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Study of tumbled snakes in open wells, a nightmare for snakes in western Maharashtra

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ABSTRACT

Open wells are earliest system to harvest ground water and still they are in practice. Generally, these open wells are not covered or protected. Wild species falls down in these open wells when they are chased by predator species, when they are fighting with each other or accidentally fall down in these open wells. During the period of March, 2019 to June 2021, Animal Rahat teams rescued 41 snakes from wells and water reservoirs. During the study periodonly four species of snakes were found viz. Russell's vipers, Indian Spectacled Cobras, Indian Rat Snakes and Red sand boas. Out of four species commonly tumbled snake's species are Russell's viper, Indian Spectacled Cobra and Indian Rat Snake. Red Sand boa was found once in study period. Most of the time Russell's viper snake fell down in the well during the study period, i.e. out of total rescued snakes from well, Russell's viper were more than 50 percent of them. During study period, snakes were fall down and rescued round the year from the wells, but more than 60% of snakes were rescued during summer season.

Key words : *Snakes, Open well, Summer season, Russell's viper, Indian Spectacled Cobra, Indian Rat Snake.*

Introduction

Snakes are found in all parts of world including oceans, some of the harshest and more environmentally unstable ecosystem on the earth except on the poles and Antarctica. (Rakesh K Rai, 2020). Snakes are under sub-order serpents of order squamata. India covers approximately 10 % of the total snake species found in the world, adding up 304 species from 36 families to the common count. (Aengals *et al*., 2018). Humans are mostly envenomed by four of these species that encroach upon human habitats and agricultural fields as well as the areas around them, namely: Spectacled Cobra (*Naja naja*), Common Krait (*Bungarus caeruleus*), Russell's viper (*Daboiarusselii*), and Saw Scaled Viper (*Echis carinatus*). Snakes are well known for their hibernation and aestivation. It is possible due to their ability to survive without feeding for a long duration. Human – snake interactions has always been associated with different outcomes. Human snake encounters with negative results such as animal death, habitat destruction, injuries to people and injuries to wildlife are common (Magige, 2012). Another special character of snakes is said to be friends of farmers because they are natural predators of harmful rodents and insects in agriculture fields, but in India, due to the lack of awareness amongst the farmers and people in the rural area hundreds of snakes are killed by people.

Open wells are perhaps the earliest system to harvest ground water and still they are in practice. Gen-

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erally, these open wells are not covered or protected by farmers, while guidelines of central and various state government are placed in system for protecting or covering all open wells and bore wells (Chittora *et al.*, 2020). Wild species falls down in these open wells when they are chased by predator species, when they were fighting with each other or accidentally fall down in these open wells due to low visibility during rainy season (Gubbi *et al.*, 2019).

Review of data

Animal Rahat provides free veterinary treatment services to animals including wild animals and birds at Solapur, Sangli, Satara and Kolhapur district of western Maharashtra. Along with providing free treatment services, teams also rescue animals including wild animals from various precarious situations. Animal Rahat staffers are trained for rescuing animals especially from deep open wells. During the period of March, 2019 to June 2021, Animal Rahat teams rescued 41 snakes from wells and water reservoirs and four species of snakes were rescued *viz.* Russell's vipers, Indian Spectacled Cobras, Indian Rat Snakes and Red sand boas.

Results

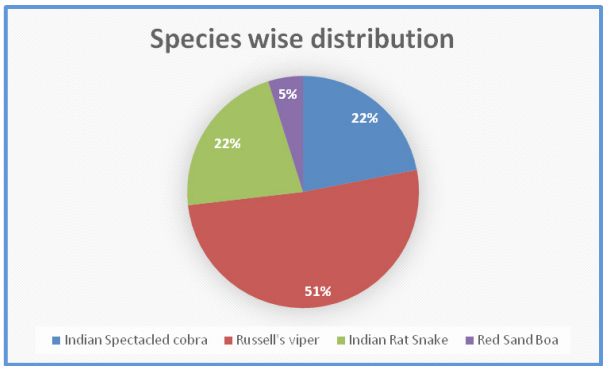
Out of four species commonly tumbled snake's species are Russell's viper, Indian Spectacled Cobra and Indian Rat Snake. Red Sand boa was found once in study period. Most of the time Russell's viper snake fell down in the well during the study period, i.e. out of total rescued snakes from well, Russell's viper were more than 50 percent of them.

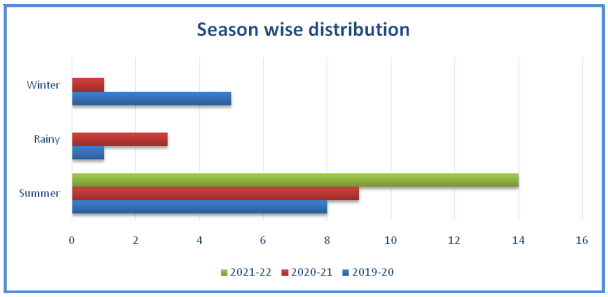
Table 1. Distribution of rescued snakes as per their species

SN	Species of Snake	Number of snake
1	Indian Spectacled cobra	9
2	Russell's viper	21
3	Indian Rat Snake	9
4	Red Sand Boa	2
	Total	41

Table 2. Distribution of rescued snakes as per season

	Summer (Mar-June)	Rainy (July-Oct)	Winter (Nov-Feb)
2019-20	8	1	5
2020-21	9	3	1
2021-22	14		
Total	31	4	6





During study period, snakes fell down and rescued round the year from the wells, but mostly (more than 60%) were rescued during summer season.

Fig. 1. Russell's viper in well

Fig. 2. Indian Spectacled Cobra fallen in deep well

Fig. 3. Indian Rat Snake in the well

Fig. 4. Red sand boa/earth boa in the well

Discussion

Snakes were rescued from well which are mostly near to villager's house especially in agricultural farms. Many unused things like pipes, tyres, heap of dung cakes, heap of food/fodder for animals etc., are being near to their houses where snakes get space for hiding. Gangadhar *et al*., (2016) reported that snake habitat and they hide at drainage pipe, in bushes, termite mounds, wooden logs, fallen leaves, rocks, old tyres, etc. Indian Rat snakes, Russell's viper, Indian Spectacled Cobra feed mainly rats, frog, birds, small mammal fishes (Ghosh *et al*., 2020) and also eggs and nestling's birds. Mostly Baya weavers bird prepared their nest at tree branches inside (Gangadhar *et al*., 2016). Habitat and food habit of these snakes are predominant factor for falling down in well accidentally.

Total 41 snakes were rescued from well during the study period and out of these, more than 60 percent snakes were rescued during warmer month in a year as snakes are encountered mostly during the afternoon hours and it is common during the dry seasons because snake's activity is dependent primarily on temperature and relative humidity, and most species become active during dry seasons. Snakes are typically more active during the warmer months and hours of the day. During cool periods they aestivate in burrows, under large boulders and in standing deadtrees (Hezron *et al*., 2015).

Snakes may fall down in wells during any time in a year, but mostly was recorded in warmers months. This might be due to mostly snakes breed in warmer month as female snake have thermal requirement for embryogenesis (Richard Shine, 2003) and during mating male snakes do extensive movement to find mate and moves around in ways that maximize their probability of encountering a receptive female (i.e. move more and often in straight lines or in specific habitats where females are concentrated). During the mating season, males of many snake species engage in highly ritualized physical struggles during the mating season, typically involving intertwining wrestling matches; biting may sometimes be involved (Richard Shine, 2003), these extensive movement of snake might be reason for falling down in well accidentally as around well is common habitats for these snakes.

During study period, 41 snakes were rescued, all of them were long snakes of Russell's Viper, Indian Spectacled Cobra and Indian Rat Snake species. More than fifty percent (51%) of rescued snakes were Russell's viper as they fall accidentally in well easily due to their stouter body (Harvey, 1983) and short tail which may not support for holding while falling.

Conclusion

In open well, mostly three species of snakes viz. Russell's Viper, Indian Spectacled Cobra & Indian Rat Snake mostly fall down in well during warmer months of year, out of them Russell's viper was highest.

Conflict of Interests

The authors declare that they do not have any competing interests.

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