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An updated checklist of the reptiles of Meghalaya, India

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ABSTRACT:
Meghalaya, a hill state in Northeast India, forms part of the Indo-Burma biodiversity hotspot and is noted for its steep terrain, humid forests, and high rainfall, which support a rich reptile fauna. We present an updated, evidence-based checklist of reptiles from Meghalaya compiled from authoritative literature, voucher-based catalogues, and recent field observations. This synthesis records 105 species in 27 families: 64 snakes, 29 lizards, and 12 turtles/tortoises. Family-level richness peaks in Colubridae (42 spp.) among snakes and Gekkonidae (13 spp.) among lizards, while chelonians are few but disproportionately threatened. Conservation assessment shows 15 species (14.3%) are in Threatened categories (Critically Endangered, Endangered, Vulnerable), with turtles/tortoises bearing the highest burden (10 of 12 species, 83.3%). Recent discoveries such as new *Cyrtodactylus* geckos and records of *Calotes zolaiking* and *Smithophis bicolor* reflect ongoing taxonomic and distributional work, particularly in upland and karst habitats. The checklist highlights the need for further surveys, especially in caves, riparian systems, and isolated forest patches, to resolve Data Deficient and Not Evaluated taxa and to uncover likely micro-endemic species. This compilation provides a robust baseline for biodiversity monitoring, Red List assessments, and conservation planning in Meghalaya.

Keywords:
Meghalaya; Indo-Burma Hotspot; Reptiles; Snakes; Lizards; Turtles; Micro-Endemism.

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INTRODUCTION

Perched on the Shillong Plateau, Meghalaya forms a high, dissected massif between the Brahmaputra Valley to the north and the Sylhet lowlands of Bangladesh to the south. Orographic lifting on the plateau's steep southern escarpment generates some of the planet's most extreme rainfall, with Mawsynram's long-term mean ~11,873 mm (1941–1978) and multiple single-day records exceeding 900–1,000 mm (Thapliyal & Kulshrestha, 1992). These gradients, together with elevational belts from <100 m to >1,900 m and complex lithology, have produced a tight mosaic of subtropical broadleaf, montane, and riparian habitats. Ecoregionally, most of the state falls within the Meghalaya Subtropical Forests, a distinct unit at the interface of the Himalayan and Indo-Burma biotas (Olson *et al.*, 2001). The plateau is globally noted for karst: vast

bedded limestones and hybrid arenaceous–limestone systems harbor hundreds of mapped caves (e.g., the >25 km Krem Puri system) and diverse subterranean assemblages that connect surface and hypogean food webs (Harries et al., 2008; Sauro et al., 2020). Protected-area cores such as Nokrek (Garo Hills) span 600–1,412 m and act as catchments for perennial stream networks feeding both the Brahmaputra and Meghna systems. Collectively, this landscape sits within the Indo-Burma biodiversity hotspot sensu Myers *et al*. (2000) and subsequent updates, a context that predicts high turnover, short-range endemism, and ongoing taxonomic discovery for reptiles.

The first state-level, peer-reviewed synthesis of Meghalaya's reptiles was done by Mathew's (1995), which collated distributional records and museum vouchers across major lineages and set a baseline list for the state. Subsequent ZSI monographs added place-based inventories in key southern Garo Hills including Baghmara Reserve Forest (Zoological Survey of India, 2010) and Nokrek Biosphere Reserve, Meghalaya (Zoological Survey of India, 2013).

Targeted notes and corrections followed. Mathew & Meetei (2004) clarified the identity and reporting of *Amphiesma venningi* sensu lato from Meghalaya, exemplifying the taxonomic instability typical of natricid streams snakes in NE India. From the mid-2010s, several short communications documented new district/state records—e.g., lizard records from Tura Peak in the West Garo Hills (Sangma & Saikia, 2014), a verified Tokay Gecko sighting from Ri-Bhoi (Rai & Chettri, 2019), and the *Calamaria pavimentata* from Nokrek National Park (Ranade, 2022). These micro-scale additions filled gaps between older museum-based syntheses and modern field sampling.

Concurrently, integrative taxonomy transformed our understanding of Meghalaya's gekkonid fauna. A wave of descriptions and revisions of the *Cyrtodactylus khasiensis* complex repeatedly implicated Khasi–Jaintia–Garo Hilltops as centres of endemism: including *C. jaintiaensis* (Agarwal *et al*., 2018); *Cyrtodactylus karsticola and Cyrtodactylus agarwali* from Siju, Meghalaya (Purkayastha *et al*., 2021); *Cyrtodactylus bapme*, a Garo Hills endemic in (Kamei & Mahony, 2021); *Cyrtodactylus exercitus* from east Khasi Hills (Purkayastha *et al*., 2022).

Snake systematics and distribution have moved just as fast. After the original description of *Trimeresurus salazar* in Arunachal Pradesh (Mirza *et al*., 2020), its presence was confirmed from Meghalaya (Rathee *et al*., 2021). *Trimeresurus mayaae*, a cryptic *pit-viper* was described with material from Mizoram and Meghalaya (Rathee *et al*., 2022). Most recently, topotypic material and molecular data restricted the range of *Smithophis bicolor* to Meghalaya highlands (Purkayastha *et al*., 2025), and *Calotes zolaiking*, described from Mizoram was newly documented from the Khasi Hills (Bohra *et al*., 2025). These additions underscore how Meghalaya's orography and bioclimatic heterogeneity continue to yield taxonomic novelties and first-state records.

Museum-based records have made the reptile checklist more reliable. A catalogue of specimens from Meghalaya, kept at SACON, listed species with exact specimen numbers and locations (Chandramouli *et al*., 2021). Later, a short note corrected some of those entries (Karthik, 2022). These verified records are important because they can be checked against current names and help keep the state list accurate.

Finally, Meghalaya's biogeographic position, an orographic "wet edge" of the Indo-Burma hotspot with extensive karst and steep ecological gradients, has generated a reptile fauna marked by high endemism in upland blocks, stream-associated natricines, and a rapidly expanding *Cyrtodactylus* radiation. Over the last decade, research has shifted from scattered records to integrative, voucher-based systematics and targeted protected-area surveys. This progression highlights the need for a comprehensive, evidence-based resource. The aim of this paper is to provide an updated and consolidated checklist of the reptiles of Meghalaya to serve as a baseline for future research, conservation planning, and ecological analyses across the Khasi, Jaintia, and Garo Hills.

MATERIALS AND METHODS

We synthesised all state-relevant reptile literature spanning foundational monographs, voucher catalogues, taxonomic revisions, and locality notes. Core baselines comprised the State Fauna Series chapter for Meghalaya (Mathew, 1995) and for Baghmara Reserve Forest and Nokrek Biosphere Reserve (Zoological Survey of India 2010, 2013). Voucher-anchored records were incorporated from the SACON catalogue (Chandramouli *et al*., 2021). We integrated locality-level notes that document, confirm, or correct state occurrences (Mathew & Meetei 2004; Sangma & Saikia, 2014; Rai & Chettri, 2019; Ranade, 2022). Taxonomic scope and state-level composition were updated using multi-species treatments and descriptions involving Meghalaya (Agarwal *et al*., 2018; Kamei & Mahony, 2021; Purkayastha *et al*., 2021; Purkayastha *et al*., 2022) and contextualised against a region-wide synthesis for snakes (Basfore *et al*., 2024). Regionally emergent viper taxonomy (Mirza *et al*., 2020; Rathee *et al*., 2022) was consulted for names and state applicability.

Records were included if (i) the publication provided direct records from Meghalaya (state, district, or protected-area level), or (ii) a taxonomic work revised entities already recorded or plausibly occurring in Meghalaya, thereby impacting names or species limits applied in the state checklist. For short notes and distributional reports, we privileged items with explicit localities and, where possible, voucher numbers or photographic evidence (Mathew & Meetei, 2004; Sangma & Saikia, 2014; Rai & Chettri, 2019; Ranade, 2022; Chandramouli *et al*., 2021). Taxonomy followed usage in the most recent, relevant revisions (Agarwal *et al*., 2018; Kamei & Mahony, 2021; Purkayastha *et al*., 2021; Purkayastha *et al*., 2022; Mirza *et al*., 2020; Rathee et al., 2022), with reconciliation against state-level syntheses (Mathew, 1995; Zoological Survey of India, 2010 & 2013) and the Northeast snake checklist (Basfore *et al*., 2024). Extinction risk status is as per the latest version of IUCN red list status (IUCN, 2025).

Opportunistic field observations (2023–2025) from representative habitats in the Khasi, Jaintia and Garo Hills were used to corroborate occurrences already supported by authoritative literature.

RESULTS

Diversity and composition

The curated state list comprises 105 species (Table 1) of reptiles in 27 families**:** 64 snakes**,** 29 lizards**,** and 12 turtles/tortoises. Family-level richness is highest in Colubridae (42 spp.), followed by Gekkonidae (13), Agamidae (8), Elapidae (7), Geoemydidae (7), Viperidae (6), Scincidae (5), Typhlopidae (4), Trionychidae (3), and Testudinidae (2). These totals exceed earlier statewide baselines and PA-focused inventories from Meghalaya (Mathew, 1995; Zoological Survey of India, 2010; Zoological Survey of India, 2013), reflecting the cumulative effect of specimen catalogues, short notes, and recent taxonomic revisions (Mathew & Meetei, 2004; Sangma & Saikia, 2014; Rai & Chettri, 2019; Ranade, 2022; Agarwal *et al*., 2018; Kamei *et al*., 2021; Purkayastha *et al*., 2021; Purkayastha *et al*., 2022).

Table 1: A checklist of reptiles of Meghalaya, India

Sl. No.	Family	Common Name	Scientific Name	Extinction Risk (IUCN, 2025)
	Snakes			
1.	Colubridae	Yellow-green Cat Snake	*Ahaetulla flavescens* (Wall, 1910)	Not Evaluated
2.	Colubridae	Long-nosed Vine Snake	*Ahaetulla longirostris* Mirza et al., 2024	Not Evaluated
3.	Colubridae	Buff-striped Keelback	*Amphiesma stolatum* (Linnaeus, 1758)	Least Concern
4.	Colubridae	Green Cat Snake	*Boiga cyanea* (Duméril, Bibron & Duméril, 1854)	Least Concern

5.	Colubridae	Eastern Cat Snake	*Boiga gokool* (Gray, 1834)	Least Concern
6.	Colubridae	Assamese Cat Snake	*Boiga quincunciata* (Wall, 1908)	Least Concern
7.	Colubridae	Thai Cat Snake	*Boiga siamensis* Nutaphand, 1971	Least Concern
8.	Colubridae	Collared Reed Snake	*Calamaria pavimentata* Duméril, Bibron & Duméril, 1854	Least Concern
9.	Colubridae	Ornate Flying Snake	*Chrysopelea ornata* (Shaw, 1802)	Least Concern
10.	Colubridae	Copperhead Trinket Snake	*Coelognathus radiatus* (Boie, 1827)	Least Concern
11.	Colubridae	Wall's Bronzeback	*Dendrelaphis proarchos* (Wall, 1909)	Not Evaluated
12.	Colubridae	Cantor's Rat Snake	*Elaphe cantoris* (Boulenger, 1894)	Least Concern
13.	Colubridae	Checkered Keelback	*Fowlea piscator* (Schneider, 1799)	Least Concern
14.	Colubridae	Günther's Reed Snake	*Gongylosoma frenata* (Günther, 1858)	Not Evaluated
15.	Colubridae	Khasi Hills Trinket snake	*Gonyosoma frenatum* (Gray, 1853)	Least Concern
16.	Colubridae	Green Trinket Snake	*Gonyosoma prasinum* (Blyth, 1855)	Least Concern
17.	Colubridae	Clerk's Keelback	*Hebius clerki* (Wall, 1925)	Least Concern
18.	Colubridae	Khasi Keelback	*Hebius khasiensis* (Boulenger, 1890)	Least Concern
19.	Colubridae	Modest Keelback	*Hebius modestus* (Günther, 1875)	Least Concern
20.	Colubridae	Striped Keelback	*Hebius parallelus* (Boulenger, 1890)	Data Deficient
21.	Colubridae	Assam Stream Snake	*Herpetoreas xenura* (Wall, 1907)	Near Theretened
22.	Colubridae	Common Wolf Snake	*Lycodon aulicus* (Linnaeus, 1758)	Least Concern
23.	Colubridae	Twin-spotted Wolf Snake	*Lycodon jara* (Shaw, 1802)	Least Concern
24.	Colubridae	Northern Wolf Snake	*Lycodon septentrionalis* (Günther, 1875)	Least Concern
25.	Colubridae	Zaw's Wolf Snake	*Lycodon zawi* Slowinski et al., 2001	Least Concern
26.	Colubridae	White-banded Kukri Snake	*Oligodon albocinctus* (Cantor, 1839)	Least Concern
27.	Colubridae	Ashy Kukri Snake	*Oligodon cinereus* (Günther, 1864)	Least Concern
28.	Colubridae	Cantor's Kukri Snake	*Oligodon cyclurus* (Cantor, 1839)	Least Concern
29.	Colubridae	Barred Kukri Snake	*Oligodon dorsalis* (Gray, 1834)	Least Concern
30.	Colubridae	Darjeeling Kukri Snake	*Oligodon juglandifer* (Wall, 1909)	Vulnerable
31.	Colubridae	Theobald's Kukri Snake	*Oligodon theobaldi* (Günther, 1868)	Least Concern
32.	Colubridae	Mandarin Rat Snake	*Oreocryptophis porphyraceus* (Cantor, 1839)	Least Concern
33.	Colubridae	Indochinese Rat Snake	*Ptyas korros* (Schlegel, 1837)	Near Threatened
34.	Colubridae	Oriental Rat Snake	*Ptyas mucosa* (Linnaeus, 1758)	Least Concern
35.	Colubridae	Black-bordered Rat Snake	*Ptyas nigromarginata* (Blyth, 1855)	Least Concern
36.	Colubridae	Heller's Keelback	*Rhabdophis helleri* (Schmidt, 1925)	Not Evaluated
37.	Colubridae	Himalayan Keelback	*Rhabdophis himalayanus* (Günther, 1864)	Least Concern

38.	Colubridae	Collared Black-headed Snake	*Sibynophis collaris* (Gray, 1853)	Least Concern
39.	Colubridae	Two-toned Black-headed Snake	*Smithophis bicolor* (Blyth, 1855)	Least Concern
40.	Colubridae	Khasi Hill Snake	*Stoliczkia khasiensis* Jerdon, 1870	Data Deficient
41.	Colubridae	Cantor's Earth Snake	*Trachischium monticola* (Cantor, 1839)	Least Concern
42.	Colubridae	Rainbow Water Snake	*Xenochrophis cerasogaster* (Cantor, 1839)	Vulnerable
43.	Homalopsidae	Rainbow Water Snake	*Enhydris enhydris* (Schneider, 1799)	Least Concern
44.	Pareidae	Assam Slug Snake	*Pareas monticola* (Cantor, 1839)	Least Concern
45.	Pseudaspididae	Mock Viper	*Psammodynastes pulverulentus* (Boie, 1827)	Least Concern
46.	Pseudaspididae	Big-eyed Bamboo Snake	*Pseudoxenodon macrops* (Blyth, 1855)	Least Concern
47.	Typhlopidae	Diard's Blind Snake	*Argyrophis diardii* (Schlegel, 1839)	Least Concern
48.	Typhlopidae	Brahminy Blind Snake	*Indotyphlops braminus* (Daudin, 1803)	Least Concern
49.	Typhlopidae	Jerdon's Worm Snake	*Indotyphlops jerdoni* (Boulenger, 1890)	Least Concern
50.	Typhlopidae	Slender Blind Snake	*Indotyphlops tenuicollis* (Peters, 1864)	Data Deficient
51.	Elapidae	Broad-banded Krait	*Bungarus bungaroides* (Cantor, 1839)	Least Concern
52.	Elapidae	Banded Krait	*Bungarus fasciatus* (Schneider, 1801)	Least Concern
53.	Elapidae	Blue Krait	*Bungarus lividus* Cantor, 1839	Data Deficient
54.	Elapidae	Black Krait	*Bungarus niger* Wall, 1908	Data Deficient
55.	Elapidae	Monocled Cobra	*Naja kaouthia* Lesson, 1831	Least Concern
56.	Elapidae	King Cobra	*Ophiophagus hannah* (Cantor, 1836)	Vulnerable
57.	Elapidae	MacClelland's Coral Snake	*Sinomicrurus macclellandi* (Reinhardt, 1844)	Not Evaluated
58.	Viperidae	Mountain Pit Viper	*Ovophis monticola* (Günther, 1864)	Least Concern
59.	Viperidae	Jerdon's Pit Viper	*Protobothrops jerdonii* (Günther, 1875)	Least Concern
60.	Viperidae	Red-tailed Bamboo Pit Viper	*Trimeresurus erythrurus* (Cantor, 1839)	Least Concern
61.	Viperidae	Maya's Pit Viper	*Trimeresurus mayaae* Rathee et al., 2022	Not Evaluated
62.	Viperidae	Pope's Pit Viper	*Trimeresurus popeiorum* Smith, 1937	Least Concern
63.	Viperidae	Salazar's Pit Viper	*Trimeresurus salazar* Mirza et al., 2020	Not Evaluated
64.	Pythonidae	Burmese Python	*Python bivittatus* Kuhl, 1820	Vulnerable
	Lizards			
65.	Agamidae	Irrawaddy Forest Lizard	*Calotes irawadi* Zug, Brown, Schulte & Vindum, *2006*	Least Concern

66.	Agamidae	Emma Gray's Forest Lizard	*Calotes emma* Gray, 1845	Least Concern
67.	Agamidae	Jerdon's Forest Lizard	*Calotes jerdoni* Günther, 1870	Least Concern
68.	Agamidae	Maria's Forest Lizard	*Calotes maria* Gray, 1845	Least Concern
69.	Agamidae	Paulus' Forest Lizard	*Calotes paulus* Smith, 1935	Endangered
70.	Agamidae	Zolaiking Forest Lizard	*Calotes zolaiking* Giri, Chaitanya, Mahony, Lalronunga, Lalrinchhana, Das, Sarkar, Karanth & Deepak, 2019	Data Deficient
71.	Agamidae	Keeled Forest Lizard	*Cristidorsa planidorsata* (Jerdon, 1870)	Least Concern
72.	Agamidae	Fan-throated Lizard	*Ptyctolaemus gularis* (Peters, 1864)	Least Concern
73.	Gekkonidae	Agarwal's Bent-toed Gecko	*Cyrtodactylus agarwali* Purkayastha et al., 2021	Not Evaluated
74.	Gekkonidae	Bapme Bent-toed Gecko	*Cyrtodactylus bapme* Kamei & Mahony, 2021	Not Evaluated
75.	Gekkonidae	Exercitus Bent-toed Gecko	*Cyrtodactylus exercitus* Purkayastha et al., 2022	Not Evaluated
76.	Gekkonidae	Jaintia Bent-toed Gecko	*Cyrtodactylus jaintiaensis* Agarwal et al., 2018	Not Evaluated
77.	Gekkonidae	Karsticolus Bent-toed Gecko	*Cyrtodactylus karsticolus* Purkayastha et al., 2021	Not Evaluated
78.	Gekkonidae	Khasi Hills Bent-toed Gecko	*Cyrtodactylus khasiensis* (Jerdon, 1870)	Data Deficient
79.	Gekkonidae	Urban Bent-toed Gecko	*Cyrtodactylus urbanus* Purkayastha et al., 2020	Not Evaluated
80.	Gekkonidae	Tokay Gecko	*Gekko gecko* (Linnaeus, 1758)	Least Concern
81.	Gekkonidae	Northern Leaf-toed Gecko	*Hemidactylus aquilonius* McMahan & Zug, 2007	Least Concern
82.	Gekkonidae	Brooke's House Gecko	*Hemidactylus brookii* Gray, 1835	Least Concern
83.	Gekkonidae	Common House Gecko	*Hemidactylus frenatus* Duméril & Bibron, 1836	Least Concern
84.	Gekkonidae	Indo-Pacific Gecko	*Hemidactylus garnotii* Duméril & Bibron, 1836	Least Concern
85.	Gekkonidae	Flat-tailed House Gecko	*Hemidactylus platyurus* (Schneider, 1797)	Least Concern
86.	Scincidae	Spotted Skink	*Eutropis macularia* (Blyth, 1853)	Least Concern
87.	Scincidae	Many-lined Sun Skink	*Eutropis multifasciata* (Kuhl, 1820)	Least Concern
88.	Scincidae	Eyelidless Skink	*Sphenomorphus apalpebratus* Datta-Roy, Das, Bauer, Lyngdoh-Tron & Karanth, 2013	Near Threatened
89.	Scincidae	Indian Forest Skink	*Sphenomorphus indicus* (Gray, 1853)	Least Concern
90.	Scincidae	Spotted Forest Skink	*Sphenomorphus maculatus* (Blyth, 1853)	Least Concern
91.	Lacertidae	Khasi Hills Grass Lizard	*Takydromus khasiensis* Boulenger, 1917	Least Concern
92.	Anguidae	Asian Glass Lizard	*Dopasia gracilis* (Gray, 1845)	Least Concern

93.	Varanidae	Bengal Monitor	*Varanus bengalensis* (Daudin, 1802)	Near Threatened
	Turtles			
94.	Trionychidae	Narrow-headed Softshell Turtle	*Chitra indica* (Gray, 1831)	Endangered
95.	Trionychidae	Indian Peacock Softshell Turtle	*Nilssonia hurum* (Gray, 1831)	Endangered
96.	Trionychidae	Indian Flapshell Turtle	*Lissemys punctata* (Bonnaterre, 1789)	Vulnerable
97.	Geoemydidae	Keeled Box Turtle	*Cuora mouhotii* Gray, 1847	Endangered
98.	Geoemydidae	Praschag's Box Turtle	*Cuora praschagi* Blanck, Gaillard, Protiva, Wheatley, Shi, Liu, Ray & Anders, 2023	Not Evaluated
99.	Geoemydidae	Assam Leaf Turtle	*Cyclemys gemeli* Fritz, Guicking, Auer, Sommer, Wink & Hundsdörfer, 2008	Near Threatened
100.	Geoemydidae	Spotted Pond Turtle	*Geoclemys hamiltonii* (Gray, 1831)	Endangered
101.	Geoemydidae	Crowned River Turtle	*Hardella thurjii* (Gray, 1831)	Endangered
102.	Geoemydidae	Tricarinate Hill Turtle	*Melanochelys tricarinata* (Blyth, 1856)	Endangered
103.	Geoemydidae	Assam Roofed Turtle	*Pangshura sylhetensis* (Jerdon, 1870)	Critically Endangered
104.	Testudinidae	Elongated Tortoise	*Indotestudo elongata* (Blyth, 1854)	Critically Endangered
105.	Testudinidae	Asian Brown Tortoise	*Manouria emys* (Schlegel & Müller, 1844)	Critically Endangered

Snakes (64 species.). Colubridae dominates with 42 species, spanning *Ahaetulla*, *Boiga*, *Gonyosoma*, *Hebius*, *Lycodon*, *Oligodon*, *Ptyas*, *Rhabdophis*, *Sibynophis*, *Smithophis*, *Trachischium* and *Xenochrophis*. Elapidae (7) includes *Ophiophagus hannah*, *Naja kaouthia*, and *Bungarus* spp.; Viperidae (6) includes *Ovophis monticola*, *Protobothrops jerdonii*, *Trimeresurus erythrurus* and *T. popeiorum*, with recently added/clarified taxa in the state checklist (*T. mayaae*, *T. salazar*) reflecting the pace of viper taxonomy in NE India (Mirza *et al*., 2020; Rathee *et al*., 2022). The Nokrek record of *Calamaria pavimentata* underscores ongoing additions at the PA scale (Ranade, 2022).

Lizards (29 spp.). Gekkonidae (13) is the richest lizard family, driven by the Northeast Indian radiation of *Cyrtodactylus*. The checklist incorporates multiple taxa described or recorded from Meghalaya or adjacent uplands in recent years (Agarwal *et al*., 2018; Kamei & Mahony, 2021; Purkayastha *et al*., 2021; Purkayastha *et al*., 2022). Agamidae (8) includes hill-forest taxa (*Calotes* spp.). (Scincidae (5) is represented by *Sphenomorphus* and other forest skinks.

Turtles and tortoises (12 spp.). Three families are represented: Geoemydidae (7), Trionychidae (3) and Testudinidae (2). The chelonian subset is conservation-heavy relative to squamates (see next subsection), consistent with earlier PA syntheses that emphasized riverine systems in the Garo Hills (Zoological Survey of India, 2010 & 2013).

Conservation-status profile (Fig. 1)

Based on the state checklist, a total of 105 reptile species were assessed for conservation status. Of these, 63 species (60.0%) are classified as Least Concern (LC), 15 (14.3%) as Not Evaluated (NE), 7 (6.7%) as Data Deficient (DD), 5 (4.8%) as Near Threatened (NT), 5 (4.8%) as Vulnerable (VU), 7 (6.7%) as Endangered (EN), and 3 (2.9%) as Critically Endangered (CR). Thus, 15 species (14.3%) are considered Threatened (CR+EN+VU). When broken down by major

groups, snakes (n = 64) include 45 LC (70.3%), 8 NE (12.5%), 5 DD (7.8%), 2 NT (3.1%), and 4 VU (6.3%); lizards (n = 29) include 18 LC (62.1%), 6 NE (20.7%), 2 DD (6.9%), 2 NT (6.9%), and 1 EN (3.4%); and turtles and tortoises (n = 12) are dominated by Threatened categories, with 3 CR (25.0%), 6 EN (50.0%), 1 VU (8.3%), 1 NT (8.3%), and 1 NE (8.3%), amounting to 10 of 12 species (83.3%) in Threatened categories. The chelonian subset therefore represents the greatest conservation concern. The Threatened chelonians include *Pangshura sylhetensis*, *Indotestudo elongata*, and *Manouria emys* (CR); *Cuora mouhotii*, *Geoclemys hamiltonii*, *Hardella thurjii*, *Melanochelys tricarinata*, *Chitra indica*, and *Nilssonia hurum* (EN); and *Lissemys punctata* (VU), with *Cyclemys gemeli* listed as NT and *Cuora praschagi* as NE. A lot of species is yet to be evaluated for the extinction risk while data for some are not sufficient to arrive at any conclusion.

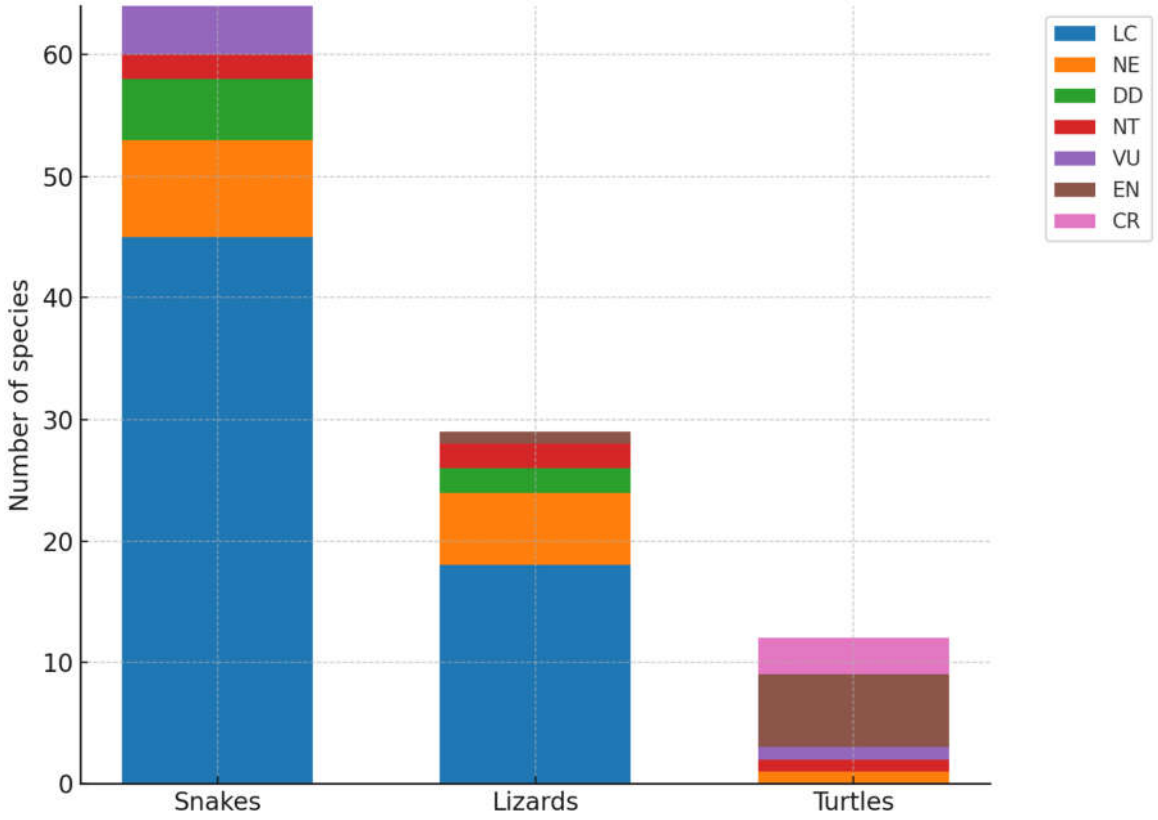

Figure 1: A bar chart showing conservation status of reptiles of Meghalaya, India

DISCUSSION

The updated checklist confirms 105 species of reptiles across 27 families for Meghalaya, representing a clear increase from earlier state-level and protected-area accounts (Mathew, 1995; Zoological Survey of India, 2010; 2013). This growth is largely the result of three major factors. First, curated voucher catalogues, such as the one from SACON (Chandramouli et al., 2021), have provided verified and traceable records that stabilize names and localities. Second, numerous short communications have steadily added locality data and corrected historical uncertainties—examples include *Calamaria pavimentata* from Nokrek National Park (Ranade, 2022), *Gekko gecko* from Ri-Bhoi (Rai & Chettri, 2019), and lizards from Tura Peak (Sangma & Saikia, 2014), as well as the clarification of *Amphiesma venningi* (Mathew & Meetei, 2004). Third, accelerated taxonomic work has greatly expanded the known diversity of certain groups, especially in bent-toed geckos (*Cyrtodactylus*) and pit vipers, with multiple species described or

recorded from Meghalaya in the last decade (Agarwal *et al*., 2018; Purkayastha *et al*., 2021; 2022; Mirza *et al*., 2020; Rathee *et al*., 2022). Region-wide syntheses, such as Basfore et al. (2024), have also helped standardize names and reconcile records across the Northeast.

These records reflect Meghalaya's diverse topography and habitats: moist evergreen forests, karst landscapes, riparian corridors, and high-rainfall uplands support rich herpetofaunal assemblages. Forest geckos (*Cyrtodactylus*) and skinks are closely linked to hill forests and caves, while small colubrines and pit vipers, including *Trimeresurus mayaae* and *T. salazar*, occur in moist, stream-fed habitats. In contrast, the turtle and tortoise fauna shows the highest conservation concern, with more than 80% of the state's species categorised as threatened. Snakes are largely Least Concern, but important data gaps remain for medically significant elapids and vipers, and several lizard species are still Not Evaluated or Data Deficient, indicating that knowledge is incomplete.

Moving forward, more field surveys, especially in under-sampled areas like the southern Khasi–Jaintia hills, interior Garo forests, and limestone cave systems, are urgently needed. Systematic, voucher-backed collection combined with molecular and ecological studies will help clarify taxonomic uncertainties and convert Data Deficient or Not Evaluated species into fully assessed categories. Most importantly, studies targeting microhabitats—small streams, rock outcrops, caves, canopy patches, and even religio-cultural water bodies—are essential to uncover micro-endemic species that likely remain hidden. This integrative approach will ensure that the reptile fauna of Meghalaya is better understood and conserved, providing a robust baseline for future taxonomic, ecological, and conservation efforts.

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REFERENCES

Agarwal, I., Mahony, S., Giri, V.B., Chaitanya, R. and Bauer, A.M. 2018. Six new *Cyrtodactylus* (Squamata: Gekkonidae) from northeast India. *Zootaxa*, **4524**(5): 501–535. https://doi.org/10.11646/zootaxa.4524.5.1

Basfore, B., Kalita, M.J., Sharma, N. and Boro, A.R. 2024. An updated checklist of snakes (Reptilia: Squamata) in northeastern India derived from a review of recent literature. *Journal of Threatened Taxa*, **16**(11): 26131–26149. https://doi.org/10.11609/jott.8741.16.11.26131-26149

Bohra, S.C., Ranglong, C., Thongni, G., Wankhar, B., Umlong, C.M., Das, M., Warjri, H. and Purkayastha, J. 2025. Leaping from Mizoram to Meghalaya: First documentation of *Calotes zolaiking* Giri, Chaitanya, Mahony, Lalronunga, Lalrinchhana, Das, Sarkar, Karanth & Deepak, 2019 (Sauria: Agamidae) outside its type locality in Mizoram, India. *Zootaxa*, **5642** (4): 395–400. https://doi.org/10.11646/zootaxa.5642.4.7

Chandramouli, S.R., Naveen, R.S., Sureshmarimuthu, S., Babu, S., Karunakaran, P.V. and Kumara, H.N. 2021. Catalogue of herpetological specimens from Meghalaya, India at the Sálim Ali Centre for Ornithology and Natural History (SACON). *Journal of Threatened Taxa,* **13**(11): 19603–19610. https://doi.org/10.11609/jott.7318.13.11.19603-19610

Harries, D.B., Ware, F.J., Fischer, C.W., Biswas, J. and Kharpran-Daly, B.D. 2008. A review of the biospeleology of Meghalaya, India. *Journal of Cave and Karst Studies*, **70**(3): 163–176.

IUCN. 2025. The IUCN Red List of Threatened Species. Version 2025-1. https://www.iucnredlist.org. Accessed on [19th August 2025].

Kamei, R.G., and Mahony, S. 2021. A new species of Bent-toed gecko (*Squamata: Gekkonidae: Cyrtodactylus* Gray, 1827) from the Garo Hills, Meghalaya State, north-east India,

and discussion of morphological variation for *C. urbanus*. *Herpetological Journal*, **31**(3): 177–196. https://doi.org/10.33256/31.3.177196

Karthik, P. 2022. Correction to "Catalogue of herpetological specimens from Meghalaya, India at the Sálim Ali Centre for Ornithology and Natural History (SACON)". *Journal of Threatened Taxa*, **14**(2): 20695–20697. https://doi.org/10.11609/jott.7742.14.2.20695-20697

Mathew, R. 1995. Reptilia. *In*: J.R.B. Alfred (eds.). *Fauna of Meghalaya, State Fauna series,* 4: 379-454. Zoological Survey of India, New Alipore, Calcutta.

Mathew, R. and Meetei, A.B. 2004. On the identity of *Amphiesma venningi* reported from Meghalaya, India. *Hamadryad*, **29**(1): 134–135.

Mirza, Z.A., Bhosale, H., Phansalkar, P., Sawant, M., Gowande, G. and Patel, H. 2020. *Trimeresurus salazar*, a new species of green pit viper (Reptilia: Serpentes: Viperidae) from India. *Zoosystema*, 42(11): 1085–1100. https://doi.org/10.5252/zoosystema2020v42a11

Myers, N., Mittermeier, R.A., Mittermeier, C.G., da Fonseca, G.A.B. and Kent, J. 2000. Biodiversity hotspots for conservation priorities. *Nature,* **403**(6772): 853–858. https://doi.org/10.1038/35002501

Olson, D.M., Dinerstein, E., Wikramanayake, E.D., Burgess, N.D., Powell, G.V.N., Underwood, E.C., D'Amico, J.A., Itoua, I., Strand, H.E., Morrison, J.C., Loucks, C.J., Allnutt, T.F., Ricketts, T.H., Kura, Y., Lamoreux, J.F., Wettengel, W.W., Hedao, P. and Kassem, K.R. 2001. Terrestrial ecoregions of the world: A new map of life on Earth. *BioScience,* **51**(11): 933–938.

Purkayastha, J., Lalremsanga, H.T., Bohra, S.C., Biakzuala, L., Decemson, H., Muansanga, L., Vabeiryureilai, M., Chauhan, S. and Rathee, Y.S. 2021. Four new Bent-toed geckos (*Cyrtodactylus* Gray, 1827) from northeast India. *Zootaxa,* **4980**(3): 451–489. https://doi.org/10.11646/zootaxa.4980.3.2

Purkayastha, J., Lalremsanga, H.T., Litho, B., Rathee, Y.S., Bohra, S.C., Mathipi, V., Biakzuala, L. and Muansanga, L. 2022. Two new *Cyrtodactylus* (Squamata: Gekkonidae) from Northeast India. *European Journal of Taxonomy,* **794**: 111–139. https://doi.org/10.5852/ejt.2022.794.1659

Purkayastha, J., Asem, B.M., Lalremsanga, H.T., Das, M., Warjri, H., Thongni, G. and Bohra, S.C. 2025. Comments on the systematics and morphology of Smithophis bicolor (Blyth, 1855) (Reptilia: Squamata: Natricidae) based on topotypical specimens from Meghalaya, India. *Journal of Threatened Taxa*, **17**(4): 26803–26813. https://doi.org/10.11609/jott.9436.17.4.26803-26813

Rai, A. and Chettri, B. 2019. Tokay gecko: Note on *Gekko gecko* (Linnaeus, 1758) with its recent sighting in Meghalaya (Ri-Bhoi). *Zoo's Print,* **34**(3): Reptile Rap #192, 11–14.

Ranade, S. 2022. Record of Collared Reed Snake at Nokrek National Park, Meghalaya, India. *Zoos' Print*, **37**(9): 11–13.

Rathee, Y.S., Purkayastha, J., Dalal, S. and Lalremsanga, H.T. 2021. First record of Salazar's Pitviper (*Trimeresurus salazar*) from Meghalaya, India, with comments on hemipenes. *Reptiles & Amphibians,* **28**(1): 131–136. https://doi.org/10.17161/randa.v28i1.15369

Rathee, Y.S., Purkayastha, J., Lalremsanga, H.T., Dalal, S., Biakzuala, L., Muansanga, L. and Mirza, Z.A. 2022. A new cryptic species of green pit viper of the genus *Trimeresurus* Lacépède, 1804 (Serpentes: Viperidae) from northeast India. *PLOS ONE,* **17**(5), e0268402. https://doi.org/10.1371/journal.pone.0268402

Sangma, S.N. and Saikia, P.K. 2014. New records of lizards in Tura Peak of West Garo Hills, Meghalaya, India. *Journal on New Biological Reports*, **3**(3): 137–143.

Sauro, F., Mecchia, M., Tringham, M., Arbenz, T., Columbu, A., Carbone, C., Pisani, L. and De Waele, J. 2020. Speleogenesis of the

world's longest cave in hybrid arenites (Krem Puri, Meghalaya, India). *Geomorphology,* **359**(6): 107160. https://doi.org/10.1016/j.geomorph.2020.107160

Thapliyal, V. and Kulshrestha, S.M. 1992. Which is the rainiest place in the world? *Mausam,* **43**(3): 331–332.

Zoological Survey of India. 2010. *Faunal Diversity of Baghmara Reserve Forest, Meghalaya* (Conservation Area Series No. 44, pp. 1–99). Kolkata: Zoological Survey of India.

Zoological Survey of India. 2013. *Fauna of Nokrek Biosphere Reserve (Meghalaya)* (Conservation Area Series No. 45, pp. 1–124, Plates I–XV). Kolkata: Zoological Survey of India.

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