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

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Help Earth

The Rufford Foundation

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The Team

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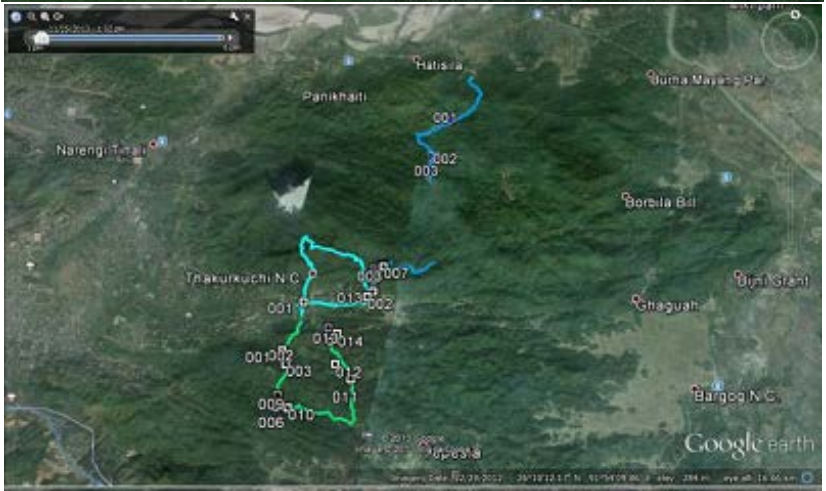
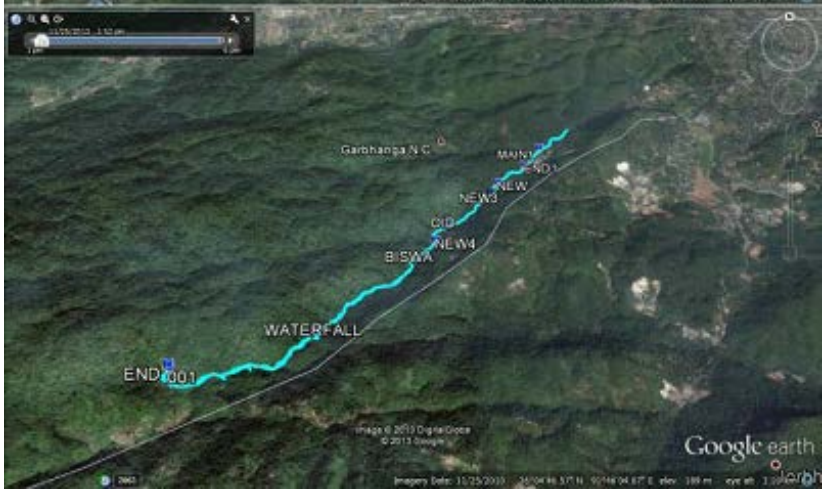
Map of Northeast India, pointing the study site

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
Amolops assamensis	*Ahaetulla nasuta*
Clinotarus alticola	*Amphiesma stolata*
Duttaphrynus melanostictus	*Boiga gokool*
Euphlyctis cyanophlyctis	*Bungarus fasciatus*
Fejervarya nepalensis	*Calotes versicolor*
Fejervarya pierrei	*Chrysopelea ornata*
Fejervarya sylhadrensis	*Cnemaspis assamensis*
Fejervarya teraiensis	*Coelognathus radiatus*
Hoplobatrachus tigerinus	*Cyrtodactylus khasiensis*
Humerana humeralis	*Dendrelaphis proarchus*
Hylarana tytleri	*Enhydris enhydris*
Lepnobrachium smithii	*Eutropis macularia*
Microhyla ornata	*Eutropis multifasciata*
Philautus garo	*Gekko gecko*
Polypedates teraiensis	*Hemidactylus aquilonius*
Rhacophorus bipunctatus	*Hemidactylus brookii*
Silvirana leptoglossa	*Hemidactylus frenatus*
	Hemidactylus platyurus
	Lissemys punctata
	Lycodon aulicus
	Lygosoma albopunctata
	Naja kaouthia
	Oligodon albocinctus
	Pangshura tentoria
	Psammodynastes pulverulentus
	Ptyas mucosa
	Ptyctolaemus gularis
	Python bivittatus
	Ramphotyphlops braminus
	Rhabdophis subminiatus
	Sphenomorphus maculatus
	Trimeresurus albolabris
	Typhlops diardii
	Varanus bengalensis
	Xenochrophis piscator

Checklist of Herpetofauna of Garbhanga Reserve forest

Amphibians	Reptiles
Amolops assamensis	*Amphiesma stolata*
Clinotarus alticola	*Boiga gokool*
Duttaphrynus melanostictus	*Bungarus fasciatus*
Euphlyctis cyanophlyctis	*Calotes versicolor*
Fejervarya nepalensis	*Chrysopelea ornata*
Fejervarya pierrei	*Cnemaspis assamensis*
Fejervarya sylhadrensis	*Coelognathus radiatus*
Fejervarya teraiensis	*Cyrtodactylus khasiensis*
Hoplobatrachus tigerinus	*Cyrtodactylus sp*
Humerana humeralis	*Enhydris enhydris*
Hylarana leptoglossa	*Eutropis macularia*
Hylarana tytleri	*Eutropis multifasciata*
Leptobrachium smithi	*Gekko gecko*
Megophrys parva	*Hemidactylus aquilonius*
Microhyla ornata	*Hemidactylus brooki*
Philautus garo	*Hemidactylus frenatus*
Polypedates teraiensis	*Hemidactylus platyurus*
	Lygosoma albopunctatum
	Naja kaouthia
	Psammodynastes pulverulentus
	Ptyas mucosa
	Python bivittatus
	Ramphotyphlops braminus
	Rhabdophis subminiatus
	Sphenomorphus maculatus
	Trimeresurus albolabris
	Typhlops diardii
	Varanus bengalensis
	Xenochrophis piscator

Checklist of herpetofauna of Guwahati City

Amphibians

Frogs and Toads

Family: Bufonidae

Duttaphrynus melanostictus (Schneider, 1799) — Common Asian Toad

Family: Megophryidae

Leptobrachium smithi (Matsui, Nabhitabhata and Panha,1999) — Red- Eyed Frog

Family: Microhylidae

Microhyla ornata (Duméril and Bibron, 1841) — Ornate Narrow-mouthed Frog

Family: Rhacophoridae

Philautus garo (Boulenger, 1919) — Garo Hills Bush Frog

Polypedates teraiensis (Dubois,1987) — Tea-land Tree Frog

Family: Dicroglossidae

Fejervarya nepalensis (Dubois, 1975) — Nepal Cricket Frog

Fejervarya pierrei (Dubois, 1975) — Pierrel's Cricket Frog

Fejervarya sylhadrensis (Annandale, 1919) — Small Cricket Frog

Fejervarya teraiensis (Dubois, 1984) — Terai Cricket Frog

Euphlyctis cyanophlyctis (Schneider, 1799) — Skittering Frog

Hoplobatrachus tigerinus (Daudin, 1802) — Indian Bullfrog

Family: Ranidae

Clinotarus alticola (Boulenger, 1882) — Assam Hills Frog

Hylarana tytleri (Theobald, 1868) — Theobald's Ranid Frog

Humerana humeralis (Boulenger, 1887) — Bhamo Frog

Sylvirana leptoglossa (Cope, 1868) — Cope's Assam Frog

Amolops assamensis (Sengupta et al.,2008) — Sengupta's Cascade Frog

Caecilian

Family: Ichthyophiidae

Ichthyophis garoensis (Pillai and Ravichandran, 1999) — Garo Hills Caecilian

Class Reptilia

Lizards

Family: Agamidae

Calotes versicolor (Daudin, 1802) — Common Garden Lizard

Ptyctolaemus gularis (Peters, 1864) — Blue-throated lizard

Family: Gekkonidae

Hemidactylus frenatus (Duméril and Bibron, 1836) — Common House Gecko

Hemidactylus brookii (Gray, 1845) — Brook's House Gecko

Hemidactylus garnotii (Duméril and Bibron, 1836) — Garnot's House Gecko

Hemidactylus platyurus (Schneider, 1792) — Flat-tailed House

Hemidactylus flaviviridis (Rüppell, 1835) — Yellow-bellied gecko

Hemidactylus aquilonius (McMahan and Zug, 2007) — Northern House gecko

Gekko gecko (Linnaeus, 1758) — Tokay Gecko

Cnemaspis assamensis (Das and Sengupta, 2000) — Assamese Day Gecko

Cyrtodactylus khasiensis (Jerdon, 1870) — Khasi Hills bent-toed Gecko

Family: Scincidae

Eutropis multifasciata (Kuhl, 1820) — Many Lined Skink

Eutropis macularia (Blyth, 1853) — Bronze Skink

Sphenomorphus maculatus (Blyth, 1853) — Spotted Forest Skink

Family: Varanidae

Varanus bengalensis (Daudin, 1802) — Bengal Monitor Lizard

Snakes

Family: Typhlopidae

Ramphotyphlops braminus (Daudin, 1803) — Brahminy Blindsnake

Typhlops diardii (Schlegel, 1839) — Diard's blindsnake

Family: Boidae

Python bivittatus (Kuhl, 1820) — Burmese Python

Family: Colubridae

Enhydris enhydris (Schneider, 1799) — Rainbow Water Snake

Lycodon aulicus (Linnaeus, 1758) — Common Wolf Snake

Ptyas mucosa (Linnaeus, 1758) — Rat Snake

Ptyas korros (Schlegel, 1837) — Indo-Chinese Rat Snake

Rhabdophis subminiatus (Schlegel, 1837) — Red-necked Keelback

Dendrelaphis proarchus (Wall, 1909) — Painted Bronzeback

Oligodon albocinctus (Cantor, 1839) — White-barred Kukri Snake

Amphiesma stolatum (Linnaeus, 1758) — Buff Striped Keelback

Boiga gokool (Gray, 1835) — Eastern Cat Snake

Xenochrophis piscator (Schneider, 1799) — Checkered Keelback

Xenochrophis schnurrenbergeri (Kramer, 1977) — Barred-necked Keelback

Xenochrophis cerasogaster (Cantor, 1839) — Painted Keelback

Psammodynastes pulverulentus (Boie, 1827) — Common Mock Viper

Coelognathus radiatus (Schlegel, 1837) — Copper-headed Trinket Snake

Ahaetulla nasuta (Lacépède, 1789) — Long-nosed Whip Snake

Chrysopelea ornata (Shaw, 1802) — Ornate Flying Snake

Family: Elapidae

Naja naja (Linnaeus, 1758) — Binocled Cobra

Naja kaouthia (Lesson, 1831) — Monocled Cobra

Bungarus fasciatus (Schneider, 1801) — Banded Krait

Family: Viperidae

Trimeresurus albolabris (Gray, 1842) — White Lipped Pit Viper

Turtles and Tortoises

Family: Trionychidae

Nilssonia gangetica (Cuvier, 1825) — Ganges Soft-shelled Turtle

Nilssonia nigricans (Anderson, 1875) — Black Soft-shelled Turtle

Nilssonia hurum (Gray, 1831) — Peacock Soft-shelled Turtle

Family: Geoemydidae

Pangshura sylhetensis (Jerdon, 1870) — Assam Roofed Turtle

Pangshura tentoria (Gray, 1834) — Indian Tent Turtle

Pangshura tecta (Gray, 1831) — Indian Roofed Turtle

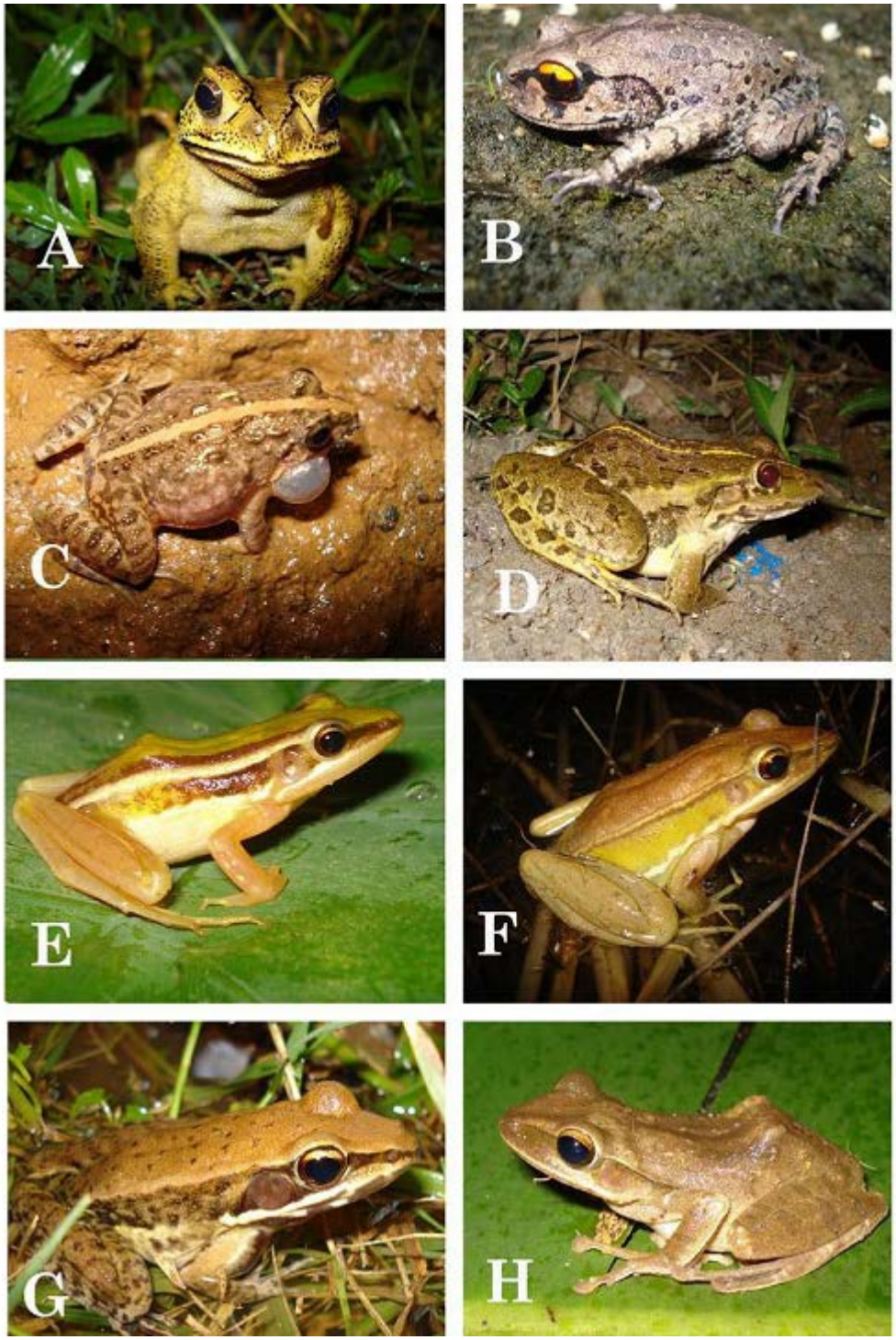
Morenia petersi (Anderson, 1879) — Indian Eyed Turtle

Species Name	CA	RA	FA	IUCN Status	IWPA	Local Status
Class: Amphibia						
Family: Bufonidae						
Duttaphrynus melanostictus (Schneider, 1799)	+	+	+	LC	NS	C
Family: Megophryidae						
Leptobrachium smithi Matsui, Nishikawa & Pudin, 1999	-	-	+	LC	NS	M
Family: Microhylidae						
Microhyla ornata (Duméril & Bibron, 1841)	-	+	+	LC	NS	M
Family: Dicroglossidae	-					
Fejervarya nepalensis (Dubois, 1975)	-	+	+	LC	NS	C
Fejervarya pierrei (Dubois, 1975)	-	-	+	LC	NS	R
Fejervarya sarasinorum (Dubois, 1984)	-	+	+	LC	NS	C
Fejervarya cylindrensis (Annandale, 1919)	+	+	+	LC	NS	C
Euphlyctis cyanophlyctis (Schneider, 1799)	+	+	+	LC	NS	C
Hoplobatrachus tigerinus (Daudin, 1802)	-	+	+	LC	NS	C
Family: Ranidae						
Clinotarsus alticola (Boulenger, 1882)	-	-	+	LC	IV	R
Hylarana tytleri (Theobald, 1868)	-	-	+	LC	IV	M
Hylarana humeralis (Boulenger, 1887)	-	+	+	LC	IV	R
Hylarana leptoglossa (Cope, 1868)	-	+	+	LC	IV	R
Family: Rhacophoridae						
Polypedates leucomystax (Gravenhorst, 1829)	+	+	+			
Class: Reptilia						
Family: Agamidae						
Calotes versicolor (Daudin, 1802)	+	+	+	LR-nt	NS	C
Psammophilus gularis (Peters, 1864)	-	-	+	NE	NS	M
Draco sp.	-	-	+	-	NS	R
Family: Gekkonidae						
Hemidactylus frenatus Duméril & Bibron, 1836	+	+	+	LR-lc	NS	C
Hemidactylus brookii Gray, 1845	+	+	+	LR-lc	NS	C
Hemidactylus garnotii Duméril & Bibron, 1836	-	-	+	LR-lc	NS	R
Family: Scincidae						
Eutropis multifasciata (Kuhl, 1820)	+	+	+	LR-nt	NS	C
Eutropis macularia (Blyth, 1853)	-	-	+	LR-lc	NS	M
Lygosoma albopunctata (Gray, 1846)	-	+	+	LR-lc	NS	M
Sphenomorphus maculatus (Blyth, 1853)	-	-	+	DD	NS	C
Family: Varanidae						
Varanus bengalensis (Daudin, 1802)	-	+	+	VU	I	R

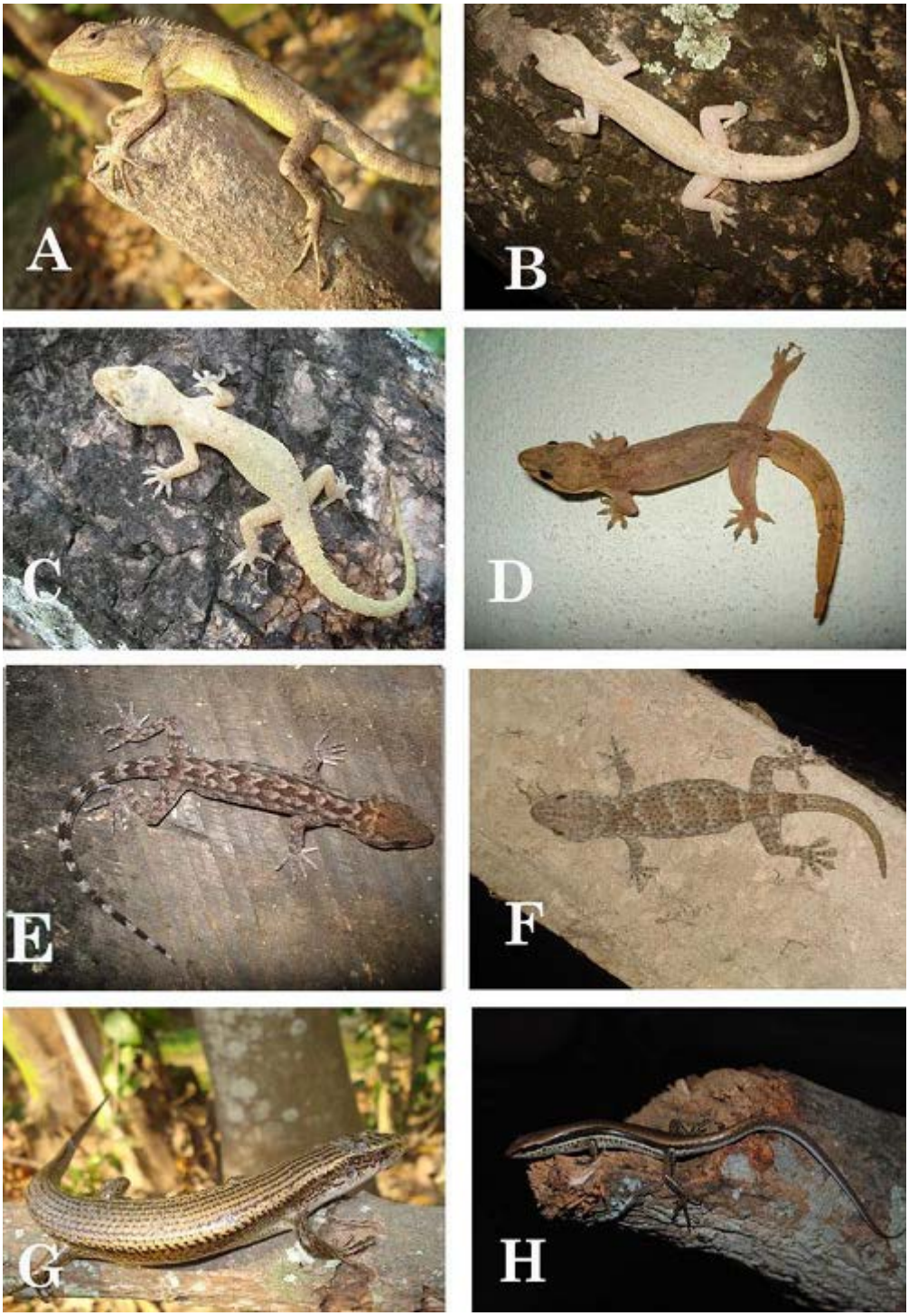
Species Name	CA	RA	FA	IUCN Status	IWPA	Local Status
Family: Typhlopidae						
Typhlops diardii Schlegel, 1839	-	+	+	DD	IV	M
Ramphotyphlops braminus (Daudin, 1803)	-	+	+	LR-nt	IV	M
Family: Boidae						
Python molurus bivittatus (Kuhl, 1820)	+	+	+	LR-nt	I	C
Family: Colubridae						
Boiga ochyabi (Schneider, 1799)	-	+	+	LR-nt	IV	C
Lycodon aulicus (Linnaeus, 1758)	+	+	+	LR-lc	IV	C
Ptyas mucosa (Linnaeus, 1758)	+	+	+	LR-nt	II	C
Ptyas korros (Schlegel, 1837)	-	-	+		IV	R
Rhabdophis subminiatus Schlegel, 1837	+	+	+	VU	IV	C
Dendrelaphis picta (Gmelin, 1789)	-	-	+		IV	M
Oligodon albocinctus (Cantor, 1839)	-	+	+	DD	IV	R
Amphiesma stolatum (Linnaeus, 1758)	-	+	+	LR-nt	IV	C
Boiga gokool (Gray, 1835)	-	-	+	NE	IV	R
Xenochrophis piscator (Schneider, 1799)	+	+	+	LR-lc	II	C
Xenochrophis cerasogaster (Cantor, 1839)	-	-	+	LR-nt	IV	R
Xenochrophis schnurrenbergeri (Zimmer, 1977)	-	-	+		IV	R
Psammodynastes pulverulentus Boie, 1827	-	+	+	VU	IV	M
Coelognathus radiatus (Schlegel, 1837)	+	+	+	LR-nt	IV	C
Ptyas mucosa (Cantor, 1839)	-	+	-	VU	IV	R
Ahaetulla nasuta (Lacépède, 1789)	-	+	+	LR-nt	IV	M
Chrysopelea ornata (Shaw, 1802)	-	+	+	LR-nt	IV	M
Family: Elapidae						
Bungarus fasciatus (Schneider, 1801)	+	+	+	LR-nt	IV	R
Naja kaouthia Lesson, 1831	+	+	+	NE	II	C
Family: Viperidae						
Cryptelytrops albolabris (Gray, 1842)	-	-	+	LR-lc	IV	M
Family: Trionychidae						
Nilssonia nigricans (Anderson, 1875)	-	+	-	EW	IV	R
Nilssonia hurum (Gray, 1831)	-	+	-	VU	I	R
Aspideretes gangeticus (Cuvier, 1825)	-	+	-	VU	IV	R
Family: Geoemydidae						
Pangshura sylhetensis (Jerdon, 1870)	-	+	-	EN	IV	R
Morenia petersi (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-lc: 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.

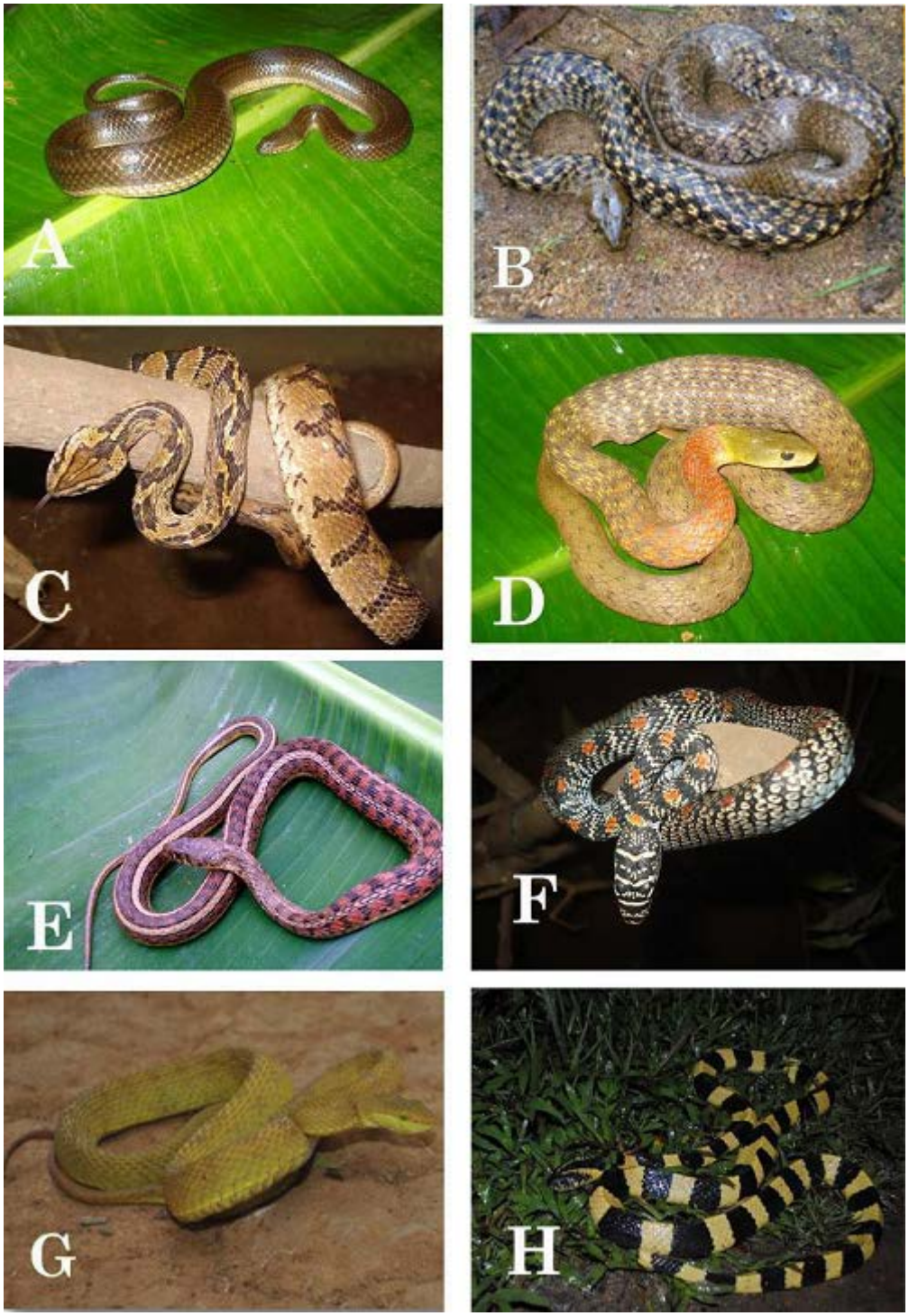
- On comparison we found that Guwahati has higher species diversity of herpetofauna with 63 species (Amchang WLS: 52 species and Garbhanga RF: 46 species).
- The approximate abundance of *Duttaphrynus melanostictus* is much higher in Guwahati.
- *Leptobrachium smithi Philautus garo, Clinotarsus alticola, 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 tytleri*; 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 gecko*; G. *Eutropis multifasciata*; H. *Sphenomorphus maculatus*.



Some Serpents found during the study: A. *Enhydris*; B. *Xenochrophis piscator*; C.Boiga gokool; D. *Rhabdophis subminiatus*; E. *Amphi- esma 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 syl- hetensis*; 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. Haigrib 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. Dharesh- wari Devalaya, Silguri, 11. Mandir Devalaya, Golaghat, 12. Srimanta Shankardev Namghar, Golaghat, 13. Hatigarh Dewal, Jorhat, 14. Bor Pukhuri, Siva- sagar

Table 1: Turtle diversity in each studied ponds :

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

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	Unobjevtionable	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: 14692 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

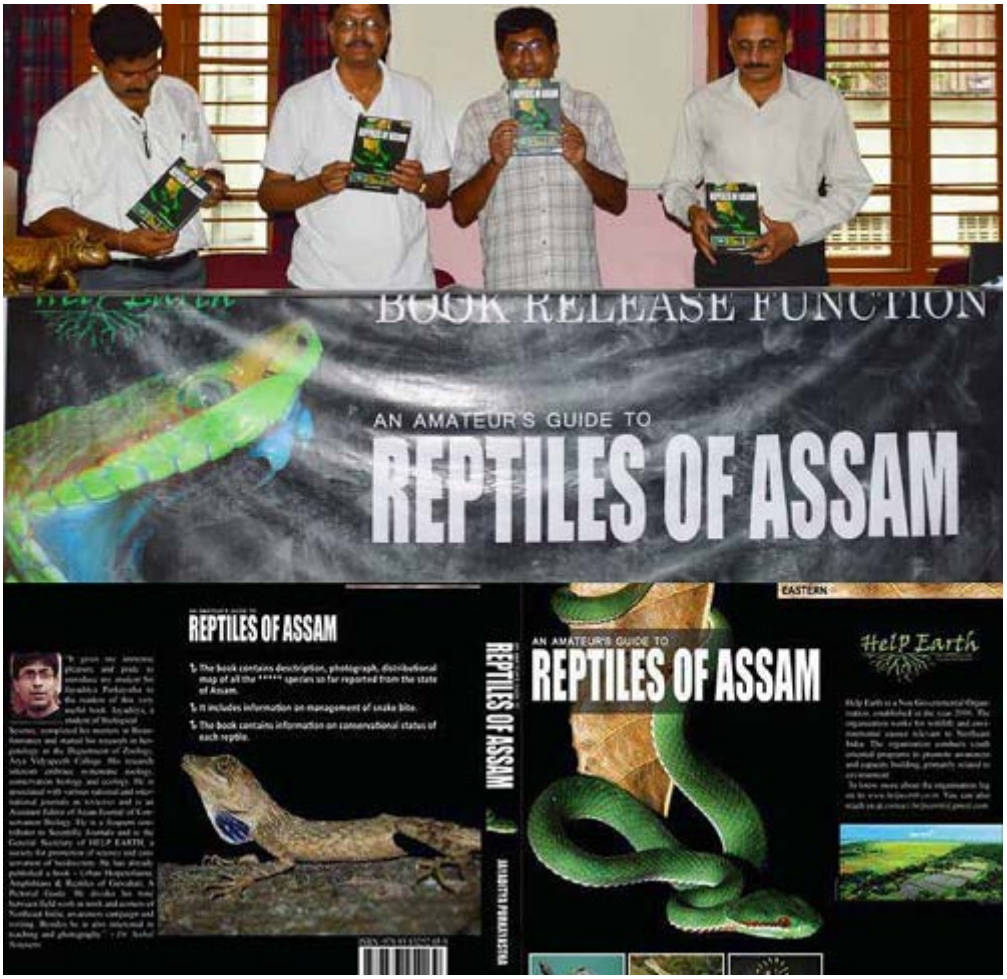
Fisherman and Turtle seminar on World Environment

Outreach programme

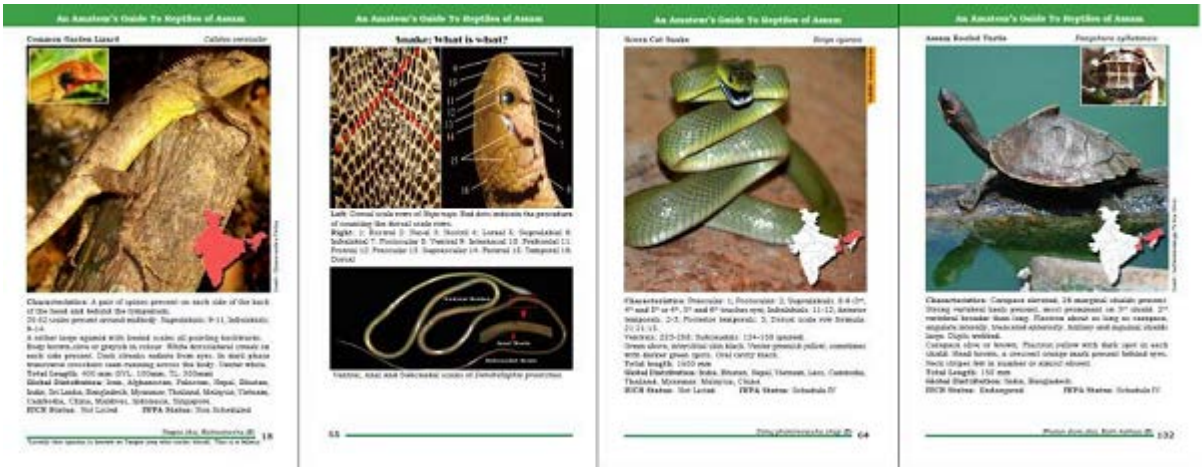
Breeding tank

Hoarding installed

Book Release



Pages from the book



Newspaper clipping

Rich diversity of city's herpetofauna under threat

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

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

Threats in the study area

When this project began, there were two quarries operated inside the Garbhanga RF. During the study period, two new quarry were built. The new one is 2km inside the forest and is a cause of concern. Blasting activity, forest depletion, rock cutting, erosion, landslide and increased human activity has altered the forest and species within beyond the expectations of even regular visitor like us

Deforestation, making of coal, putting fire to forest for jhum cultivation

Inside the study area

A waterfall inside Amchang Wildlife sanctuary