Cobra

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CHENNAI SNAKE PARK TRUST

Quarterly Newsletter of the Chennai Snake Park Trust

Cover

Ocellate shield tail (*Uropeltis ocellata*)

Ocellate shield tail inhabits the moist soils of dense forests of the Nilgiris, Anaimalais and other hills in south India between 600 and 1,000m.

Photo: **K.Ramachandran**
Rajapalayam.

"For the zoologist or the professional photographer of animals, it may be necessary to go to the far corners of the earth in search of living things. But for the ordinary lover of animals this is not so. For if we spend much time going far afield, we may well miss the best, only to return home to find it there. The everyday habits of quite common creatures are so often unexpected and little known".

- Bernard Gooch
(The Strange World of Nature)

Cobra invites articles and short notes on reptiles and amphibians, their ecology, biology, natural history, conservation or other aspects. These may be of scientific or popular interest. Black and White photographs are also welcome.

Please send your contributions to the **Editor, *Cobra*, Chennai Snake Park Trust, Rajbhavan Post, Chennai - 600 022.**

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Volume - 55 **January - March 2004**

CONTENTS

OCCURRENCE OF *EUPHLYCTIS HEXADACTYLUS* (LESSON, 1834) (AMPHIBIA: AUNURA: RANIDAE) IN NORTH EAST INDIA WITH NOTES ON ITS MORPHOLOGICAL CHARACTERS

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Euphlyctis hexadactylus (Lesson, 1834) commonly known as the Indian pond frog has its distribution throughout Southern, Western and Eastern India, Bangaladesh and Sri Lanka (Sarkar et. al.,1992 and Dutta, 1997). Though this is essentially a peninsular Indian species, Chanda (1994) recorded this species from Tripura, North East India.

While examining the live frog specimens collected during monsoon from Baghmara Reserve Forest, South Garo Hills district and Narpuh Reserve Forest, Jaintia Hills district of Meghalaya, the authors came across a good number of *hexadactylus* specimens with the distinguishing double row of porous line on the abdomen (Daniel, 1975). This led us to study the material deposited at the holdings of this station from different states of N.E.India labelled as *cyanophlyctis*. We found a mix of *hexadactylus and cyanophlyctis*(Lesson). The present paper is an effort towards rectifying the same.

Abbreviations

SLV = Snout to vent length
V/ERS = Vertebrata/Eastern Regional Station
V/A/ERS = Vertebrata/Amphibia/Eastern Regional Station

Material examined: The present study is based on 140 examples (75 males and 65 females of SVL 23mm - 75mm) from Meghalaya (Regd. Nos. V/A/ERS/ 326, 367, 377, 380, 383, 384, 390, 394, 396, 397, 398, 399, 400, 401, 402, 404, 405, 406, 425, 442, 460, 464, 471) ; 14 exs. (3 males and 11 females of SVL 33 mm - 60mm from Assam; (Regd. Nos. V/ERS/ 1570,9115,9121,9147 and V/A/ERS/177); 30 exs. of SVL 21mm - 30mm) from Arunachal Pradesh (Regd. Nos. V/ERS/1162, 1165); 11 exs. (3 males and 8 females of SVL 26 mm - 50 mm) from Nagaland (Regd. Nos. V/ ERS/9174, V/A/ERS/276, 284,286); 10 exs. of SVL 20 mm - 29 mm from Manipur (Regd. Nos.V/A/ERS/57, 67); 42 exs. (5 males and 37 females of SVL 33 mm - 52mm) from Mizoram (Regd. Nos. V/A/ERS/64, 299, 307, 312) and 29 exs. (1 male and 28 females of SVL 24 mm - 44 mm) from Tripura (Regd. Nos.V/ERS/3040,9068,9069,V/A/ERS/27).

Since the characters defining *E. hexadactylus* and *E. cyanophlyctis* are not very pronounced as to enable one to identify the species at a glance, we give here the morphological characters and illustrations thereto of *E. hexadactylus* observed by us which would facilitate the identification of the species.

Euphlyctis hexadactylus (Lesson) can easily be distinguished from its closely related species *cyanophlyctis* on the basis of its larger size, stout built, presence of rows of pores one each on lateral side of belly extending posteriorly upto thigh and anteriorly to the supra-tympanic fold; another row ventrally on either side of the belly. In addition, there is a wavy line of pores (W-shaped) across the throat extending to the supra-tympanic fold at the base of the tympanum. There are a few pores at the corner of the lower jaw (Fig. 1 and 2; Plate I-C). These pores are very distinct in some specimens and not so distinct in the others. In many cases, parasites infest the pores making it look black and distinct.

In live specimens, the dorsum is generally brown to black with darker blotches. Usually, the skin is with prominent warts, mostly so in the posterior region; or the skin may be smooth, ventrally either plain or thinly or thickly mottled with brown (Plate-I A, B). The photographs in Plate I A

is that of freshly killed specimens showing the brown colour pattern available in North East India.

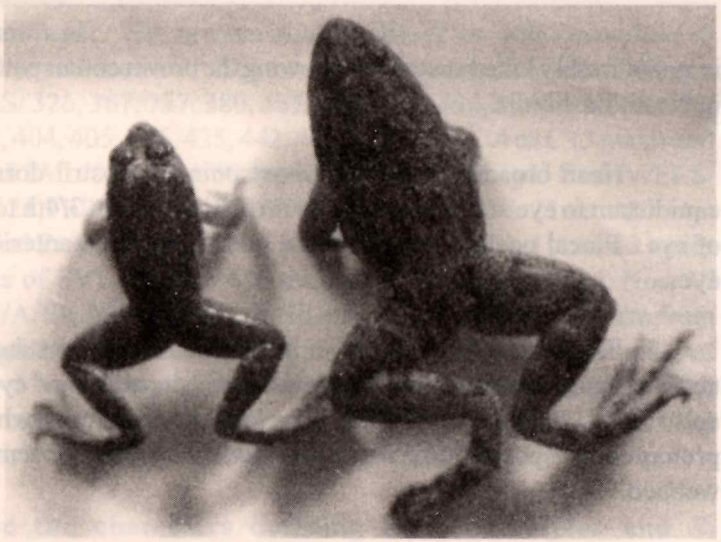
Head broader than long, snout pointed, nostril dorsally placed, equidistant to eye and snout, tympanum distinct, about 3/4th to one the size of eye. Pineal ocellus present in the middle between anterior margin of eyes.

Fingers pointed; first finger longer than second or subequal. Tibio-tarsal articulation generally reaching between tympanum and eye; sometimes upto nostril. Inner metatarsal tubercle elongate, digitiform (which probably prompted the species to be named *hexadactyla*); outer absent. Toes fully webbed.

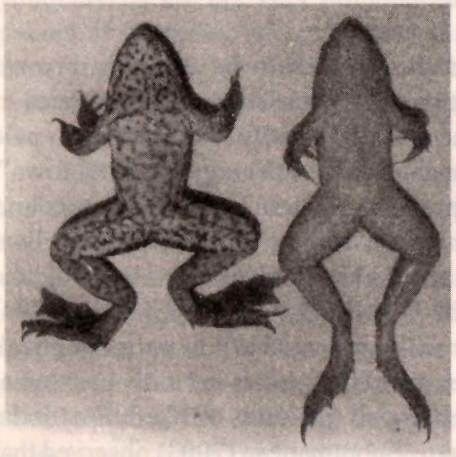
Remarks

Boulenger (1882) found the species to be dorsally brown. Annandale (1909) distinguished two colour varieties of this species in Travancore, namely, "dorsal surface brown, usually with a medium pale stripe" and "dorsal surface striped longitudinally with grey and white brown". Daniel (1975) while studying the species in Western India, found its colour "bright grass green or olive green above with or without a pale yellow vertebral line from snout to vent" and Sarkar et. al. (1992) observed "the dorsum leaf green or darker" in the West Bengal fauna. Chanda (1994) reported "a bright leaf green colour with a primrose yellow vertebral streak in the living specimen" as characteristic of the species in North-East India; but the present collections representing all the states of North East India did not yield any green colour pattern. Subramanean (2003) observed that "the colouration of the frog varies from blackish to different shades of green depending on the locality". Three preserved specimens of SVL 21 mm - 49 mm from Kerala studied by the authors are dorsally brown with whitish lateral bands and a thin mid dorsal line in the two smaller specimens.

PLATE - 1



A



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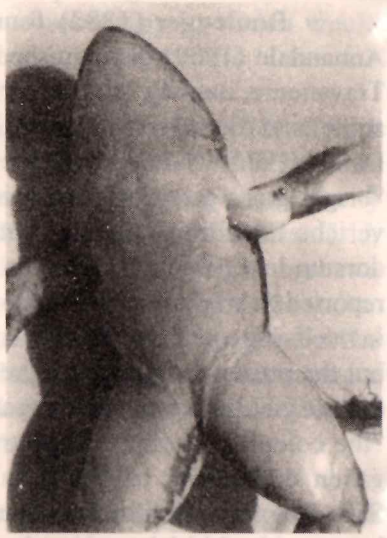
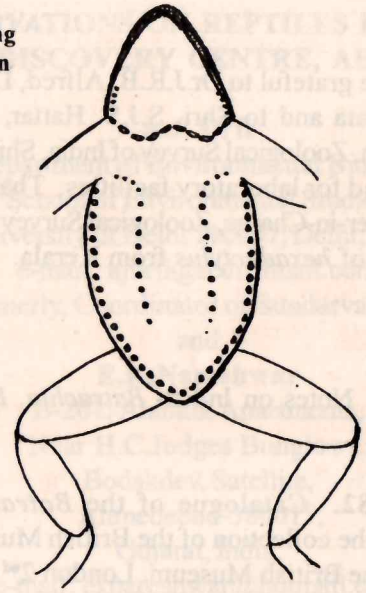


C

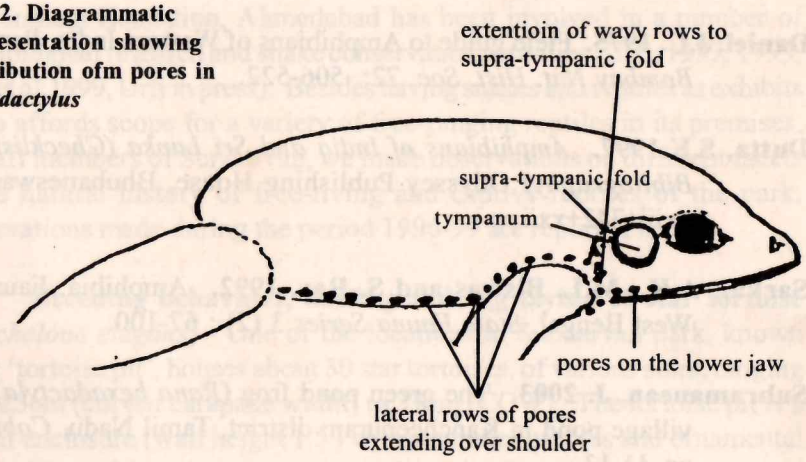
Euphlyhctic hexadactylus **(Lesson), dorsal and ventral view showing rows of pores**

Fig. 1. Diagrammatic representation showing distribution of pores in *hexadactylus*



Ventral view showing rows of pores

Fig. 2. Diagrammatic representation showing distribution ofm pores in *hexadactylus*



Lateral view showing rows of pores

Acknowledgements

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SOME OBSERVATIONS ON REPTILES IN SUNDARVAN NATURE DISCOVERY CENTRE, AHMEDABAD

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Sundarvan Nature Discovery Centre, a facility of the centre for Environment Education, Ahmedabad has been involved in a number of herpetological research and snake conservation activities (Urfi, 1997, 1999, Urfi, et al,1999, Urfi in press). Besides having snakes and reptiles as exhibits it also affords scope for a variety of free-ranging reptiles in its premises. As staff members of Sundarvan, we made observations on different facets of the natural history of free-living and captive reptiles of the park. Observations made during the period 1996-99 are reported here.

Breeding behaviour, nesting and egg laying of star tortoise (*Geochelone elegans*) - One of the locations in Sundarvan park, known as the 'tortoise pit', houses about 30 star tortoises, of various sizes, ranging from 25cm (curved carapace width) to 37cm (CCW). The tortoise pit is a walled enclosure (wall height 1.5') with a number of trees and ornamental plants. Most of the tortoises were brought to Sundarvan after being rescued

from different areas of the city and included those which were hurt by speeding motor vehicles (Urfi, in press). Such animals have shells with many cracks.

In 1996, around 18th June, three tortoises were seen copulating in the pit. There was no selection for size between the copulating individuals in that a small-sized male was copulating with a female, almost twice its size. During copulation, a dim, rasping sound could be heard. Since most individuals could be individually identified by their carapace markings or cracks, it was observed that much cross-mating took place in the tortoise pit. On one occasion, a small male mated with two separate large females in quick succession and one of the females which was known to have copulated with a particular male previously, was observed to copulate with a different male. It is not known whether a high degree of promiscuity was encouraged by the confined environment or whether this is the norm in the wild.

In 1996, egg laying activity was not observed, but on 14th October 1997, a large female dug a nest in the ground, at the base of a tree and laid 4 eggs in it.

The above observations confirm many earlier observations. For instance Daniel (1983) records the clutch size for starred tortoise as 3-7 and March, April, June, October and November as the months in which egg laying is observed across India. The egg-laying process took about 15 minutes, and there was a gap of about 4-5 minutes between each successive egg laid. After dropping each egg in the nest, the female was observed to dig into the earth by using her hind legs in order to cover the egg. The depth of the nest was about 15cm. Subsequently, it was observed that after the complete clutch had been laid and the pit covered by more earth by the female, a male attempted to dig the pit. This attempt was thwarted by one of the Sundarvan attendants. However, three days afterwards, on 17th October, 1997, a Common Indian Monitor Lizard (*Varanus bengalensis*) was seen in the tortoise pit close to the nest. When the monitor lizard was caught it was found that pieces of egg shell and traces of egg white were sticking to its mouth, suggesting that it had raided the nest.

Captive breeding of saw-scaled viper *(Echis carinatus)*- The Sundarvan snake-exhibits include one male and two female saw scaled viper in a glass diorama, measuring 160x115x77cm. On the 3rd June 1998, at about 9hrs, one of the females gave birth to 17 young ones, followed shortly afterward by the second female giving birth to 16 young ones. For giving birth, the snakes had selected a corner of the glass diorama , which faced the visitor area. Therefore, the process of birth could be observed closely. The young ones came out of the cloaca smeared in blood and enveloped by a thin transparent membrane. Immediately after birth, they were motionless but a few minutes later started flickering their tongues.

Both the females gave birth to young ones – 13 each- in the following year also, between 25th May and 3rd June, 1999.

The above observations confirm earlier records on brood size, month of breeding etc for this species (Daniel,1983,Whitaker,1978).

Combat dance of rat snake (*Ptyas mucosa*) - The combat dance between two males which twine around each other, often in a half erect position, is well documented (See literature cited in Daniel (1983))*. On June 7, 1999 the combat dance between two rat snakes was observed in the playground area of Sundarvan park. Two adult snakes, with their throats puffed out, were observed twined together and seemed to be pushing against each other. The couple was never in a still position and the sequence lasted for about an hour till it was terminated by human disturbance but for which the combat might have continued for a longer period.

Breeding season of cobra *(Naja naja)* **and checkered keelback** *(Xenochrophis piscator)* - A cobra rescued from outside Sundarvan was temporarily placed in a diorama where it laid eggs on 20th May in 1996. Unfortunately, the clutch size was not recorded.

* *See also Cobra* Vol.18 (Oct. - Dec. 94) p-20-21; Vol.21 (July - Sept. 95) p-20. - Ed.

A checkered keelback, also rescued from outside the park and placed temporarily in a diorama, laid eggs numbering 58, on 21st March, 1996. Daniel (1983) records the clutch size in this species as ranging from 8 to 91 eggs. According to Deoras (1965) as many as 101 eggs have been recorded.

Acknowledgements

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OBSERVATIONS ON THE PECULIAR FOSSORIAL HABIT OF SAND FISH, *OPHIOMORUS RAITHMAI* ANDERSON AND LEVITON, 1966 AND TOAD AGAMA, *PHRYNOCEPHALUS LAUNGWALANSIS* SHARMA, 1978 IN THE THAR DESERT OF RAJASTHAN, INDIA

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Sand fish, *Ophiomorus raithmai* Anderson and Leviton, 1966 and Toad agama, *Phrynocephalus laungwalansis* Sharma, 1978 are found in the Thar desert of India, the latter being endemic to the Thar desert of Rajasthan. In the Thar desert of Rajasthan, sand fish is reported from Jodhpur, Nagaur, Barmer and Jaisalmer districts while toad agama is reported from Jaisalmer district only. During the study in 2002 to 2004, sand fish was observed and collected from Dhechu (Jodhpur) and Sam (Jaisalmer) and toad agama from Sam only.

Sand fish is mostly nocturnal and also seen in early mornings while toad agama is diurnal in habit. Both saltatorial and fossorial and fine loose sand are essential for these lizards to live. Sand fish prefers to inhabit the tunnels of interdunal spaces with scattered xerophytic vegetation like *Crotolaria burhia*, *Calotropis procera*, *Aerva persica*, *Aerva pseudotomentosa*, *Citrulus colocynthis* and *Prosopis cineraria* etc, whereas toad agama lives considerably above on naked, almost barren, loose and shifting types of sand dunes and doesn't dwell in the interdunal zone. They both perform rapid movements on sand and, when disturbed, run very fast and enter anywhere in loose sand completely burying themselves inside it.

The live specimens of both species were kept in a glass jar half-filled with loose sand and the fossorial habit observed is summarised as follows.

Steps As Shown in Fig-1 (SAND FISH)

I. Sitting position of sand fish on sand surface

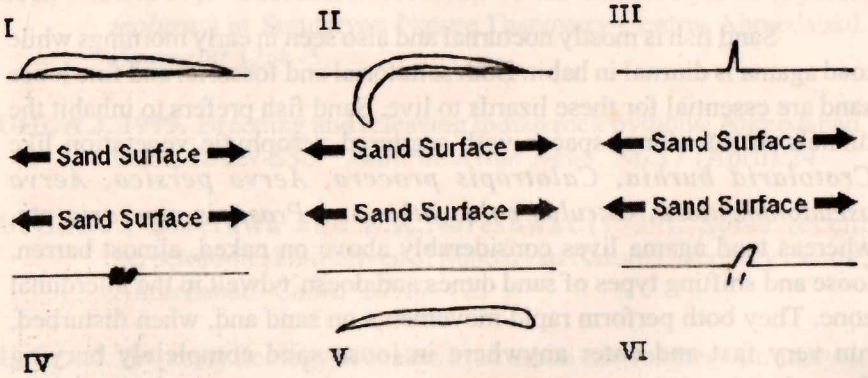
II&III Entering of its head into sand at the point of attachment of snout to sand surface followed by body and tail (During entry body becomes slightly curved due to contraction of body)

IV Complete disappearance of whole body from sand surface, the point of entrance is marked by a depression.

V. Common resting position when it was completely buried in sand (Observed by tilting half-filled glass jar suddenly while it is at rest inside it as on the exposed surface after tilting it was always found horizontal to the sand surface and trying to enter into sand below).

VI. Position with respect to sand surface when it comes out (As observed in field)

Fig-1



Steps As Shown in Fig-2 (TOAD AGAMA)

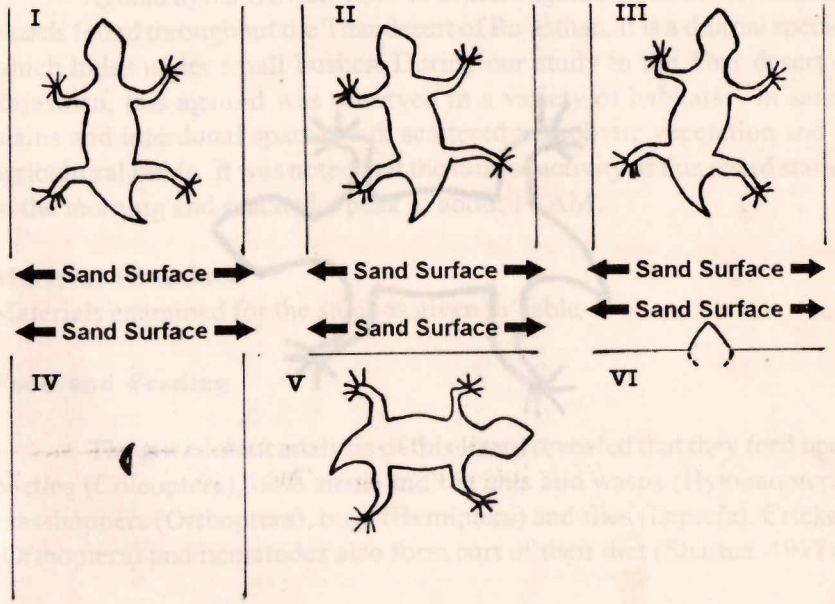
I. Sitting position of toad agama on sand surface

II&III Movement of its body, limbs and tail simultaneously left and right which is repeated several times (wriggling movements): Ventral surface of whole body enters into sand followed by dorsal surface

IV. Complete disappearance of whole body from the sand surface, the place of entrance is marked by a depression.

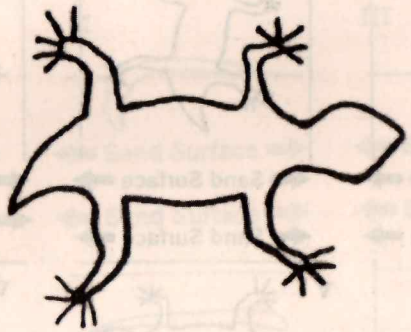
V&VI Same as described in steps of fig-1

Fig-2



Acknowledgements

I am grateful to Dr. J. R. B. Alfred, Director, Zoological Survey of India, Kolkata and Dr. N. S. Rathore, Officer-in-Charge, Desert Regional Station, Zoological Survey of India, Jodhpur for permission to study the material and for laboratory facilities. The financial assistance of the Ministry of Environment and Forests, Govt. of India, New Delhi under the project is also acknowledged. I also thank Dr. R. C. Sharma, Deputy Director (Retd.), Desert Regional Station, Zoological Survey of India, Jodhpur for his valuable guidance and suggestions during the preparation of this paper.



NOTES ON FOOD, FEEDING AND BREEDING COLORATION OF *AGAMA AGILIS* OLIVIER, 1807 IN THAR DESERT OF RAJASTHAN, INDIA

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Introduction

Agama agilis Olivier, 1807 or briliant agama is one of the common lizards found throughout the Thar desert of Rajasthan. It is a diurnal species which hides under small bushes. During our study in the Thar desert of Rajasthan, this agamid was observed in a variety of habitats in sandy plains and interdunal spaces with scattered xerophytic vegetation and in agricultural fields. It was noted that the time of activity of this lizard started in the morning and reached a peak at about 11 AM.

Material Examined

Materials examined for the study is given in Table-1

Food and Feeding

The gut content analysis of this lizard revealed that they feed upon beetles (Coleoptera), both small and big ants and wasps (Hymenoptera), grasshoppers (Orthoptera), bugs (Hemiptera) and flies (Diptera). Crickets (Orthoptera) and nematodes also form part of their diet (Sharma, 1977).

Table: 1

Reg. No	No. of Exa.	Locality	Latitude/ Longitude	Coll.	Date. of Collection	Sex	SVL (in cm)	HL (in cm)	TL (in cm)	Per.
V/2598	1a	Karnisar, Bikaner	28°13'55" N 73°12'09" E	SKD	19.iii.2002	m	10.0	2.7	17.6	176.0
V/2599	1sa	RAU Campus, Bikaner	28°64'10" N 73°20'29" E	SKD	19.iii.2002	m	4.6	1.6	8.6	186.9
V/2600	1a +1j	Bikaner-Gajner Road, Bikaner	27°58'17" N 73°04'59" E	SKD	6.viii.2002	f	7.8	2.4	13.5	173.0
						ct	3.0	1.0	4.1	136.6
V/2601	1a	Mohangarh (Near IGNP), Jaisalmer	-	BJS	17.viii.2000	f	8.9	2.5	16.1	180.8
V/2602	1a	9km.from Kalyanpur, Barmer	-	SKD and VKP	1.xi.2003	m	8.4	2.2	14.9	177.3
V/2605	1a	10 RJD, Rojri, Sri Ganganagar	28°47'46" N 73°05'03" E	SKD	9.viii.2002	f	8.6	2.7	16.2	188.3
V/2606	1sa	Near Khariberi, Agolai, Jodhpur	26°21'43" N 72°31'12" E	SKD	28.iii.2004	m	5.6	1.6	9.4	167.8
						m/f	Ran.	Ran.	Ran.	Ran.
						=	=	=	=	=
						4/3	3.0-10.0	1.0-2.7	4.1-17.6	136.6-188.3

Note: a: adult; sa: Sub adult; j: Juvenile; SVL: Snout to vent length; HL: Head length; TL: Tail length; Per: Percentage ratio = (TL/ SVL)100; Ran: Range; ct: Can't traced; Reg: Registration; Exs.: Examples; Coll.: Collector

Breeding Coloration

Breeding coloration of this lizard was observed between May and August of the year. Breeding coloration was characterized by bright colors on body; a radiating bright gray or blue band on the back of the head upto the neck (which was also observed in post-breeding seasons), a dark gray patch on the margins of the dorsal surface of the body which extends between the head and the tail and touches the ventral surface.

The forelimbs upto just before the fore-foot and hind limbs up to just before the hind-foot become dark gray on the dorsal side which may or may not extend to the ventral side.

Remarks

From the material examined we found that beetles and ants constitute the most common and preferred food item of this lizard in the Thar desert.

Acknowledgements

The authors are grateful to Dr. J. R. B. Alfred, Director, Zoological Survey of India, Kolkata and Dr. N. S. Rathore, Officer-in-Charge, Desert Regional Station, Zoological Survey of India, Jodhpur for permission to study the material and for laboratory facilities. The financial assistance of the Ministry of Environment and Forests, Govt. of India, New Delhi under the project is also acknowledged. We also thank Dr. R. C. Sharma, Deputy Director (Retd.), Desert Regional Station, Zoological Survey of India, Jodhpur for his valuable guidance and suggestions during the preparation of this paper.

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FOREST FIRES AND SLOW-MOVING REPTILES

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On March 31,2004, a dead starred tortoise (*Geochelone elegans*) was seen in a recently-burnt forest area near village Gorela at the western outskirts of Udaipur city. Nearly 5.0 ha burnt area was scanned but no other animal was found dead except the one unlucky tortoise.

The forests of Udaipur zone are tropical dry-deciduous type, very prone to fire from mid-February to mid-June. Dried grass and fallen leaves catch fire immediately and cause great damage. Fire in forests of Rajasthan is of "ground fire" type which prove more harmful to reptiles than mammals and birds since they escape with comparative ease while the ground-hugging and slow-moving are more susceptible to fire hazards. Some of the small reptiles like skinks, lacertids, varanids may take shelter in holes and crevices during such an emergency but animals like starred tortoise cannot easily enter holes and crevices and hence are more vulnerable to ground fires.

Habitats where starred tortoise and other terrestrial reptiles are living need better fire management during summer season. Manual removal of grass or controlled grazing may prove safer to reptiles in the fire prone zone. Cutting of fire lines and their regular maintenance at the beginning of the summer season can decrease fire risks. Public awareness has also to be promoted in such zones so that the scope for fire is minimised, fire protection measures taken in time and, wherever necessary, slow-moving reptiles manually removed in the event of a fire.

RANDOM HARVEST

A reason for celebration

Mark Twain was catapulted into fame with the publication in 1867 of his short story *The Celebrated Jumping Frog of Calaveras County.*

The story is about an inveterate gambler, Jim Smiley, who boasts that his pet frog, Dan'l Webster, is a champion jumper. A stranger pooh-poohs the claim and says that any frog could outjump Webster. He sends Smiley to catch another frog for a contest and, to Smiley's consternation, the new entrant wins the contest. Smiley discovers later that while he was away to collect the new frog, the stranger had clandestinely filled the hapless Webster's gullet with quail-shot to weigh him down.

The frog thus immortalised in literature has been identified as the California red-legged frog (*Rana aurora draytonii*). Much to the dismay of wildlife enthusiasts and also, perhaps, of Mark Twain aficionados, the frog was believed to have become extinct a hundred years after the short story came out, the last frog reported being in 1969.

Now, based on the news in Georgia's *Atlanta Journal-Constitution, Froglog* of April 2004 reports that the red-legged frog has been rediscovered in a ranch in Calaveras county of California in October, 2003, after a lapse of over three decades. The celebrated frog had, after all, not jumped into extinction.

The rancher, with the support of a research and advocacy group has, advisedly, decided to keep the location a secret for the time being.

Froglog adds: "Many ranchers are reluctant to come forward in cases like this because so much fear of the federal government has been sown by those who are fundamentally opposed to the US Endangered Species Act. JFRI (the research and advocacy group referred to) is working hard to create an innovative program whereby (the) ranchers who volunteer their stock ponds to help in the recovery of Twain's frog would become eligible to receive certain economic benefits, along with assurances that their property rights would be respected. They call this the "Dan'l Webster Project," honouring the celebrated frog in Twain's tale.

It may be noted with interest that an annual world frog championship has been continued to be held every year in May in Calaveras County in honor of Mark Twain's frog. However, the frog that enters the competition now is the American bullfrog (*Rana catesbeiana*). Ironically enough, the introduction of this non-native predator is deemed to be one of the factors responsible for the decline in the red-legged frog population.

Slow and steady ....

In a note published in *Hamadryad,* Feb. 2004, Madhuri Ramesh of the Centre for Herpetology, Madras Crocodile Bank, reports the discovery in Mar. 2003 of a male Travancore tortoise (*Indotestudo travancorica*) in Karianshola, Tamil Nadu, which had been marked and released by J.Vijaya in the Kodasseri Reserve Forest, Kerala, in Nov. 1983. The tortoise had travelled at least 19.7 km. in the course of the last 20 years! This is the distance between the two locations as the crow flies. The forest trail between the two locations used by the tribals is 50 km. long.

Largest snake in captivity

The *Monitor* (Newsletter of the Hoosier Herpetological Society) of January 2003 reported the death of Samantha, a 26-foot 275 pound reticulated python (*Python reticulates*) considered to be the largest snake in captivity. Its estimated age was 29. The Bronx Zoo had acquired the snake in 1993 from the Indonesian Island of Borneo.

Incidentally, the June 2003 issue of the same journal reported on a standing (uncollected) reward of $ 50,000 for anyone who could find any snake that exceeded 30 feet.

Largest crocodile in captivity

A 20-foot, two ton, saltwater crocodile that was shipped to Florida's Parrot Jungle Island from Thailand is reported to be the largest one in captivity in the U.S.

[Source: *Miami Herald*, Sept. 3, 2003]

Herbicide which poses a danger to frog populations

There have been persistent reports from many parts of the world about perceptible declines in frog and other amphibian populations. It is estimated that more than 200 amphibian species have experienced population declines and, in the past decade alone, 30 species have become extinct.

Many theories have been advanced for this. The November 2002 issue of *The Monitor* (Newsletter of the Hoosier Herpetological Society) referred to studies at the University of California-Berkley which showed that atrazine used as a herbicide since 1956 and considered the second most commonly used pesticide in US was a possible culprit. This had been found in the drinking water in many towns in the US. Some countries have

banned its use. Biologist Tyrone Hayes and colleagues at the University of California-Berkley had found that male leopard frogs exposed to atrazine developed female traits interfering with their ability to reproduce.

However, some scientists, funded in part by atrazine-manufacturing companies, contend that the presence of both male and female characters is not uncommon in frogs.

How the dinos were doomed ?

It is a strange fact that, in the case of some reptiles, the temperature while the eggs undergo incubation determines the sex of the young ones that hatch out. When the temperature is high, females will outnumber the males in the case of turtles while, in the case of crocodiles, the males will outnumber the females.

Various theories have been advanced about the reasons for the extinction of the dinosaurs 65 million year ago, the more popular ones attributing it, one way or the other, to the impact of huge asteroids on earth. According to a report in the *Times of India* of 22nd Apr. 2004, David Miller of the University of Leeds has suggested that the warming up of the earth as a result of the asteroid impacts might have resulted in the dinosaur eggs bringing out lesser females and the consequential skewing of the sex ratio could have led to eventual extinction of the dinosaur population.

- B. Vijayaraghavan.

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i) To maintain and display a captive collection of snakes and other reptiles as a means of education of the public.

ii) To undertake captive breeding of vulnerable species of snakes and other reptiles.

iii) To promote knowledge on snakes, and other reptiles and amphibians and dispel the erroneous beliefs about them.

iv) To aid and assist research on reptiles and amphibians.

v) To provide facilities for the identification and classification of snakes and other reptiles and amphibians and, for this purpose, maintain a museum of study collections.

vi) To maintain a library of books and other literature on reptiles and amphibians.

vii) To publish scientific and semi-scientific literature on snakes and other reptiles and amphibians.

viii) To undertake survey on the distribution and status of snakes and other reptiles and amphibians.

ix) To provide consultancy services on snakes and other reptiles.

x) To provide a common forum for interaction among amateur scientists and friends of reptiles and amphibians.