

Spatiotemporal distribution and habitat preferences of herpetofauna in Ghodazari Wildlife Sanctuary (GWS), District Chandrapur, Maharashtra

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ABSTRACT

The Ghodazari Wildlife Sanctuary (GWS), situated in the Chandrapur District of Maharashtra's eastern Vidarbha area, is home to a diverse but little recorded herpetofauna. In addition to creating a thorough checklist of the herpetofaunal richness in the sanctuary, this work is the first systematic attempt to record the spatiotemporal distribution and habitat preferences of amphibians and reptiles inside this protected setting. To record changes in species occurrence and activity patterns over time and place, field surveys were carried out in a variety of GWS microhabitats, such as grasslands, rocky outcrops, water bodies, forest floor litter, and human-modified borders. The amphibian diversity was composed of 5 families and 15 species. Microhylidae and Dicroglossidae were the most diverse families with 6 species each, followed by Bufonidae (1), Ranidae (1) and Rhacophoridae (1). In most environments, Monsoon has the highest species occurrence. The diversity of reptiles included 16 groups and 37 species. Colubridae has the highest richness (8 species) followed by Natricidae (4), Geckonidae (4) and Agamidae (3). Sibynophiidae showed the lowest richness (1 species). In general, the diversity of habitats was greatest during the monsoon. In order to provide a conservation-focused framework species is further described in terms of its IUCN Red List category, and legislative protection status under the Indian Wildlife (Protection) Act, 1972 (IWPA). The purpose of this baseline data is to provide guidance for habitat management strategies, conservation planning, and long-term herpetofaunal monitoring in Ghodazari Wildlife Sanctuary and similar landscapes in the area.

KEYWORDS

GWS, Herpetofauna diversity, Amphibian, Reptiles, Habitat, Conservation status

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Introduction

There is a wide variety of flora and wildlife on the planet. They are vulnerable to worldwide dangers such as habitat loss, deforestation, and agricultural contamination. As a link in the food chain, amphibians and reptiles play significant roles in both aquatic and terrestrial ecosystems and are frequently highly sensitive to changes in their surroundings. Among the most endangered vertebrates in the world are reptiles and amphibians [1,2]. Numerous factors, such as habitat loss, climate change, overexploitation, water pollution, and disease outbreaks, have contributed to declines in herpetofaunal species [3,4,5,6]. The Indian herpetofauna has 572 species of reptiles and 432 species of amphibians. Due to its extensive collection of species and lengthy history of conservation, India is ranked among the countries with the highest biodiversity in the world. Globally, 7.6% of mammals, 12.6% of birds, 4.4% of amphibians, 6.2% of reptiles, and 11.7% of fish are found in India. India is one of the seventeen mega-diverse countries in the world. The Indian government has taken a number of steps, enacted laws, and started policy initiatives to protect critically endangered and other endangered plant and animal species. Wildlife sanctuaries are designed to conserve some of the most vulnerable and endangered animal species on the globe. According to Joshi et al. the Vidarbha region of Maharashtra state has a healthy climate, mountains, and rugged layouts that have drawn significant attention and provide an ideal habitat for herpetofaunal species [7]. Reptiles and amphibians are important components of terrestrial and aquatic ecosystems [8,9]. Herpetofaunal diversity is useful ecological indicators, crucial parts of food chains, and can help manage insect pests. Conservation biologists are deeply concerned about the significant reduction in herpetofaunal diversity and abundance, and more research on amphibian and reptile populations is required to have a better understanding of the overall decline in biodiversity. The

Western Ghats is a bio-diversity hotspot and various studies have shown that there is significant endemism of amphibians in particular in the families of Rhacophoridae and Bufonidae. Despite having considerable forest cover and protected areas, the Deccan Plateau region, which encompasses a large portion of Maharashtra and Vidarbha, has been understudied in terms of herpetofaunal documentation. Kolhapur, Satara, Pune and the Konkan shore tracts of Western Ghats are the focus of herpetofaunal studies in Maharashtra due to their species richness and endemism. Intermittent attention has been paid to Tadoba-Andhari Tiger Reserve, Melghat Tiger Reserve and several sanctuaries in Maharashtra, however many eastern sanctuaries do not have complete checklists. This gap is remarkable because the variety of dry deciduous woods, water bodies, and the interface with agricultural landscapes of the region probably supports a different herpetofauna molded by its unique climatic and ecological conditions compared to the wetter and better-studied Western Ghats. The present study on GWS fills an important information gap by giving baseline data that can be compared with records from other parts of Maharashtra and India, thereby completing the national picture of herpetofaunal distribution and conservation status. Mohapatra et al., Subramanian et al., Bawaskar and Bawaskar, Bhandarkar et al., Wadatkar, Kumbhar et al. are some prominent reports from the central India [11-15]. In order to support conservation planning, habitat management, and long-term herpetofaunal monitoring throughout Ghodazari Wildlife Sanctuary (GWS), the current work attempts to create a baseline checklist and habitat-preference dataset. This is the first attempt to examine the diversity of amphibians and reptiles found in this protected area.

Material and Methods

Study area

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Ghodazari wildlife sanctuary (GWS) is an area of 159 sq.km of virgin southern tropical dry deciduous forest and Ghodazari Lake is a vital feature of the sanctuary. Ghodazari Reservoir (20032'19.7" N 79038'21.7" E) is a huge reservoir of 30-32 sq. km and is rich in fish and other aquatic wildlife. It has a tiny dam 731.1 m long, 3.6 m wide and 20.04 m high. The average depth of lake is 13.5 m. Catchment area of the Reservoir is roughly 90.65 km². Total storage capacity is 50.243 cusecs of water. GWS is composed of southern tropical dry deciduous woodland. The physical formation of the sanctuary gives rise to numerous natural springs, streams, water holes which has kept varied living forms in the area. This area has a diversity of mammal, herpatofauna and bird species. To the southwards of GWS, TATR, in North West UKWS while at Eastern and Western side Bramhapuri forest division are situated. MS highway No. 09 runs along the perimeter of the sanctuary. GWS is newly established, (20053'47.9"N 79063'58.4"E), located in Nagbhid Tahsil of Chandrapur District under Brahmapuri Forest Division.

Methodology

For the present study all forest ranges included in the sanctuary area were surveyed with the assistance of park officials and local tribal also the reservoir area from November 2023 to October 2025. Field surveys should use visual encounter surveys and opportunistic sampling and nocturnal/diurnal transect walks in different microhabitats (forest floor, water bodies, rock crevices, grasslands). Species were recognized using conventional taxonomic keys and photographed for documentation and cross-verification with published literature and regional herpetofaunal guides. The amphibians and reptiles encountered were photographed and later identified with standard literature such as Fauna of British India Volumes by Smith Vol. 2, Vol. 3, Chanda, Daniel and Khaire (Figure 1) [17,18,19,20].

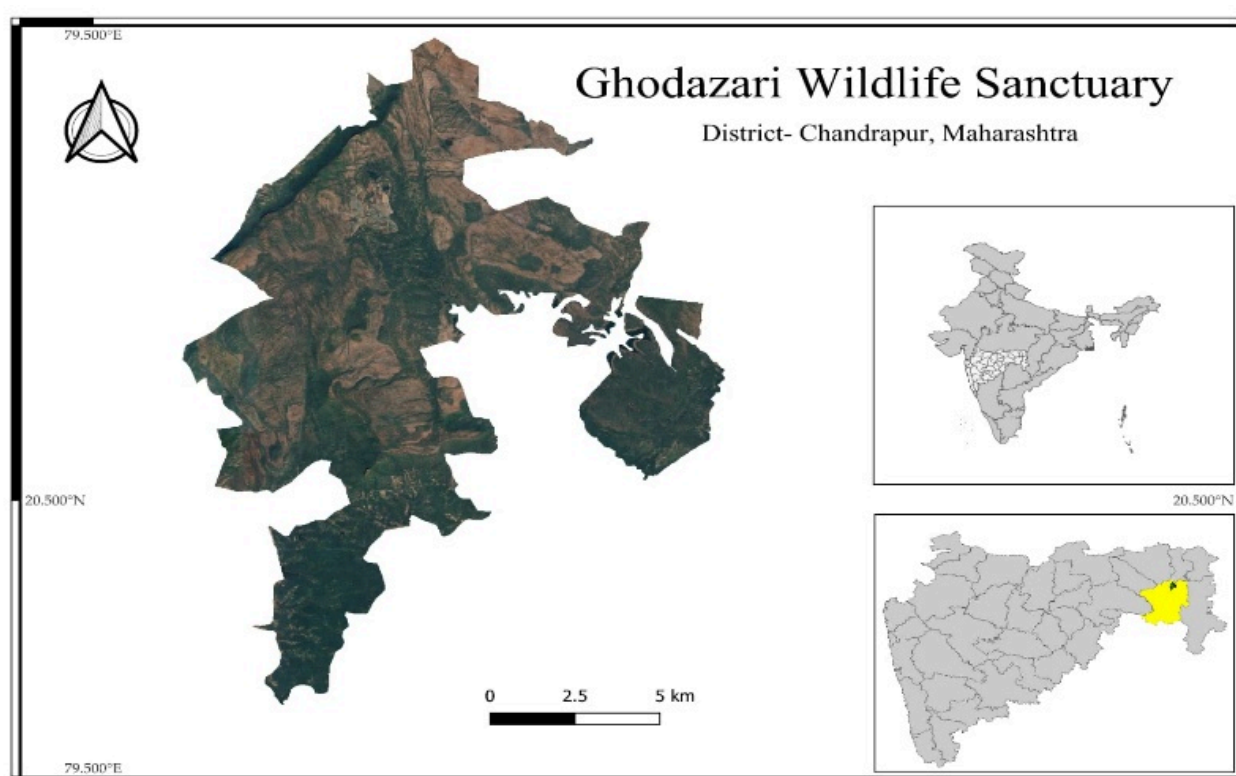


Figure 1. Location map of Ghodazari Wildlife Sanctuary (GWS).

Table 1. Amphibian diversity in Ghodazari Wildlife Sanctuary.

Sr. No	Zoological Name	Common Name	Local Status	IUCN Status	IWPA Status
Family: Buffonidae					
1	<i>Duttaphrynus melanostictus</i>	Common Indian Toad	C	LC	NS (Not Scheduled)
Family: Microhylidae					
2	<i>Microhyla ornata</i>	Ornate Narrow-mouthed frog	R	LC	Schedule IV
3	<i>Microhyla rubra</i>	Red-Microhylid frog	UNC	LC	NS
4	<i>Uperodon taprobanicus</i>	Indian Painted Frog	UNC	LC	Schedule IV
5	<i>Uperodon variegatus</i>	white-bellied pug snout frog	UNC	LC	Schedule IV

Table 1 (continued)

Sr. No	Zoological Name	Common Name	Local Status	IUCN Status	IWPA Status
6	<i>Uperodon globulosus</i>	Indian Globular frog	C	LC	NS
7	<i>Uperodon systoma</i>	Marbled balloon frog	UNC	LC	NS
Family: Dicroglossidae					
8	<i>Minervarya agricola</i>	Indian Cricket Frog	C	LC	NS
9	<i>Euphlyctis cyanophlyctis</i>	Skittering frog	C	LC	NS
10	<i>Hoplobatrachus tigerinus</i>	Indian Bull Frog	C	LC	Schedule IV
11	<i>Sphaerotheca breviceps</i>	Indian burrowing frog	C	LC	NS
12	<i>Sphaerotheca dobsonii</i>	Dobson's Burrowing frog	C	LC	NS
13	<i>Hoplobatrachus crassus</i>	Jerdon's bullfrog	C	LC	Schedule IV
Family: Ranidae					
14	<i>Hydrophylax bahuvistara</i>	widespread Fungoid frog	C	LC	NS
Family: Rhacophoridae					
15	<i>Polypedates maculatus</i>	Common Tree frog	C	LC	NS

Result and Discussion

Amphibian diversity

Table 2. Reptilian diversity in Ghodazari Wildlife Sanctuary.

Sr. No.	Zoological Name	Common Name	Local Status	IUCN Status	IWPA Status
Class- Reptilia, Order- Testudines, Family- Trionychidae					
1	<i>Lissemys punctata</i>	Indian flapshell turtle	UNC	VU	Sch: I
Order -Squamata, Sub-order- Sauria, Family- Geckonidae					
2	<i>Hemidactylus flaviviridis</i>	Northern House Gecko	C	LC	NS
3	<i>Hemidactylus triedrus</i>	Termite Hill Gecko	UNC	LC	NS
4	<i>Hemidactylus leschenaultii</i>	Bark Gecko	C	LC	NS
5	<i>Gekoella nebulosa</i>	Clouded Ground Gecko	R	LC	NS
Family-Agamidae					
6	<i>Calotes versicolor</i>	Common Garden Lizard	C	LC	NS
7	<i>Agama agama</i>	Rock Agama	C	LC	NS
8	<i>Sitana ponticeriana</i>	Fan-throated Lizard	C	LC	NS
Family- Chamaeleonidae					
9	<i>Chamaeleon zeylanicus</i>	Indian Chamaeleon	R	LC	Sch: II

Table 2 (continued)

Sr. No.	Zoological Name	Common Name	Local Status	IUCN Status	IWPA Status
Family- Mabuyidae					
10	<i>Mabuya carinata</i>	Common Brahminy Skink	C	LC	NS
11	<i>Eutropis macularia</i>	Bronze Grass Skink	C	LC	NS
Family- Lygosomidae					
12	<i>Riopa punctata</i>	common dotted garden skink	UNC	LC	NS
Family- Varanidae					
13	<i>Varanus bengalensis</i>	Common Indian Monitor	C	NT	Sch: I
Sub-order- Typhlopidae SerpentsFamily-					
14	<i>Indotyphlops braminus</i>	Brahminy Blind Snake	C	LC	NS
15	<i>Grypotyphlops acutus</i>	Beaked Worm Snake	UNC	LC	Sch: II
Family- Boidae					
16	<i>Eryx conicus</i>	Common Sand Boa	C	LC	Sch: II
Family- Pythonidae					
17	<i>Python molurus</i>	Indian Rock Python	UNC	VU	Sch: I
Family- Ahaetuliidae					
18	<i>Dendrelaphis tristis</i>	Bronze back Tree Snake	C	LC	Sch: II
19	<i>Ahaetulla oxyrhyncha</i>	Indian vine snake	UNC	LC	Sch: II
Family- Colubridae					
20	<i>Coelognathus helena</i>	Common Trinket Snake	C	LC	Sch: II
21	<i>Argyrogena fasciolata</i>	Banded Racer	UNC	LC	Sch: II
22	<i>Boiga trigonata</i>	Common Cat Snake	C	LC	Sch: II
23	<i>Boiga forsteni</i>	Forsten's Cat Snake	UNC	LC	Sch: II
24	<i>Ptyas mucosa</i>	Indian Rat Snake	C	LC	Sch: II
25	<i>Oligodon arnensis</i>	Banded kukri Snake	C	LC	Sch: II
26	<i>Lycodon aulicus</i>	Common Wolf Snake	C	LC	Sch: II
27	<i>Lycodon striatus</i>	Barred Wolf Snake	C	LC	Sch: II
Family- Natricidae					
28	<i>Amphiesma stolatum</i>	Buff-striped Keelback Snake	C	LC	Sch: II
29	<i>Atretium schistosum</i>	Olive Keelback	C	LC	Sch: II
30	<i>Xenochrophis piscator</i>	Checkered keelback	C	LC	Sch: II
31	<i>Macropisthodon plumbicolor</i>	Green Keelback	R	LC	Sch: II
Family- Sibynophiidae					

Table 2 (continued)

Sr. No.	Zoological Name	Common Name	Local Status	IUCN Status	IWPA Status
32	<i>Sibynophis subpunctatus</i>	Dumeril's Black Headed Snake	UNC	LC	Sch: II
Family -Vipridae					
33	<i>Daboia russelii</i>	Russell's Viper	UNC	LC	Sch: II
34	<i>Echis carinatus</i>	Saw Scaled Viper	R	LC	Sch: II
Family - Elapidae					
35	<i>Bungarus caeruleus</i>	Common Krait	C	LC	Sch: I
36	<i>Naja naja</i>	Indian Spectacled Cobra	C	LC	Sch: II
37	<i>Calliophis melanurus</i>	slender coral snake	R	LC	Sch: II

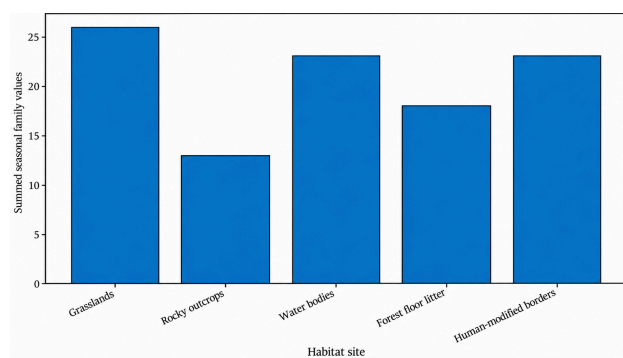


Figure 2. Graphical representation of site wise species distribution of Amphibian in GWS.

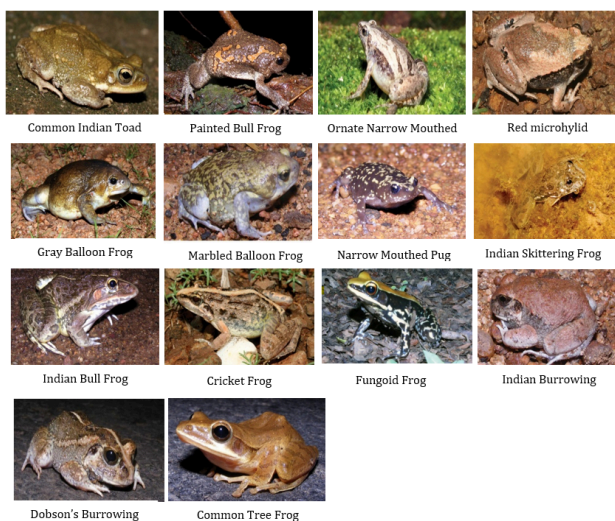


Figure 3. Amphibians diversity in GWS.

In the present investigation from GWS, 15 species belonging to 09 genera from 05 different families of order Anura are described in the Table 1, the site wise species distribution is given in Table, and species composition is illustrated in Figure 2 and Figure 3.

Reptilian diversity

In the present investigation among the reptiles 37 species belonging 16 families are reported, and their conservation status are described in Table 2 and species diversity is illustrated in Figure 4 and Figure 5.

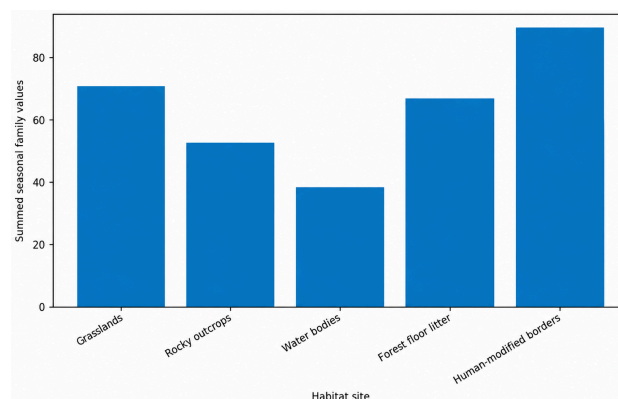


Figure 4. Graphical representation of site wise species distribution of Reptilia in GWS.

Table 3. Site wise species distribution of amphibian in GWS.

Family Name	Site 1 Grasslands			Site 2 Rocky outcrops			Site 3 Water bodies			Site 4 Forest floor litter			Site 5 Human-modified borders			Total no. of species
	Summer	Monsoon	Winter	Summer	Monsoon	Winter	Summer	Monsoon	Winter	Summer	Monsoon	Winter	Summer	Monsoon	Winter	
Bufonidae		0	1	1	0	1	0	1	1	1	0	0	0	1	1	1
Microhylidae	1	1	6	5	0	5	2	2	4	2	1	3	3	1	5	3
Dicroglossidae	0	0	6	3	0	3	2	1	5	2	0	6	1	0	5	2
Ranidae	0	0	1	0	0	0	0	0	1	1	0	1	0	0	1	1
Rhacophoridae	0	0	1	2	0	0	0	0	1	1	0	1	0	0	1	1

Amphibian diversity

During the monsoon and post-monsoon months, when they were breeding and relied on transient water sources for larval development, amphibians were most prevalent around bodies of water, marshy areas, and damp forest floor litter. Reptiles are more ecologically adaptable than amphibians, as evidenced by their presence in rocky outcrops, meadows, forest canopies, and borders altered by humans. Aestivation and decreased surface activity decreased sightings during the busiest summer months, while temperature and rainfall were important factors in determining activity patterns. The coexistence of microhabitat-restricted species and habitat generalists demonstrates that the sanctuary supports a range of ecological niches. These results emphasize locality-specific assemblages that set GWS apart from more extensively researched Western Ghats habitats and corroborate patterns in other Deccan Plateau and central Indian forest ecosystems (Table 3).

A total of 15 amphibian species belonging to five families were reported in five habitat categories of the study region throughout the study period (2023–2025) (Table 3). Microhylidae and Dicroglossidae were the most species rich documented families with six species each, contributing 40% of the total recorded amphibian variety. One species each represented the families Bufonidae, Ranidae and Rhacophoridae. Distribution of amphibians varied throughout environments and seasons. Representatives of Microhylidae were found in grassland habitat especially during monsoon season. Dicroglossidae was substantially represented in grasslands and water bodies. Rocky outcrops also supported Microhylidae and Dicroglossidae with comparatively higher representation during the monsoon. Dicroglossidae, Microhylidae and Rhacophoridae were recorded in water bodies throughout monsoon and winter season. Several species were also found on human-modified borders and forest floor litter, but their presence was seasonal. In general the monsoon season had a higher prevalence of amphibians across most habitat categories which were presumably due to enhanced availability of moisture and breeding opportunities. The observed difference in the distribution of the family and environment thus emphasizes the necessity of preserving various habitats for the protection of amphibians in the studied area.

The conservation assessment showed that all 15 recorded amphibian species were categorized as Least Concern (LC) under the IUCN status provided in the dataset. This indicates that none of the recorded species was listed in a higher IUCN threat category within the information presented. With respect to the Indian Wildlife (Protection) Act (IWPA) status, five species were listed under Schedule IV, namely *Microhyla ornata*, *Uperodon taprobanicus*, *Uperodon variegatus*, *Hoplobatrachus tigerinus* and *Hoplobatrachus*

crassus. The remaining 10 species were recorded as Not Scheduled.

Amphibians are poikilothermus animals with soft, wet skin and limbs. The word "amphibia," which literally means "double life," was first used by Linnaeus to describe their ability to dwell on land or in water at different times [18]. Gunther carried out the first study on amphibians in India [21]. Boulenger worked on many aspects of amphibian taxonomy and described a large number of new species and genera [22,23]. Many publications on the taxonomy of amphibians, especially those from Tibet, Nepal, Burma, and North East Asia, were written by Smith [24]. Daniels investigated the taxonomy, ecology, and distribution of frogs in Western India [25,26]. Many academics, notably Murthy, focused on the taxonomy of South Indian frogs. Dutta and Pradhan and Das produced a number of articles on different aspects of Indian amphibians [29-31]. The National Biodiversity Action Plan 2008 listed over 248 species of amphibians. The first list of amphibians in Maharashtra State was made by Daniel [32]. Ravichandran and Pillai also released a list of amphibians found in Maharashtra [33]. Padhye and Ghatge identified 43 species of amphibians from Maharashtra [34]. The amphibian species found in National Parks and Sanctuaries, where it is expected that they would receive the required protection for their conservation, have recently attracted a lot of attention. Manju Siliwal et al. identified nine species of amphibians from the Purna Wildlife Sanctuary in Gujarat, including *Sphaerotheca rufescens* [35]. Vyas described 09 species of frogs from three families in the Barda Wildlife Sanctuary in Gujarat [36]. Recent amphibian diversity studies in Indian wildlife sanctuaries show that vegetation, moisture, altitude, and aquatic breeding environments vary. Based on studies in Itanagar Wildlife Sanctuary, Arunachal Pradesh, Nath et al. found 21 anuran species from 14 genera and six families [36]. Dicroglossidae was the dominating family, and amphibians were most abundant in forests, highlighting the importance of intact forest ecosystems. Pansalkar et al. examined amphibian diversity in Mayureshwar, Rehekuri, and Karmala Wildlife Sanctuaries in Maharashtra and stressed the relevance of seasonal water sources in semi-arid settings [38]. Recently, 36 amphibian species found in the studies in Megamalai Wildlife Sanctuary, Tamil Nadu, highlighting the Western Ghats' herpetofaunal diversity and frogs' role as habitat and water quality indicators [11]. Boruah et al. found many new bush frogs in Northeast India's Eaglenest, Mehao, and Naphu Wildlife Sanctuaries, showing that protected woods still hold unexplored amphibian diversity [39]. In the present findings, 05 of the 15 species are included in Schedule IV of the IWPA (Table 1). Padhye and Ghatge states that the introduction of exotic fishes, such as *Gambusia* and *Tilapia*, into water bodies affected amphibian reproduction and wiped out the amphibian population [34]. In India, *Gambusia affinis*, *Poecilia reticulata*, *Cyprinus carpio* and *Oreochromis niloticus* are introduced into freshwater



Figure 5. Reptilian diversity in GWS.

systems and may pose significant threats to native aquatic biodiversity [40,41]. *Gambusia* is very relevant because it was discovered to eat amphibian tadpoles including *Microhyla* tadpoles, therefore decreasing the density of tadpole[42].

Reptilian diversity

Significant reptilian diversity and habitat heterogeneity were found in the Ghodazari Wildlife Sanctuary, the study recorded a total of 37 reptilian species representing 16 families under two orders, Testudines and Squamata. With respect to local status, the recorded reptiles comprised 22 species categorized as Common (C), 9 as Uncommon (UNC), and 5 as Rare (R). Common species were particularly well represented among Colubridae and Natricidae. Rare species included *Gekoella nebulosa*, *Chamaeleon zeylanicus*, *Macropisthodon plumbicolor*, *Echis carinatus* and *Calliophis melanurus*, while several species were categorized as UNC. The IUCN conservation status showed that the majority of the recorded reptiles were categorized as Least Concern (LC). However, *Lissemys punctata* and *Python molurus* were listed as Vulnerable (VU), while *Varanus bengalensis* was categorized as Near Threatened (NT). Thus, the checklist contained 34 LC species, 2 VU species and 1 NT species. Regarding the Indian Wildlife Protection Act (IWPA) status, *Lissemys punctata*, *Varanus bengalensis*, *Python molurus* and *Bungarus caeruleus* were recorded under Schedule I. Several species, including *Chamaeleon zeylanicus*, *Grypotyphlops acutus*, *Eryx conicus*, *Dendrelaphis tristis*, *Ahaetulla oxyrhyncha*, members of Colubridae and Natricidae, and other snakes, were recorded under Schedule II. The remaining species were recorded as NS (Not Scheduled) in table 4. Overall, the dataset contained 4 species under Schedule I, 22 under Schedule II and 11 species recorded as Not Scheduled (NS).

Table 4. Site wise Species distribution of Reptilian in GWS.

Sr. No.	Famil y Name	Site 1 Grasslands	Site 2Rocky outcrops			Site 3 Water bodies			Site 4 Forest floor litter			Site 5 Human-modified borders			Total no. of species	
		Summer	Monsoon	Winter	Summer	Monsoon	Winter	Summer	Monsoon	Winter	Summer	Monsoon	Winter	Summer	Monsoon	Winter

Table 4 (continued)

Sr. No.	Family Name.	Site 1 Grasslands	Site 2 Rocky outcrops	Site 3 Water bodies	Site 4 Forest floor litter	Site 5 Human-modified borders	Total no. of species
1	Trionychidae	1	1 1 0 1	1 1 1	1 0 1	1 1 1	1 1
2	Geckonidae	2	1 3 2 3	5 0 0	1 3 1	3 2 3	3 4
3	Agamidae	2	1 3 2 2	3 0 0	0 1 1	2 2 1	3 3
4	Chamaeleonidae	0	1 1 0 0	0 1 0	0 0 0	1 1 0	1 1
5	Mabuyidae	1	1 2 0 1	2 0 1	0 2 2	1 2 2	2 2
6	Lygosomidae	1	1 1 0 0	0 0 0	0 1 1	1 0 1	1 1
7	Varanidae	1	1 1 1 1	1 1 0	1 1 1	1 1 1	1 1
8	Typhlopidae	1	2 2 0 1	2 1 0	1 1 2	2 1 2	2 2
9	Boidae	1	1 1 0 1	0 1 1	1 0 1	1 1 1	1 1
10	Pythonidae	1	1 1 1 1	0 1 0	1 1 1	1 0 1	1 1
11	Ahaetuliidae	0	1 2 1 2	1 0 2	1 1 0	0 1 1	2 2
12	Colubridae	4	5 5 3 2	3 2 1	4 7 5	6 6 7	8 8
13	Natricidae	1	4 3 0 2	1 4 3	4 1 2	1 3 4	4 4
14	Sibynophiidae	0	0 0 0 0	1 0 0	0 0 0	0 0 1	1 1
15	Vipridae	1	1 1 1 1	0 0 0	0 2 1	2 1 1	2 2
16	Elapidae	2	0 2 1 1	2 1 0	1 1 1	2 2 3	3 3

The country's extraordinarily diverse reptile fauna is supported by a variety of biotopes created by the country's varied topography and diverse climate. The Reptiles of British India by Gunther, Fauna of British India-Reptilia and Batrachia by Boulenger, and Smith are the important works on Indian reptiles [43-45]. Tiwari and Biswas, Sharma, Murthy, Das, Tikedar and Sharma, Thorpe et al., Giri et al. and Venugopal all made additional contributions [46-56]. Reptile populations are also frequently threatened by habitat loss and human pressure. There are roughly 460 different species of reptiles in India, according to the MoEF's fourth national report from 2009. There are 484 species of reptiles in India, his checklist was expanded to 530 species after certain species were included [57]. The current surge in reptile discoveries is especially noteworthy, with 245 new Indian reptile species described between 2015–2024, including 39 in 2020, 36 in 2021, 32 in 2022, 18 in 2023 and 41 in 2024, reported 833 species and subspecies of reptiles in India at the national level, including 472 endemic taxa and highlighted that reptiles occupy a variety of terrestrial and aquatic environments [10]. Maharashtra alone harbours 164 reptile taxa, including 31 taxa indigenous to the state, emphasizing the significance of protected places such as GWS for regional reptile conservation. Pradhan identified about 29 species that are comparable to those found in the Tadoba Andheri Tiger Reserve, Chandrapur [52]. As a result, many species are found in both

the protected areas and those from neighboring states like Chhattisgarh, Madhya Pradesh, Gujarat, Andhra Pradesh, and so on. In recent years many of findings are helpful to comprehend how these researches beneficial to updating of herpetofaunal diversity. Lahkar et al. demonstrated stringent habitat preferences, where cryptic, specialized herpetofauna were found in dense semi-evergreen woods on mountainous terrains, whereas alluvial grasslands and riparian edges served as transitional zones with generalist lizards and frogs [59]. Bhupathi et al. prepared a full list of herpetofaunal species of Papikonda National Park, Andhra Pradesh, a location with unique habitat types and previously unknown for reptiles and amphibians [60]. Mane and Gadekar studied the diverse microhabitat choices were viz., leaf litters, water pools, fallen wooden logs, grasses and plants and found fourteen species of amphibians and thirty-five species of reptiles [61]. The results indicated considerable difference among reptile species selecting different microhabitat. Feba et al. surveyed of 30 herpetofaunal species (8 amphibians, 22 reptiles) in different urban protected microhabitats [62]. Distribution of species over wetlands, sluggish waterbodies, seasonal streams, rocky patches and plantations was studied. Bhatarai et al. found that most of the herpetofauna species were recorded from protected areas [63]. This is probably a consequence of the concentration of scientific activity in such areas. With a total of 140 species, of which 35 are amphibians

and 105 are reptiles. Dolas et al. a baseline inventory of 53 species from the Naneghat plateau, Maharashtra, highlighting the need for long-term monitoring and site-specific conservation strategies for this underexplored landscape [62]. Jaman et al. revealed the structural complexity of habitats, dense vegetation, and transitional circumstances probably provide excellent shelter, breeding locations, and foraging possibilities for both amphibians and reptiles [36]. A survey of reptile species was conducted by Mirza and Patil in Gautala Reserve Forest, choosing 15 different locations during rainy, winter and summer season. Kodeeswaran et al. recorded 43 species of herpetofauna from complicated crossroad at the intersection of the Western Ghats, the Eastern Ghats and the Vaigai River [63]. The current study shows diversified herpetofaunal assemblage with 52 species, including 37 reptiles and 15 amphibians, indicating significant ecological complexity and habitat variability. While reptiles used wetlands, forest floors, grasslands, rocky areas, and arboreal habitats, amphibians inhabited aquatic, semi-aquatic, terrestrial, fossorial, and arboreal ecosystems. While reptiles showed wider ecological linkages and higher taxonomic variety, amphibian distribution and local abundance seem to be influenced by seasonal variations in water supply, vegetation, soil moisture, and breeding sites. While rare and uncommon taxa may suggest specialized biological requirements or seasonal detectability, the dominance of often observed species implies the availability of appropriate resources and reasonably acceptable habitat circumstances. The presence of legally protected, Near Threatened, and Endangered species highlights the significance of GWS for conservation. Overall, the results indicate that GWS is an important herpetofauna refuge and underline the need for long-term and habitat-specific monitoring to understand spatiotemporal population dynamics and ecological responses to environmental changes.

Conclusion

According to the study's findings, there is a significant amount of herpetofaunal diversity in Ghodazari Wildlife Sanctuary, with 53 species identified that represent a variety of biological adaptations and habitat preferences. The presence of aquatic, terrestrial, fossorial, and arboreal amphibians and reptiles suggests that the sanctuary offers a variety of habitats that can sustain a wide range of biological niches. For maintaining breeding, feeding, and sheltering needs, seasonal wetlands, streams, moist forest floors, grasslands, rocky habitats, and vegetation-rich places are especially crucial. The conservation relevance of GWS is increased by the existence of species classified as Near Threatened and Endangered, as well as taxa protected under higher IWPA schedules. Therefore, protecting wetlands and breeding grounds, preserving natural vegetation, minimizing human disturbance, preventing habitat fragmentation, and encouraging community involvement ought to be given top priority. To identify shifts in distribution and abundance, long-term population monitoring and routine seasonal surveys are crucial. The findings serve as an important baseline for future ecological studies and evidence-based conservation strategy in Ghodazari Wildlife Sanctuary.

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Conflict of Interest

The authors declare that they have no competing interests.

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