphiesma stolatum* | B—Common Wolf Snake *Lycodon aulicus* | C—Common Rat Snake *Ptyas mucosa* | D—Common Bronzeback Tree Snake *Dendrelaphis tristis* | E—Siamese Cat Snake *Boiga siamensis* | F—Tawny Cat Snake *Boiga stoliczkae* | G—Long-snouted Vine Snake *Ahaetulla longirostris* | H—Red Sand Boa *Eryx johnii* | I—Ornate Flying Snake *Chrysopelea ornata* | J—Painted Keelback *Xenochrophis cerasogaster* | K—Common Sand Boa *Eryx conicus* | L—Coral Kukri Snake *Oligodon kheriensis*.© Santosh Bhattarai.

659–677. https://doi.org/10.1007/s13127-016-0271-9

Lamsal, D. (2014). Diversity and uses of herpetofauna of Madi Valley, Chitwan, Nepal. M.Sc. Dissertation, Tribhuvan University, Kathmandu, Nepal, 55 pp.

Malhotra, A. & R.S. Thorpe (2004). A phylogeny of four mitochondrial gene regions suggests a revised taxonomy for Asian Pitvipers (*Trimeresurus* and *Ovophis*). *Molecular Phylogenetics and Evolution* 32(1): 83–100. https://doi.org/10.1016/j.ympev.2004.02.008

Malhotra, A., M. Walter, G.L. Russel & R.S. Thorpe (2025). Integrative analysis of geographic variation and species boundaries in the White-lipped Pitviper complex (Squamata: Viperidae: Crotalinae: *Trimeresurus albolabris*). *Vertebrate Zoology* 75: 191–225. https://doi.org/10.3897/vz.75.e142775

Mallik, A.K., A.N. Srikanthan, S.P. Pal, P.M. Dsouza, K. Shanker &

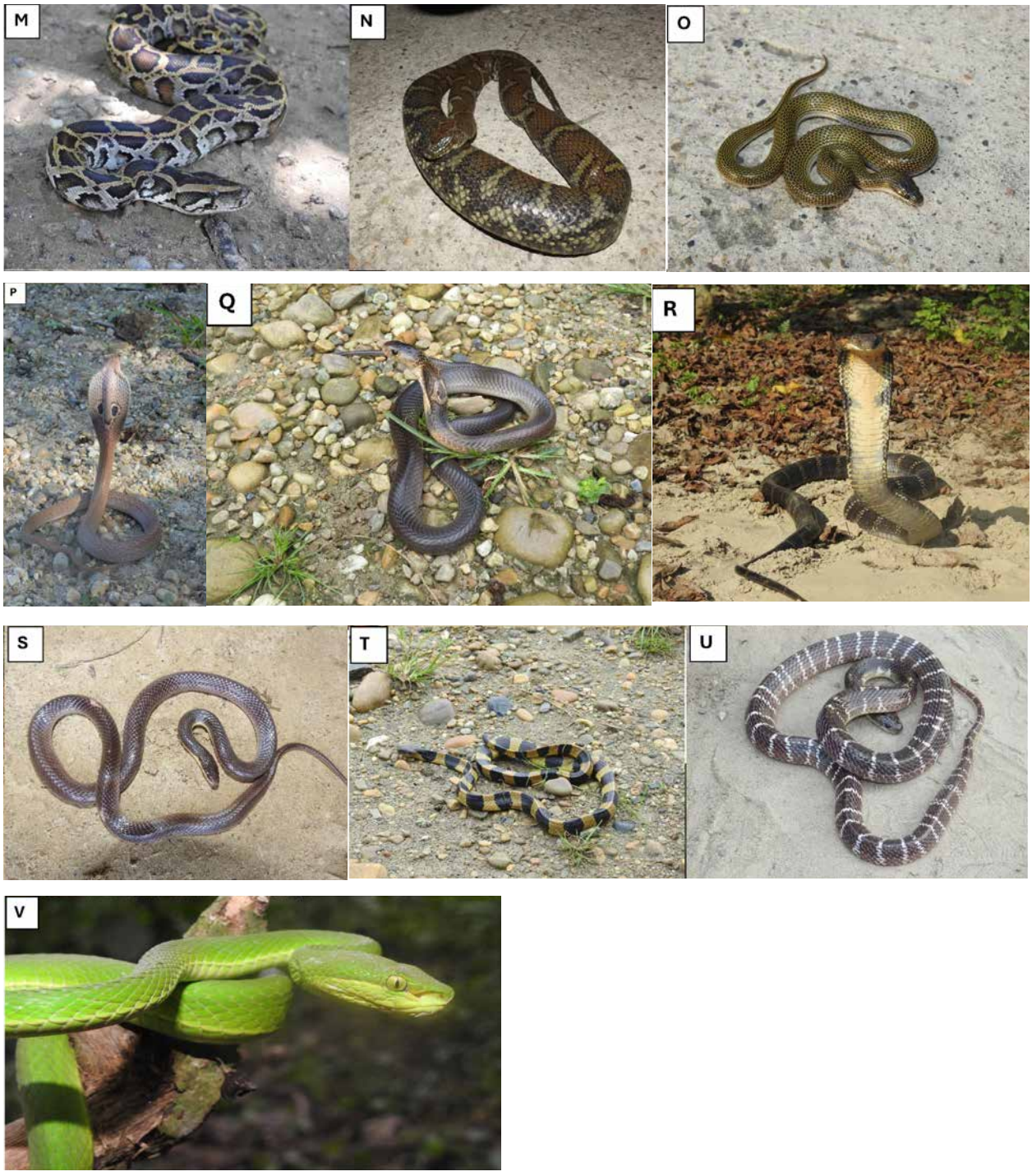

Image 11. Some snakes of Chitwan National Park: M—Burmese Python *Python bivittatus* | N—Siebold's Water Snake *Ferania sieboldii* | O—Twin-spotted Wolf Snake *Lycodon jara* | P—Common Cobra *Naja naja* | Q—Monocled Cobra *Naja kaouthia* | R—King Cobra *Ophiophagus hannah* | S—Lesser-black Krait *Bungarus lividus* | T—Banded Krait *Bungarus fasciatus* | U—Common Krait *Bungarus caeruleus* | V—Salazar Pit-viper *Trimerusurus salazar*. © Santosh Bhattarai.

S.R. Ganesh (2020). Disentangling vines: a study of morphological crypsis and genetic divergence in vine snakes (Squamata: Colubridae: *Ahaetulla*) with the description of five new species from Peninsular India. *Zootaxa* 4874: 1–62. https://doi.org/10.11646/zootaxa.4874.1.1

Mirza, Z.A., H.S. Bhosale, P.U. Phansalkar, M. Sawant, G.G. Gowande & H. Patel (2020). A new species of Green Pit Viper of the genus *Trimeresurus* Lacépède, 1804 (Reptilia: Serpentes: Viperidae) from western Arunachal Pradesh, India. *Zoosystematics and Evolution* 96(1): 123–138. https://doi.org/10.3897/zse.96.48431

Mirza, Z.A., S. Pattekar, S. Verma, B.L. Stuart, J. Purkayastha, P.P. Mohapatra & H. Patel (2024). A new Long-snouted vine

snake species in the genus *Ahaetulla* Link, 1807 (Colubridae: Chrysopeleinae) from India. *Journal of Asia-Pacific Biodiversity* 17(4): 696–703. https://doi.org/10.1016/j.japb.2024.04.017

Mitchell, J.C. & A.G.J. Rhodin (1996). Observations on the natural history and exploitation of turtles of Nepal, with life history notes on *Melanochelys tricarinata*. *Chelonian Conservation and Biology* 2(1): 66–72.

MPFS (1988). Master Plan for the Forestry Sector Nepal: Main Report. Ministry of Forests and Soil Conservation, His Majesty's Government of Nepal, Kathmandu, 186 pp.

Nishan, K.C., B. Neupane, B. Belbase, B. Dhami, B.S. Bist, C.R. Basyal & S. Bhattarai (2023). Factors influencing the habitat selection of Mugger Crocodile *Crocodylus palustris* and its conservation threats in the Rapti River of Chitwan National Park, Nepal. Global Ecology and Conservation, 42 pp. https://doi.org/10.1016/j.gecco.2023.e02406

Pandey, D.P. (2012). Snakes in the vicinity of Chitwan National Park, Nepal. *Herpetological Conservation and Biology* 7: 46–57.

Pandey, D.P., D. Jelic, S. Sapkota, H.M. Lama, B. Lama, K. Pokharel, M. Goode & U. Kuch (2018). New records of snakes from Chitwan National Park and vicinity, Central Nepal. *Herpetology Notes* 11: 679–696.

Pathak, A., A. Bashyal, B.N. Oli, B. Thapaliya, S. Bhattarai, S. Khanal & P. Paudel (2023). Understanding the perception of buffer zone communities to Gharial Gavialis gangeticus conservation in Chitwan National Park, Nepal. *Global Ecology and Conservation* 47: e02634. https://doi.org/10.1016/j.gecco.2023.e02634

Phuge, S., A.B. Patil, R. Pandit, N.U. Kulkarni, B.H.C.K. Murthy, P. Deepak & K.P. Dinesh (2020). Importance of genetic data in resolving cryptic species: a century old problem of understanding the distribution of *Minervarya syhadrensis* Annandale, 1919 (Anura: Dicroglossidae). *Zootaxa* 4869(4): 451–492. https://doi.org/10.11646/zootaxa.4869.4.1

Poudyal, L.P., B. Dahal, B.R. Lamichhane, S.R. Giri, B. Rayamajhi, P. Shrestha, B.B. Khadka & S. Bhattarai (2018). *Population Status and Distribution of Gharial in Rivers of Chitwan National Park*. Government of Nepal, Ministry of Forest and Environment, Kathmandu, Nepal, 19 pp.

Praschag, P., M.F. Ahmed, I. Das & S. Singh (2019). *Batagur kachuga*. The IUCN Red List of Threatened Species 2019: e.T10949A152043133. https://doi.org/10.2305/IUCN.UK.2019-1.RLTS.T10949A152043133.en. Accessed on 28.i.2025.

Rawat, Y.B., S. Bhattarai, L.P. Poudyal & N. Subedi (2020). Herpetofauna of Shuklaphanta National Park, Nepal. *Journal of Threatened Taxa* 12(5): 15587–15611. https://doi.org/10.11609/jott.5611.12.5.15587-15611

Schleich, H.H. & C.C. Anders (1998). *Tompterna maskeyi* spec. nov. from Nepal (Amphibia, Anura). In: Schleich, H.H. & W. Kästle (eds.). Contributions to the Herpetology of South Asia (Nepal, India). 4: 57–72.

Schleich, H.H. & W. Kästle (eds.) (2002). *Amphibians and Reptiles of Nepal*. Koenigstein: Koeltz Scientific Books, Germany, 1,200 pp.

Shah, K.B. & S. Tiwari (2004). *Herpetofauna of Nepal: A Conservation*. IUCN Nepal, Kathmandu, Nepal, 237 pp.

Smith, M.A. (1935). *The Fauna of British India, Including Ceylon and Burma. Reptilia and Amphibia, Vol. 2, Sauria*. Taylor and Francis, London, 440 pp.

Uetz, P., P. Freed, R. Aguilar, F. Reyes, J. Kudera & J. Hošek (eds.) (2025). The Reptile Database, http://www.reptile-database.org. Accessed on 08.ii.2025.

Vogel, G., A.K. Mallik, S.R. Chandramouli, V. Sharma & S.R. Ganesh (2022). A review of records of the *Trimeresurus albolabris* Gray, 1842 group from the Indian subcontinent: expanded description and range extension of *Trimeresurus salazar*, redescription of *Trimeresurus septentrionalis* and rediscovery of historical specimens of *Trimeresurus davidi* (Reptilia: Viperidae). *Zootaxa* 5175(3): 343–366. https://doi.org/10.11646/zootaxa.5175.3.2

Whitaker, R. & A. Captain (2004). *Snakes of India: The Field Guide*. Draco Books, Chennai, India, 481 pp.

Yadav, R.K., S. Lamichhane, D.R. Thanet, T. Rayamajhi, S. Bhattarai, A. Bashyal & B.R. Lamichhane (2022). Gharial (*Gavialis gangeticus* Gmelin, 1789) abundance in the Rapti River, Chitwan National Park, Nepal. *Ecology and Evolution* 12: e9425. https://doi.org/10.1002/ece3.9425

Zug, G.R. & J.C. Mitchell (1995). Amphibians and reptiles of the Royal Chitwan National Park, Nepal. *Smithsonian Herpetological Information Service* 107: 1–38.

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