

SURVEY OF MILDLY-VENOMOUS AND VENOMOUS SNAKE SPECIES IN RATNAGIRI DISTRICT, MAHARASHTRA, INDIA.**Vimal Temkar*, Siddharaj Sawant and Saniket Warekar**

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ABSTRACT

Snakes occupy a diverse range of habitats and microhabitats, i.e., they are found from deserts to grasslands, from forests to oceans and from hills to our own houses. An annotated checklist of snakes is prepared on the basis of the information from survey during Feb 2016 to Feb 2018 on the basis of the species. The captured snakes represent mildly Venomous and Venomous types of species. All 10 listed species are captured at local sites of Ratnagiri District, Maharashtra, India. On the basis of identification by the local communities, check list was prepared

as a primary data. The secondary data for this observation were obtained after the examination and careful identification.

Index Terms: Snake, Ratnagiri.**MATERIAL AND METHODS****Sampling**

Snakes were captured on Rescue calls from house, farms, factories, appartments, and some species caught in forest for study.



Storage

Snakes caught were kept in plastic container safely. Period of storage is not more than 24 hours.

Criteria of Study

Species which were caught and are handled with care without any harm to the snake. Length, weight, sex, behavior of Snakes were studied.

Equipments

Snake stick were used for safe handling. plastic containers were used for storage according to size of species.

Glossy Marsh Snake *Gerarda prevostiana*

MILDILY VENOMOUS

Venom Type: Neurotoxic

Characteristics for identification

It can be identified by checking shorter length, extremely glossy body of gray-brown color and shorter tail.

DESCRIPTION

Average length- 45cm.

Maximum length- 52cm.

Body cylindrical to slightly depressed, moderately thick and not much robust as compared to majority of Homalopsidae Family members. Covered with pitted smooth scales which lacks striations. First three dorsal rows yellow-white while rest of dorsal surface glossy gray or reddish-brown.

Habitat

It is restricted to coastline and rivers ending to sea water. Prefers mangrove waters but occasionally founds in nearby water bodies away from sea. Use mud lobster mounds and other mangrove crustacean burrows as hiding place. Often seen lying on shallow water pool with submerged or exposed body.

Natural History

Glossy Marsh Snake is a nocturnal and aquatic species found to be more active during spring tide survey nights. Behavior calm and rarely bites. Moderate swelling on bite site is observed which retains for few hours. Viviparous. Female directly gives birth to 4-6 young individuals during early monsoon.

Diet

Feeds on soft bodied crabs, shrimps, mudskippers. This snake is one the few exception in snake world which preys upon some animals (crabs, shrimps etc.) by tearing their body to take the most nutritive part only.

Forsten's Cat Snake *Boiga forsteni***MILDLY VENOMOUS****Venom Type:** N/A**Characteristics for identification**

Identified by checking larger size than other *Boiga* species, patternless head and light color cross bars in zig-zag manner. Usually identified by checking larger size than other *Boiga* species, patternless head and light color cross bars in zig-zag manner.

DESCRIPTION

Average length- 100cm.

Maximum length- 230cm.

Laterally flattened long body. Scales smooth, long shaped and obliquely arranged. Top dorsal scales along the vertebra larger than side scales. Dorsal color variable and number of variations seen in patterns also. Usually two most common ground color grayish and brown found in most of its range. Also found in light or dark grayish, reddish-orange. Black, white or yellowish cross bars in zig zag manner starts from neck to posterior body where they become faint but visible.

Habitat

Choose heights for roosting and foraging. Remain hidden in tree holes, caves, piles, dense vegetation at height during day time. Found in variety of dense forests having undisturbed vegetation of hills and plains both. It is one common but rarely seen snake of Saal forests of India.

Natural History

Activity nocturnal and arboreal. Locomotion moderate. Can be seen from early night to early morning. Behavior shy, elusive and usually non-offensive. On threatening throws much of fore body into tight loops with head above the ground, puff its neck and hiss to frighten its enemy. Gives regular mock attacks to maintain safe distance. Oviparous. Lays up to 10 eggs in tree hole, cracks etc in summers.

Diet

Feeds equally on lizards, birds, rodents, frogs, other snakes, eggs etc.

Condanarus Sand Snake *Psammophis condanarus***MILDILY VENOMOUS****Venom Type:** Neurotoxic**Characteristics for identification**

Can be identified by checking light and dark stripes on dorsal body. In this species the topmost stripe is found to be darker and broader than adjacent stripes. This helps in differentiating it from Leith's Sand Snake (*Psammophis leithii*) which bears light and narrower stripe on top.

DESCRIPTION

Average length- 80cm.

Maximum length- 107.5cm.

Body thin, long, slender and covered with subequal smooth scales. Ground color pale brown or light olive with three black edged stripes running transversely along the dorsal body. Top stripe broadest and of dark color which is guarded by light brown and narrower stripes.

Habitat

Distributed mainly in wide range of forests including mixed, dry and moist deciduous forests of hills and plains, grasslands, deserts, semi-desert, hilly forests etc Choose dense thorny bushes of low height, holes and rock gaps for roosting and egg laying

Natural History

Condanarus Sand Snake is a diurnal species which shows activity throughout the day among thorny bushes. Activity both terrestrial and arboreal. Locomotion fast in serpentine motion in

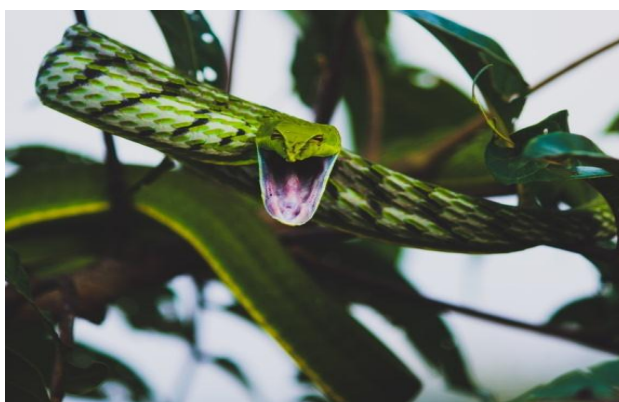
all environment. Behavior very alert, quick to respond and non-offensive. No specific display known to call it aggressive response and always try to escape on threatening. Bites in chew manner which can locally cause swelling and moderate pain. Oviparous. Female lays eggs under rocks, tree holes, mounds, small caves etc.

Diet

Feeds on lizards, bird chicks, frogs, rodents and other snake by actively chasing them.

Common Green Vine Snake *Ahaetulla nasuta*

MILDILY VENOMOUS



Venom Type: Neurotoxic

Characteristics for identification

Can be identified by checking following characters: Very thin & long body & tail. Green dorsal. Leaf or arrow like head with very pointed snout. It can be identified easily by checking very thin & long body & tail, green dorsal, leaf or arrow like head with very pointed snout. Horizontal pupil in eyes.

DESCRIPTION

Thin, long and slender body. Scales smooth, long and obliquely arranged. Dorsal color parrot green or bluish-green; brown in variety isabellinus. Regular black interscale patterns present in oblique manner from neck to much of mid body.

Habitat

Choose dense bushes and plantation to stay at a place without showing any movement. Hides in dense green vegetation of low height. Found both in hills and plains. Lives in variety of forests including mixed, dry and moist deciduous forests. Not found in deserts.

Natural History

Green Vine Snake is a diurnal and arboreal species which shows activity throughout the day at low to moderate heights. Rarely seen on ground. Locomotion fast in arboreal environment while slow on land. Behaviour shy and usually non-offensive. On threatening it throws half of fore body into loops or curvs, laterally inflates it and open its mouth as wide as possible to look fascinating and bigger. Can bite in chew manner. Also it has been observed that it sometimes try to target eyes or face of the person causing provocation. Due to its thin body and green color it can easily vanish in green bushes. It is assumed to be capable in mating for most of the year. Female directly gives birth to 23 (maximum) young in dense bushes from monsoon to most of winters.

Diet

Feeds on variety of prey including lizards, birds, frogs, other snakes including venomous ones, rodents etc.

Common Krait *Bungarus caeruleus***VENOMOUS**



Venom Type: Neurotoxic

Characteristics for identification

Shiny Black body with Milky White bands (paired or unpaired). Vertebral scales are Hexagonal in shape.

Description

New born - 25-27cm.

Average length- 90-120cm.

Maximum length- 165cm.

Body slender with shiny smooth scales of black color range. Dorsal body jet black or black mixed with brown, grey, purple ting. Presence of milky white bands (paired or unpaired) on the dorsal body is the main visible feature of Common Krait. The vertebral scales hexagonal in shape as in all Krait species and this is a definite identification feature of this snake and genus.

Habitat

Distributed in variety of forests including rainforest; dry, moist, mixed deciduous forest, scrub forest, wetlands, grasslands etc. Lives in almost all kinds of habitat suitable for snakes and wide range of elevations (plains and hills); this includes urban settlement, dense & open forest, hills, agricultural lands, rocky terrain etc.

Natural History

Common Krait is exclusively a nocturnal species and shows activity from late evening to early morning. Activity usually terrestrial but climbs well on rough surfaces in search of prey and hide. Remain hidden in dark and silent places like rat holes, termite mounds, variety of caves, old tree mounds, under rocks etc. during day time. Behavior shy and usually non-offensive. At day time it become quite docile and less resisting while at night it becomes aggressive, sharp and alert for foraging. In defensive response it makes call like coil of body and try to hide its

head under it. Flattens its most of the body on ground in aggression and can bite on further disturbance. Mating season begins with summer and female lays eggs in mound, holes, dense & dry leaf litters etc. in very secretive manner. Hatching occurs during start of monsoon mostly. Male combat also observed in this species during post winter and summer months.

Diet

Feeds majorly on other snakes and rodents. Also feeds on frogs, toads and lizards.

Bite symptoms

Bungarus caeruleus venom causes abdominal pain and progressive paralysis of the peripheral nervous system, leading to respiratory paralysis and death due to asphyxia. Early signs include abdominal pain, headache, convulsions; paralysis usually starts with the eyelids and other muscles of the face. Early assisted ventilation and airway management are crucial and life-saving.

Spectacled Cobra Naja

Naja **VENOMOUS**



Venom Type: Neurotoxic

Characteristics for identification

Can be easily identified by having hood and adjoined rounded mark on posterior of hood. Color of Spectacled Cobra greatly depends on geographical areas. In and around human habitation and agricultural lands it can be seen commonly as a rodent predator. Always raises hood on disturbance or to alarm its enemy. Typical spact-shaped mark is usually present which is characteristic of this species.

DESCRIPTION

New born- 25-30cm.

Average length- 150cm.

Maximum length- 210cm.

Body slender with smooth oval shaped scales. Dorsal color includes yellow, all shades of brown, dark gray, reddish, black or black mixed with blue, purple, red etc. Color greatly depends on geographical region. Maharashtra, whole South India, Andhra Pradesh, Odisha, West Bengal etc. coastal states populations bear color range of yellow and brown (light). Sometimes dark color obtuse bands also found on posterior side. Central, northern & western India population is known for dark brown or black color.

Habitat

Found both in hills and plains. Distributed in variety of forests of Indian mainland which includes rainforest, mixed, moist and dry deciduous forests, grassland, wetland, desert etc. Lives in dense & open forests, agricultural lands, city outskirts, around wetlands, rocky terrain having mounds and deep hiding places, old woods etc. Hides in mounds, holes, piles, caves, cracks etc.

Natural History

Spectacled Cobra is basically a nocturnal species but crepuscular behavior is mostly shown by it. Can be seen at daytime also. Activity terrestrial but can climb well when needed for foraging and roosting. Behavior alert and aggressive. On provocation raises its forebody to show famous hood and hiss loudly to give warnings. Gives mock attacks initially but can bite in fury to deliver its neurotoxin venom. To escape it tries to crawl slowly which is done by keeping eyes on enemy by curling and bowing the hood. Mating begins during post winter season with male combat. Winning male performs mating rituals with female. Egg laying and guarding done by

female in mounds and caves. Up to 30 eggs it can lay and hatching done from late summer to most of monsoon.

Diet

It preys on variety of animals including frogs, toads and mostly rodents. Also feed on birds, other snakes including venomous ones, small mammals (mongoose and kittens), eggs etc. Can climb up to good heights on roof tops and trees in search of food.

Bite symptoms

The area around the bite starts swelling up within half an hour. The limbs become weak. The eyelids droop and cannot be kept open. Saliva starts dribbling from the mouth. This is accompanied by sweating and vomiting. If untreated, the victim dies of respiratory muscle paralysis.

Hooked-nosed Sea Snake *Enhydrina schistose*

VENOMOUS

Characteristics for identification

It can be identified by checking indistinct bands on light ground color and beak shaped snout which is not found in other Sea Snakes of its range.

DESCRIPTION

New born- 21-24cm.

Average length- 100cm.

Maximum length- 158cm.

Less slender anteriorly, clearly compressed on posterior. Dorsal body gray, bluish-gray, olive green with yellowish-white side and belly. About 46-60 moderately dark bands found dorsally, broadest on top, tapered on side and absent underside. Old individuals have more or less uniform dorsal because bands get fused with ground color. Tail laterally compressed and oar like.

Habitat

Lives in tropical coasts. Prefers activity in shallow water, river mouth, mangrove waters, estuaries, fresh water lakes etc. Use sand and mud for activity on land.

Natural History

Activity both diurnal and nocturnal Spends most of life underwater and occasionally comes on land where it becomes helpless. Behavior usually non-offensive, still it is considered to be one of the most aggressive Sea Snake. Viviparous. Female maturity reaches at 18 months. Gravid females seen during winter to summer months. Directly gives birth to 4-33 young from late winters to monsoon.

Diet

Feeds on ariid and plotosid catfishes.

Russell's Viper *Daboia russelii*

VENOMOUS

Venom Type: Haemotoxic

Characteristics for identification

This species can be identified easily by robust and stout body covered with keeled scales. In three rows eye or almond like spots found in whole dorsal body. This character helps people to differentiate between Russell's Viper and non-venomous Indian Rock Python which is found in the same range. It can be easily identified by checking oval shaped hollow or solid spots in three rows in dorsal body and highly keeled non-shiny scales.

DESCRIPTION

New born- 24cm.

Average length- 100cm (3.3ft).

Maximum length- 180cm (6ft).

Color and patterns become faint in adults or sometimes adults found to be completely patternless. Continuous or discontinuous eye or almond like hollow or solid spots of dark brown or blackish color present in three longitudinal rows along the body; starts from head and generally become faint or absent on tail side. Side spots smaller and more rounded than spots present on the top and generally discontinuous.

Habitat

Found both in plains and moderate elevation up to approximately 4800ft; more common in plains. Distributed in variety of forests including rainforest, mixed, dry, moist deciduous forest, scrub lands, grassland, wetland etc. Hides in mounds, holes, piles, caves, cracks, dense leaf litters, dense vegetation etc.

Natural History

Russell's Viper is a nocturnal species which choose nights for foraging and other life activities. Seen at daytime during basking which can retain for most of the day during winters. Locomotion usually slow but creeps in somewhat jumpy manner after threatening. Behaviour alert and aggressive if one comes under its attacking range or sitting site. On provocation make a plate like rounded coil with head at center and produce whistle or pressure cooker like sound to alarm its enemy. On further disturbance gives random attacks to scratch enemy's body parts and may or may not deliver its haemotoxic venom. Mating season starts from winters and usually retains up to starting of summer. Male combat also observed during the same period to show dominance for breeding female. Reproduction ovoviviparous; female directly gives birth to 6-96 young during summer to monsoon months. Such large clutch size is not found in any other Viper or Pit Viper of India.

Diet

Feeds chiefly on rodents and small mammals; also feeds on birds, lizards, frogs.

Saw-scaled Viper *Echis carinatus***VENOMOUS**

Venom Type: Haemotoxic

Characteristics for identification

It can be identified by carefully checking very dry looking body covered with rough scales, light color rounded patches on top which are surrounded by two wavy lines from head to posterior body.

Description

New born- 8cm.

Average length- 30cm.

Maximum length- 80cm. (Depends on geographical areas, South Indian population is known for smaller size) Body short, robust and stout. Highly keeled pointed scales of dry appearance found in all over the dorsal body. Body color ranges from light to dark brown, gray, brick red or reddish-brown. Light color spots of light yellow or very light brown margined by dark color found in whole dorsal surface; these spots may be more symmetric on mid body.

Habitat

Found both in moderate elevation and plains. Habitat includes dry open lands, agricultural field, scrubs, rocky terrain, open plains etc. Hides in mounds, holes, piles, caves, cracks, dense leaf litters, rocks etc.

Natural History

Saw-scaled Viper is a nocturnal species which remains active from late evening to late nights for foraging and other life activities. Can be seen at day time while basking on habitat. Activity usually terrestrial but climbs on scrub vegetation for basking. Locomotion slow and use side

winding motion for creeping faster. Behavior very alert, aggressive and quick to respond. This is one of the fastest striking snake and takes much less than 1 second time to bite and back to its original place. On provocation it makes a specific coil to keep the head on front and middle of the coil which is followed by mutual rubbing of oblique scales present on flank. This rubbing produce fascinating sound of "working of saw". Strikes very fast when enemy approaches to its attacking range and delivers small but very potent amount of venom even by scratching only. Mating season starts with male combats. Reproduction ovoviviparous, female directly gives birth to 6-8 young individuals during summer to monsoon months.

Diet

Feeds on rodents, lizards, frogs, rarely on other snakes, insects including scorpions.

Bite symptoms

Saw Scaled Viper is the smallest BIG FOUR member. Generally it bites when people don't see them in their natural habitat and mistakenly step on its body resulting in a serious bite. The two long fangs eject a few drops of Hemotoxic venom. Dry bite is possible in few cases but this has to be confirmed by medical experts only. Bite of Saw Scaled Viper is much serious than Russell's Viper and cause serious tissue loss. Medical treatment with the help of anti-venom is recommended in each bite without annoying experiments with bite site.

Bamboo Pit Viper *Trimeresurus gramineus*

VENOMOUS



Venom Type: Haemotoxic

Characteristics for identification

Can be identified easily by checking triangular head which is much broader than neck, green dorsal marked with rich or faint black markings and yellow belly.

DESCRIPTION

New born- 16cm.

Average length- 70cm.

Maximum length- 113cm.

Body somewhat slender, covered with lightly keeled scales. Upper body color ranges from yellowish-green to bluish-green and marked with rich or faint black irregular markings.

Habitat

Distributed mainly in rainforest; dry, mixed and moist deciduous forests. Found mainly in moderate to high elevations but at many parts of its range it has been recorded from sea level also. Lives in dense and open forests having low vegetation. Hides among dense bushes, tree holes and mounds at heights at day time.

Natural History

Bamboo Pit Viper is a nocturnal and arboreal species like other species of same genus. Choose moderate heights but can be seen on ground many times. Locomotion slow in all kind of environment. Behaviour shy, usually calm, non-offensive and try to escape first. On provocation or threatening it throws half of fore body into loose loops with head on the top. Gives mock attacks first and can bite on approaching closer. Female directly gives birth to 6-14 young during July to September.

Diet

Feeds mainly on frogs and rodents. Also feeds on other snakes and small birds. Foraging done in ambush manner and don't follow chasing its prey.

Bite symptoms

Within minutes of bite, there is burning sensation, pain and swelling in the site. This sensation spreads along the limb involved. The limb becomes red and there is often internal bleeding. No deaths reported.

CONCLUSION

During this study 4 Mildly-Venomous and 6 Venomous snake species were observed. The present study will may help to develop awareness in people and to conserve the snakes fauna in Ratnagiri district of state Maharashtra, India.

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