

ZOO'S PRINT

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Cover photo (Indian Cobra) design by Latha G Ravikumar and G. Arul Jegadish, Zoo Outreach Organization

Indian Freshwater Turtles

Conservation / Threat Status of Turtles

Part 2

Many turtles, terrapins and tortoises are threatened with extinction, that is, dying out completely.

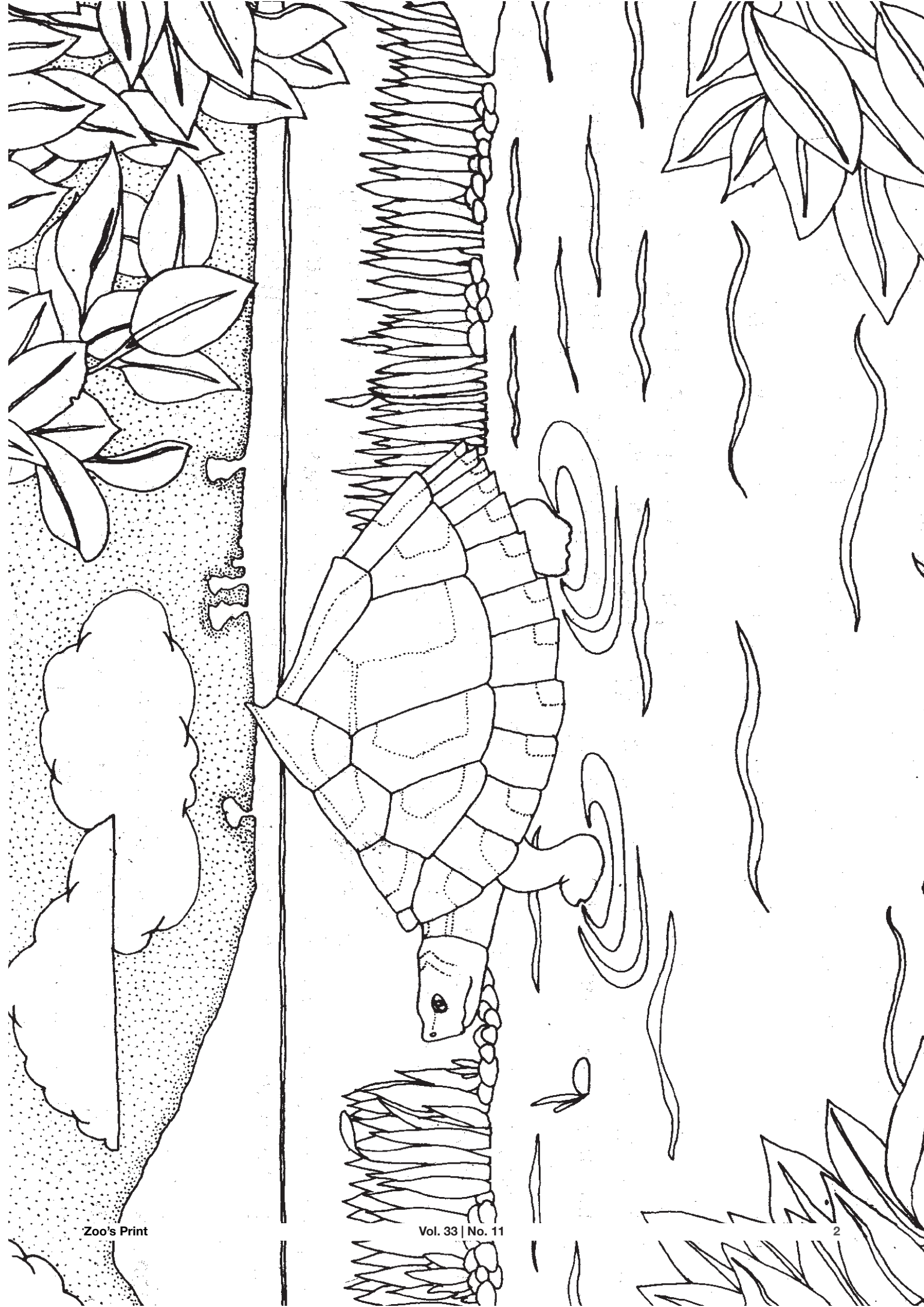
The Asian Turtle Crisis - facts

- Z Turtles have never had it so bad !
- Z Turtles as a group are called “chelonians” by scientists (Chee - low - nee - ans)
- Z Turtles have lived on earth longer than dinosaurs
- Z Turtles of many species all over the world have been in trouble for years- habitat destruction, pollution, human disturbance ... but
- Z Turtles today are most threatened due to the Chinese demand for turtles for food
- Z South-East Asian and southern China turtles are most affected
- Z South Asian turtles are also in trade, even now, mainly for pets but also for shell and for food

What you can do

- Z Do not eat turtles. Most of them are becoming rare in the wild because we are catching too many of them
- Z Tell others not to eat turtles. Grown-ups may not know that it is not right to eat them. Eating of turtle meat is also not allowed by our government in India.
- Z When on a holiday, do not buy articles that are made from turtles, such as masks, drinks and medicines. Each item probably represents atleast one dead turtle.
- Z Read as much as you can about them and see them in zoos, aquariums, and -best of all- in the wild.

Information and Illustrations by Dr. Indraneil Das, Chair (former), IUCN SSC South Asian Reptile Specialist Group. Designed and compiled by Sally Walker with help from Sanjay Molur, Latha Ravikumar & B.A. Daniel Zoo Outreach Organization.



Assam Roofed Turtle

Pangshura sylhetensis (Jerdon, 1870)

Endangered
globally

Assam Roofed Turtle is found in hill streams and low-lying marshes in north-eastern India and also in Bangladesh. Little is known about its habits.

This turtle is i) a prominent spike-like projection on the upper shell ii) a saw-like edged back of the shell iii) very rarely seen, smallish turtle with 20cm average shell length, with males much smaller than females.

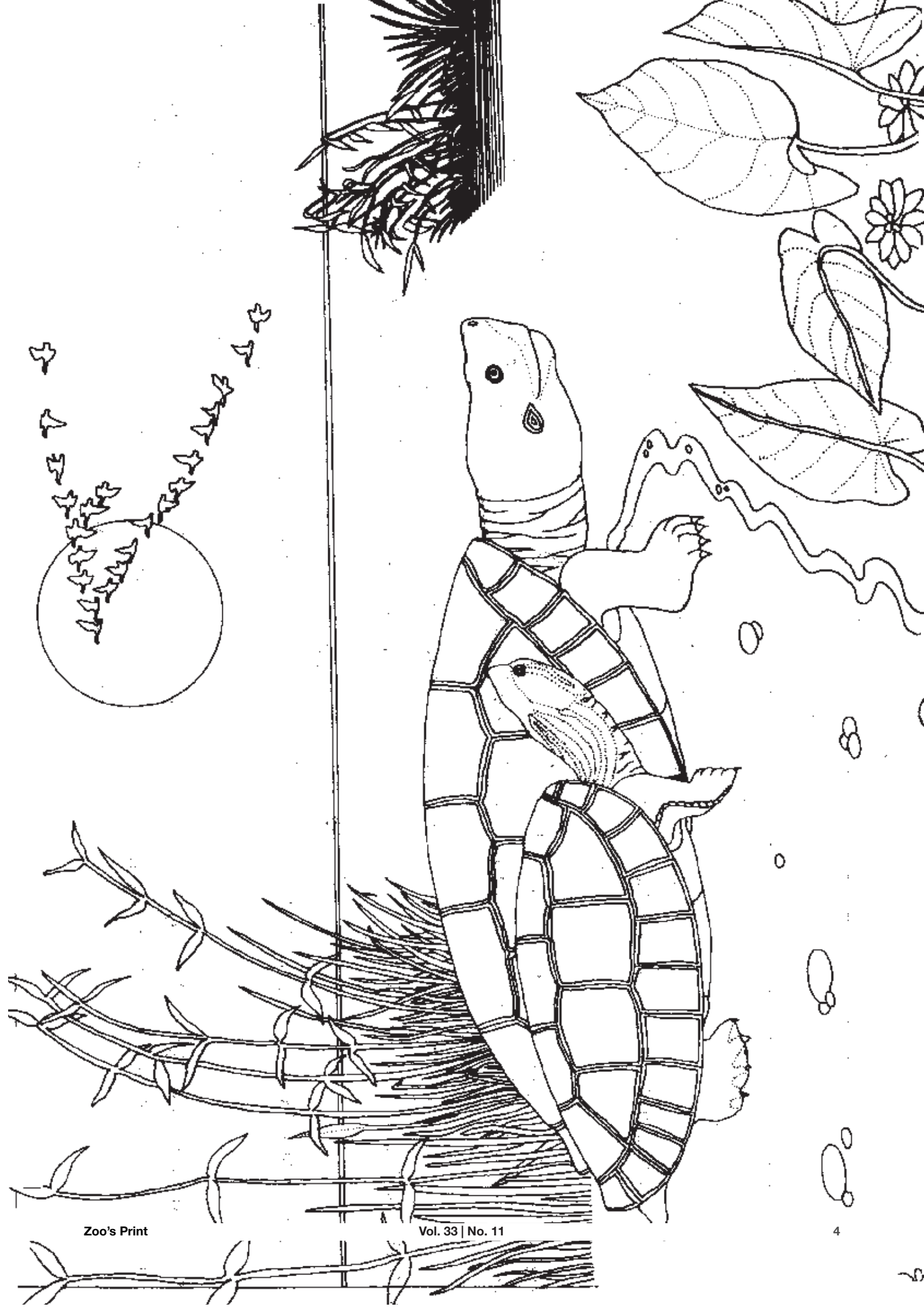
It is very shy in captivity, hiding during the day. In captivity, one little turtle was known to eat fishes, but refused vegetables.

DANGER: When we cut trees in the hills, streams that come from these hills dry up and this spells DANGER to the Assam Roofed Turtles as well as many other plants and animals that live in the hills of north-eastern India.

Colouring Instruction: The shell of the Assam Roofed Turtle is greenish-brown, the spike on top light brown. The lines running along it could be coloured either red or yellow.

Local names:

Bengali: *Kath kathua/Sylhet kori kathua*



Red-crowned Roofed Turtle

Batagur kachuga (Gray, 1831)

Critically
Endangered
globally

Red-crowned Roofed Turtle is native to Bangladesh, India and Nepal. It spends most of its time in water but basks on banks, on logs and rocks, during the months of March and April.

This turtle is i) most brightly coloured of all ii) adult males have a red forehead, blue cheeks, red lines on the neck & yellow areas on the face iii) females have a dull brown head iv) it grows up to 56cm in shell length but males are smaller than females.

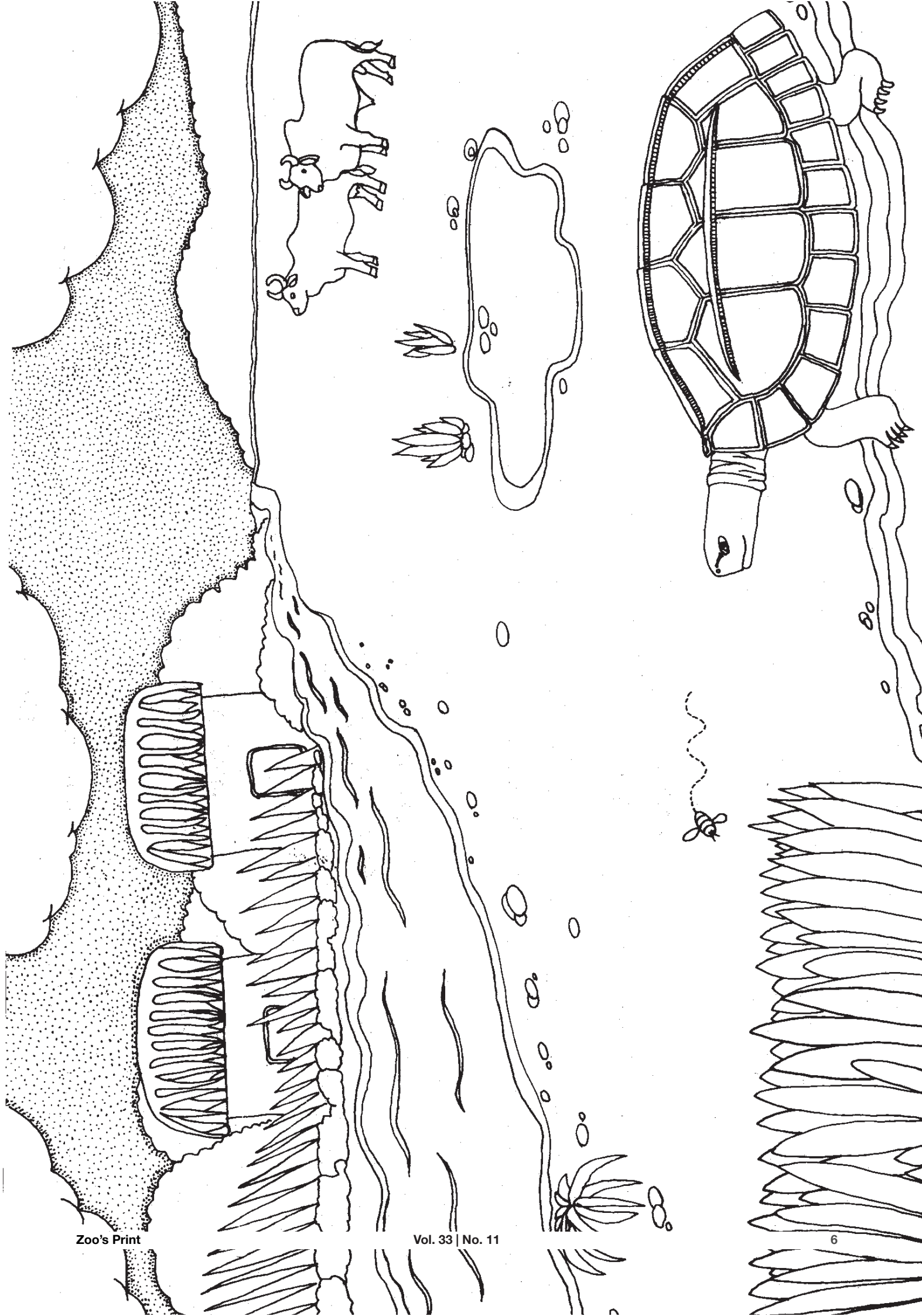
The Red-crowned Roofed Turtle feeds on plants, but that is about all that is known of what it eats in the wild. In captivity, it takes both vegetables and fruits. It lays 8-31 eggs at a time, during March and April, on the bank of rivers.

DANGER: It is in danger because humans catch it for food and construct dams, which stops it from moving from feeding to resting areas.

Colouring Instruction: The big female has a brown head, although its jaws are yellow. The small male has a red forehead and neck stripes with blue behind the eyes and the rest of head and neck is yellow. Shells are brown or grey.

Local names:

Bengali: *Adi kori katha*; **Hindi:** *Lal tilakwala/Sal*



Rock Terrapin

Melanochelys trijuga (Schweigger, 1812)

Near
Threatened
globally

Rock Terrapin is found throughout India, and even outside in Bangladesh, Maldives, Myanmar, Nepal and Sri Lanka. It is completely absent from the extreme north, north-west and central regions, which are either too hot or too cool for these terrapin.

This terrapin has i) red or orange spots on the head, a yellow net-like pattern, a dark spear-shaped mark or a dark diamond-shaped mark ii) medium-sized, its shell about 39cm long iii) terrapin has a smell, which it releases from special glands near its legs if you disturb it iv) may lay 3-7 eggs at a time, a long distance from water.

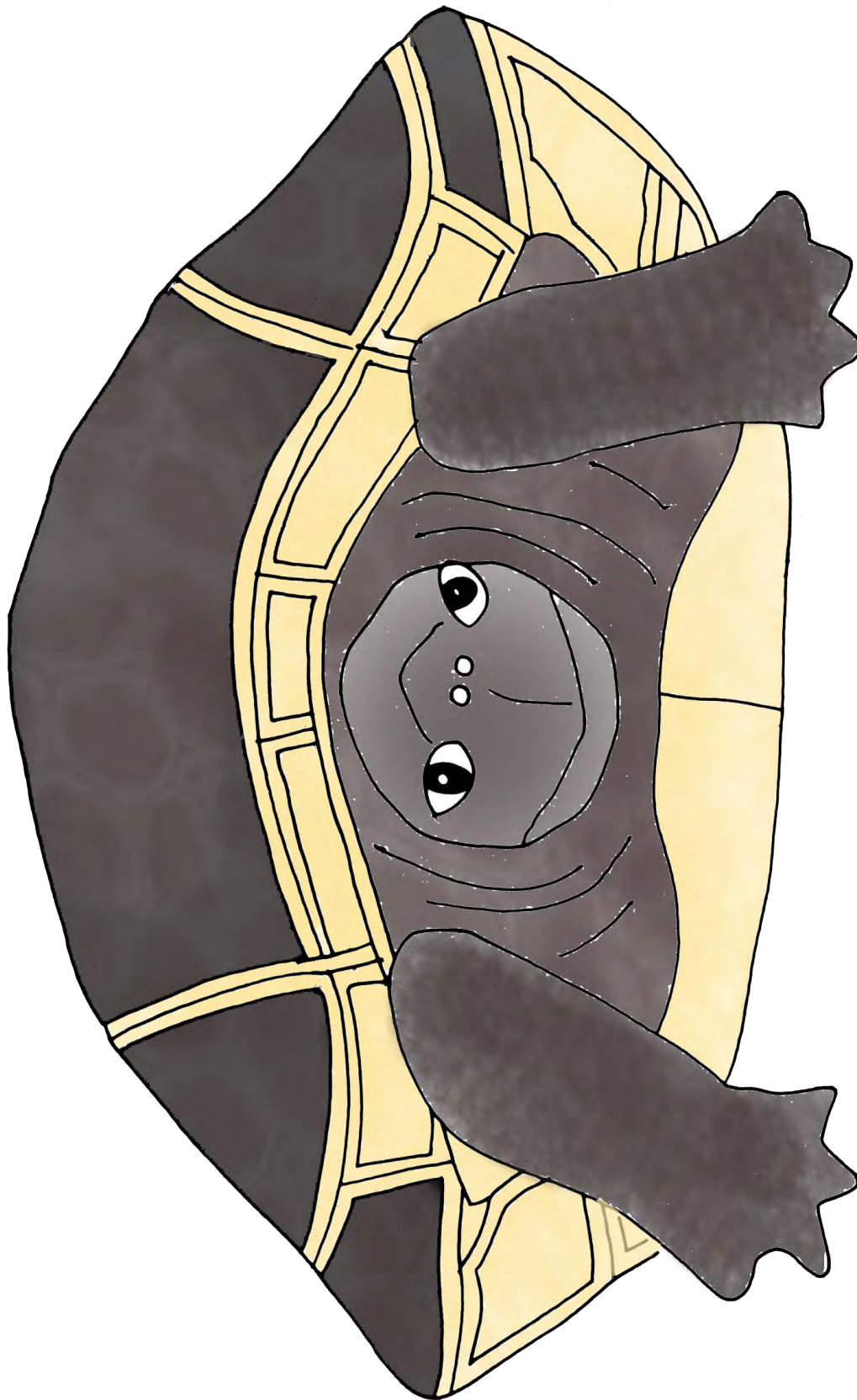
The Rock Terrapin spends most of the day sleeping or otherwise inactive, waking up after the sun goes down, to go looking for food which includes grass, fruits, snails, prawns and the larvae of insects. This terrapin has many enemies such as monitor lizards.

DANGER: This terrapin is caught for food and rendered homeless because human beings fill up the small ponds which is its home.

Local names:

Gujarati: *Kala rang no kachabo*; Hindi: *Talao kachua*;
Kannada: *Murkate aame*; Khasia: *Dikar*; Marathi:
Kasav; Tamil: *Kal/Tanni amai*; Telugu: *Nuiye tabelu*

Print this mask on a card and cut it



Batagur baska
(Northern River Terrapin)

Collect these masks for exciting games

KING COBRA

Sighting of a *Ophiophagus hannah* (Cantor, 1836) in Assam University, Silchar Campus, Cachar, India



The King Cobra (*Ophiophagus hannah*) displayed its hood beside a road in AUS campus and next it moved to the forest area. Photo: Priyanka Pachani

IUCN Red List:
Vulnerable
(Stuart et al.
2012)

Reptilia
[Class of Reptiles]

Squamata
[Order of Scaled reptiles]

Elapidae
[Family of Venomous
Snakes]

Ophiophagus hannah
[King Cobra]

Species described by
Cantor in 1836

The Assam University, Silchar (AUS) is spread over an area of about 572 acres (Reang et al. 2018), located around 20km away to the south of Silchar in Cachar District of Assam (24°41'N & 92°45'E). The vegetation around the university campus represents a secondary growth succession status. Whereas majority of the area is occupied by degraded forest land (Reang et al. 2018). Apart from the constructed buildings within the campus, the ecoforest (an undisturbed forest patch) of the campus extends towards the eastern periphery of Silcoorie Tea Estate. The forest type is represented by Cachar Tropical Evergreen Forest (1B/C3) and Cachar Tropical Semi-evergreen Forest (2B/C2) (Champion & Seth 1968). The vegetation of the ecoforest site is dominated by *Artocarpus chama* and *Tetrameles nudiflora* as the top layer, the middle layer is represented by *Ficus* spp., *Artocarpus lacucha*, etc., and the lower layer represented by *Schizostachyum dulooa* and saplings of *Mimosa himalayana*, *Goniothalamus*,

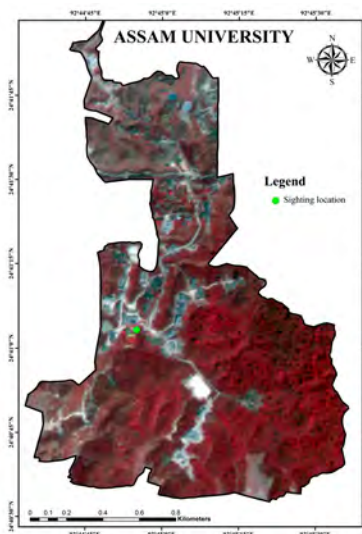
Cyclostemon, etc. The degraded forest land is dominated by *Combretum* sp., *Melastoma* sp., *Eupatorium odoratum*, *Macaranga* sp. etc. (Dutta et al. 2008).

On 20 April 2018, at around 14:30hr, a large snake of almost three meter length was reported near the Department of Visual & Arts in Assam University, Silchar campus (24°41.069N & 92°44.919E). The snake was identified as King Cobra *Ophiophagus hannah* by observing the hood display, presence of narrow white 'N' bands on the hood and a distinct broad head, apart from its other morphological features (Ahmed et al. 2009). Dorsally the snake was dark brown with a black tail whereas the head was slightly pale in colour. It was seen displaying its hood two times for a few seconds and searching for a place to avoid people and vehicles on the road. The snake was observed for three minutes; it was trying to enter through holes of a brick wall; at last it climbed 2m up to the undergrowth of *Combretum* sp.

Global Distribution :
Bangladesh, Bhutan, Nepal, Myanmar, China, Cambodia, Brunei Darussalam, Hong Kong, India, Indonesia, Laos, Malaysia, Myanmar, Nepal, Philippines, Singapore, Thailand, Viet Nam. (Stuart et al. 2012)

Current IUCN status of the snake is Vulnerable and population trend has been decreasing (Stuart et al. 2012). The species has been regarded as widespread in south and southeast Asia, although not common in its large distributional range (David & Vogel

1996). In northeastern India, it was reported from wide variety of habitats such as primary wet evergreen and semi-evergreen forest, tall alluvial grasslands, mid elevation broad-leaved forest and also around human habitation (Das et al. 2008).



Sighting location of King Cobra *Ophiophagus hannah* in Assam University, Silchar Campus (Map was produced by ArcGIS 10.4 with LISS IV data)

Twenty-four species of snakes are recorded from the AUS (Dutta et al. 2008). In Barak Valley, King Cobra has been reported from Barail Wildlife Sanctuary (Das et al. 2009). In the Brahmaputra Valley of Assam, the species has been

reported from Dibrugarh, Tezpur, Margherita and North Cachar Hill District (Wall 1909), Garbhanga Reserved Forest and the Kulsi River side of Kamrup District (Mathew 1983; Sengupta et al. 2000), Bansbari, Kasimdaha and the Kuribeel grassland of Manas National Park (Narayan & Rosalind 1989), fringe areas of Kaziranga National Park in Golaghat district, Nambor Wildlife Sanctuary, Guijan Village near Dibru Saikhowa National Park, Kakojan Reserved Forest and Potasali camp of Nameri Tiger Reserve (Das et al. 2008).



In India, it is protected under Scheduled-II of the Wildlife (Protection), Act 1972. The present report represents the first photographic evidence of King Cobra within the university campus. The existing protected ecoforest of AUS may provide a safe habitat for this species. Awareness among local people might go a long way in saving this majestic reptile in our ecosystem.

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DECCAN GROUND GECKO

An unusual body pattern of *Cyrtodactylus deccanensis* (Günther, 1864) from Sahyadri Tiger Reserve, northern Western Ghats, India



Cyrtodactylus deccanensis

IUCN Red List:
Least Concern
(Srinivasulu &
Srinivasulu, 2018)

Reptilia
[Class of Reptiles]

Squamata
[Order of Scaled reptiles]

Gekkonidae
[Family of Geckos]

Cyrtodactylus deccanensis
[Deccan Ground Gecko]

Species described by
Günther in 1864

Geckos are among the most species-rich and geographically widespread of terrestrial vertebrate lineages, with ~1763 described species till date, and comprise 25% of all described lizard species (Uetz et al. 2018). Gekkonid species biological and natural history is poorly known (Mirza et al. 2011 and Agarwal 2016). India represented 11 species of geckoella, the genus *Geckoella* (now *Cyrdodactylus*) are true terrestrial geckos or call it as bend-toed geckos and which is endemic to India and Sri Lanka (Smith 1935; Agarwal & Karanth 2015; Agarwal 2016; Agarwal et al. 2016).

The present herpetofauna survey has been carried out in Sahyadri Tiger Reserve, (17°04'00"–17°19'54"N & 73°40'43"–73°53'09"E, northern Western Ghats (Imam et al. 2009), the field work was conducted on 11 June 2017 at 20:30hr. Following visual encounter method (Heyer et al. 1994), we searched for herpetofauna species on several



habitats, by looking all possible ground covers such as stone piles, tree logs, rock crevices, at night hours. During our survey we have come across an unusual body pattern (has 'X' mark on his trunk region) of adult *Cyrtodactylus deccanensis* (Species was identified by using standard manuals Gunther 1864; Daniel 2002 & Bauer & Giri 2004). This is rarely occurred in genus *Geckoella* and also there has been no documentation after (Vyas & Prjapati 2012). The *C. deccanensis* (SVL 77mm & TL 66mm) having series of dorsal white bands and was yellow in premature (single band on across neck, trunk 4–5 & tail 6–8 respectively); Dorso scales having flattened tubercles and dispersed uniformly; intermixed pholidosis; Absence of lamellae; Strong folded eyelids; bend toes and latroventral has series of yellow pholidosis especially in juvenile form. The dorsum of *C. deccanensis* is reddish-brown in life with four to five yellow bands on the back and six to eight bands on the tail, all of which have dark brown edges or sometime dark black edges. The juvenile always brighter than adult in terms of dorso profile. The portion of the dorsum between scapular band and anterior trunk band, just behind the forelimbs, is often lighter than the rest of the body and the lateral aspect of the same region may even be whitish. The nape band is also yellow (Tikader & Sharma 1992; Bauer & Giri 2004). Figure (red circle) shows owing all respective distinct characters, but the trunk region last two bands are interchanged ('X' mark) which is previously reported by Vyas & Prjapati 2012 on its nape region (juvenile *C. deccanensis*).

Global Distribution :
India (Maharashtra,
Karnataka, Gujarat
(Srinivasulu &
Srinivasulu, 2018)

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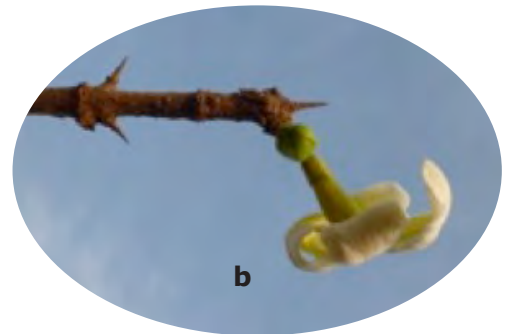
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Additions to the flowering plants of Goa



Ceriscoides turgida; a. Habit, b. Flower, c. Vertical section of flower, d. Transverse section of ovary

Goa harbours 1373 species of angiosperms (Anonymous, 2000). Several works documenting additions to the flora of Goa have been continuously appearing. Works such as Janarthanam (1994), Kulkarni & Janarthanam (1995), Joshi et al. (1997), Naithani et al. (1997), Patil & Yadav, (1998), Rajkumar et al. (1998), Rajkumar et al. (1999), Janarthanam et al. (2000), Joshi et al. (2001), Fonseca & Janarthanam (2003), Datar et al. (2005), Prabhugaonkar et al. (2007, 2009 & 2014), Gad & Janarthanam (2007a & 2007b), Datar & Lakshminarasimhan (2009, 2013), Kambale et al. (2015), Jalal et al. (2015) have particularly contributed. Regular field surveys to document flowering plants of Goa were conducted

from July 2015 to February 2016. During this period the authors have collected 15 species of flowering plants which were earlier reported from adjoining states of Goa (Nayar et al. 2014) but not reported from the state of Goa. Since Goa flora consists areas other than Goa viz; Diu, Daman, Dadra & Nagarhaveli in our study, the species which are mentioned by Rao (1986) in Goa flora but so far not reported from Goa state are considered to be new record for the state of Goa. Majority of them are of weedy nature and probably introduced recently. All the specimens have been deposited in Herbarium, Department of Botany, Goa University, Goa.

Alternanthera ficoidea (L) sm. Cycl. [A. Rees], (London ed.) 39(1): 8. 1818.

(Amaranthaceae)

Annual herb. Stem ridged, two hairy lines on stem. Leaves opposite, sub-sessile, ovate. Inflorescence is an axillary spike. Tepals five, white to pale yellow, hairy. Staminodes 5, toothed.

Habitat: It is very common plant which grows in waste places along roadsides and in open areas as weed.

Flowering & Fruiting: Sept. – June.

Specimen examined: Reg. no. 207, 26.x.2015, India, Goa, North Goa, Taleigao plateau, Goa University Campus, coll. Kolte & Kambale.

Gomphrena celosioides Mart. Nova Acta Phys.-Med. Acad. Caes. Leop.-Carol. Nat. Cur.13: 301. 1826. **(Amaranthaceae)**

Annual herb. Stem hairy, thick at nodal region. Leaves opposite, ovate, hairy. Inflorescence a terminal spike. Bracts two, bracteoles two, perianth shorter than bracts.

Habitat: The species grows in waste places along with *Alternanthera ficoidea*.

Flowering & Fruiting: Oct. – June.

Specimen examined: Reg. no. 208, 26.x.2015, India, Goa, North Goa, Taleigao plateau, Goa University Campus, coll. Kolte & Kambale.

Grangea maderaspatana (L.) Desf. Tabl. Ecole. Bot. 95. 1804. **(Asteraceae)**

Annual, prostrate, hairy herb. Leaves opposite, toothed. Heads solitary, globose; pappus with a short ring of hairs.

Habitat: Grows in wet places and harvested paddy fields.

Flowering & Fruiting: Oct. – June.

Specimen examined: Reg. no. 239, 14.xii.2015, India, Goa, North Goa, Santacruz, coll. Kolte & Kambale.

Mikania micrantha Kunth Nov. Gen. Sp. 4(15): 105. 1818. **(Asteraceae)**

Perennial climber, stem twisted. Leaves opposite, sagitate. Heads in corymbs, flowers white.

Habitat: The species grows on vegetation along the roadsides and rivers.

Flowering & Fruiting: Oct. – Nov.

Notes: It was observed along with other aquatic plants in Karmali Lake near Old Goa. This indicates that it has wide range of adaptability to various habitats. As it is spreading fast it may be a threat to natural vegetation.

Specimen examined: Reg. no. 209, 31.x.2015, India, Goa, North Goa, Keri (Satari), coll. Kolte & Kambale.

Ipomoea marginata (Desr.) Verdc. Kew Bull. 42(3): 658. 1987. **(Convolvulaceae)**

Annual twiner. Leaves alternate, hastate. Inflorescence axillary cyme, peduncle 1.5-2cm long. Flowers pink, tube 2-2.5cm long.

Habitat: It was found growing in waste places as weed.

Flowering & Fruiting: Oct. – Nov.

Specimens examined: Reg. no. 206, 25.x.2015, India, Goa, North Goa, Taleigao plateau, Goa University Campus, coll. Kolte & Kambale.

Merremia hederacea (Burm.f.) Hallier f. Bot. Jahrb. Syst. 18(1-2): 118. 1893.**(Convolvulaceae)**

A hairy twiner. Leaves simple, trilobed. Inflorescence axillary, cyme. Flowers yellow, stamens exerted, hairy below.

Habitat: It was found growing as climber on the shrubs along margin of lake.

Flowering & Fruiting: Nov. – Dec.

Specimen examined: Reg. no. 241, 17.xii.2015, India, Goa, North Goa, Karmali, coll. Kolte & Kambale.

Operculina turpethum (L.) Silva Manso. Enum. Subst. Braz. 16, 49. 1836.**(Convolvulaceae)**

Perennial twining pubescent herb. Stem narrowly winged. Leaves ovate – lanceolate, cordate at base. Flowers axillary cyme one to few. Bracts elliptic-oblong. Sepals ovate. Corolla creamish white. Stamens spiral, hairy at base. Ovary hairy, stigma globose. Seeds four.

Habitat: It was found growing along the sea shore in sandy soil.

Flowering & Fruiting: Jan. – Feb.

Specimens examined: Reg. no. 296, 26.i.2016, India, Goa, North Goa, Siridao Beach, coll. Kolte & Kambale.

Centrosema pubescens Benth. Ann. Wiener Mus. Naturgesch. ii. 119. 1838. (**Fabaceae**)

Annual climber. Leaves alternate, trifoliolate, ovate, stipule and stipulate.

Inflorescence axillary, flowers 5-6 in axil. Pod 10 - 12 cm long, flattened.

Habitat: It was found growing in waste places along roadsides.

Flowering & Fruiting: Oct – Nov

Specimen examined: Reg. no. 211, 31.x.2015, India, Goa, North Goa, Korlim, coll. Kolte & Kambale.

Clitoria annua J.Graham Cat. Pl. Bombay 47. 1839. (**Fabaceae**)

Clitoria biflora Dalzell in Hooker's J. Bot. Kew Gard. Misc. 2: 35. 1850.

Perennial woody erect undershrub up to 1 m height. Stem hairy. Leaves alternate 5- foliolate. Petiole 0.6– 0.7cm long; Leaflet elliptic-ovate, hairy. Inflorescence a 2-flowered cyme. Corolla blue. Pod flat, hairy; seeds 5–6, reniform.

Habitat: It was found growing along the roadside.

Flowering & Fruiting: Sept. – Oct.

Notes: Rare. Probably recently naturalised in Goa.

Specimen examined: Reg. no. 204, 16.x.2015, India, Goa, North Goa, Taleigao plateau, Goa University Campus, coll. Kolte & Kambale.

Rotala rosea (Poir.) C.D.K. Cook Boissiera 29: 86 (1979). (**Lythraceae**)

Annual, glabrous herb. Leaves opposite decussate, elliptic 1 – 1.2 x 0.3 – 0.5 cm. Flowers axillary, solitary. Petals five, pink. Stamens inserted in hypanthium tube.

Habitat: It grows in shallow water and along the margins of ponds.

Flowering & Fruiting: Oct. – Dec.

Specimen examined: Reg. no. 217, 10.xii.2015, India, Goa, North Goa, Mopa plateau, coll. Kolte & Kambale.

Urena sinuata L. Sp. Pl. 2: 692 (1753). (**Malvaceae**)

Annual pubescent herb. Leaves alternate, stipulate and deeply lobed. Flowers axillary solitary, petals pinkish. Schizocarps globular, glochidiate; glochidion 4 hooked. Seeds reniform.

Habitat: It was growing in open places.

Flowering & Fruiting: Dec. – Jan.

Notes: This species is often confused with *Urena lobata* however it can be distinguished easily by leaf morphology.

Specimen examined: Reg. no. 237, 14.xii.2015, India, Goa, North Goa, Santacruz, coll. Kolte & Kambale.

Mimosa diplotricha C.Wright var. *inermis* (Adelb.) Veldkamp Fl. Males. Bull. 9(4): 416.

1987. **(Mimosaceae)**

Unarmed undershrub. Stem slightly ridged and hairy. Leaflets 16 – 18. Inflorescence axillary. Heads globose; flowers pink. Pods 2.5 – 3 cm long, curved.

Habitat: This was found growing in open area.

Flowering & Fruiting: Dec. – Jan.

Notes: This species seems to be recently introduced and hence rare in occurrence. This variety can be easily distinguished from typical variety (*M. Dilpotricha* var. *diplotricha*) in absence of prickles.

Specimen examined: Reg. no. 242, 17.xii.2015, India, Goa, North Goa, Goa-Velha, coll. Kolte & Kambale.

Pennisetum polystachion (L.) Schult., Systema Vegetabilium Mantissa 2. 79. 1824.

(Poaceae)

Annual. Culms tufted, 50 -160 cm tall, erect, nodes glabrous. Leaf sheath hairy. Leaf blade linear ovate. Panicles winged, glabrous. Spikelet sessile, elliptic - ovate.

Habitat: It was found growing in open area on plateau.

Flowering & Fruiting: Oct. – Dec.

Specimen examined: Reg. no. 218, 10.xii.2015, India, Goa, North Goa, Taleigao plateau, Goa University Campus, coll. Kolte & Kambale.

Ceriscoides turgida (Roxb.) Tirveng., Bull. Mus. Natl. Hist. Nat., Sér. 3, Bot. 521, Bot. 35:

15. 1978. **(Rubiaceae)**

Perennial woody tree about 3 – 4 m in height; bark smooth grey, peels off. Spines c.1 cm long. Leaves petiolate, 7– 7.5 x 3.5 – 3.7 cm, glabrous, obtuse at apex, tapering towards base. Flowers terminal. Male flower: corolla tube 1 – 1.2 cm long; corolla lobe 1 – 1.5 cm long. Stamens 5; filament c. 5 mm long; anthers c. 7 mm long. Female flowers: calyx teeth longer than the calyx teeth of male flowers; stigma 5 mm long. Ovary with

single locule, ovules many on parietal placentaion. Fruit berries, globose 5 x 5 cm.

Habitat: Grows on open lateritic plateau in association with *Careya arborea* Roxb and *Flacourtia indica* (Burm.f.) Merr.

Note: *Creumatogaster* ants were observed on this plant.

Flowering & Fruiting: Jan. – Feb.

Specimen examined: Reg. no. 322, 17.ii.2016, India, Goa, South Goa, Zuarinagar, Vasco, (Plateau), coll. Kolte & Kambale.

Solanum torvum Sw. Prodr. 47.1788. (**Solanaceae**)

Perennial shrub. Stem hairy, prickly. Leaves alternate, 3-5 lobed, hairy. Inflorescence a corymb; corolla white; anthers yellow, porate. Fruit berry.

Habitat: It found to be growing in open areas.

Flowering & Fruiting: Oct. – Nov.

Specimen examined: Reg. no. 205, 22.x.2015, India, Goa, North Goa, Bondla, coll. Kolte & Kambale.

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Wildlife Week Celebrations 2018 celebrated at Tata Steel Zoological Park

Tata Steel Zoological Park has been celebrating Wildlife Week since 1994 and it is one of the longest running educational programmes of the Zoo. The weeklong programme was celebrated on the theme “Beat Plastic Pollution”, from 2-6 October 2018.

It witnessed a number of events including Best Eco Club Award, Inter School Essay Competition, Inter School Debate Competition, Fancy Dress Competition and On the Spot Painting Competition. About 1400 students from 30 institutions participated.



Inauguration by V.N.Shah, IFS, Regional Chief Conservator of Forests, Singhbhum

On 2 October, the chief guest V.N. Shah, I.F.S. – Regional Chief Conservator of Forests, Singhbhum inaugurated the celebrations in the presence of guest of honour Radhika Singh, Secretary, Tata Steel Zoological Society. The Chief Guest presented the Best Eco Club Teacher Award



Winner of Best Eco Club Teacher Award

2017-18 to the winner Sangita Sarkar from NML K.P.S, Jamshedpur, runners-up award to Rajalakshmi Sahu from Belpahar English High School, Jharsugoda and the special recommendation award to Maushami Giri, Motilal Nehru Public School, Jamshedpur.

Day one, the results for the Inter-School Essay Competition in Hindi and English were declared and the winners awarded. The topics of the essays in Hindi and in English were “Plastics are harmful to life- system”. A total of 119 students participated for both English as well as Hindi from 17 different schools. And the winners were: Khusboo Sawaiyan from Gyandeeep School and Anshara Jahan from Motilal Nehru Public School for the Hindi and English categories respectively.

On the second day, debate Competition in Hindi and in English was organized on the topic “Should plastic producing industries be banned?”. Anuradha Kumari from KPS, Kadma emerged as winner in the Hindi



Debate Competition on banning plastic industries

category and Sweta Kumari from R.V.S Academy was the winner in the English category. Inner Wheel Club of Jamshedpur, ZEST, sponsored the event and Hon. Judges Alokanda Bakshi, Kamini Kabir and Bipul Chakrabarty- Director, Tata Steel Zoological Park presented the prizes.

On the third day, a fancy dress competition for children was organized. Sneha Kumar from Motilal Nehru Public School was declared the winner in the Junior Category (Nursery & Lower KG) and Snahasis Mondal from K.P.S kadma was the winner in the Senior Category (Upper KG & Std 1). Lions Club of Jamshedpur Steel City sponsored the event. Reepa Dutta, Sunita Singh, Meena Bhagat and Anisha Sinha judged the programme.

On the final day, on-the-spot painting competition was organized in association with Jamshedpur School of Art. A total of 917 students from 30 schools participated. It was organized for four categories- Primary Category (Nursery – Std 1), Junior Category (Std II-V), Middle Category (Std. VI-VIII) and Senior Category (Std. IX-X). The

winners were Bhumi Sharma of Vally View School (Primary Category), Prachi of Tagore Academy (Junior Category), Prem Kumar Das of KPS, Gamharia (Middle Category) and Vikash Prasad of Siksha Niketan (Senior Category). Krishna Sharan Mahato and Jashpal Singh judged the paintings. This was followed by the closing ceremony during which Chief Guest presented awards to the winners.

Dr. Seema Rani, Biologist Cum Education Officer alongwith her education team member Pratap Singh Gill and Zoo volunteers Amlan Das, Bharti, Rahul Tiwari and Vinay Kumar Pandey coordinated the events. Likewise, all zoo staff and officers provided their unconditional support for the success of the celebration.



Participants during Fancy Dress Parade

Submitted by Seema Rani, Biologist cum Education Officer. Email: cmarani00@rediffmail.com

Man-Animal Conflict workshop at University of Lucknow

Man-Animal Conflict refers to the interaction between wild animals and people and the resultant negative impact on people or their resources or wild animals or their habitat. The conflict takes many forms ranging from loss of life or injury to humans and animals both wild and domesticated, to competition for scarce resources to loss and degradation of habitat. The main reason of Man-Animal Conflict is occurring due to growing human population overlap with established wildlife territory creating reduction of resources or life to some people. This is mainly due to expanding human populations and the continued loss of natural habitats.

Keeping this in notice, Institute for Wildlife Sciences, ONGC Centre for Advanced Studies, University of Lucknow organised a one-day Workshop on “Man-Animal Conflict” on 24 October 2018. The chief guest Rupak De (Retd. Principle Chief Conservator Forests of Uttar Pradesh) inaugurated the workshop in the presence of R.K. Singh, Shailesh Prasad, A.K. Sharma, Madhu Tripathi and U.N. Dwivedi (Director, ONGC Center for Advanced Studies).

The chief guest gave inaugural lecture on Big Cat Conflict. He also discussed about the animals around Lucknow and elucidated his case study on tiger conflict about man eating tiger conflict mitigation measures of Man-Animal Conflict and role of media. He also deliberated status of Tiger in India.



Experts delivering the lectures on Man-Animal Conflict

Shri Shailesh Prasad spoke about Man-Animal Conflict: General introduction and overview of man and animal conflict. He explicated the topic by using Moradabad tiger example. He also shared his experiences on conflict and how to deal with the situation and also tranquilizations methods of wild animals.

After the lunch Praveen Rao Koli, IFS, talked about legal aspects and legislation about the Man-Animal Conflict. He also talked about Indian Wildlife Protection Act, 1972 which deals with prosecution and punishment of hunting of wild animals. He further shared the case study of leopard incident of Ashiana. Prabhat Singh continued his presentation with snakes, monitor lizard, big cats, monkey and wild boar conflicts with man.

Dr. Shailendra Singh, Director, TSA. India, talked about gharial and crocodile conflict. He also enlightened the topic by giving several examples. A brain storming session on local Man-Animal Conflict was moderated by him. Through the experts talks, participants acquired great knowledge on the subject.

An exhibition of posters made by students was also exhibited which represented the Man-Animal Conflict and management very well. The workshop was closed with a valedictory function in which Praveen Rao Koli and R.K. Singh Director, Lucknow Zoo distributed the certificates.



A Poster exhibition on Man-Animal Conflict display during the workshop

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Pollinators conservation awareness programme at Tirunelveli



Posters used to explain pollinator types

On 7 July 2018, a social awareness seminar was conducted at Lakshimpuram organized by YMCA Tirunelveli. About 41 students and teachers participated.

The Secretary, Daniel Jeyaseelan, welcomed the gathering and Paul Peter Manickam, President of YMCA gave the presidential address. Various technical sessions were conducted on various topics by Asir Charles Neil, PG Asst Govt HSS, Munneerpallam; Effective Communication by V. Manickam, Former HOD of Tamil Department, St. John's College; Role of Bank in Social Development – Edwin Kandasamy, Former Manager – SBI; Nature Conservation-communication science for conservation by Rani Kirubairaj, Retd. PG Botany Asst. (NGC – Coordinator).

Ms. Kirubairaj handled the session through activities on 'Pollinators'. She asked the students sit in a circle and she explained about the pollinators using education kit produced by Zoo Outreach Organization. She also interacted with the students and lead them through a discussion to make them understand the need for pollinators and its role. The teachers also participated in this discussion and explained the different kinds of flowers, types of pollination and pollinators. They also learned the terms Entomophily (insect) pollinators and other vertebrate pollinators such as Myrmecophily, Chiropterophily, Ornithophily, Zoophily and Malacophily.

She explained and listed out both invertebrates and vertebrates that help in pollination. She also spoke about the primary pollinators, the bees. She described the scope of bee



keeping for pollination in India. Total bee dependent crops in India are around 50 million hectares. One hundred and fifty million colonies of bees are needed to meet this that rate of 3 bee colonies per hectare of crops. At present only 1.2 million colonies exist. Because bees forage usually within the radius of about 12 km to harvest their nectar and pollen loads, and then return to their own lives (TNAU, 2018).

Self made masks and headbands in use

Pollinators decline is a worsening, worrying message to human beings.

The main threats are habitat loss, invasive plant species, broad-spectrum pesticide use, disease, climate change, and removal of native wild plants, shrubs and herbs that are the specific food & egg-laying place for specific butterflies. Pollinators need a healthy environment to sustain healthy ecosystem for us all.

At the end of the programme, the students understood the connection between plants and gardening, pollinators and food. So students pledged to grow more flowering plants & fruits yielding trees to keep bee lives along side. They shouted slogans related to pollination and took a pledge to conserve them. Then poem recital on pollinators and a pollinator game were played.



ZOO's Pollinator education kit in display

The days programmes concluded with talk by chief guest Mr. S. Esakkimuthaiah, HR Trainer, Tirunelveli and remarks made by Dr. Selvin Samuel, Former HOD of Botany St. John's College.

*Submitted by Rani Kirubairaj, Tirunelveli, Tamil Nadu.
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Exploring the Urban Woods - Summer Nature Camp



Plant Anatomy: Students are looking at stem specimens

The University of Trans-Disciplinary Health Sciences and Technology and The Centre for Environment Education, Bangalore has conducted a summer Nature Camp from 16 to 22 May 2018 for 8-10th standard students. This camp provided quality science education in an outdoor, hands-on setting. It emphasized on experiential learning. Campers spend most of their time outdoor, observing nature.

The following sessions were conducted during the camp. Some highlights of the programmes are given below:

- Life skills: This session enabled students to adapt and has positive behaviour to deal challenges of everyday life.
- Life around us: Through this interactive session students were introduced to experiential learning to their surrounding living-world.
- Introduction to Plants: Students appreciated the different parts of the plant morphology and habitat.
- Plant Anatomy and Herbarium: In this session students took sections and observed live tissues of xylem, phloem, stomata and arrangement vascular bundle. Herbarium techniques were introduced to the students.
- Visit to Ethno-Medicinal garden: Spent time in ethno medicinal garden. The students were taught how to identify some common medicinal plants. A demonstration on how to prepare vermicomposting pit was demonstrated.
- Primary Health Care: Students observed preparation of two simple home remedies for cuts, wounds, common cough and cold with the help of Aloe vera gel and golden milk.

- Short play on curing illness: Students enacted on assigned topics like cold, cough, hair fall, acidity and suggested herbal remedies with the help of medicinal plants which they had learnt in primary health care session.



The importance of medicinal plants and preparation of medicines was introduced

- Flip the circle: An activity: ‘Flip the Circle’ give them an understanding that any situation will have a solvable solution if we think out of the box.
- Who am I?: This Activity enhanced the questioning skills and focused on detailed observations of various components of nature.
- World of insects: This even focused on identification, key features and documenting procedures of insects. Students

were also thought various insights of technologies that we have copied from butterflies and adapted in our lives.

- The Big Miracle: Short movie on community that are dependent on whales for their survival.
- Nature walk: Students observed the diversity of insects, birds, frogs and reptiles.
- Introduction on Birds: Introduction to key characters of the birds and their names.
- Night walk- Students explored the biodiversity at night and to observe bugs, beetles, reptiles.
- ‘Colours of Nature’: This session was conducted to educate students to see that there are many things right in front of them which they fail to observe and assured to be keen in observing their surroundings.
- Fish in the Pond- This activity portrayed how is management of resources happens.



Learning about insects during the nature trail

Conclusion

Seven-day programme concluded by positive feedback from the students and a certificate of participation was given to all the participants. Students not only experienced the dynamics of forests, biological diversity but were explained the importance and services that these wooded areas provide. Further, students could explore the world of plants especially medicinal plants through micro lenses and nursery practices. Students were able to identify minimum 20 medicinal plants with their uses, they were able to identify at least 15 to 20 birds, reptiles, insects.

Acknowledgement

On this note we would like to thank the entire team to FRLHT-TDU, CEE south and all the resource persons who shared knowledge to the students. We also thank Helpline Charitable Trust Bangalore, for facilitating students to this programme and also iSambhav, through its CSR initiatives which came forward to reimburse a part of expenditure incurred towards the summer camp.

*Submitted by M. Abdul Kareem, G. Amrita & V. Anu, TDU, Bangalore
and Santosh Sutar, M. Vrijulal & Chaturved Shet, CEE south, Bangalore.
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University of Lucknow celebrated Wildlife Week 2018

University of Lucknow in collaboration with Uttar Pradesh State Biodiversity Board, in order to inculcate the importance of wildlife conservation among them, organized several awareness programmes viz., poster making, rangoli, debate, and quiz programmes for various age groups at the Regional Science City. The Vice Chancellor of Lucknow University felicitated the winners with medals and certificates. Overall, we reached about 5000 children across the district and made them aware wildlife conservation.

Submitted by Amita Kanaujia, Adesh Kumar and Shivangi Mishra, University of Lucknow, Uttar Pradesh. Email: kanaujia.amita@gmail.com



Rangoli made by participants

Spider and Crab tattoos designed by the students



Posters on Man-Animal Conflict

Course Announcement

International Applied Environmental Education Course 2019

Guwahati, Assam



How environmental social marketing techniques can be integrated with education and communication strategies to produce focused, effective conservation education campaigns.

COURSE FEE AND SCHOLARSHIPS

Individual participant
USD525 or INR 35000

Institutional participant
USD1025 or INR 68000

Few deserving local applicants may be offered scholarship based on budget availability.

DEADLINES

Apply by **November 30, 2018**.
Selection by **December 5, 2018**.
Confirmation is first come first serve basis.



WHAT

A 3-week international course on the use of education and communication strategies as effective conservation tools. The course will demonstrate how environmental social marketing techniques can be integrated with overall education and communication strategies to produce effective and practical tools for solving environmental problems. It will also create deeper understanding about services of ecosystems.

It will cover-

Research and theory on education for different audiences; educational techniques and strategies for different issues and audiences; programs and campaign planning and implementation; communication strategies; environmental social marketing techniques; media production—theory and design; techniques for building support and obtaining resources for education campaigns; evaluation and monitoring.

WHERE

The course will be based at Guwahati and will include fieldwork at Manas Tiger Reserve at the foothills of Bhutan and Kaziranga National Park in northeast India.

WHEN

28 January to 17 February 2019.

WHO-INTENDED PARTICIPANTS

Practicing conservation educators /environment educators from conservation organizations and agencies.

While the majority of participants will be from the host country— India, participation by educators from other countries is expected and encouraged. Course instruction will be in English and a working knowledge of English as well as basic of computer knowledge is required.

EDUCATIONAL TECHNIQUES TO BE USED

A heavy emphasis on fieldwork, practical projects, plans/materials production, and practice with peers. Classroom work will be minimized. There will be some preparatory online classes/ activities.

COURSE DEVELOPERS AND SPONSORS

Environmental Education and Conservation Global (EECG), USA and Aaranyak, Guwahati, Assam, India will be course developers and be responsible for instruction. IUCN (Integrated Tiger Habitat Conservation Programme), the Forest Department of the State of Assam, Manas National Park Management, Assam and Satpuda Foundation, India will sponsor and collaborate on course content, instruction, and logistics.



HOW TO APPLY

For details please visit

<http://www.aaranyak.org/index.php/10-events/5-events>

Apply with your CV along with a write-up (in 100 words) describing how this training would help in your carrier or achieving conservation goals.

Email: Jayanta Kumar Pathak, aaranyak.jkp@gmail.com with CC to info@aaranyak.org

ZOO'S PRINT

Communicating science for conservation

ZOO'S PRINT Publication Guidelines

We welcome articles from the conservation community of all SAARC countries, including Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka and other tropical countries if relevant to SAARC countries' problems and potential.

Type — Articles of semi-scientific or technical nature. News, notes, announcements of interest to conservation community and personal opinion pieces.

Feature articles — articles of a conjectural nature — opinions, theoretical, subjective.

Case reports: case studies or notes, short factual reports and descriptions.

News and announcements — short items of news or announcements of interest to zoo and wildlife community

Cartoons, puzzles, crossword and stories

Subject matter: Captive breeding, (wild) animal husbandry and management, wildlife management, field notes, conservation biology, population dynamics, population genetics, conservation education and interpretation, wild animal welfare, conservation of flora, natural history and history of zoos. Articles on rare breeds of domestic animals are also considered.

Source: Zoos, breeding facilities, holding facilities, rescue centres, research institutes, wildlife departments, wildlife protected areas, bioparks, conservation centres, botanic gardens, museums, universities, etc. Individuals interested in conservation with information and opinions to share can submit articles ZOOS' PRINT magazine.

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Articles should be typed into a Word format and emailed to zooreach@zooreach.org. Avoid indents, all caps or any other fancy typesetting. You may send photos, illustrations, tables.

Articles which should contain citations should follow this guideline: a bibliography organized alphabetically and containing all details referred in the following style: surname, initial(s), year, title of the article, name of journal, volume, number, pages.

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ZOO'S PRINT magazine is informal and newsy as opposed to a scientific publication. ZOO'S PRINT magazine sometimes includes semi-scientific and technical articles which are reviewed only for factual errors, not peer-reviewed.

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