

**Herpetofauna, Urban and beyond: A conservational effort
through organized study and community participation**



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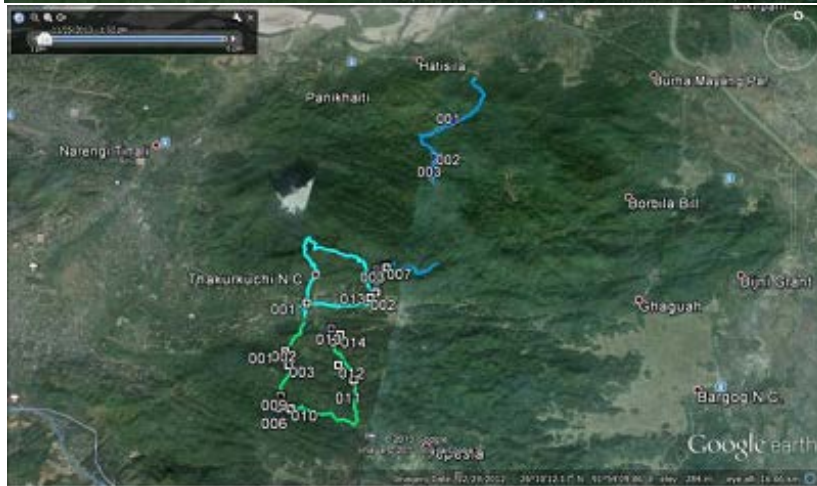
Gyanendra Deka



Map of Northeast India, pointing the study site



Map showing study sites



Map showing survey route in Amchang Wildlife Sanctuary



Map showing survey route in Garbhanga Reserve Forest (New 4: It is the new qary which is about 2 km from entry point)

Checklist of Herpetofauna of Amchang Wildlife Sanctuary

Amphibians	Reptiles
<i>Amolops assamensis</i>	<i>Ahaetulla nasuta</i>
<i>Climacarus alticola</i>	<i>Amphispema stolata</i>
<i>Duttaphrynus melanostictus</i>	<i>Boiga gokool</i>
<i>Euphlyctis cyanophlyctis</i>	<i>Bungarus fasciatus</i>
<i>Fejervarya nepalensis</i>	<i>Calotes versicolor</i>
<i>Fejervarya pierrei</i>	<i>Chrysopelea ornata</i>
<i>Fejervarya sylvadrensis</i>	<i>Cnemidophorus assamensis</i>
<i>Fejervarya teratolepis</i>	<i>Coelognathus radiatus</i>
<i>Hoplobatrachus tigerinus</i>	<i>Crotodactylus khastensis</i>
<i>Humerana humeralis</i>	<i>Dendrolaphis proarchus</i>
<i>Hylarana taylori</i>	<i>Eurydrys eurydrys</i>
<i>Leptobrachium smithi</i>	<i>Eutropis macularia</i>
<i>Microhyla ornata</i>	<i>Eutropis multifasciata</i>
<i>Philautus garo</i>	<i>Gekko gekko</i>
<i>Polypedates teratolepis</i>	<i>Hemidactylus aquilonius</i>
<i>Rhacophorus bipunctatus</i>	<i>Hemidactylus brooki</i>
<i>Silverynna leptoglossa</i>	<i>Hemidactylus frenatus</i>
	<i>Hemidactylus platyurus</i>
	<i>Lissemys punctata</i>
	<i>Lycodon aulicus</i>
	<i>Lygosoma albopunctata</i>
	<i>Naja kaouthia</i>
	<i>Oligodon albocinctus</i>
	<i>Pangshura tentoria</i>
	<i>Psammodynastes pulverulentus</i>
	<i>Python micosia</i>
	<i>Pyxotolemus gularis</i>
	<i>Python bivittatus</i>
	<i>Ramphotyphlops bramatus</i>
	<i>Rhabdophis subminiatus</i>
	<i>Sphenomorphus maculatus</i>
	<i>Trimeresurus albolabris</i>
	<i>Typhlops diardii</i>
	<i>Varanus bengalensis</i>
	<i>Xenochrophis piscator</i>

Checklist of Herpetofauna of Garbhanga Reserve forest

Amphibians	Reptiles
<i>Amolops assamensis</i>	<i>Amphispema stolata</i>
<i>Climacarus alticola</i>	<i>Boiga gokool</i>
<i>Duttaphrynus melanostictus</i>	<i>Bungarus fasciatus</i>
<i>Euphlyctis cyanophlyctis</i>	<i>Calotes versicolor</i>
<i>Fejervarya nepalensis</i>	<i>Chrysopelea ornata</i>
<i>Fejervarya pierrei</i>	<i>Cnemidophorus assamensis</i>
<i>Fejervarya sylvadrensis</i>	<i>Coelognathus radiatus</i>
<i>Fejervarya teratolepis</i>	<i>Crotodactylus khastensis</i>
<i>Hoplobatrachus tigerinus</i>	<i>Crotodactylus sp</i>
<i>Humerana humeralis</i>	<i>Eurydrys eurydrys</i>
<i>Hylarana leptoglossa</i>	<i>Eutropis macularia</i>
<i>Hylarana taylori</i>	<i>Eutropis multifasciata</i>
<i>Leptobrachium smithi</i>	<i>Gekko gekko</i>
<i>Megophrys parva</i>	<i>Hemidactylus aquilonius</i>
<i>Microhyla ornata</i>	<i>Hemidactylus brooki</i>
<i>Philautus garo</i>	<i>Hemidactylus frenatus</i>
<i>Polypedates teratolepis</i>	<i>Hemidactylus platyurus</i>
	<i>Lygosoma albopunctatum</i>
	<i>Naja kaouthia</i>
	<i>Psammodynastes pulverulentus</i>
	<i>Python micosia</i>
	<i>Python bivittatus</i>
	<i>Ramphotyphlops bramatus</i>
	<i>Rhabdophis subminiatus</i>
	<i>Sphenomorphus maculatus</i>
	<i>Trimeresurus albolabris</i>
	<i>Typhlops diardii</i>
	<i>Varanus bengalensis</i>
	<i>Xenochrophis piscator</i>

Checklist of herpetofauna of Guwahati City

Amphibians	Reptiles
Frogs and Toads	
Family: Bufonidae	
<i>Duttaphrynus melanostictus</i> (Schneider, 1799)	Common Asian Toad
Family: Megophryidae	
<i>Euphlyctes cyanophlyctis</i> (Hallowell, 1855)	Red-Eyed Frog
Family: Microhylidae	
<i>Microhyla ornata</i> (Duméril and Bibron, 1841)	Orissa Narrow-mouthed Frog
Family: Rhacophoridae	
<i>Philautus garo</i> (Boulenger, 1919)	Garo Hills Bush Frog
<i>Philautus uncinatus</i> (Dobson, 1907)	Red-tailed Tree Frog
Family: Dicroglossidae	
<i>Papurana septentrionalis</i> (Dobson, 1907)	Scrub Cricket Frog
<i>Papurana jayakeri</i> (Dobson, 1907)	Forest Cricket Frog
<i>Papurana subulbana</i> (Sinha, 1978)	Small Cricket Frog
<i>Papurana sinensis</i> (Dobson, 1904)	Tree Cricket Frog
<i>Papurana longicauda</i> (Schneider, 1799)	Skimming Frog
<i>Rhacophorus spicatus</i> (Duméril, 1802)	Indian Bulfrog
Family: Ranidae	
<i>Cheeroneus alticola</i> (Boulenger, 1902)	Assam Hills Frog
<i>Humerana humeralis</i> (Thomson, 1848)	Thomson's Bush Frog
<i>Humerana kishinouyei</i> (Boulenger, 1907)	Blanco Frog
<i>Sylvana leptopygia</i> (Gray, 1845)	Upper Assam Frog
<i>Sylvana saxatilis</i> (Sengupta et al., 2008)	Sengupta's Cascade Frog
Cavefishes	
Family: Ichthyophidae	
<i>Ichthyophis gangeticus</i> (Pillay and Kanchanasri, 1999)	Garo Hills Cavefish
Chelonians	
Family: Agemidae	

<i>Calotes versicolor</i> (Duméril, 1802)	Common Garden Lizard
<i>Phrynosoma gularis</i> (Peters, 1844)	Blue-headed Lizard
Family: Gekkonidae	
<i>Ameletus bicoloratus</i> (Duméril and Bibron, 1838)	Common House Gecko
<i>Ameletus bicolor</i> (Gray, 1845)	Small's House Gecko
<i>Ameletus parvulus</i> (Duméril and Bibron, 1838)	Common's House Gecko
<i>Ameletus platyurus</i> (Schneider, 1792)	Flawless House
<i>Ameletus bicoloratus</i> (Eggsell, 1925)	Yellow-bellied gecko
<i>Ameletus apiculatus</i> (McNab and Zug, 2007)	Northern House gecko
<i>Gekko gecko</i> (Linnaeus, 1758)	Tokay Gecko
<i>Cnemidophorus amurensis</i> (Dun and Sengupta, 2000)	Assamese Day Gecko
<i>Crotodactylus khastensis</i> (Dobson, 1976)	Khasi Hills Tree-toad Gecko
Family: Scincidae	
<i>Zootoca multicolor</i> (Blyth, 1852)	Many-lined Skink
<i>Zootoca maculata</i> (Blyth, 1852)	Brown Skink
<i>Sphenomorphus maculatus</i> (Blyth, 1852)	Spotted Forest Skink
Family: Varanidae	
<i>Varanus bengalensis</i> (Duméril, 1802)	Bengal Monitor Lizard
Snakes	
Family: Typhlopidae	
<i>Ameletus bicoloratus</i> (Duméril, 1802)	Brahminy Blind Snake
<i>Typhlops diardii</i> (Schlegel, 1836)	Diard's Blind Snake
Family: Boidae	
<i>Boiga gokool</i> (Rafinesque, 1820)	Burmese Python
Family: Colubridae	
<i>Coluber enhydris</i> (Schneider, 1799)	Burmese Water Snake
<i>Crotodactylus khastensis</i> (Dobson, 1976)	Common Wall Snake
<i>Python micosia</i> (Cantor, 1839)	Assam Small Earth
<i>Python molurus</i> (Linnaeus, 1758)	Big Snake
<i>Python kanna</i> (Schlegel, 1837)	Indian Chinese Rat Snake

<i>Rhabdophis subminiatus</i> (Schlegel, 1837)	Banded Keelback
<i>Dendrolaphis proarchus</i> (Wall, 1890)	Forest Keelback
<i>Oligodon albocinctus</i> (Cantor, 1839)	White-banded Keel Snake
<i>Amphispema stolata</i> (Linnaeus, 1758)	Red-tailed Keelback
<i>Boiga gokool</i> (Gray, 1845)	Common Cat Snake
<i>Zootoca multicolor</i> (Schneider, 1799)	Checkered Keelback
<i>Zootoca maculata</i> (Schneider, 1792)	Banded Keelback
<i>Zootoca micosia</i> (Cantor, 1839)	Forest Keelback
<i>Psammodynastes pulverulentus</i> (Bleeker, 1825)	Common Wood Viper
<i>Carphophis indicus</i> (Schlegel, 1837)	Copper-banded Timber Snake
<i>Allopias sinensis</i> (Lacépède, 1799)	Longwood Whip Snake
<i>Chrysopelex erasmi</i> (Dun, 1902)	Orissa Flying Snake
Family: Elapidae	
<i>Naja kaouthia</i> (Linnaeus, 1758)	Banded Cobra
<i>Naja naja</i> (Linnaeus, 1758)	Mooned Cobra
<i>Bungarus fasciatus</i> (Schneider, 1801)	Banded Krait
Family: Viperidae	
<i>Dromasaurus albulus</i> (Gray, 1842)	White-lipped Pit Viper
Turtles and Tortoises	
Family: Testudinidae	
<i>Manis manis</i> (Gray, 1825)	Orange-bellied Turtle
<i>Chelonia mydas</i> (Linnaeus, 1758)	Black-bellied Turtle
<i>Chelonia batesi</i> (Gray, 1831)	Forest Red-bellied Turtle
Family: Cheloniidae	
<i>Pseudemys chelonoides</i> (Dobson, 1876)	Assam Roofed Turtle
<i>Pseudemys sinensis</i> (Gray, 1830)	Indian Tree Turtle
<i>Pseudemys orbe</i> (Gray, 1831)	Indian Roofed Turtle
<i>Stemmysia jayakeri</i> (Anderson, 1978)	Indian Roof Turtle

Species Name	CA	RA	FA	IUCN Status	IWPA	Local Status
Class: Amphibia						
Family: Bufonidae						
<i>Duttaphrynus melanostictus</i> (Schneider, 1799)	+	+	+	LC	NS	C
Family: Megophryidae						
<i>Leptobranchium smithi</i> (Marmor, 1964)	-	-	+	LC	NS	M
Family: Microhylidae						
<i>Microhylis ornata</i> (Duméril & Bibron, 1841)	-	+	+	LC	NS	M
Family: Dicroglossidae						
<i>Fejervarya nepalensis</i> (Dabois, 1975)	-	+	+	LC	NS	C
<i>Fejervarya piemari</i> (Dabois, 1975)	-	-	+	LC	NS	R
<i>Fejervarya tamsiensis</i> (Dabois, 1984)	-	+	+	LC	NS	C
<i>Fejervarya zohraensis</i> (Assamada, 1919)	+	+	+	LC	NS	C
<i>Euphlyctis cyanophlyctis</i> (Schneider, 1799)	+	+	+	LC	NS	C
<i>Nepheroneurus nigroviridis</i> (Daudin, 1802)	-	+	+	LC	NS	C
Family: Ranidae						
<i>Rhombophryne alticola</i> (Boulenger, 1882)	-	-	+	LC	IV	R
<i>Rhombophryne petersi</i> (Daudin, 1841)	-	-	+	LC	IV	M
<i>Rhombophryne thomasi</i> (Boulenger, 1887)	-	+	+	LC	IV	R
<i>Rhombophryne leproleuca</i> (Cope, 1865)	-	+	+	LC	IV	R
Family: Rhacophoridae						
<i>Polypedates leucomelanus</i> (Günther, 1859)	+	+	+			
Class: Reptilia						
Family: Agamidae						
<i>Calotes versicolor</i> (Daudin, 1802)	+	+	+	LR-nt	NS	C
<i>Pyrocoelus galardi</i> (Peten, 1984)	-	-	+	NE	NS	M
<i>Dracon sp.</i>	-	-	+		NS	R
Family: Gekkonidae						
<i>Hemidactylus flaviviridis</i> (Duméril & Bibron, 1836)	+	+	+	LR-ic	NS	C
<i>Hemidactylus brooki</i> Gray, 1845	+	+	+	LR-ic	NS	C
<i>Hemidactylus garsoni</i> (Duméril & Bibron, 1836)	-	-	+	LR-ic	NS	R
Family: Scincidae						
<i>Eutropis maculata</i> (Kuhl, 1820)	+	+	+	LR-nt	NS	C
<i>Eutropis maculata</i> (Blyth, 1853)	-	-	+	LR-ic	NS	M
<i>Ligaxes albopunctata</i> (Gray, 1846)	-	+	+	LR-ic	NS	M
<i>Splaneris maculata</i> (Blyth, 1853)	-	-	+	DD	NS	C
Family: Varanidae						
<i>Varanus bengalensis</i> (Daudin, 1802)	-	+	+	VU	I	R
Family: Typhlopidae						
<i>Typhlops ahaoti</i> (Schlegel, 1839)	-	+	+	DD	IV	M
<i>Romphidophis bhamani</i> (Daudin, 1802)	-	+	+	LR-nt	IV	M
Family: Boiidae						
<i>Phyllorhynchus boivardi</i> (Cald, 1820)	+	+	+	LR-nt	I	C
Family: Colubridae						
<i>Erythrolia erythraea</i> (Schneider, 1799)	-	+	+	LR-nt	IV	C
<i>Lycodon aulicus</i> (Linnæus, 1758)	+	+	+	LR-ic	IV	C
<i>Ptyas mucosa</i> (Linnæus, 1758)	+	+	+	LR-nt	II	C
<i>Ptyas korra</i> (Schlegel, 1837)	-	-	+		IV	R
<i>Rhabdophis subminiatus</i> (Schlegel, 1837)	+	+	+	VU	IV	C
<i>Dendrolaptes pictus</i> (Daudin, 1789)	-	-	+		IV	M
<i>Oligodon albocinctus</i> (Cantor, 1839)	-	+	+	DD	IV	R
<i>Amphiesma stolatum</i> (Linnæus, 1758)	-	+	+	LR-nt	IV	C
<i>Rogya golani</i> (Gray, 1825)	-	-	+	NE	IV	R
<i>Heterophris pinnator</i> (Schneider, 1799)	+	+	+	LR-ic	II	C
<i>Heterophris evergreeni</i> (Cantor, 1839)	-	-	+	LR-nt	IV	R
<i>Heterophris zilliersenborgeri</i> (Kramer, 1977)	-	-	+		IV	R
<i>Panorolis purnanensis</i> Bose, 1927	-	+	+	VU	IV	M
<i>Coleophanes nathani</i> (Schlegel, 1841)	+	+	+	LR-nt	IV	C
<i>Pareas maculosa</i> (Cantor, 1839)	-	+	+	VU	IV	R
<i>Abasmodon nathani</i> (Schlegel, 1838)	-	+	+	LR-nt	IV	M
<i>Chrysopelex ornata</i> (Sikar, 1802)	-	+	+	LR-nt	IV	M
Family: Elapidae						
<i>Bungarus flaviventris</i> (Schneider, 1801)	+	+	+	LR-nt	IV	R
<i>Naja Amathusa</i> Lesson, 1831	+	+	+	NE	II	C
Family: Viperidae						
<i>Cryptorhynchus albolabris</i> (Gray, 1842)	-	-	+	LR-ic	IV	M
Family: Trisonchidae						
<i>Miloscoptes nigricans</i> (Anderson, 1875)	-	+	-	EW	IV	R
<i>Miloscoptes himani</i> (Gray, 1831)	-	+	-	VU	I	R
<i>Apiscolites propinqua</i> (Cuvier, 1818)	-	+	-	VU	IV	R
Family: Geomyzidae						
<i>Pangshura zilliersenii</i> (Jordan, 1870)	-	+	-	EN	IV	R
<i>Moreris penneri</i> (Anderson, 1879)	-	-	+	VU	NS	R

Table showing species sighting in the three divisions. CA and RA are under municipal area of Guwahati, FA includes two of the present study sites (Amchang Wildlife Sanctuary and Garbhanga Reserve forest; '+' denotes the species was detected; '-' denotes the species was not detected) CA: Commercial Area, RA: Residential Area, FA: Forested Area, RF: Reserve Forests, IUCN: International Union for the Conservation of Nature and Natural Resources, IWPA: Indian Wildlife Protection Act, EW: Extinct In Wild, VU: Vulnerable, LC: Least Concerned, LR-nt: Lower Risk/ near threatened, LR-ic: Lower Risk/least concerned, DD: Data Deficient, NE: Not Evaluated, NS: Non Scheduled, I: Schedule I, II: Schedule II, IV: Schedule IV, C: Common, M: Moderate and R: Rare.

- On comparison we found that Guwahati has higher species diversity of herpetofauna with 63 species (Amchang WLS: 52 species and Garbhanga RF: 46 species).
- The approximate abundance of *Duttaphrynus melanostictus* is much higher in Guwahati.
- *Leptobranchium smithi*, *Philautus garo*, *Clinotarsus alticola*, *Amolops assamensis* are restricted to forest and its fringes.
- The four species member of *Fejervarya* are more or less evenly distributed.
- *D. melanostictus* and *Euphlyctis cyanophlyctis* were also found in the most disturbed and polluted environment (in areas concentrated with paper mill effluent)
- *Hemidactylus flaviviridis* is only present in Guwahati.
- All *Hemidactylus* species member were found to be human commensal with exception being *H. platyurus* found on the trees in the forest fringes. Interestingly, *H. platyurus* is a house gecko in Shillong.
- *Lycodon aulicus* was found to be human commensal with high sighting rates in urban area.
- Diversity of turtles is high in Guwahati only due to the temple ponds which harbours them and are restricted to these ponds.



Some Anurans found during the study: A. *Duttaphrynus melanostictus*; B. *Leptobrachium smithi*; C. *Fejervarya pierrei*; D. *Hoplobatrachus tigerinus*; E. *Hylarana tyleri*; F. *Humerana humeralis*; G. *Hylarana leptoglossa*; H. *Polypedates leucomystax*



Some Saurians found during the study: A. *Calotes versicolor*; B. *Hemidactylus frenatus*; C. *Hemidactylus brookii*; D. *Hemidactylus platyurus*; E. *Cyrtodactylus khasiensis*; F. *Gekko gekko*; G. *Eutropis multifasciata*; H. *Sphenomorphus maculatus*.



Some Serpents found during the study: A. *Enhydryis*; B. *Xenochrophis piscator*; C. *Boiga gokool*; D. *Rhabdophis subminiatus*; E. *Amphiesma stolata*; F. *Chrysopelea ornata*; G. *Trimereurus albolabris* H. *Bungarus fasciatus*.



Some Chelonians found during study: A. *Nilssonia nigricans*; B. *Nilssonia hurum*; C. *Lissemys punctata*; D. *Pangshura tecta*; E. *Pangshura sylhetensis*; F. *Indotestudo elongata*; G. *Geochlemys hamiltonii*; H. *Melanochelys tricarinata*.

Figure 1. A map of Assam showing locations of Temple ponds with turtle



1. Gorokhiya Gohai Than, Sorbhog, 2. Haigrub Madhab Temple, Hajo, 3. Kamakhya Temple, Guwahati 4. Ugrotara Temple, Guwahati, 5. Nagshankar Temple, Tezpur, 6. Deopani, Karbi Anglong, 7. Athkheliya Temple, Golaghat, 8. Barokheliya Temple, Sarupathar, 9. Kedar Temple, Hajo, 10. Dhareshwari Devalaya, Silguri, 11. Mandir Devalaya, Golaghat, 12. Srimanta Shankardev Namghar, Golaghat, 13. Hatigarh Dewal, Jorhat, 14. Bor Pukhuri, Sivasagar

Table 1: Turtle diversity in each studied ponds :

Madhab Temple Pond, Hajo	Kamakhya Temple Pond, Guwahati	Gorokhiya Gohainr Than, Sorbhog
<i>Nilssonina gangetica</i>	<i>Nilssonina gangetica</i>	<i>Nilssonina gangetica</i>
<i>Nilssonina hurum</i>	<i>Nilssonina hurum</i>	<i>Nilssonina nigricans</i>
<i>Nilssonina nigricans</i>	<i>Nilssonina nigricans</i>	<i>Pangshura tentoria</i>
<i>Pangshura tentoria</i>	<i>Pangshura tentoria</i>	<i>Pangshura tecta</i>
<i>Pangshura tecta</i>	<i>Pangshura tecta</i>	<i>Pangshura sylhetensis</i>
<i>Pangshura smithii</i>	<i>Pangshura smithii</i>	<i>Chitra indica</i>
<i>Pangshura sylhetensis</i>	<i>Pangshura sylhetensis</i>	<i>Geoclemys hamiltonii</i>
<i>Geoclemys hamiltonii</i>	<i>Geoclemys hamiltonii</i>	
<i>Chitra indica</i>		Barokhelia Temple Pond, Golaghat
<i>Hardella thurjii</i>	Deopani Temple Pond, Diphu	<i>Nilssonina nigricans</i>
<i>Lissemys punctata</i>	<i>Nilssonina nigricans</i>	<i>Pangshura sp.</i>
<i>Melanochelys trijuga</i>	<i>Pangshura tentoria</i>	
	<i>Pangshura tecta</i>	Dhareshwari Devalaya, Silguri
Nagshankar Temple Pond, Tezpur		<i>Nilssonina nigricans</i>
<i>Nilssonina gangetica</i>	Atkhelia Temple Pond, Golaghat	<i>Nilssonina gangetica</i>
<i>Nilssonina hurum</i>	<i>Nilssonina nigricans</i>	<i>Pangshura tentoria</i>
<i>Nilssonina nigricans</i>	<i>Pangshura tentoria</i>	<i>Pangshura tecta</i>
<i>Pangshura tentoria</i>	<i>Pangshura tecta</i>	<i>Pangshura sylhetensis</i>
<i>Pangshura tecta</i>		
<i>Pangshura smithii</i>	Mandir Devalaya, Golaghat	Srimanta Shankardev Namghar, Golaghat
<i>Pangshura sylhetensis</i>	<i>Nilssonina nigricans (a huge single individual)</i>	
		<i>Nilssonina gangetica</i>
Ugratara Temple Pond, Guwahati	Kedar Temple, Hajo	<i>Pangshura tentoria</i>
<i>Nilssonina hurum</i>	<i>Nilssonina nigricans</i>	<i>Pangshura tecta</i>
<i>Nilssonina nigricans</i>	<i>Pangshura tentoria</i>	
<i>Pangshura tentoria</i>	<i>Pangshura tecta</i>	
<i>Pangshura tecta</i>	<i>Pangshura sylhetensis</i>	
<i>Pangshura sylhetensis</i>		
<i>Geoclemys hamiltonii</i>		

Table 2. Physiochemical Parameters of the 8 temple ponds:

Parameters	Shankardev Namgarh	Mandir Devalaya	Athkheliya Namgarh	Deopani Temple
Colour	Exceeds limit	Exceeds limit	Exceeds limit	Exceeds limit
Odour	Fishy	Unobjectionable	Fishy	Pungent
Turbidity	1	0.1	1	0.1
pH Value	6.9	6.6	7.6	7.4
Total dissolve Solid	65	78	254	176
Residual free chlorine	<0.2	<0.2	<0.2	<0.2
Total Hardness	52	44	128	88
Alkalinity	24	24	44	48

Parameters	Barokheliya Namghar	Haigrib Madhab Temple	Kamakhya Temple	Ugrotara Temple
Colour	Exceeds limit	Exceeds limit	Exceeds limit	Exceeds limit
Odour	Unobjectionable	Fishy	Fishy	Pungent
Turbidity	>5	>5	2	>5
pH Value	6.8	7.79	6.8	6.6
Total dissolve Solid	110	208	100	200
Residual free chlorine	<0.2	Nil	<0.2	<0.2
Total Hardness	68	80	106	92
Alkalinity	44	20	46	50

Physical parameters of the ponds:

Nagshankar Mandir



N 26°43.502', E 092°59.682'
 Elevation: 70 m
 Length: 85 m
 Breadth: 55 m

Gorokhia Gohai Than



N 26°29.250', E 090°52.897'
 Elevation: 48 m
 Length: 69 m
 Breadth: 46 m

Kedar Mandir



N 26°14.514', E 091°32.662'
 Elevation: 138 m
 Length: 33 m
 Breadth: 24 m
 Area: 792sq. m

Athkheliya Namghar



N 26°28.357', E 094°05.9908'
Elevation: 195 m
Area: 762.95 sq. m

Ugrotara Temple



N 26°11.326', E 091°45.242'
Elevation: 68 m
Length: 160 m
Breadth: 68 m
Area: 10880 sq. m



N 26°13.054', E 096°49.677'
Elevation: 111 m
Length: 60 m
Breadth: 32 m
Area: 1920 sq. m

Mandir Devalaya



N 26°28.978', E 093°59.837'
Elevation: 90 m
Length: 40 m
Breadth: 43 m
Area: 1720 sq. m

Srimanta Shankardev Namghar



N 26°28.698', E 094°00.141'
Elevation: 88 m
Length: 34 m
Breadth: 32 m
Area: 1088 sq. m

Barokheliya Namghar



N 26°10.331', E 093°54.099'
Elevation: 107 m
Length: 80 m
Breadth: 21 m
Area: 1680 sq. m



N 26°16.645', E 91°68.236
Elevation: 180 m
Length: 38 m
Breadth: 29 m
Area: 1102 sq. m

Haigrib Madhav Mandir



N 26°14.643', E 091°31.573'
Elevation: 60 m
Length: 172 m
Breadth: 85 m
Area: 14620 sq. m

Dhareswari Devalaya



N 26°10.614', E 091°28.569'
Elevation: 51 m
Length: 66 m
Breadth: 34 m
Area: 2244sq. m

Breeding ground at the Ugrotara temple pond.



Basking Ground Created



Fisherman and Turtle seminar on World Environment



Outreach programme



Breeding tank



Hoarding installed



Book Release

BOOK RELEASE FUNCTION

AN AMATEUR'S GUIDE TO REPTILES OF ASSAM

REPTILES OF ASSAM

AN AMATEUR'S GUIDE TO REPTILES OF ASSAM

Help Earth

Help Earth is a Non-Governmental Organizational established in the year 2006. The organization works for wildlife and environmental conservation activities in Northeast India. The organization conducts such various programs to promote an eco-tourism and ecotourism building, primarily related to environment.



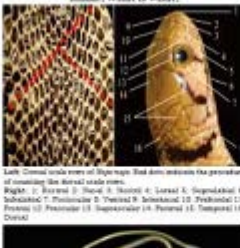





To know more about the organization log on to www.helparth.org. You can also reach us at contact@helparth.org.

- 1. The book contains description, photograph, distributional map of all the ***** species so far reported from the state of Assam.
- 2. It includes information on management of snake bite.
- 3. The book contains information on conservation status of each reptile.

It gives the scientific names and subspecies of all the ***** species so far reported from the state of Assam. It also includes information on management of snake bite. It includes information on conservation status of each reptile.

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Pages from the book

An Amateur's Guide To Reptiles of Assam		An Amateur's Guide To Reptiles of Assam		An Amateur's Guide To Reptiles of Assam		An Amateur's Guide To Reptiles of Assam	
<p>Common Wall Lizard</p>  <p>Chalcidopoda A pair of spines present on each side of the back of the head and behind the tympanum. Dorsal scales present around midline. Superciliary 9-11, Subocular 6-8.</p> <p>A rather large species with limited scales all pointing backward. Body brown above or greyish in color. Skin brownish above and each side present. Dark streaks radiate from eyes. In each side a narrow transverse line passing across the body (over white). Total length: 400 mm (16, 170 mm, 21, 210 mm).</p> <p>Distributed in Assam, Arunachal Pradesh, Nagaland, Manipal, Tripura, India, Sri Lanka, Bangladesh, Myanmar, Thailand, Malaysia, Taiwan, Cambodia, China, Myanmar, Indonesia, Singapore, Borneo, Sri Lanka. IIFA Status: Not Listed. IUCN Status: Not Listed.</p>	<p>Cotton tail lizard</p>  <p>Chalcidopoda A pair of spines present on each side of the back of the head and behind the tympanum. Dorsal scales present around midline. Superciliary 9-11, Subocular 6-8.</p> <p>A rather large species with limited scales all pointing backward. Body brown above or greyish in color. Skin brownish above and each side present. Dark streaks radiate from eyes. In each side a narrow transverse line passing across the body (over white). Total length: 400 mm (16, 170 mm, 21, 210 mm).</p> <p>Distributed in Assam, Arunachal Pradesh, Nagaland, Manipal, Tripura, India, Sri Lanka, Bangladesh, Myanmar, Thailand, Malaysia, Taiwan, Cambodia, China, Myanmar, Indonesia, Singapore, Borneo, Sri Lanka. IIFA Status: Not Listed. IUCN Status: Not Listed.</p>	<p>Snake: What is what?</p>  <p>Left: Central snake eye of the eye. Right: Snake within the perimeter of a snake's head.</p> <p>Right: 1. Horns 2. Head 3. Neck 4. Lateral 5. Superciliary 6. Subocular 7. Tympanum 8. Tail 9. Subventral 10. Pyloric 11. Pectoral 12. Pectoral 13. Superciliary 14. Pyloric 15. Tympanum 16. Dorsal.</p>  <p>Left: Snake body and tail. Right: Snake body and tail.</p>	<p>Green Cat Snake</p>  <p>Chalcidopoda 1, Pyloric 2, Superciliary 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.</p>	<p>Snake species</p>  <p>Chalcidopoda 1, Pyloric 2, Superciliary 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.</p>	<p>Assam Roofed Turtle</p>  <p>Chalcidopoda 1, Pyloric 2, Superciliary 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.</p>	<p>Assam Roofed Turtle</p>  <p>Chalcidopoda 1, Pyloric 2, Superciliary 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.</p>	

Newspaper clipping

Rich diversity of city's herpetofauna under threat

ASSAM TIMES
GUWAHATI, Dec 2 - The rich herpetofauna of Guwahati is under a wide array of threats, with a large number of species facing extinction. A study by researchers from Assam University, Guwahati, has revealed that the city's herpetofauna is under a wide array of threats, with a large number of species facing extinction. The study, conducted by researchers from Assam University, Guwahati, has revealed that the city's herpetofauna is under a wide array of threats, with a large number of species facing extinction. The study, conducted by researchers from Assam University, Guwahati, has revealed that the city's herpetofauna is under a wide array of threats, with a large number of species facing extinction.



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Near-extinct in the wild, turtles thriving in temple ponds

ASSAM TIMES
GUWAHATI, June 25 - Herpetologists have found that ponds in temples and other religious sites are becoming important habitats for turtles. The study, conducted by researchers from Assam University, Guwahati, has revealed that the city's herpetofauna is under a wide array of threats, with a large number of species facing extinction. The study, conducted by researchers from Assam University, Guwahati, has revealed that the city's herpetofauna is under a wide array of threats, with a large number of species facing extinction.



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Technical articles published

Purkayastha, J., Hassan, M.A., Islam, H., Das, J., Sarma, M., Basu- matary, M., Sarma, N., Chatterjee, N., Singha, S., Nair, V., Purka- yastha, A., Dutta, J., Das, M. (2013): Turtles of the Temple Pond of Kamakhya, Assam, India. Reptilerap 15: 11-15

Purkayastha, J. (2012): On identity of snakes: a guide for common man TSI Newsletter, Toxinological Society of India 2(2): 16-21

Purkayastha, J., Das, M., Vogel, G., Bhattacharjee, P.C., Sengupta, S. (2013): Comments on Xenochrophis cerasogaster (Cantor 1839) (Serpentes: Natricidae) with remarks on its natural history and distribution 36(2): 149-156

Borah, M.M., Bordoloi, S., Purkayastha, J., Das, M., Dubois, A., Ohler, A. (2013): Limnonectes (Taylorana) medogensis (FeI, Ye & HuaNg, 1997) from arunachal Pradesh (India), and on the iden- tity of some diminutive ranoid frogs (anura: dicroglossidae, occi- dozygidae) HerPetoZoa 26 (1/2): 39-48

Threats in the study area

Managing Snake Bites



Snakebite and its management

Venom is one of the most important things that we associate a snake with. Fortunately, majority of snakes are non-venomous. Venom is a poisonous fluid secreted by certain animals and is injected into prey or aggressors by biting or stinging. These fluids are a cocktail of toxins mostly proteotoxic in nature. Luckily the part of the world we live in does not harbor a broad diversity of venomous animals. Cratically animals such as bees, wasps and ants can produce venomous sting or bite but are rarely fatal and thus do not pose a threat. But the one we are about to discuss here is the one which is literally the enemy to be warded venom in India. The snake.

The venom is produced in small sac-called **venom glands** present in the posterior part of their upper jaw. When a snake is excited or feels threatened, it lets lose this venom which travels from the gland to the fangs via **venom ducts**. Venomous snakes generally have two enlarged teeth, one on each side of the upper jaw. Usually they are present in the front part of mouth. Again, in some snakes the fangs are placed in the posterior part of the upper jaw. These snakes are called **back-banged snakes**. They, in order to envenomate their victims, have to draw upon an opposed to the classical action like cobra and viper wherein a strike is enough to get the work done.

Fangs are actually part of the enlarged tooth. A typical fang is hollow inside and **venom runs** through it, out the tip when an injection is made. Venom that enters the human body generally acts in 4 ways.

Neurotoxicity: This type of venom attacks the nervous system and is the most lethal form of venom as it acts very rapidly. People may die in less than an hour of time.

Hemotoxic: This type of venom acts on our muscle cells by disrupting them often leading to heart and kidney failure.

Hemorrhagic: Such venoms act on blood cells. It may form blood clots inside the body leading to heart failure. They may have reciprocal action where they cause the blood clotting mechanism to fail which leads to severe bleeding and hemorrhage.

Cytotoxic: Such venoms mix away the cells and tissues at the site of bite which prevent clotting with the spread of venom. This type of venom results in necrosis often leading to amputation of limbs organs. Globally, there is no accurate data on the number of occurrence of snakebite, envenomation or even death resulting from snake bite.

Studies suggest that the **degree of envenomation and death** globally per year may be as high as 4.1 million and 94,000 respectively, with most cases being in South Asia, Southeast Asia and sub-Saharan Africa. India being an agrarian society, workers are regularly exposed to the hazards of snake bite as their work demands that they visit snake infested areas. The mode of treatment mostly practiced is the traditional healing method which results in considerable delay in facilitating proper medication. From most health going centers in the country are unprepared to deal with a snake bite case. The only available antivenom is the polyvalent snake antivenom (PSA) which is not always guaranteed to deliver the desired result. The PSA is a cocktail of antivenoms made to deal with the envenomation usually caused by the four species of snakes often termed the Big Four, namely Spectacled Cobra (*Naja naja*), Common Krait (*Bungarus caeruleus*), Russell's viper (*Daboia russelii*) and Saw scaled viper (*Echis carinatus*). The PSA has also been shown to cause anaphylaxis. The venom composition of a snake varies according to prey species and geography. Unfortunately, this field of science is wanting in this region where almost no study is done on snake venom composition.

Care to be taken to reduce snake bite incidents

1. House should be kept clear of hiding places of snakes. Snakes generally tend to move towards human settlements in search of food. Thus, it is important to keep the house free of rodents as they are one of the important food for snakes. Livestock should not be kept inside the house as they encourage the visit of snakes.
2. Avoid sleeping on the floor and use mosquito nets while sleeping.
3. Avoid walking barefoot at night. Use torches and other sources of illumination while going out after dark.
4. Avoid contact with snakes, even a dead snake.
5. Ideally farmers should wear boots but practically it is not possible. Thus, while working in the field, contributions to the key snakes generally avoid places where people gather and take refuge in places where hay and grasses or such other materials are piled. These piles should be handled with extra-caution.

Things to remember during a snakebite

1. Be rational in approach while dealing with a snake bite, be it a victim or the snake.
2. If possible, try to identify the snake, because if it is venomous the course of treatment will depend on its identity. If the snake inflicting the bite is killed or its, it can be brought to health centre to get an idea on its identity. Nowadays almost all the snake phosens come with an infrared camera, so a picture of the bite inflicting snake can also serve the purpose.
3. In case of a venomous bite, time is of essence, so no time should be wasted in traditional healing practices as they are almost always ineffective in case of venomous bite. The victim should be sent to hospital as soon as possible.
4. Victim should be made comfortable to reduce stress and tension as stress may lead to quicker spread of venom through the body. Victim should be made immobile as much as possible so as to reduce the spread of venom.
5. Remove tight clothing, shoes, watch or rings because in case of swelling, these may act as liability and even cut nerves. But ensure that while doing so the victim should not feel stressed and movement of body parts of the victim should be restricted as much as possible.
6. Do not give the victim anything to eat or drink as it may aid venom circulation and also prevent the risk of choking.
7. Avoid incising or using suckers of the region, mostly the vipers produce bite which causes local damage. Thus, tourniqueting will restrict the flow of blood along with venom. More venom concentration in a particular area may result in rapid necrosis which may even lead to amputation of that organ.
8. Calling of bite site should be avoided as many snakes have venoms that has the property to cause the blood clotting mechanism to fail. In such cases a cut may aggrivate the loss of blood.
9. The most important thing to remember is that, the only antidote of an envenomation is antivenom.





The Rufford Small Grants Foundation



Inside the study area



A waterfall inside Amchang Wildlife sanctuary

