

Diversity of Snakes Around Panje- Dongri Wet Land, Uran, Navi Mumbai West Coast Of India

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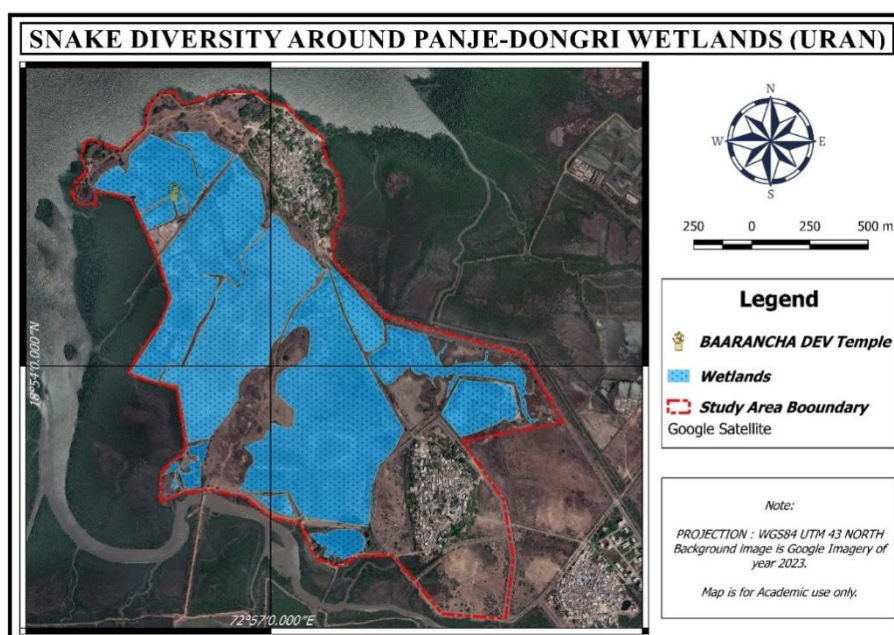
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Abstract: The research described in this paper aims to catalogue the variety of snake species found in the Raigad district of Maharashtra, India's Panje-Dongri and Uran region. The research was carried out from August 2021 to February 2023. A total of 14 snake species were discovered in the investigation, and they were divided into seven different families: Colubridae, Viperidae, Elapidae, Acrochordidae, Erycidae, Typhlopidae, and Homalopsidae. This study underscores the necessity for research and conservation efforts to save the area and biodiversity while highlighting the wide variety of snake species found in the Panje-Dongri, Uran region of Raigad. It also acts as a starting point for further investigation.

Keywords: Snake Fauna, Reptiles, Panje-DongriWetland, Uran, Biodiversity.

I. INTRODUCTION

The largest container handling port in India is Jawaharlal Nehru Port (JNP), which handles over 44% of the nation's containerized cargo and has continuously exceeded the historic milestone of 4 million TEUs in containers for the past five years. Major economic drivers in Uran include shipping, shipbuilding, and port support. Container terminals other than JNPT include APM terminals (formerly GTI) and NSICT- DP World. The coastal environment of Navi Mumbai, particularly Uran and Panvel, has experienced substantial stress as a result of the continuing building of the New Port of Singapore Authority (PSA) and Navi-Mumbai International Airport (NMIA) by the City and Industrial Development Corporation (CIDCO). Deforestation, encroachment, reclamation, and urbanisation as a result of this building have had a negative impact on the local fishing industry, coastal communities, and the flora and ecosystem of Uran, Navi Mumbai.



Study Area Map: PanjeDongri Wetland

As reptiles play a significant role in maintaining the health of Earth's ecosystems, it is crucial to record their present distributions in light of shifting climate and land-use patterns, declining habitat quality and abundance, and the rising

threat of extinction that many species are experiencing (Gibbons et al. 2000;). More than 500 reptile species in 28 families can be found in India. There are 34 species of turtles and tortoises, 202 species of lizards, 279 species of snakes, and three species of crocodiles among them (Aengals et al. 2011). One of ecology's main aims is to comprehend trends in animal distribution and abundance (Marsh et al. 1999).

Due to habitat loss, environmental degradation, irresponsible resource usage, and global climate change, the population of reptiles is declining (Ana et al., 2010). Human exploitation and disregard for reptiles, particularly snakes, contribute to the fall in their population in metropolitan settings (Ingle et al., 2019). The species makeup and distribution of snakes have been the subject of very few research in recent years. Consequently, the objective of the current study is to record the variety and distribution of snakes in the area of Panje-Dongri Wetland, Uran, and Navi Mumbai. With the goal of using these data as a foundation for upcoming research in the area.



Habitats around Panje- Dongri wetland, Uran

II. METHODS AND MATERIALS

An experienced snake catcher caught snakes that were seen during trips or reported by locals. A guide to Snakes of Maharashtra, Goa, and Karnataka (NeelimkumarKhair, 2006), and "Snakes of India: The Field Guide" (Romulus Whitaker, 2006) were used as references. The captured snakes were handled carefully, their characteristics were documented through notes and photographs, and they were identified based on these findings.

Ethical issues followed during the study: This location has a large population of snakes. All of the snakes were captured by Sarpamitra after receiving phone calls from people's houses throughout the year. Without causing any harm, the snakes were handled with extreme care. All the snakes were captured, immediately returned into their appropriate habitats, and the forest department was periodically updated on the situation.

Table 1: List of snakes in PanjeDongri, Uran:

The Uran region of PanjeDongri exhibits the presence of 14 species of snakes from seven families. The survey revealed the presence of 9 non-poisonous, 2 semi-venomous, and 3 venomous snakes. deadly snakes (V). Non-venomous (NV) and Semi-venomous (SV) (NV). The following table provides a list of snakes along with their scientific names, family names, abundance levels, IUCN classifications, and Wildlife Protection Act (WLPA) status.



Sr No	Common Name	Local Name	Scientific Name	Family	Venom Status	IUCN status	WLPA Status	Abundance
1	Little File Snake	Bamutya, Bhaner	Acrochordus granulosus SCHNEIDER, 1799	Acrochordidae	NV	LC	Schedule IV	UC
2	Common Sand Boa	Furshya	Eryx conicus SCHNEIDER, 1801	Erycidae	NV	LC	Schedule IV	C
3	Common Vine Snake	Harantol	Ahaetulla oxyrhyncha (Bell, 1825)	Colubridae	SV	NA	NA	R
4	Banded Racer	Dhulnaagin	Argyrogena fasciolata SHAW, 1802	Colubridae	NV	NA	NA	R
5	Common Wolf Snake	Kavdya	Lycodon aulicus LINNAEUS, 1758	Colubridae	NV	LC	Schedule IV	C
6	Common Kukri Snake,		Oligodon arnensis SHAW, 1802	Colubridae	NV	LC	Schedule IV	C
7	Rat Snake	Dhaman, Aadalvaat	Ptyas mucosa LINNAEUS, 1758	Colubridae	NV	LC	Schedule IV	VC
8	Striped Keelback	Naaneti	Amphiesmatolatum LINNAEUS, 1758	Colubridae	NV	LC	Schedule IV	VC
9	Checkered Keelback	Paanshita, Virola	Xenochrophis piscator SCHNEIDER, 1799	Colubridae	NV	LC	Schedule IV	VC
10	Common Krait	Suryakanda r, Kandaari	Bungarus caeruleus SCHNEIDER, 1801	Elapidae	V	NT	Schedule II	C
11	Spectacled Cobra,	Naag	Naja (Naja) naja LINNAEUS, 1758	Elapidae	V	LC	Schedule II	VC
12	Glossy Marsh Snake	Khajansarp	Gerardaprevostiana EYDOUX & GERVAIS, 1837	Homalopsidae	SV	NA	NA	UC
13	Russell's Viper,	Raktya Jogi, Kaamblyajogi	Daboia russelii SHAW & NODDER, 1797	Viperidae	V	VU	Schedule II	VC
14	Brahminy Worm Snake	Vaala	Indotyphlops braminus DAUDIN, 1803	Typhlopidae	NV	NA	NA	UC

III. RESULT

Snakes Of Panje	
Non-Venomous	
	

Brahminy Worm Snake	Common Wolf Snake
Family: Typhlopidae Genus: Indotyphlops Species: I. braminus	Family: Colubridae Genus: Lycodon Species: L. aulicus
Distinctive character 1. It is one of the smallest snakes in India. 2. Brown or reddish-brown in color. The underside is lighter in color 3. Body is thin, cylindrical with closely placed shiny scales. 4. Eyes are very small and visible under magnification only. 5. Round tail has pointed tip.	Distinctive character 1. It is nocturnal, climbs vertical walls in search of geckos. 2. It found commonly near human habitation, generally prefers old houses or heaps of rubble. 3. Feeds mainly on geckos and occasionally on skinks and frogs.
	
Common Kukri Snake	Striped Keelback snake
Family: Colubridae Genus: Oligodon Species: O. arnensis	Family: Colubridae Genus: Amphiesma Species: A. stolatum
Distinctive character 1. The colour of banded kukaris is reddish or greyish brown, and they have 10–20 black or dark brown bands on them. 2. The top of the head has a characteristic chevron or arrowhead design. 3. The underside is white. 4. The eyes are round and have pupils, the skull is slender with a blunt tip, and the scales are smooth and glossy. 5. The sharp, curved fangs that give kukari snakes their name are perfect for grabbing powerful prey like geckos.	Distinctive character 1. A water snake, that is. 2. The body is a light or dark brown hue overall, with two vivid tan or yellow stripes going down the length of the body, notably on the back half. 3. The chin, mouth area, and sides of the head are white or yellow, and the skull is light brown in colour. 4. There are two dark lines below each eye.

	
Checkered Keelback	Common Sand Boa
Family: Colubridae Genus: Xenochrophis Species: X. piscator	Family: Boidae Genus: Eryx Species: E. conicus
Distinctive character 1. Vary in hue from black with faint patterns to bright yellow with black-and-white characteristics. a striped design. 2. The head is obtusely pointed and distinct from the neck, and there are one or two conspicuous black eye streaks. 3. The underside is often bright white and polished. 4. The snout of the animal has high nostrils that make breathing in water easier.	Distinctive character 1. Eryx conicus has a sturdy, cylindrical body that can grow to a length of 1.2 metres. 2. It has small eyes and nostrils on a large, triangular head. Its body is covered in smooth scales, and its back is lined with a row of tiny spines. 3. Eryx conicus's colour varies, but it often has a dark brown or reddish-brown background hue with sporadic lighter spots or bands. Usually, the underside of an animal is lighter in colour than the rest of it. 4. Eryx conicus behaviour under duress or assault. Instead of running, it will curl up tightly and tuck its head and tail under to protect weak spots.
	
Banded Racer	Rat Snake

Family: Colubridae Genus: Argyrogena Species: A.fasciolata	Family:Colubridae Genus: Ptyas Species: P. mucosa
Distinctive character 1.It can be pale or dark brown, and the younger ones have regularly spaced white crossbands. 2. There is a little head to neck ratio. The nose has a faint point. 3. The scales are shiny but smooth.	Distinctive character 1.Rat snakes can range in colour from pale yellow (on planes) to jet black (in the hills), with a variety of green, olive, and brown hues in between. 2. The cross bars on the underside are frequently extremely pronounced. 3. Black horizontal marks on the lower lip are frequent 4. The snake's body is uniform in colour, but the interscale marks on its skin are visible when it puffs itself up in defence. 5. There are big eyes. 6. The tail, which has a length of 2.5 metres, makes up more than one-third of the body.
	
Marine File Snake	
Family: Acrochordidae Genus: Acrochordus Species: A. granulatus	
Distinctive character 1.The smallest member of the Achrochordidae family, the little file snake or marine file snake, can reach lengths of 122 cm. 2. Due to the presence of dark stripes on their rough bodies and similar heads, sea snakes (Subfamily Hydrophiinae) look quite similar to it morphologically. 3. Although the tail is compressed, it is not "oarlike," which is a distinguishing feature of sea snakes. Moreover, the head and body scales of A. granulatus are extremely small and difficult to count, whereas they are present in countable and defined boundaries in sea snakes. 4. This species is frequently caught in a fishing net and is one of the more widespread marine snakes in its habitat.	
Semi-Venomous	

	
Glossy Marsh Snake	Green Vine Snake
Family: Homalopsidae Genus: Gerarda Species: G. prevostiana	Family: Colubridae Genus: Ahaetulla Species: A. oxyrhyncha
Distinctive character 1. It is a tiny snake that can reach a length of 52 cm. 2. Its top body is a glossy reddish-brown, brown, or grey colour. Its underbelly is pale and either midlined or speckled with grey. 3. Its upper lip is cream in colour, and the edges of its scales are either grey or brown. 4. It has dark edged, seemingly finely reticulated dorsal scales on the tail, and occasionally the entire dorsal surface.	Distinctive character 1 Long and slender body: Ahaetulla oxyrhyncha can reach a length of 1.8 metres and has a long, slender body. 2. Long, pointed snout: This feature provides the animal a distinctive look and makes it easier for it to catch prey. 3. Brilliant green colouring: Ahaetulla oxyrhyncha's body is a bright green colour, which aids in its ability to blend in with the surroundings and avoid being seen by predators. 4. Yellow or white ventral scales: This characteristic of A. oxyrhyncha's ventral scales is helpful for identification. 5. It has big, distinctive horizontal pupils in its eyes, indicating that it is a diurnal species that hunts during the day. It also has enormous eyes. 6. Precise tail: Ahaetulla oxyrhyncha has a prehensile tail that it may use to climb and move through the woods. It can wrap its tail around branches or other objects.
Venomous	

	
Indian Spectacled Cobra	Common Krait
Family: Elapidae Genus: Naja Species: N. naja	Family: Elapidae Genus: Bungarus Species: B. caeruleus
Distinctive character 1. It has smooth scales, black eyes, a wide neck, a head with a medium body, and a head. 2. Colors range from dark brown or black to yellowish white. 3. The underside typically has a broad, dark neck band and is white or yellowish. 4. The renowned hood insignia of the traditional style displays a linked pair of ring-shaped cobras. 5. In India, it is the most prevalent and lethal snake. It lifts itself off the ground in times of excitement.	distinctive personality 1. Smooth, glossy, bluish-black snakes with rounded heads that are marginally different from the neck are known as common kraits. 2. Normally, there are slender white crossbands. 3. It has a white underside. 4. Scale forms are hexagonal.
	
Russell's viper	
Family: Viperidae Genus: Daboia Species: D. russelii	
Distinctive character 1. Russell's vipers have thick, rough scales, vertical pupillary lines, and typically quite vivid patterns. 2. The body is often brown or yellowish, and the pattern consists of dark, rounded dots that are bordered by white and black.	

IV. DISCUSSION

Heatwole (1982) asserts that reptile species are not evenly distributed over space but rather inhabit particular microhabitats. The cobra, krait, russell's viper, and saw-scaled viper are the four main venomous biting species found on the Indian subcontinent, which is also home to a wide variety of non-venomous snake species. A variety of snake species have been documented in previous research, including Joshi (2011)'s report of 22 species in the Buldhana area and Nande and Deshmukh's report of 32 species in the Amravati district. In the Malegaon Tehsil of the Washim District, snake species belonging to 15 venomous, 4 non-venomous, and 1 semi-venomous species were identified by Ingale, Bali, and Khandale (2018). At Bhadrawati, District Chandrapur, Harney (2011) did a study on snakes. He found 17 species across six families, including four dangerous, 12 non-poisonous, and one semi-venomous snake species.

In Thane, Maharashtra, India, Walmiki N. et al. (2012) undertook a study on the herpetofauna of the Bassein fort and the adjacent area. They found a wide variety of reptiles and amphibians in the area, including 23 different species of snakes, 3 skink species, 5 different gecko species, 3 different lizard species, 1 terrapin species, 1 species of turtle, 5 different species of frogs, and 1 species of toad.

Other studies have also looked at the diversity of reptiles in various parts of India. For example, Lewis et al. (2010) discovered 28 snake species while conducting fieldwork in North Karnataka and South-West Maharashtra, while Karangutkar et al. (2013) identified 10 snake species in the Kolak estuary in Vapi, Gujarat. In their 2014 study, Raut S.R. and colleagues found 15 non-poisonous, 3 semi-venomous, and 7 venomous species of snakes in the Palghar district, more specifically in Palghar, Manor, and Saphale.

Our research, which had not previously been done, concentrated on the snake diversity of Panje-Dongri in the Raigad district. The presence of 9 non-poisonous, 2 semi-venomous, and 3 venomous snake species is revealed by our research, underscoring the significance of our work for biodiversity preservation.

V. CONCLUSION

During our study, we observed 14 species of snakes amongst which 9 were non-venomous. There were 3 snakes that were venomous, 2 that were semi-venomous, and 2. Several reptiles can thrive in the region's hilly topography and lush green seashore. According to the studies mentioned above, there are 14 different species of snakes in the Panje-Dongri region, which are divided into 7 families. The results of this study show that there are many different kinds of snakes in this area, including those that are rare. It will aid in educating people about the Panje-Dongri snake biodiversity and promoting its preservation. The protection of snakes and the other flora and animals found there may be greatly aided by the designation of this region as a Protected Area (PA).

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