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Research Article

DENSITY ESTIMATES AND SPATIO-TEMPORAL ACTIVITY PATTERN OF SHARMA'S SKINK (*EUTROPIS NAGARJUNI*)

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ABSTRACT

The present study deals with density and spatio-temporal activity pattern of Sharma's Skink. A total of 126 sightings were found during the study period. Among the 126 individuals sighted, 95 (75%) individuals were of adults and 31 (25%) individuals were of juveniles (including sub adults and juveniles). Most of the sightings were recorded in the rocky hill area (N=46, 36.5%), followed by agricultural fields adjacent to the rocky hill areas (N=38, 30.2%) and wetland area (N=16, 12.7%). Micro habitat Preference of Sharma's skink is observed high in the leaf litter (N=35, 27.7%) and the rocks/stones (N=33, P=26.1%). Presently population is facing threat from anthropogenic events like extraction of rocks for building construction purposes, rock mining activities to extract concrete. The threats may cause loss not only to this taxon but also to the many species that share the habitat.

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INTRODUCTION

Sharma's Skink (*Eutropis nagarjunii*) (Sharma, 1969) is an endemic species to Peninsular India and very little information is known about its ecology (Srinivasulu *et al* 2005 & Srinivasulu and Srinivasulu 2009). The International Union for Conservation of Nature (IUCN) has listed it as Near Threatened (NT) (IUCN 2014), as that may be considered threatened with extinction in the near future, although it does not currently qualify for the threatened status. The species is not protected under the Indian Wildlife (Protection) Act, 1972. However, capturing and hunting is prohibited in the protected areas.

Sharma's Skink *Eutropis nagarjuni* is a scincid species found in the Deccan plateau of peninsular India and was described by Sharma (1969) based on the specimens collected from hills 3 Km south of Vijaypuri South (16°35'N & 79°28'E; 170 m asl) on the right bank of River Krishna in south-eastern part of the Deccan (i.e., Andhra Pradesh State). Sharma's skink is a poorly-known species with very limited published data, except for some taxonomic notes (Srinivasulu and Das 2008,

Srinivasulu *et al* 2005). Virtually no information exists on its population trends, spatial ecology, courtship, breeding behaviour and perceived natural (non-anthropogenic) threat. In the present paper, we discussed some ecological aspects of the Sharma's Skink (*Eutropis nagarjuni*) in the parts of Telangana.

METHODOLOGY

The surveys were conducted in select sites located in the eastern parts of the Deccan Plateau (in Telangana State). Details of the study sites are given in Table 1. The study was conducted from August 2010 to November 2012. The study area comprises the reserve forest which is surrounded by Nagarjuna Sagar Reservoir. The area covered with various types of habitats viz, Scrub Jungle, Rocky hills, Agriculture fields and wetlands (mainly back waters of Nagarjuna Sagar reservoir). Rocky hill areas dominated by the tree species like *Albizia amara*, *Wrightia tinctoria*, *Grewia rotundifolia*, *Mimosa sundra*, *Balanites aegyptiaca*, *Dichrostachys cinerea*; shrub species like *Dononae viscosa*, *Euphorbia caducifolia*, *Mundulea sericea*, *Randiadum torum*, *Sansevieria roxburghiana*; and herb species *Waltheria indica*, *Tribulus terrestris*, *Barleria prionitis*, *Carallema adscendens*, *Hemidesmus indicus* etc.

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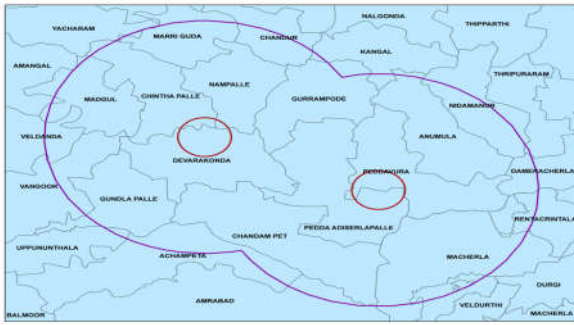


Plate 1 Map showing study area

The scrub jungle is dominated by the species like *Albizia amara*, *Mimosa sudra*, *Dolichadronefalcata*, *Acacia leucophloea*, *Dichrostachys cinerea*; shrub species like *Cadaba fruticosa*, *Capparis zeylanica*, *Azimatetracantha*, *Ziziphus oenoccephala* and herb species like *Aristida funiculata*, *Lepidagathis cristata*, *Tephrosia purpurea* etc.

The major role in determining the climate of the area is played by South-West Monsoon. The monsoon season starts during July and continues till September. The area receives monsoon remains dry in the winter and summer. Since the area is falls under the Reserve Forest (RF), activities like illegal fire wood collection, stone mining, cattle grazing, tree cutting, illegal bird hunting etc. are common.

Study was conducted from August 2010 to November 2012 in selected sites of Nalgonda districts Telangana state (Table: 1).

Table 1 Habitat features of the study sites surveyed for Sharma's skink

Site name	Habitat type(s)	Geo-coordinates	Elevation	Temperature	Rainfall
Peddagattu	Rocky	16.646925° 79.163271°	221 m	33.69	94.1 mm
Sherpalli	Agri, Rocky, Scrub	16.723486° 78.960584°	289 m	34.69	60.3 mm
Chitriyala	Agri, Rocky	16.534676° 78.998010°	391 m	23.98	66.37 mm

Visual encounter survey (VES) was adopted for the study. The skinks encountered were recorded and the following data on the species was collected: viz: namely Number of individuals, age class (adult and juveniles), resting substrate (microhabitat), habitat, perch height, perching height, orientation of animal, activity upon sighting and the nearest neighbouring individual / species were noted. Photographs were taken with Nikon Cool Pix P500 and with hand held GPS Garmin Oregon location of the sightings of species was documented. Identification of the species was done based on the description given by Sharma (1969, 1971 & 1971). The skinks were not captured and handled in the field due to the legal constrains. Sexes can be determined based on the orangish-red stripe on either side of the neck (Srinivasulu et al 2005). However, the sexing of the animals was not done during the study.

OBSERVATIONS AND DISCUSSION

A total of 126 sightings of Sharma's Skink (*Eutropis nagarjuni*) were recorded during the study. Among the 126 individuals sighted, 95 (75%) individuals were of adults and 31 (25%) individuals were of juveniles (including sub adults and

juveniles). The summary of spatio-temporal activity pattern of *Eutropis nagarjuni* is given below in the table: 2.

Most of the sightings were recorded in the rocky hill area (N=46, 36.5%), however few sightings (N=16, 12.7%) were also sighted in wetlands which are surrounded by rocky hillocks.

Sharma's skinks were generally encountered under rocks, stones and leaf litter. Some of the sightings were also recorded in the agricultural fields which are adjacent to the rocky hill areas (N=38, 30.2%). Micro habitat preference of the Sharma's skink was observed to be high in the leaf litter (N=35, 27.7%) followed by under the rocks/stones (N=33, P=26.1%). The nearest sympatric lizards mostly noted are Blanford Rock agama (*Psammodromus blanfordianus*), which is very common in the study area followed by Lacertids. The number of skinks sighted at different habitats varied significantly. The movement and sightings of the skinks also varied from time to time. Most of the sightings were during the morning hours (0700 Hrs to 0900 Hrs) and also during dusk hours (1600 Hrs to 1800 Hrs).

Table 2 Summary of spatio-temporal activity pattern of *Eutropis nagarjuni*

Aspect	Parameter	Sighting frequency (N)	Percent sightings (P)
Habitat	Agriculture	38	30.2
	Rocky hills	46	36.5
	Scrub Jungle	26	20.6
	Wetland	16	12.7
	Ground	19	15
Microhabitat	Leaf litter	35	27.7
	Rock/Stone	33	26.1
	On Stick	7	5.5
	Stone gravel	18	14.2
	Under rock	14	11.1
Activity	Feeding	10	10
	Moving	62	63
	Perching	3	3
	Resting	24	24
Orientation	Rock surface	18	38.3
	Blanford Rock Agama	11	26
Sympatric lizards	Common Garden Lizard	5	12
	Common Skink	9	21
	Fan Throated lizard	7	17
	Lacertid spp.	10	24

*(Note: N= number of observations; P= Percentage)

The present survey clearly reveals that the presence of a good number of Sharma's Skinks in the vicinity of Nalgonda, Mahaboob Nagar, Ranga Reddy districts of Telangana and Guntur district of Andhra Pradesh. Further it also requires a detailed of study its distribution in the other parts of the Telangana and Andhra Pradesh.



Plate 2 A view of the Sharma's Skink and typical habitat of the Sharma's skink

Although it is common in the rocky areas of the study area the population is facing threat from activities like extraction of rocks for building construction purposes, rock mining activities to extract concrete and habitat fragmentation. Majority of the population is distributed in the reserved forest area and the individuals are continuously facing problems for their survival remains threatened. The threats may cause loss not only to this taxon but also to the many species that share the habitat.

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