Note on Defensive Behaviour in Cochin Forest Cane Turtle (Vijayachelys silvatica)

V. Deepak 1 & Karthikeyan Vasudevan 2

1 Wildlife Institute of India, P.O. Box #18, Dehradun, Uttarakhand 248001, India
Email: 1 karthik@wii.gov.in

The Cochin Forest Cane Turtle (Vijayachelys silvatica) is a rare and cryptic species (Vijaya, 1982a,b,c; Groombridge et al., 1983; Moll et al., 1986) belonging to the family Geoemydidae (Praschag et al., 2006). Unlike its close relative, the aquatic Melenochelys trijuga (Praschag et al., 2006) cane turtle is terrestrial (Moll et al., 1986). It is omnivorous and feeds on fruits, fungi, molluscs, beetles & millipedes (Moll et al., 1986). There is no information on the ecology and behaviour of the species through in situ studies. A study is being carried out in Karian Shola, Indira Gandhi Wildlife Sanctuary, Tamil Nadu, India. On 14 January 2007 at 14.30hr a sub-adult male cane turtle was observed. While measuring the animal using a pair of vernier calipers, a pale yellow coloured, offensive smelling secretion squirted from below the plastron carapace bridge in the inguinal region. The squirted fluid traveled roughly 30cm from the turtle. After careful examination, it was observed that the secretion came out from the posterior part in the region where the infra-marginal and the seventh marginal scute meets (Image 1). We inferred that the secretion must have been from the Rathke’s gland.

Rathke’s glands are a pair of exocrine organs embedded in the ventro-lateral aspect of the trunk of many aquatic turtles (Waagen, 1972; e.g. North American Musk turtle Sienotherus odoratus - Eisner et al., 1977; Australian snake necked turtle Chelodina longicollis - Eisner et al., 1977).


Snakes of Rameshwaram

B. Ravichandran¹ & Manju Siliwal²

1 Zoo Outreach Organisation, 2 Wildlife Information Liaison Development Society, 9-A, Lal Bahadur Colony, Peelamedu, Coimbatore, Tamil Nadu 641004, India
Email: ¹ravi@zooreach.org, ²manju@zooreach.org

Rameshwaram is a town in Ramanathapuram District in Tamil Nadu. It is located on an island separated from mainland India by the Pamban channel and is less than 40km from Sri Lanka. Rameshwaram is located at 9.26°N-79.30°E. It has an average elevation of 10m (32ft). The island is spread over an area of 61.8sq.km and happens to be in the shape of a conch.

Rameswaram has a dry tropical climate with temperatures around 30-35°C, the highest ever recorded at Pamban station is 37°C and lowest 17°C. The average annual rainfall is 94cm, received mostly from the North East monsoon between October and January.

There is no information available on snakes of Rameshwaram. During our work on tarantulas (Parachute spiders) of Rameshwaram Island, we came across five species of snakes. The snake species spotted were Saw-scaled Viper (Echis carinatus), Bridal Snake (Dryocalamus nympha), Red Sand Boa (Eryx johnii), Russell’s Kukri (Oligodon taeniolatus) and Common Wolf Snake (Lycodon aulicus). We did not catch the snakes as we do not have the necessary training to handle snakes to handle the snakes. We however took photographs of the snakes. Dr. S. Bhupathy helped us to identify the snakes.

Sea sand covers most of the island of Rameshwaram with hardly any other arable land. Plantations of Tamarind (Tamarindus indicus), Coconut (Cocos nucifera) and Palm (Borassus flabellifer) are common. We conducted our work mostly in Tamarind, Casuarina (Casuarinaeae equisetifolia) and Palm groves. Tamarind and Palm trees grow together in most places. The Casuarina groves are 10-12kms in length and 1-2kms in width.

We visited Rameshwaram nine times between 2004 and 2007. We sighted 5-6 snakes during each of our field visits. Apart from snakes, we saw scorpions, the Tree Frog (Kaluja pulchra), House Centipede (Scutigera coleoptrata), Whip Spider, termite and bark geckos.

Saw-scaled Viper (Echis carinatus) (Image 1): Mainly nocturnal, usually basks in the morning sun. Mostly found in open dry, sandy or rocky terrain in the plains and hills, and also in open, rocky regions with heavy rainfall; It rests under rocks, behind tree trunks and at the base of thorny plants during the day. The average size of the snake is 12-20cm. It is a highly venomous snake with venom being very toxic (Whitaker & Captain, 2004).
It is one of the common snakes of Rameshwaram. We recorded this snake in all our field visits. It was found across all plantations, irrespective of the tree species. We spotted this snake species on the ground, example under the bark of Casuarina, yamarind and inside the fronds of young palm trees. We spotted this snake both during the day and night. During the day, it was found under the bark and under the roots of Casuarina and during the night, it was seen moving on the ground. At every visit we recorded a minimum of 3-4 snakes.

**Bridal Snake (Dryocalamus nympha) (Image 2):** Smooth-scaled, dark brown or black back with creamish-white bands that widen on the sides and break up on hind body. Poorly known, nocturnal, found in plains and low hills, and a good climber. The maximum size of the snake is 21in. It is a non venomous snake (Whitaker & Captain, 2004).

We recorded this snake eight times out of nine visits. According to Whitaker and Captain (2004) it has not been recorded near coastal areas, only interior parts of the mainland. This is the first record in a coastal area. We found this snake species in tamarind and palm groves during our night surveys. Once we observed a young Bridal Snake along with a parachute spider in a palm tree, the snake was less than 15cm. It went behind the bark of palm tree. Even though they were both very close to each other (less than 10cm), they did not interact with each other.

**Red Sand Boa (Eryx johnii) (Image 3):** Thick-bodied. Head thinner than neck; with a wide, shovel-shaped scale at the tip of the snout. Nocturnal, prefers dry places and sandy soils. Often lives in rodent burrows. Kills most prey by constriction. The maximum size of the snake is 39in. It is a non venomous snake (Whitaker & Captain, 2004).

During our surveys we recorded this snake twice. We sighted this species in two different places in Rameshwaram. It was on the sand and moving very slowly.

**Russell’s Kukri (Oligodon taeniolatus) (Image 4):** Scales smooth, head slightly or not broader than neck, with typical ^ shaped marks seen on most kukri snakes. Though active both by day and night, frequently seen at dusk. Found in forests as well as near human habitation. Climbs well. The maximum size of the snake is 23in. It is a non venomous snake (Whitaker & Captain, 2004).

We recorded this snake twice. We saw this snake on the ground at night, it moved very fast when it was disturbed. During the day time we found this snake inside the tree hole

<table>
<thead>
<tr>
<th>Date of visit</th>
<th>Saw-scaled Viper Echis carinatus</th>
<th>Bridal Snake Dryocalamus nympha</th>
<th>Red Sand Boa Eryx johnii</th>
<th>Russell’s Kukri Oligodon taeniolatus</th>
<th>Common Wolf Snake Lycodon aulicus</th>
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<td>+</td>
<td>+</td>
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<td>+</td>
<td>-</td>
<td>+</td>
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<td>+</td>
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</tr>
</tbody>
</table>

Image 2. Bridal Snake (Dryocalamus nympha)

Image 3. Red Sand Boa (Eryx johnii)

Image 4. Russell’s Kukri (Oligodon taeniolatus)

Image 5. A Cat Snake Oligodon sp. on Rameshwaram Island
of a tamarind tree. We observed different colour variations in this species (Image 5).

Common Wolf Snake (Lycodon aulicus): Lycodon one of the most widespread Asiatic snakes. Over 25 species have been reported to date, and 11 of them occur within Indian subcontinent (Mukherjee & Bhupathy, 2007). Strictly nocturnal. Found in and around caves, wells, stone piles, hollow trees and often in houses. Climbs rough vertical walls with ease. It is a non venomous snake (Whitaker & Captain, 2004).

It is one of the common snakes of Rameshwaram. We recorded 2-3 species during each of our visits. We found this species in the night time in tamarind trees and during the day time, it was observed resting inside tamarind bark. During our survey, we once sighted this snake with a Rameshwaram Parachute Spider (Poecilotheria hanumavilasumica) (Image 6). They both were very close, less than 25cms away. The snake was moving but the spider did not move. After 3-4min the snake went inside a tree hole. Even though they both were very close, they did not attack each other. We observed three different forms of this species (Image 7).


Acknowledgement: We are thankful to Ms. Sally Walker and Mr. Sanjay Molur for their constant support and help. We thank Dr. S. Bhupathy, SACON for identifying the snakes.

**First record of *Uropeltis elliotti* and study of their habits and habitat in Melghat Forest in Satpuda**

J.S. Wadatkar1 & M.P. Chikhale2

1, 2 Department of Zoology, Sant Gadge Baba Amravati University, Amravati, Maharashtra 444602, India

Email: Ljayavadatkar@rediffmail.com

On October 22nd 2005, one dead snake specimen of Shield Tail Snake (*Uropeltis elliotti*) was found on the road at Chikhaldara (21°02′N-77°02′E) district Amravati. Chikhaldara is situated at a height of about 3600ft. Melghat Tiger Reserve starts just after the hill station on one side. The observed specimen was dead as a result of a vehicle crash but had little injury. We collected the specimen, photographed it and preserved it into 10% formaldehyde. Scale count study revealed Sub caudal 7, Body scales 17-17, ventral 156, supra labial 5. We could identify the specimen as *Uropeltis*. Photographs were sent to Bombay Natural History Society for identification. The specimen has been added to the collection at the Bombay Natural History Society (B.N.H.S. 3354 and 3355).

In the rainy season of 2006, on July 30 and 31, we found another two live Elliot’s Shield Tail Snakes. We studied the habit and habitat of the snakes carefully. The live snakes were found under the rocks on slopes and under decaying leaves in wet soil. It made tunnels under rock and was found moving with the help of his pointed head in humus and smooth and moist soil. Movement in reverse direction in the soil tunnel was not seen. It feeds on earthworm in moist soil. The species was found to be endemic to Chikhaldara with discontinuous distribution. It is known as a Malan by local people and in Marathi it is called as a Khapar Khawalya. In Chikhaldara people believe that this snake moves in the forward direction for up to 6 months and then in reverse direction for another 6 months. So Dutondya (double headed) is also another local name for this snake.

03 dead specimens were also reported during July to October 2006. All were victims of road accidents. This indicates that they come out of the soil tunnel when the soil gets saturated with water after heavy rains. Scale count was carried out (Table 1). The specimens have been handed over to the Department of Zoology, Sant Gadge Baba Amravati University, Amravati.

Supra labial scales are 5 and 3rd scale touches eye. From the scale study, it is confirmed as a *Uropeltis elliotti*.


Acknowledgement: I am very much thankful to Mr. Varad Giri, Scientist ‘A’ Bombay Natural History Society, Mumbai.
Table 1. Scalation data of three dead specimens of *Uropeltis ellioti*

<table>
<thead>
<tr>
<th>Sp.No.</th>
<th>Date of found</th>
<th>Length</th>
<th>Diameter</th>
<th>Body Scales</th>
<th>Ventral</th>
<th>Subcaudal</th>
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<tbody>
<tr>
<td>01</td>
<td>29/07/2006</td>
<td>166mm</td>
<td>18mm</td>
<td>17-17 smooth</td>
<td>151</td>
<td>10 divided</td>
</tr>
<tr>
<td>02</td>
<td>13/08/2006</td>
<td>220mm</td>
<td>26mm</td>
<td>17-17 smooth</td>
<td>156</td>
<td>06 divided</td>
</tr>
<tr>
<td>03</td>
<td>10/10/2006</td>
<td>180mm</td>
<td>20mm</td>
<td>17-17 smooth</td>
<td>152</td>
<td>07 divided</td>
</tr>
</tbody>
</table>

Note: The Lined Supple Skink *Chiamela lineata* was described by Gray in 1869 without any specific locality. Later Boulenger, 1887 allocated it to the genus *Lygosoma*. This species was reported to occur in Bombay district between Poona and north Kanara (Smith, 1935). It was later reported from Chidambaram district, Tamil Nadu and Salsette Island (Chari, 1960) and Gujarat state (Naik & Vinod, 1994), (Gayel, 1999) and (Vyas, 2001). Vyas (2001) suggested *L. vosmaerii* (Gray, 1839) as a synonym under *L. lineata* (Gray, 1839). Das (1997) mentions *L. vosmaerii* in his checklist; whereas Das (2003) does not mention it in his list of updated reptile taxonomy and nomenclature. If the type locality of *L. vosmaerii* (Gray, 1839) being a synonym under *L. lineata* (Gray, 1839) is correct (Bengal), than *L. lineata* probably occurs in Bengal as well.

We observed several live specimens at Mumbai, Khopoli, Kolad, Nashik and Phansad Wild Life Sanctuary in Maharashtra from the year 2005 to 2007. In Mumbai it has been found at Aarey Milk Colony (19°9’57”N-72°51’32”E), Film City (19°9’46”N-72°53’31”E), Marol (19°9’31”N-72°52’76”E) and Sanjay Gandhi National Park (Borivali). This shows that this species occurs not only in the Western and Eastern Ghats, but also in Gujarat and may indeed be a more wide spread species than collection records indicate. Here we take the opportunity to add some data on the natural history of this little known lizard based on specimens observed in parts of Maharashtra.

*Lygosoma lineata* is mostly found under rocks, under driftwood and among leaf litter with other sympatric species like *Calliophis melanurus*, *Eutropis carinata*, *Eutropis macularia* and *Ramphotyphlops braminus*. The Lined Supple skink also occurs in coastal forests of Phansad Wildlife Sanctuary up to hilly regions of Khopoli and Kolad with altitudes ranging from 150-457m. In Mumbai it is found in varied habitats such as forests, grass and scrub areas and also in gardens. It was commonly observed actively foraging around termite mounds in the early mornings and late evenings. A total of five specimens were found taking refuge under large boulders on the slope of a small hillock in an area of less than 1000ft². Adults are golden brown above, with each scale marked with a central black dot forming longitudinal lines from head to tail tip. Two juveniles possessing navy blue tails were found in Mumbai, measuring ca. 20mm TBL. It has been found near ant hills and termite mounds. One individual measuring 58mm TBL was retained for observation in captivity for 45 days with filter sand as the substrate and fed upon termites, house flies and mosquitoes, even accepting prey.

Amravati for continuous inspiration. My thanks are due to my friend Mr. Yadav Tarte who accompanied during surveys in Melghat.

and Mr. Ashok Captain, Renowned Herpetologist for their cooperation time to time. I am thankful to Prof. Dr. G.N. Vankhede, Head, Department of Zoology, S.G.B. Amravati University,
The recent digging of the Deepor Beel bed in a number of locations in northern boundaries and heavy encroachment approximately thrice the size of its head, which were actively pursued and subdued by hitting against the substrate prior to being consumed. The individual was also observed swallowing sand grains, probably to aid the digestion process. A specimen captured whilst consuming a Brahminy Worm Snake Ramphotyphlops braminus regurgitated it, probably owing to the stress of capture. Lygosoma lineata is probably preyed upon by sympatric predators like Giant Centipedes Scolopendra sp., Slender Coral Snake Calliophis melanosur, and Cantors Black Headed Snake Sibynophis subpunctatus. Though not a rare lizard as previously reported to be (Naik & Vinod, 1994), its numbers are in decline owing to loss of habitat.


Acknowledgment: I would like to thank Sachin Rai for his photograph and also Jackin, Gavin Desouza and Kunal Ullalkar.

Indian Eyed Turtle Morenia petersi (Anderson, 1879) in the Deepor Beel, Ramsar site

The Indian Eyed Turtle, Morenia petersi (Anderson, 1879) (Family: Geoemydidae) has been recorded from only a few localities in Northeast India. Its distribution in India is reported as the Eastern part of the Ganga and Western part of the Brahmaputra (Iverson, 1986; Das, 1990). Earlier, this species was recorded from Bettiah in northwestern Bihar (Moll & Vijaya, 1986) and Sunderbans TR (Bhupathy et al., 1994). Its major habitat is slow flowing rivers and standing water bodies or oxbow lake (Das, 1991). It is the second most traded species in Bangladesh and significant numbers are exported to food markets of China (Bhupathy et al., 2000). However, in India records of export trade are very obscure.

Deepor Beel, the lone Ramsar site in Assam, is one of the five most important riverine wetlands situated at the southern fringe of the river Brahmaputra having great biological and environmental significance (Deka & Goswami, 1992). Deepor Beel (Protected area 4.14km²) is located within the coordination of 26°03’26”-26°09’26”N & 90°36’39”-90°41’25”E and lies 50-56.4m above MSL (Saikia & Bhattacharjee, 1987). The Beel has a perennial water-holding area of about 10.1sq.km, which extends up to 40.1sq.km during floods (Gogoi, 2007; Bera et al., 2008). The Beel is home to about 122 species of birds and 50 species of fish in addition to other bio-resources (Saikia, 2005). Certain parts of the Deepor Beel are utilized as corridor by herds of wild elephants. Though efforts are made to provide protection of the wetland under the Wildlife protection Act, 1972 through creation of a Wildlife Sanctuary, yet a number of turtles, mostly the females (prized for their size) are captured illegally by fishermen.

On February 22, 2008, while surveying the turtles of Assam, we obtained an Indian eyed turtle, Morenia petersi as an accidental victim of a soil digging truck in Deepor Beel, the Ramsar site. The shell was collected and measured for confirmation. The details of size and colouration are as follows:

- Straight line carapace length 13.9cm; curved carapace length 15.8cm, straight line carapace width 10.2cm; curved carapace width 12.7cm. Identification of the species was followed after Das (1995). The carapace with slightly domed, black colored with narrow yellowish mesial line vertebrals and the last four vertebrals with a yellowish linear horseshoe mark with the ends directed forward, above which some irregular looped lines of similar colour with yellowish plastron were observed (Image 1 a&b). However, the sex of the individual could not be determined due to damaged condition of the specimen.

Earlier, Sengupta et al. (1998) reported its first occurrence in Assam from Pobitora wildlife sanctuary, yet its occurrence had not been reported from the district of Kamrup, Assam (Sengupta et al., 2001). Recently, Saikia (2005) recorded 9 species of turtles from the Deepor Beel without the reference of Morenia petersi. The recorded species are Pangshura tecta, Pangshura smithii, Pangshura sylhetensis, Geoclemys hamiltoni, Haldrella thurgii, Lissemys punctata, Aspideretes hurum, Chitra indica and Aspideretes gangeticus. The present observation is the first report of Morenia petersi from the Kamrup district of Assam and that too from the Deepor Beel.

The recent digging of the Deepor Beel bed in a number of locations in northern boundaries and heavy encroachment...
for settlement caused tremendous loss of wetland area. The newly constructed railway line through the southern and eastern periphery of the Deepor beel is a major threat to the ecosystem particularly in view of encroachments, forest destruction, erosion and disturbance (Saikia, 2005). Large-scale encroachment of the government as well as private owned low lying area of the Deepor Beel for settlements, institutions, and business establishments causes tremendous threat to the chelonian diversity in the Beel. The increasing numbers of brick making factories and extensive soil cutting within the Beel ecosystem, is a growing threat in the Ramsar site.


Notes on the effect of a bite from Calliophis melanurus Shaw, 1802 (Serpents: Elapidae: Calliophinae)

Zeeshan Mirza1 & Saunak Pal2

1 1-13 Shio Colony, Marol Police Camp, Andheri (East), Mumbai 400059, Maharashtra, India
2 Nisarg Trust, Hrishikesh, Jhadiw Colony, Belval, Badlapur (West), Thane District 421503, Maharashtra, India.

Email: 1 snakeszeeshan@gmail.com; 2 nisargtrust@gmail.com

The family Elapidae Boie, 1827 is represented by over 60 genera and 300 known species distributed throughout the tropical and sub-tropical region. The snakes of this family are further divided into six subfamilies namely Bungarinae, Calliophinae, Elapinae, Hydrophinae, Laticaudinae and Maticorinae by McDowell (Kedar Bhide pers. com.). In the oriental region the Elapids are represented by 13 genera and 36 species (Whitaker & Captain, 2004). The snakes of the subfamily Calliophinae are one the least known in terms of their venom virulence and natural history. Oriental coral snakes are included in three genera namely Calliophis, Hemibungarus and Sinomicrurus by Slowinski et al. (2001). In India, the subfamily Calliophinae is represented by four species of the genus Calliophis namely C. beddomei, C. bibronii, C. melanurus and C. nigrescens (Whitaker & Captain, 2004). Calliophis melanurus Shaw, 1802 is more widespread of all the other species of the genus occurring in peninsular India and Sri Lanka (Daniel, 2002); Whitaker and Captain (2004) state that it probably occurs in most of Peninsular India (except the extreme north-west), with definite records from Gujarat, Maharashtra, Karnataka, Kerala, Tamil Nadu and West Bengal; there is a single record from Dhar, Madhya Pradesh (Vyas & Vyas, 1981). Here we add some data on the effect of a bite received by a local snake rescuer from Calliophis melanurus at Ambernath, Maharashtra.

On 30th December 2007, a person (Age 43 and Weight 68kg) bitten on the base of the thumb, of the left hand while handling an individual at 1230hrs started to experience drowsiness by twilight. On the next day, i.e. the 31st of December the bitten area resembled a minor burn mark with slight swelling and by the third day i.e. 1st January, 2008 the bitten area was numb and appeared like a wart. The snake measured ca.27.94mm and was rescued from a house at Badlapur (Thane District) Maharashtra.

Whitaker & Captain (2004) mention “Bites cause slight swelling and itching”; Whitaker (2006) states” Nothing is known about this little relative of the cobra but the striped coral snake becomes more than 1 meter long and could be dangerous to man”; Mirza and Ahmed (submitted) mention an individual being bitten by it in Mumbai due to an accidental tail breakage of the snake but did not experience any ill effect. Thus the present report adds some data on the virulence of the venom and the effects indicate that the venom might be of neurotoxic type. Coral snakes are slender bodied, narrow headed, with large venom glands and use their venom to subdue prey which mainly consists of snakes. Calliophis melanurus is known to feed on Ramphophis braminus (Vyas & Vyas, 1981) and probably juvenile Lygosoma sp., which are sympatric as well as fossorial. The authors thus conclude that Calliophis melanurus does not have as potent venom as compared to other elapids, being a fossorial serpent preying on other fossorial species, with Scolopendra being one of the known predators (Mirza & Ahmed, submitted)
Notes on the predation of *Cnemaspis* sp. by *Hemidactylus cf. brookii* Gray, 1845 (Squamata: Sauria: Gekkonidae)

**Zeeshan A. Mirza¹ & Javed J. Ahmed²**

¹ 1-13 Shiv Colony, Marol Police Camp, Andheri (East), Mumbai, Maharashtra 400059, India  
² A-3/ Flat no. H-8, Panchavati Housing Society, Marol Maroshi Road, Andheri (East), Mumbai, Maharashtra 400059, India  
Email: ¹ snakeszeeshan@gmail.com; ² syngnathid@gmail.com

On 21 February, 2008 at 2330hr three juvenile *Cnemaspis* sp. measuring ca. 15mm were observed foraging on a wall alongside an adult *Hemidactylus cf. brookii* measuring ca. 90 mm in length, at a distance of ca. 150mm. apart, at Uday Hotel in the town of old Mahabaleshwar (Maharashtra).  

Subsequently, *H. cf. brookii* was observed lunging at the juvenile *Cnemaspis* sp. and swallowing two individuals in rapid succession using a sideways head jerk.  On 22 February 2008 at 0630hr yet another individual of *H. cf. brookii* was observed capturing an adult *Cnemaspis* sp., stunning it by a series of rapid hits against the wall and consuming it.

The genus *Hemidactylus* is widely distributed throughout much of the Old World tropics and subtropics as well as in the Mediterranean region and in the Americas with at least 85 recognized species with majority of the species confined to southern Asia and Africa (Giri & Bauer, 2008). In India, the genus is represented by 21 species (Giri & Bauer, 2008). *Hemidactylus brookii* (Gray, 1845) is one of the most common member of the genus occurring from Borneo and south China through much of tropical Asia and the northern half of Africa, being introduced in west Indies (Minton, 1966); Daniel (2002) states “Widely distributed in Asia and Africa and has been introduced elsewhere in the tropics of the world”. A common house gecko in India reaching a maximum length of 135mm., it is met with in the forest, around houses and also in houses, feeding on insects. Members of the genus *Hemidactylus* feed exclusively on insects with the exception of *Hemidactylus frenatus* which might be cannibalistic and/or to devour sympatric species of the same kind (Daniel, 2002). This report constitutes the first record of predation of a sympatric species by *Hemidactylus cf. brookii*.

Geckos of the genus *Cnemaspis* are represented by 42 recognized species in Asia and as many as 19 species are reported from India (Das & Ahmed, 2007). Most of which are confined to the Western Ghats and northeastern India. These geckos can be easily distinguished from other geckos by the presence of rounded pupil and undilated digits, the presence of the former leading to speculations of their diurnal habits. At Mahabaleshwar these geckos were fairly common and were observed on walls around human habitation immediately after dusk. Individuals were observed taking refuge in wall crevices, logs and boulders during the day and at a time three juveniles were observed sharing the same crevice. Smith (1935) states “It is generally said that the species of this genus are of diurnal habits, an assumption based, no doubt, upon the shape of the pupil. With the exception of *C. littoralis* I do not know of any observation to show that this statement is correct”. Thus based on the observation made from the individuals at Mahabaleshwar, we conclude that the geckos of the genus *Cnemaspis* (except *C. littoralis*) might be nocturnal and not diurnal as assumed.

**Mirza, Z.A. & J.J. Ahmed (Submitted).** Note on predation of *Calliophis melanurus* Shaw, 1802 (Serpents: Elapidae) by *Scolopendra* sp.  

**Acknowledgment:** We would like to thank Kedar Bhide (Reptile Rescue and Study Centre), Varad Giri (Bombay Natural History Society) and Javed Ahmed.
Notes on the natural history of Common Smooth Water Snake *Enhydris enhydris* Schneider, 1799 (Serpentes: Colubridae)

**Saunak Pal** & **Zeeshan Mirza**

1 Nisarg Trust, Hrishikesh, Jadhav Colony, Belvali, Badlapur (West), Thane District 421503, Maharashtra, India  
2 1-13 Shiv Colony, Marol Police Camp, Andheri (East), Mumbai 400059, Maharashtra, India  
Email:** 1 nisargtrust@gmail.com; 2 snakeszeeshan@gmail.com

The Indian snakes of the genus *Enhydris* Sonn. & Ltr., 1802 are represented by four species namely *E. enhydris*, *E. dussumieri*, *E. sieboldii* and *E. plumbea* (REF). Of these, the Common Smooth water snake *Enhydris enhydris* Schneider, 1799 is known to occur from North of river Godavari to Nepal and east to Assam and most parts of Southeast Asia (Smith, 1943; Whitaker & Captain, 2004). Throughout its range this species is poorly known in terms of natural history. In the present paper we provide information on its natural history based on observation in Howrah District, West Bengal.

*E. enhydris* inhabits freshwater and estuarine habitats, and were often found on the edges of freshwater ponds and irrigated fields with the tip of their snouts projecting out of the water with their body buried in silt. This behaviour was found in captivity as well. A sluggish species and seldom seen on land. A female caught on land gave birth to 8 young ones in May. In irrigated paddy fields, these snakes were observed in fishing basket traps probably to feed on the trapped fishes (*Pangassus* sp. which dominate these fields and ponds) with other sympatric species like *Fejervarya* sp., *Euphlyctis cyanophlyctis* and *Bufo melanostictus* for which a distinct preference was exhibited. Other fishes fed upon were *Poecilia reticulata*, *Anurans* such as *Fejervarya sp.*, *Euphlyctis cyanophlyctis* and the larvae of *Hoplobatrachus tigrinus* were accepted, whereas *Bufo melanostictus* was not preyed upon. Daniel (2002) reports “A bite on the hand became immediately swollen and the hand started throbbing 15 minutes after the bite and continued to throb for about an hour”; however the first author (SP) on being bitten while rescuing an individual did not experience any such symptoms.

Previsouly thought to be an uncommon species (Daniel, 2002), it is commonly found (Whitaker & Captain, 2004) in preferred habitat and known range, and may be in decline owing to destructive fishing practices. This species is consumed by some local communities.

**Acknowledgement:** We would like to thank Mr. Varad B. Giri for his encouragement and help. Thanks are also due to Mr. Sanjay Nimalkar, Kushi Holidays Pvt. Ltd. for sponsoring the trip.
Mortality of Spiny-tailed Lizard *Uromastyx hardwickii* Hardwicke & Gray, 1827 in the Kachchh District of Gujarat

S.F. Wesley Sunderraj1 & Latchoomanan Muthu Andavan2

1,2 Gujarat Institute of Desert Ecology (GUIDE), Post Box # 83, Mundra Road, Bhuj 370 001, Kachchh, Gujarat, India.

Email: 1 wesley.s@rediffmail.com, 2 andavanin@gmail.com

According to Daniel (2002) the Spiny-tailed Lizard- *Uromastyx hardwickii* belongs to the family Agamidae locally called as “Sando”. It mostly habit in the dry and desert regions of Uttar Pradesh, Rajasthan, and Kachchh district of Gujarat and in the neighboring country of Pakistan (Gayen, 1999).

During our Environmental Impact Assessment (EIA) survey in the Narayan Sarovar Wildlife Sanctuary in Kachchh taluka of Kachchh district, we had recorded two individuals of this species in mortality condition, one in the open scrub of the reserve forest and another on Koteshwar to Lakki road. The first specimen was recorded on 18 August 2007 at 1148hr (23°40’59.5”N & 68°37’57.9”E) at 32m above sea level from the Godathad Reserve Forest. A female specimen was recorded inside the burrow deadwith its head facing inside, this may be due to fights with co specifics and besides this mortality, fresh burrows and pellets were also observed.

The second specimen was recorded on 4 October 2007 at 1605hr in between Koteshwar to Lakki forest road (Table 1). It was found dead in the 3m forest mid-road, the event most likely to have happened just a few minutes ago as blood was oozing out. It may be that while crossing and foraging towards the food plants, it was run over by some vehicle. It was an adult female. Basking on the road and using this substrate for thermoregulation is a likely reason for their increased vulnerability to vehicular traffic. After recording all the morphometric measurements, specimens are best kept near the road to prevent further accidental deaths by being run over by vehicles. One of the threatened species under Schedule-II (IWPA, 1972) and hence needs high conservation priority.

Table 1. Morphometric data on Spiny Tailed Lizard *Uromastyx hardwickii* from Kachchh district, Gujarat

<table>
<thead>
<tr>
<th>Measurements (in mm)</th>
<th>Specimen</th>
<th>Godathad RF</th>
<th>Koteshwar to Lakki</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total body length TBL</td>
<td></td>
<td>261</td>
<td>385</td>
</tr>
<tr>
<td>Head length HL</td>
<td></td>
<td>33</td>
<td>48</td>
</tr>
<tr>
<td>Head width HW</td>
<td></td>
<td>24</td>
<td>40</td>
</tr>
<tr>
<td>From head to neck HN</td>
<td></td>
<td>-</td>
<td>50</td>
</tr>
<tr>
<td>From tip of snout to vent SVL</td>
<td></td>
<td>152</td>
<td>-</td>
</tr>
<tr>
<td>From cloaca to tail tip TL</td>
<td></td>
<td>111</td>
<td>170</td>
</tr>
</tbody>
</table>


Acknowledgements: The authors are grateful to Director-In Charge, Gujarat Institute of Desert Ecology, Bhuj, Kachchh and Gujarat State Forest Department, for permission and logistic support.

A report on endo and ecto parasitism in an Indian Rat Snake (*Ptyas mucosa*) from Namakkal District of Tamil Nadu

K. Arunachalam1, P. Radha2, A. Ramy2, K. Senthilvel2 & T. J. Harikrishnan2

1,2 Undergraduate students, Department of Veterinary Parasitology, Veterinary College and Research Institute, Namakkal

Email: 1 hemacha@rediffmail.com

Snakes of both venomous and non venomous varieties are highly prevalent in Namakkal area and they prey on species which could pose threats to the agricultural economy such as rats, frogs and other creatures. Snakes are affected by endo and ecto parasites and that result in major health hazards like gastro intestinal disturbances, anaemia and transmission of blood protozoan parasites. The paucity of information on the occurrence of endo and ecto parasites in snakes in Namakkal area necessitates the communication of the present report and is a first one of its kind in this area.

A dead 6.5feet Indian Rat Snake (*Ptyas mucosa, Family: Colubridae*) was collected from an under-construction railway track between Salem and Karur at Latuwadi village, Namakkal. It was infested with ticks beneath the scales. About 20 ticks were collected manually and preserved in 70% alcohol for identification. A post mortem examination was also conducted and one gastro intestinal nematode was collected for further identification.

Based on the morphological features, the ticks were longirostrate, ornate, without eyes, body was round and flat and was identified as *Aponomma sp* which is in accordance with findings of Sen and Fletcher (1962). Tick infestation in snakes was also recorded by Sur et al. (2001) from West Bengal, India.

Based on the microscopic examination, the gastro intestinal nematode was identified as *Kallicephalus sp* belonging to the Strongylidae family which is an Intestinal hook worm of snake. The morphology revealed that the female adults were relatively small, about 1.2cm in length and the other characteristics were closely related to the reports of Murray E. Fowler (1986). The association of *Aponomma sp* with reptiles was also reported by Stenos et al. (2003) and Pietzsch et al. (2006).


Acknowledgement: The authors are grateful to The Dean, Veterinary College and Research Institute, Namakkal for the facilities provided.
Notes on a rescue of a Burmese Python
_Python molurus bivittatus_ Kuhl, 1820
(Family: Pythonidae) from an urban area of Bongaigaon District, Assam

Rakesh Soud

Angilene Kharmalki Memorial Museum of Animal Biodiversity, Department of Ecology and Environmental Science, Assam (central) University, Silchar, Assam 781 013, India
Email: assam_rkino@rediffmail.com

An effective approach towards gauging or monitoring habitat change is to study the response of a faunal group in terms of changes in diversity along a gradient of time and/or space. This can then be used to support conjectures about habitat degradation in terms of structural and functional attributes (Landres et al., 1988; Noss, 1990). It is generally perceived that a well-defined response to disturbance (predictable, rapid, sensitive, analysable and as far as possible linear response) is desirable (Brown, 1991). However, an easily interpretable response may not always reveal the true extent of the situation. Therefore, what is needed is a comparative approach to actually understand the effects of habitat change on the functioning and structure of an ecological community. Assemblages of faunal groups with differing life histories are likely to show different responses to disturbance. In practice however, there has to be a compromise between the numerous limitations to attaining a true landscape approach and the need to adopt an approach broad enough to allow more than a taxon-restricted understanding of this problem (Weaver, 1995). The present observation reiterates the same problem faced by a large snake like Burmese Python _Python molurus bivittatus._

The Burmese Python is a restricted range species to Indian subcontinent being only found in northeastern region (Whitaker, 2004). Though adaptable, the python needs a large, undisturbed area to hunt and hide in the wild. But due to the extensive loss of habitat and lake of prey, the species often comes out from the natural habitat to the near by human habitation in search of easy prey such as domestic animals. Additional observations on the feeding habit of Burmese Python in human dominated areas would be useful to understand whether it is a more common feeding habit than has been previously observed in such cases.


Acknowledgements: I am grateful to Arnab Bose and other members of the rescue team of Nature’s Foster along with the members of Aaranyak, Assam Science Society for their help during the rescue. I acknowledge Biraj Roy, house owner for his kind cooperation. In truth, I am also deeply thankful to the forest officials of Aie Valley Division and the media personals for their encouragements.

Infighting injuries in male common Indian Lizard _Calotes versicolor_ (Daudin) during breeding period

Satish Kumar Sharma

Range Forest Officer, Sajjangarh Wildlife Sanctuary, Udaipur, Rajasthan 313001, India
Email: sksharma56@gmail.com

With the commencement of the breeding season, each male _Calotes versicolor_ (Daudin) maintains a territory and indulges in displays from an elevated site within it. During this stage, males become most pugnacious and aggressive towards other males. Display by rival males often ends in brief fights, with combatants standing on their hind legs, wrestling and biting till one of them turns away, when it is chased out of the territory by the victor (Smith, 1935; Tikader & Sharma, 1992; Sharma, 2001; Daniel, 2002). Due to infighting both the combatants may sustain severe injuries.

The present study was conducted from 2004 to 2006 to understand the infighting injuries sustained in the breeding season by males. _C. versicolor_ in certain parts of Rajasthan, Gujarat and Madhya Pradesh. The survey was conducted from April to July every year which is the breeding period of this lizard in above said states. Males and females are dimorphic in this species. Males were identified by swollen muscular...
Image 1. Standing upright posture is quite safe for both the combatants against biting injuries.

**Table 1. Infighting injuries in male *Calotes versicolor* in Rajasthan, Gujarat and Madhya Pradesh**

<table>
<thead>
<tr>
<th>State</th>
<th>Location of study</th>
<th>No. of males observed</th>
<th>Biting marks present on intact tail</th>
<th>Tail with amputed distal part (remaining part lacking biting marks)</th>
<th>Amputed tail with biting marks</th>
<th>Total males with tail injuries</th>
<th>Amputed fore leg</th>
<th>Amputed hind leg</th>
<th>Amputed toes</th>
<th>Total males with limb injuries</th>
<th>Damaged eye</th>
<th>Total injured males</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Rajasthan</td>
<td>(i) Railwayside plantation from Harsauli to Khairthal, (Alwar district)</td>
<td>17</td>
<td>1</td>
<td>2</td>
<td>-</td>
<td>3</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>(ii) Dhandwaon Mata construction, Tatrapur, (Alwar district)</td>
<td>8</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>(iv) Tiger Project Sariska, (Alwar district)</td>
<td>14</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>(iii) Nahargarh Wildlife Sanctuary, Jaipur district</td>
<td>13</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>2</td>
<td>-</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>(v) Jamwa Ramgarh Sanctuary, Jaipur district</td>
<td>8</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>(vi) Sajanganth Sanctuary, Udaipur district</td>
<td>17</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>5</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>(vii) Banki Forest Research Farm, Sisarma (Udaipur district)</td>
<td>4</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>2 Gujarat</td>
<td>(i) Around Dahod town (Dahod district)</td>
<td>19</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>5</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>(ii) Ratan Mahal Sanctuary (Dahod district)</td>
<td>6</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>3 Madhya Pradesh</td>
<td>(i) Around Agar (Malwa) town, Shajapur district</td>
<td>9</td>
<td>-</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>115</td>
<td>10</td>
<td>12</td>
<td>11</td>
<td>33</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>1</td>
<td>39</td>
</tr>
</tbody>
</table>

**Table 2. Percentage of tail, limb and eye injuries**

<table>
<thead>
<tr>
<th>Type of injury</th>
<th>No. of % injured males</th>
<th>Total cases of limb injury</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Tail injury</td>
<td>38</td>
<td>39</td>
</tr>
<tr>
<td>2. Limb injury</td>
<td>13</td>
<td>10</td>
</tr>
<tr>
<td>3. Eye injury</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

**Grand Total**

- Tail injury: 39
- Limb injury: 23
- Eye injury: 25
was presumed that all the injuries made by biting and marks present on tail and limbs were the result of infightings. In-total 115 male C. versicolor were recorded in ten localities of the three states. As many as 39 individuals were found either injured or with injury marks as evident in Table 1.

Nearly 33.91 per cent males get injured during infightings to defend their territories (Table 1). Maximum injuries are caused by the biting on tails (Table 2).

Three types of fighting injuries, namely, tail, limb and eye injury are seen in male C. versicolor. Tail is a very susceptible body part which gets injured during infightings followed by the limbs and eyes. Tail and limb injuries are caused by biting. Accidental eye injury is also possible by clawing, not by biting. Since fighting is performed on the ground hence thorn and spines lying on ground may also damage eyes of the competing males. No cases of death due to infightings were recorded during the study period.

When combatant males are standing upright on their hind legs and tail in a “tri-podal” posture, this posture is quite safe for both the combatants against biting injuries (Image 1). But when they are flat on ground, or one below the other, or present in reverse direction, the posture becomes prone to biting injuries. Sometimes when fighting continues on a sloping surface, imbalance may initiate rolling movement in males, and possibilities of biting injuries also arise.

Due to biting on tail and limbs, a wide mark devoid of scale appears on the affected part. If biting is severe and deep, the organ becomes dead and dry beyond the bite mark in due course of time. After complete healing of the wound, the stumpy end becomes clearly visible. If biting is not severe, the organ remains intact, but with visible scar marks (Image 2).

It was noticed that thick body parts like head, neck, trunk and lumbar zones are quite safe against biting but thin parts like tail, limbs, fingers and toes, which can be gripped in the mouth are prone to biting injuries.

**Acknowledgments:** The author is grateful to Jagdeesh Rao, Executive Director, Foundation for Ecological Security, Anand (Gujarat) and official of Forest Department, Rajasthan for encouragement and facilities.

### Rearing of Juvenile Estuarine Crocodile (Crocodylus porosus) at Dhaka Zoo

S.A. Ahasan1, A.Z. Rahman2 & S.U. Azam3

1 Scientific Officer, 3 Veterinary Surgeon, Dhaka Zoo, Mirpur, Dhaka, Bangladesh; 2 Assistant Professor, Dinajpur Government Veterinary College, Basherkhat, Dinajpur, Bangladesh

Email: 1 ahasan00720003@yahoo.com (corresponding author)

Throughout the world there are fewer than 25 extant crocodilian species existing today. All occupy fresh water or coastal ecosystems. All offspring require fresh water. Crocodilians are the largest, longest-living reptiles (Lloyd, 2003a). One of the most challenging areas in reptile husbandry is the rearing of juveniles. Housing juvenile reptiles is of utmost importance. Large litters should be divided into or housed individually, if possible. Observation of feeding is necessary in this practice. The cage should be provided with small branches, rocks and other shelters, since most juvenile seek security during their early life. Temperature should remain between 23.8 and 29.4°C (75°F and 85°F). The animal should be moistened with a light mist of water several days a week to enhance shedding and drinking. The basic foods offered to juveniles in captivity are new born mice, crickets, mealworms, earthworms and minnows (Alamdarz, 1986). Sliced raw fish and ground or sliced raw meat can also offered to juveniles. But, in this case only live lata fish (Opicephalus punctatus) were supplied in gradual increments and no rocks or small branches were introduced.

During the first week of April 2005, the Dhaka Zoo received an Estuarine crocodile (Crocodylus porosus) as a donation from the Coastal Regional District Livestock Office of Khulna, Bangladesh. While fishermen were netting in the river with the typical wide net Veshal(a locally devised netting for fishing in the flowing river). The donated juvenile was accidentally trapped and then it was rescued by a police officer who communicated the same to the District Livestock Officer, Khulna, Bangladesh. Finally it reached Dhaka Zoo on 05 April 2005. Since then it is being reared by hand inside the quarantine shed of the Zoo with special care and this will be continued till such time that the juvenile reaches a size big enough to stand exhibition to visitors. The rearing of crocodiles is still a new area in gathering knowledge for Dhaka Zoo officials. This study highlighted the rearing techniques applied for the crocodile in question and other related factors in this connection.

In Bangladesh, three crocodile species naturally exist, but as a species the crocodile is presently on the verge of extinction in Bangladesh. The Estuarine crocodiles are mainly found in the Bangladesh Sundarban, but this population appears to be far below its potential. Previous population estimates vary between 40 and 200, which is less than would be expected in this vast mangrove area of more than 6000km2 (CSG newsletter, 2003). Specimens of all the three species of crocodiles that is the Estuarine (1 male + 1 female), Marsh (1 male + 4 female) (Crocodylus palustris) and Gavial (3 male + 1 female) (Gavialis gangeticus) exist in the possession of the Dhaka Zoo.

A shedding nest has been prepared for the juvenile inside the quarantine zone. It is about 7.5 feet in length and 2 feet wide. The resting shed is divided into two portions. One portion containing water (4 feet) and the other, sand, (3.5 feet) in area. There is a slope from the sand portion of the resting shed to the water trough. Fresh water is supplied to the

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**References:**


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**Table 1:**

<table>
<thead>
<tr>
<th>Injured Part</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tail</td>
<td>33.91%</td>
</tr>
<tr>
<td>Limb</td>
<td>25.29%</td>
</tr>
<tr>
<td>Eye</td>
<td>11.63%</td>
</tr>
</tbody>
</table>

**Table 2:**

<table>
<thead>
<tr>
<th>Injured Part</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tail</td>
<td>33.91%</td>
</tr>
<tr>
<td>Limb</td>
<td>25.29%</td>
</tr>
<tr>
<td>Eye</td>
<td>11.63%</td>
</tr>
</tbody>
</table>

**Image 1:**

[Image of Estuarine Crocodile with injuries]

**Image 2:**

[Image of injured crocodile tail]
A range of 250 to 350°C (770-950°F) is adequate, but maximum gain or die. They never achieve the physical capacity of cohorts. At either extreme incubation temperature exhibit poor weight consideration for all ages of crocodilians. Hatchlings incubated (Sultana, 2007).

Fish (.interval, live fish (Bangali name: Taki; English name: Lata). The juvenile remains inside the nest. At every two days of bricks is about 2 feet high for protection and to ensure that water trough everyday through a tap. The resting shed made of bricks is about 2 feet high for protection and to ensure that the juvenile remains inside the nest. At every two days interval, live fish (Bangali name: Taki; English name: Lata) numbering 5 to 6 of about 200g is supplied for consumption to the juvenile the in water trough.

The climate of Dhaka Zoo, in which the juvenile is being reared, is similar to that of Dhaka city. It is characterized by hot rainy, humid summers and dry cool winters. Winter extends from November to February, summer from March to May and June to October is the monsoon season. Temperatures are very high in summer (variation ranges 30 to 39°C) (Sultana, 2007).

Thermoregulation is the most critical husbandry consideration for all ages of crocodilians. Hatchlings incubated at either extreme incubation temperature exhibit poor weight gain or die. They never achieve the physical capacity of cohorts. A range of 25°C to 35°C (77°F-95°F) is adequate, but maximum growth rates occur at 32°C-33°C (90°F-91°F). Below 25°C (78°F) and above 35°C (95°F) crocodilians become anorexic. A thermal gradient allows self-regulation. Elevated body temperature assists digestion. Solar ultraviolet radiation may be required for normal bone development, although some crocodilians are raised in darkness to minimize stress. Uterine contractile strength is affected greatly by temperature. Ambient temperature above 36°C (97°F) is lethal (Foggin et al., 1989; Laddds, 1993 & McNease et al., 1981). A very keen observation should be noted, during cold weather the juvenile never went to the water pool. For sufficient warming, in low temperatures, a 200 wt bulb was placed 2 feet above the floor area.

For thermoregulation, water quality is critical and soaking is essential to hydration. Large crocodilians survive drought by aestivation; however, hatchlings can become 20% dehydrated in one day, with potentially lethal consequences. Incidental water is insufficient for juveniles. And salinity greater than 1% may result in juvenile mortality. All extant crocodilians require fresh water nesting sites. Water quality should be equivalent to that for fish, particularly the composition of ammonia, nitrite and pathogens. Adequate filtration or replacement for elimination is essential. Overflow systems should be calibrated to the biological load. Serial overflow pools spread infectious diseases and parasites. Water changes are to be made after feeding for minimizing contamination, but fresh water cold shock can occur (Lloyd, 2003b).

On arrival at the Dhaka Zoo, the body weight of the juvenile was 720g; length was 14 inches and the age was 6 months approximately. On 05 May 2007, at age 2 years 1 month, it weighed 1kg 750gms, measured 3 feet 1 inches (from snout to end of the tail) in length; with a head length of 6 inches (from snout to front leg); body length: 8 inches (from front to hind leg); tail length: 23 inches (from base of the tail to end); hind limb length (from top to end of the leg);6 inches and front leg length: 5 inches (from top to end of the leg); width (abdominal diameter): 10 inches and mouth gap (opened): 5 inches. For determination of the sex, probe directions through cloacal opening were made but did not yet indicate the sex, however the juvenile is largely assumed to be a female. Crocodiles when hatchet are about 7 inches long and grow rapidly for the first five years (Evans, 1986).

For further study, various information needs to be collected in captivity. The present study was conducted in the laboratory of Research and Zoo Education section of the Dhaka Zoo, Bangladesh.

**Monthly variation of temperature, rainfall and humidity in Dhaka in 2005 (Collected from Dhaka meteorological office)**

<table>
<thead>
<tr>
<th>Month</th>
<th>Temperature °C</th>
<th>Rainfall (mm)</th>
<th>Humidity (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Min</td>
<td>Max</td>
<td>Mean</td>
</tr>
<tr>
<td>January</td>
<td>14.1</td>
<td>23.1</td>
<td>18.6</td>
</tr>
<tr>
<td>February</td>
<td>18.3</td>
<td>29.1</td>
<td>23.7</td>
</tr>
<tr>
<td>March</td>
<td>22.5</td>
<td>32.2</td>
<td>27.3</td>
</tr>
<tr>
<td>April</td>
<td>24.1</td>
<td>34.4</td>
<td>29.2</td>
</tr>
<tr>
<td>May</td>
<td>24.2</td>
<td>33.2</td>
<td>28.7</td>
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<tr>
<td>June</td>
<td>26.8</td>
<td>33.4</td>
<td>30.1</td>
</tr>
<tr>
<td>July</td>
<td>26.1</td>
<td>31.1</td>
<td>28.6</td>
</tr>
<tr>
<td>August</td>
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Physical restraining gadget for Crocodiles

M.G. Jayathangaraj1, Kalairasani2 and Mathew C. John3

1Department of Wildlife Science, 2Rtd Professor and Head, Madras Veterinary College, Chennai, Tamil Nadu 600007, India; 3Director, Chennai Snake Park, Rajbhavan Post, Chennai, Tamil Nadu 600022, India; Email: mgjayathangaraj@yahoo.com1, vkarasan@gmail.com2

Restrainting wild animals is an art especially in the case of reptiles like crocodiles – a frequently neglected species. Crocodilians often pose a challenge to the restraining personnel in zoological parks. To the extent possible, the restraint needs to be executed in a minimal stress or in a stressless manner. A design suitable for the proper restraint of crocodile places was made and applied in crocodiles and was found to be satisfactory, the facts are discussed.

An even surfaced wooden plank was prepared with measurements of 184cm as length, 30cm as width and 2cms as thickness. Eight cloth-fibre woven straps were fixed at even distances from the centre of the plank, so that the lengthier part (A) is on one side of the plank and the shorter part (B) is on another side of the plank. Holes were placed on the lengthier part of strap at even but close distance to accommodate the pointer of the buckle placed in the end of the part B. The whole wooden plank had 4 pairs of small wooden rest (each of 4.5cm height and 2cm width). The Marsh Crocodile (Crocodylus palustris) at Chennai Snake Park Trust was restrained by animal keepers in the usual way and the crocodile was tied around the snout to prevent inflicting of injuries. The straps were placed around the body of the crocodile. Then the pointers of the buckles were inserted into the holes of lengthier part-A of the strap. The plank was lifted in the crocodile and there was no discomfort to the crocodile and however, to minimize the probably still existing stress factors for the crocodile, the eyes were covered with velcro straps. The gadget and the technique were observed to be satisfactory in crocodiles. The line diagram and restrained reptile have been presented.

The restraint of the captured crocodile needs to be properly designed, so that the animal experiences minimal stress. Fowler (1986) has stated that crocodilians suffer from hypoglycemia induced by stress features and hence, one has to take extra care in proper restraint of these group of reptiles which otherwise look so sturdy in appearance. The present gadget designed and used, was found to cause no injuries to the skin of crocodile and also there were no violent movements of the restrained crocodile, subsequent to the placement of the crocodile on the plank designed. Wallach and Boever (1983) emphasized the need for a proper technique for handling of reptiles to prevent injury to both the animal and the handler. Though both pain and stress are difficult to measure in any vertebrate species (Warwick et al., 1995), the absence of any violent movement in the crocodile placed on the plank reflected the satisfactory control of the crocodile. Hence, this design was observed to be a satisfactory one which could be used in various captive facilities. The gadget designed for use in the crocodiles was found to be satisfactory not only in the proper securing of the crocodile, but also in ensuring safety to the restrainers or those who engage in the transport of crocodilians and this gadget may be utilized by zoo personnel.


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Notes on a rescue of a Burmese Python Python molurus bivittatus Kuhl, 1820 (Family: Pythonidae) from an urban area of Bongaigaon District, Assam -- Rakesh Soud, P. 11.

Infighting injuries in male common Indian Lizard Calotes versicolor (Daudin) during breeding period -- Satish Kumar Sharma, Pp. 11-13.


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For communication:
South Asian Reptile Network
c/o Zoo Outreach Organisation, 9-A, Lal Bahadur Colony, PB 1683, Peelamedu, Coimbatore, Tamil Nadu 641004, India
Ph: +91 422 2561743, 2561087;
Fax: +91 422 2563269
Email: herpinvert@gmail.com

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volunteers and there was no report of any recurrence even after 15 days.

In the present case the prolapse might have occurred due to stress during capture. Since the prolapse was a fresh one without any damage to the rectal mucosa, it could be reduced easily by gentle manipulation.